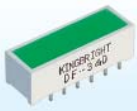
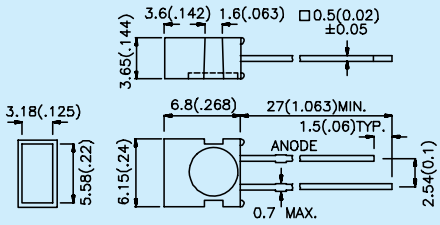
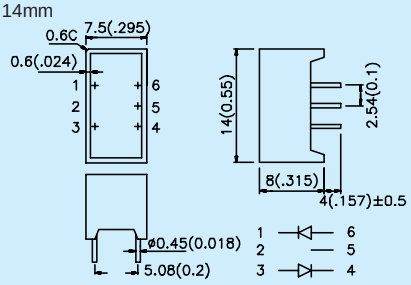
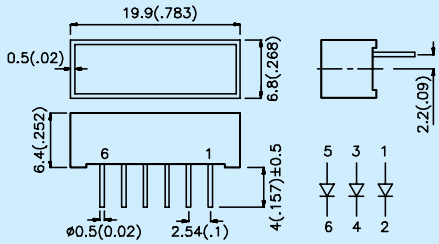
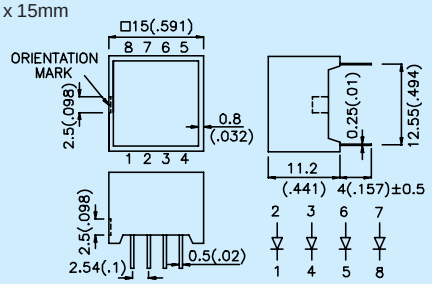
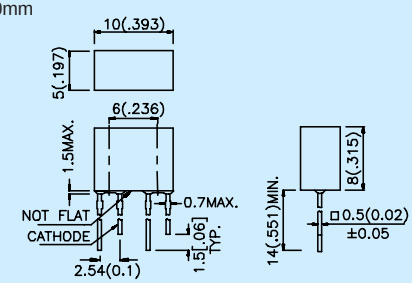
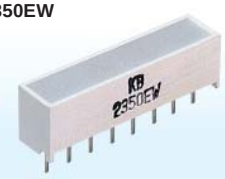
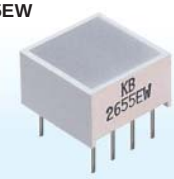
WP1043	DE2	DF3	DE4	WP835/2
				

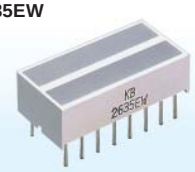
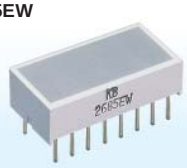
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP1043ID	GaAsP/GaP	625	red diffused	1.8	10	100º	3.65mm x 6.15mm 
WP1043SRD	GaAlAs	640	red diffused	*36	*90	100º	
WP1043YD	GaAsP/GaP	588	yellow diffused	1	4	100º	
WP1043GD	GaP	568	green diffused	1	4	100º	
WP1043SGD	GaP	568	green diffused	*4	*10	100º	
DE2ID	GaAsP/GaP	625	red diffused	8	31	120º	7.5mm x 14mm 
DE2SRD	GaAlAs	640	red diffused	*70	*300	120º	
DE2YD	GaAsP/GaP	588	yellow diffused	8	31	120º	
DE2GD	GaP	568	green diffused	12	52	120º	
DE2SGD	GaP	568	green diffused	*18	*80	120º	
DF3ID	GaAsP/GaP	625	red diffused	8	31	120º	6.8mm x 19.9mm 
DF3SRD	GaAlAs	640	red diffused	*70	*300	120º	
DF3YD	GaAsP/GaP	588	yellow diffused	8	31	120º	
DF3GD	GaP	568	green diffused	12	52	120º	
DF3SGD	GaP	568	green diffused	*36	*100	120º	
DE4ID	GaAsP/GaP	625	red diffused	8	31	120º	15mm x 15mm 
DE4SRD	GaAlAs	640	red diffused	*70	*300	120º	
DE4YD	GaAsP/GaP	588	yellow diffused	8	31	120º	
DE4GD	GaP	568	green diffused	12	52	120º	
DE4SGD	GaP	568	green diffused	*18	*80	120º	
WP835/2IDT	GaAsP/GaP	625	red diffused	5	10	120º	5mm x 10mm 
WP835/2SRDT	GaAlAs	640	red diffused	*18	*60	120º	
WP835/2YDT	GaAsP/GaP	588	yellow diffused	5	10	120º	
WP835/2GDT	GaP	568	green diffused	1.8	5	120º	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KB2300EW	KB2350EW	KB2655EW	KB2600EW
			

Part No.	Emitting Color + Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Dimension
				Min.	Typ.	
KB2300EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	7	40	8.89mm x 3.81mm Size of Light Emitting Areas
KB-A100SRW	Super Bright Red GaAlAs	640	white diffused	18	80	
KB2400YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB2500SGD	Super Bright Green GaP	568	green diffused	7	40	
KB2350EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	19.05mm x 3.81mm Size of Light Emitting Areas
KB-B100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB2450YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB2550SGD	Super Bright Green GaP	568	green diffused	18	70	
KB2655EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	8.89mm x 8.89mm Size of Light Emitting Areas
KB-C100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB2755YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB2855SGD	Super Bright Green GaP	568	green diffused	18	80	
KB2600EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	8.89mm x 3.81mm Size of Light Emitting Areas
KB-D100SRW	Super Bright Red GaAlAs	640	white diffused	36	100	
KB2700YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB2800SGD	Super Bright Green GaP	568	green diffused	10	50	

NOTES:
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KB2620EW	KB2635EW	KB2670EW	KB2685EW
			

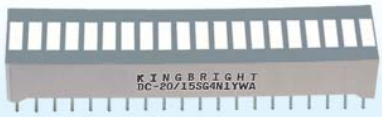
Part No.	Emitting Color + Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Dimension
				Min.	Typ.	
KB2620EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	8.89mm x 3.81mm Size of Light Emitting Areas
KB-E100SRW	Super Bright Red GaAlAs	640	white diffused	18	90	
KB2720YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB2820SGD	Super Bright Green GaP	568	green diffused	7	40	
KB2635EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	3.81mm x 19.05mm Size of Light Emitting Areas
KB-F100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB2735YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB2835SGD	Super Bright Green GaP	568	green diffused	36	100	
KB2670EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	8.89mm x 8.89mm Size of Light Emitting Areas
KB-G100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB2770YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB2870SGD	Super Bright Green GaP	568	green diffused	18	70	
KB2685EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	8.89mm x 19.05mm Size of Light Emitting Areas
KB-H100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB2785YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB2885SGD	Super Bright Green GaP	568	green diffused	50	200	

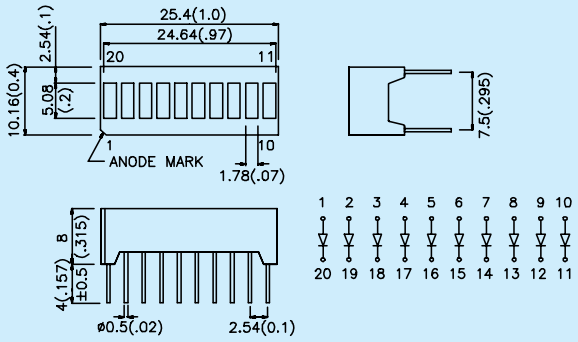
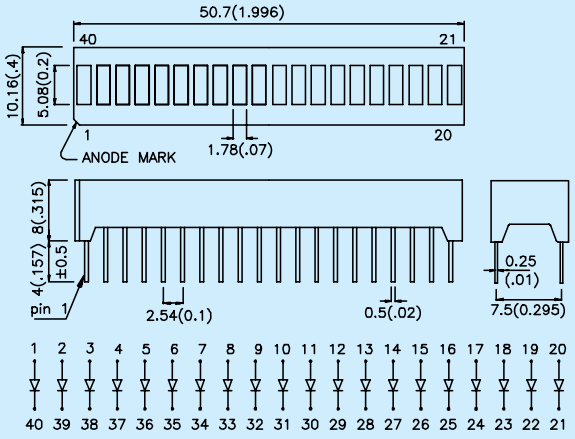
NOTES:
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DC10



DC20/20



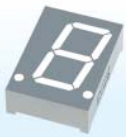
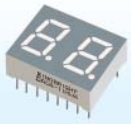
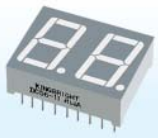
Part No.	Emitting Color + λ D (nm) + Material	Iv (ucd) @10mA Min.	Iv (ucd) @10mA Typ.	Description	Dimension
DC10EWA	Hi.Eff.Red 625 GaAsP/GaP	1900	9000	10 Segments Bargraph-Display Gray Face White Segment	
DC10SRWA	Super Bright Red 640 GaAlAs	8000	31000		
DC10YWA	Yellow 588 GaAsP/GaP	1900	9000		
DC10GWA	Green 568 GaP	1900	9500		
DC7G3HWA	Green 568 GaP	1900	9500	10 Segments Bargraph-Display 7 x Green, 3 x Red Gray Face White Segment	
	Bright Red 660 GaP	480	2200		
DC20/20EWA	Hi.Eff.Red 625 GaAsP/GaP	1900	9000	20 Segments Bargraph-Display Gray Face White Segment	
DC20/20SRWA	Super Bright Red 640 GaAlAs	8000	31000		
DC20/20YWA	Yellow 588 GaAsP/GaP	1900	9000		
DC20/20GWA	Green 568 GaP	1900	9000		

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SX03	SX36	SX39	SX04	SX43	SX05
					

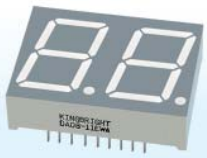
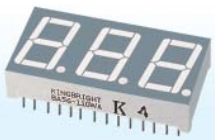
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
SA03-11EWA	SC03-12EWA	0.3 inch (7.62mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	11
SA03-11SRWA	SC03-12SRWA		GaAlAs	640	8000	26000	
SA03-11YWA	SC03-12YWA		GaAsP/GaP	588	800	3000	
SA03-11GWA	SC03-12GWA		GaP	568	1900	8000	
SA36-11EWA	SC36-11EWA	0.36 inch (9.14mm) Gray Face White Segment	GaAsP/GaP	625	480	1900	12
SA36-11SRWA	SC36-11SRWA		GaAlAs	640	1200	6400	
SA36-11YWA	SC36-11YWA		GaAsP/GaP	588	300	1200	
SA36-11GWA	SC36-11GWA		GaP	568	480	1900	
SA39-11EWA SA39-12EWA	SC39-11EWA SC39-12EWA	0.39 inch (9.9mm) Gray Face White Segment	GaAsP/GaP	625	800	4100	13
SA39-11SRWA SA39-12SRWA	SC39-11SRWA SC39-12SRWA		GaAlAs	640	3000	16000	
SA39-11YWA SA39-12YWA	SC39-11YWA SC39-12YWA		GaAsP/GaP	588	800	3000	
SA39-11GWA SA39-12GWA	SC39-11GWA SC39-12GWA		GaP	568	1200	6400	
SA04-11EWA SA04-12EWA	SC04-11EWA SC04-12EWA	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	14
SA04-11SRWA SA04-12SRWA	SC04-11SRWA SC04-12SRWA		GaAlAs	640	4700	18000	
SA04-11YWA SA04-12YWA	SC04-11YWA SC04-12YWA		GaAsP/GaP	588	1200	4700	
SA04-11GWA SA04-12GWA	SC04-11GWA SC04-12GWA		GaP	568	3000	12000	
SA43-11EWA SA43-13EWA	SC43-11EWA SC43-13EWA	0.43 inch (10.92mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	15
SA43-11SRWA SA43-13SRWA	SC43-11SRWA SC43-13SRWA		GaAlAs	640	4700	18000	
SA43-11GWA SA43-13GWA	SC43-11GWA SC43-13GWA		GaP	568	1200	6400	
SA05-11EWA	SC05-11EWA	0.5 inch (12.7mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	16
SA05-11SRWA	SC05-11SRWA		GaAlAs	640	4700	24000	
SA05-11YWA	SC05-11YWA		GaAsP/GaP	588	1200	4700	
SA05-11GWA	SC05-11GWA		GaP	568	1900	10500	

NOTES:
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SX52	SX56	SX08	DX03	DX04	DX56
					

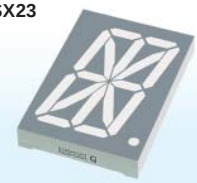
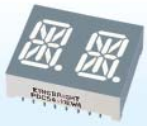
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
SA52-11EWA	SC52-11EWA	0.52 inch (13.2mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	17
SA52-11SRWA	SC52-11SRWA		GaAlAs	640	4700	24000	
SA52-11GWA	SC52-11GWA		GaP	568	1900	10500	
SA56-11EWA SA56-21EWA	SC56-11EWA SC56-21EWA	0.56 inch (14.2mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	18
SA56-11SRWA SA56-21SRWA	SC56-11SRWA SC56-21SRWA		GaAlAs	640	4700	24000	
SA56-11YWA SA56-21YWA	SC56-11YWA SC56-21YWA		GaAsP/GaP	588	1200	4700	
SA56-11GWA SA56-21GWA	SC56-11GWA SC56-21GWA		GaP	568	1900	10500	
SA56-11PBWA	SC56-11PBWA		InGaN	470	1900	10371	
SA08-11EWA SA08-12EWA SA08-21EWA	SC08-11EWA SC08-12EWA SC08-21EWA	0.8 inch (20.32mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	19
SA08-11SRWA SA08-12SRWA SA08-21SRWA	SC08-11SRWA SC08-12SRWA SC08-21SRWA		GaAlAs	640	4700	24000	
SA08-11YWA SA08-12YWA SA08-21YWA	SC08-11YWA SC08-12YWA SC08-21YWA		GaAsP/GaP	588	1200	4700	
SA08-11GWA SA08-12GWA SA08-21GWA	SC08-11GWA SC08-12GWA SC08-21GWA		GaP	568	1900	10500	
DA03-11EWA	DC03-11EWA	0.3 inch (7.62mm) Gray Face White Segment	GaAsP/GaP	625	480	1900	20
DA03-11SRWA	DC03-11SRWA		GaAlAs	640	1900	8000	
DA03-11YWA	DC03-11YWA		GaAsP/GaP	588	300	1200	
DA03-11GWA	DC03-11GWA		GaP	568	800	3000	
DA04-11EWA	DC04-11EWA	0.394 inch (10mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	21
DA04-11SRWA	DC04-11SRWA		GaAlAs	640	4700	18000	
DA04-11YWA	DC04-11YWA		GaAsP/GaP	588	800	3000	
DA04-11GWA	DC04-11GWA		GaP	568	1900	8000	
DA56-11EWA	DC56-11EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	22
DA56-11SRWA	DC56-11SRWA		GaAlAs	640	4700	24000	
DA56-11YWA	DC56-11YWA		GaAsP/GaP	588	1200	4700	
DA56-11GWA	DC56-11GWA		GaP	568	1900	10500	
DA56-11PBWA	DC56-11PBWA		InGaN	470	8000	18000	

NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

DX56	DX08	BX56	PSX39	PSX05
				

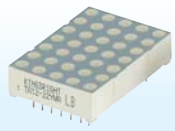
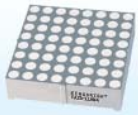
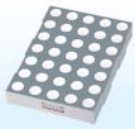
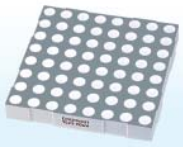
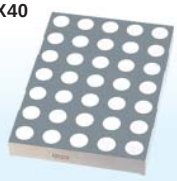
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
DA56-51EWA	DC56-51EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	3000	12000	23
DA56-51YWA	DC56-51YWA		GaAsP/GaP	588	1200	5300	
DA56-51GWA	DC56-51GWA		GaP	568	3000	14400	
DA08-11EWA	DC08-11EWA	0.8 inch (20.32mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	24
DA08-11SRWA	DC08-11SRWA		GaAlAs	640	4700	24000	
DA08-11YWA	DC08-11YWA		GaAsP/GaP	588	1200	4700	
DA08-11GWA	DC08-11GWA		GaP	568	1900	10500	
BA56-11EWA BA56-12EWA BA56-13EWA	BC56-11EWA BC56-12EWA BC56-13EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	25
BA56-11SRWA BA56-12SRWA BA56-13SRWA	BC56-11SRWA BC56-12SRWA BC56-13SRWA		GaAlAs	640	4700	24000	
BA56-11YWA BA56-12YWA BA56-13YWA	BC56-11YWA BC56-12YWA BC56-13YWA		GaAsP/GaP	588	1200	4700	
BA56-11GWA BA56-12GWA BA56-13GWA	BC56-11GWA BC56-12GWA BC56-13GWA		GaP	568	1900	10500	
PSA39-21EWA	PSC39-21EWA	0.39 inch (9.9mm) Gray Face White Segment	GaAsP/GaP	625	1200	3188	26
PSA39-21SRWA	PSC39-21SRWA		GaAlAs	640	3000	13250	
PSA39-21YWA	PSC39-21YWA		GaAsP/GaP	588	480	1278	
PSA39-21GWA	PSC39-21GWA		GaP	568	1200	2679	
PSA05-11EWA PSA05-12EWA	PSC05-11EWA PSC05-12EWA	0.5 inch (12.7mm) Gray Face White Segment	GaAsP/GaP	625	800	4100	27
PSA05-11SRWA PSA05-12SRWA	PSC05-11SRWA PSC05-12SRWA		GaAlAs	640	4700	18000	
PSA05-11YWA PSA05-12YWA	PSC05-11YWA PSC05-12YWA		GaAsP/GaP	588	800	3000	
PSA05-11GWA PSA05-12GWA	PSC05-11GWA PSC05-12GWA		GaP	568	1200	4700	

NOTES:
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PSX08	PSX12	PSX23	PDX54	TX07
				

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
PSA08-11EWA PSA08-12EWA	PSC08-11EWA PSC08-12EWA	0.8 inch (20.32mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	28
PSA08-11SRWA PSA08-12SRWA	PSC08-11SRWA PSC08-12SRWA		GaAlAs	640	4700	18000	
PSA08-11YWA PSA08-12YWA	PSC08-11YWA PSC08-12YWA		GaAsP/GaP	588	800	3000	
PSA08-11GWA PSA08-12GWA	PSC08-11GWA PSC08-12GWA		GaP	568	1200	4700	
PSA12-11EWA	PSC12-11EWA	1.2 inch (30.48mm) Gray Face White Segment	GaAsP/GaP	625	3000	12000	29
PSA12-11SRWA	PSC12-11SRWA		GaAlAs	640	8000	26000	
PSA12-11YWA	PSC12-11YWA		GaAsP/GaP	588	1200	4700	
PSA12-11GWA	PSC12-11GWA		GaP	568	3000	12000	
PSA23-11EWA	PSC23-11EWA	2.24 inch (56.8mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	30
PSA23-11SRWA	PSC23-11SRWA		GaAlAs	640	12000	75000	
PSA23-11YWA	PSC23-11YWA		GaAsP/GaP	588	1900	8000	
PSA23-11GWA	PSC23-11GWA		GaP	568	1900	10500	
PDA54-11EWA PDA54-12EWA	PDC54-11EWA PDC54-12EWA	0.543 inch (13.8mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	31
PDA54-11SRWA PDA54-12SRWA	PDC54-11SRWA PDC54-12SRWA		GaAlAs	640	4700	18000	
PDA54-11YWA PDA54-12YWA	PDC54-11YWA PDC54-12YWA		GaAsP/GaP	588	800	3000	
PDA54-11GWA PDA54-12GWA	PDC54-11GWA PDC54-12GWA		GaP	568	1900	8000	
TA07-11EWA	TC07-11EWA	0.7 inch (18mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	1900	8000	32
TA07-11SRWA	TC07-11SRWA		GaAlAs	640	4700	24000	
TA07-11YWA	TC07-11YWA		GaAsP/GaP	588	1200	4700	
TA07-11GWA	TC07-11GWA		GaP	568	1900	8000	

NOTES:
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TX12	TX15	TX20	TX23	TX24	TX40
					

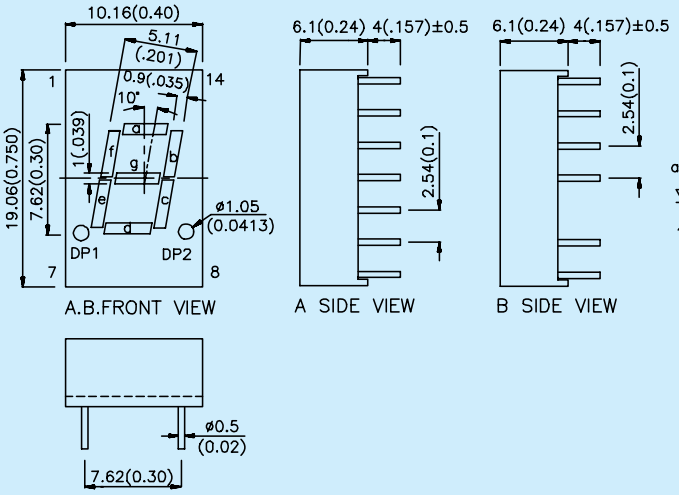
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Column Anode	Column Cathode				Min.	Typ.	
TA12-11EWA	TC12-11EWA	1.2 inch (30mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	1900	8000	33
TA12-11SRWA	TC12-11SRWA		GaAlAs	640	4700	24000	
TA12-11YWA	TC12-11YWA		GaAsP/GaP	588	1200	4700	
TA12-11GWA	TC12-11GWA		GaP	568	1900	10500	
TA15-11EWA	TC15-11EWA	1.5 inch (38mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	1900	10500	34
TA15-11SRWA	TC15-11SRWA		GaAlAs	640	8000	26000	
TA15-11YWA	TC15-11YWA		GaAsP/GaP	588	1900	8000	
TA15-11GWA	TC15-11GWA		GaP	568	3000	16000	
TBA15-11EGWA	TBC15-11EGWA		GaAsP/GaP	625	1900	10500	
			GaP	568	3000	16000	
TA20-11EWA	TC20-11EWA	2.0 inch (50mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	3000	12000	35
TA20-11SRWA	TC20-11SRWA		GaAlAs	640	8000	26000	
TA20-11GWA	TC20-11GWA		GaP	568	3000	16000	
TA23-11EWA	TC23-11EWA	2.3 inch (58mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	1900	8000	36
TA23-11SRWA	TC23-11SRWA		GaAlAs	640	12000	44000	
TA23-11YWA	TC23-11YWA		GaAsP/GaP	588	1900	8000	
TA23-11GWA	TC23-11GWA		GaP	568	1900	10500	
TBA23-11EGWA	TBC23-11EGWA		GaAsP/GaP	625	1900	8000	
			GaP	568	1900	10500	
TBA23-12EGWA	TBC23-12EGWA		GaAsP/GaP	625	1900	8000	
			GaP	568	1900	10500	
TA24-11EWA	TC24-11EWA	2.4 inch (60.8mm) 5x8 Gray Face White Dot	GaAsP/GaP	625	1900	8000	37
TA24-11SRWA	TC24-11SRWA		GaAlAs	640	8000	26000	
TA24-11YWA	TC24-11YWA		GaAsP/GaP	588	1900	8000	
TA24-11GWA	TC24-11GWA		GaP	568	3000	12000	
TBA24-11EGWA	TBC24-11EGWA		GaAsP/GaP	625	1900	8000	
			GaP	568	3000	12000	
TBA24-22EGWA	TBC24-22EGWA		GaAsP/GaP	625	1900	8000	
			GaP	568	3000	12000	
TA40-11EWA	TC40-11EWA	4.0 inch (100mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	3000	16000	38
TA40-11SRWA	TC40-11SRWA		GaAlAs	640	12000	44000	
TA40-11YWA	TC40-11YWA		GaAsP/GaP	588	1900	8000	
TA40-11GWA	TC40-11GWA		GaP	568	4700	24000	
TBA40-11EGWA	TBC40-11EGWA		GaAsP/GaP	625	3000	16000	
			GaP	568	8000	24000	
TBA40-12EGWA	TBC40-12EGWA		GaAsP/GaP	625	3000	16000	
			GaP	568	4700	24000	

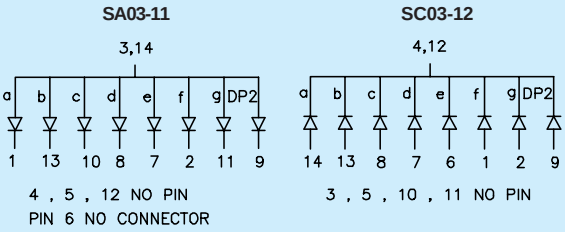
NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SA/SC03 Series

11

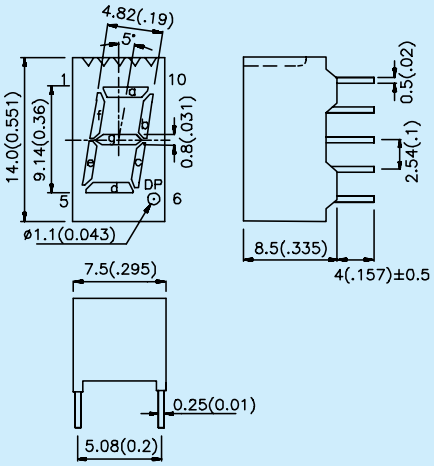
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B: SC03-12

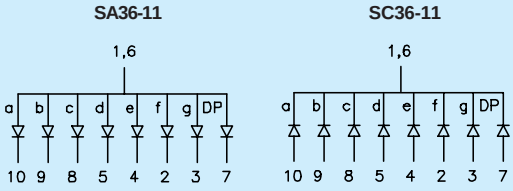




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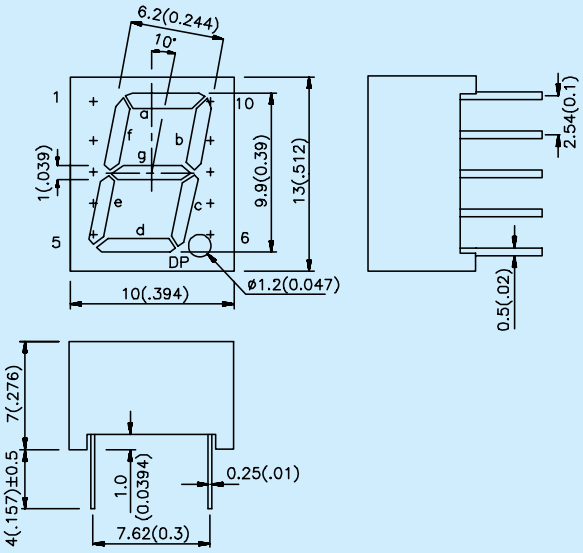
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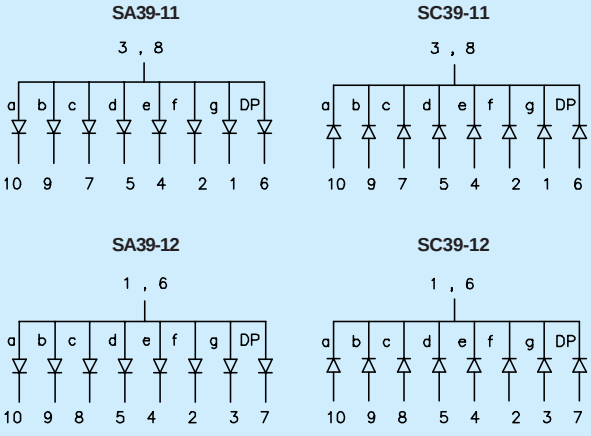




SA/SC39 Series

13



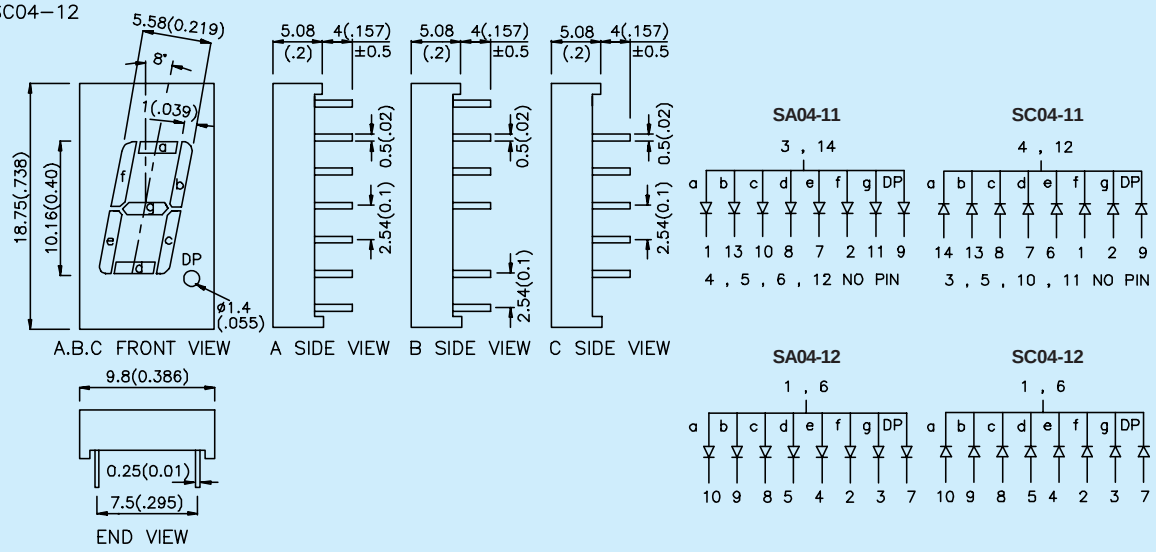


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SA/SC04 Series

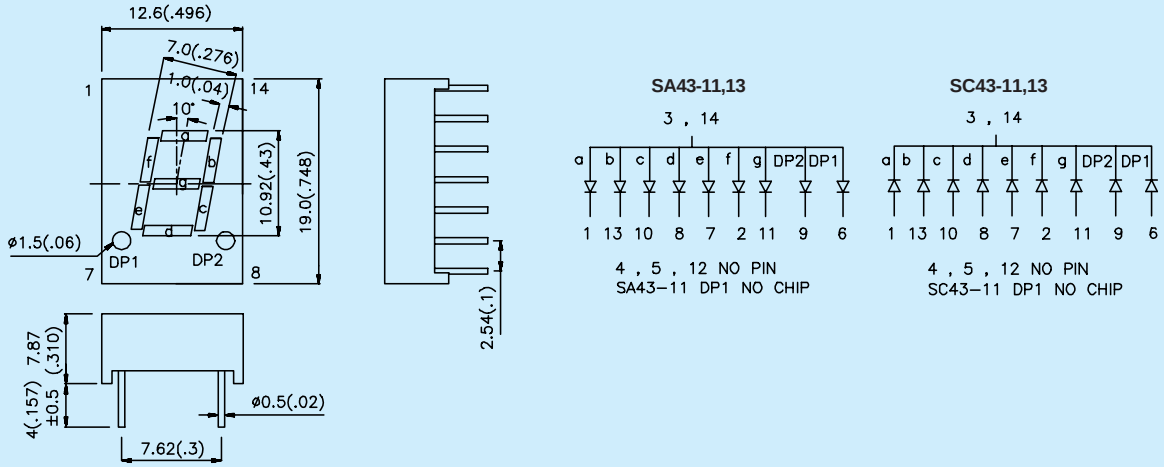
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A: SA04−11
B: SC04−11
C: SA/SC04−12



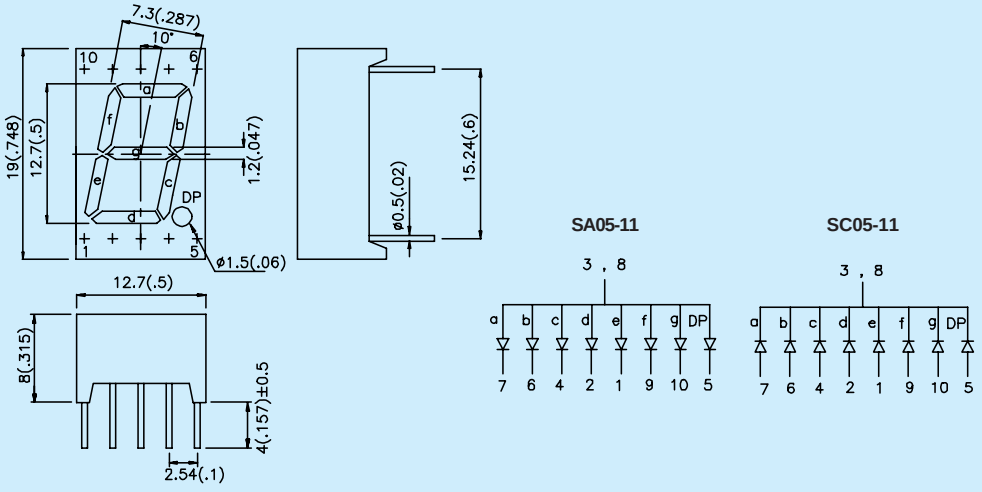
SA/SC43 Series

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SA/SC05 Series

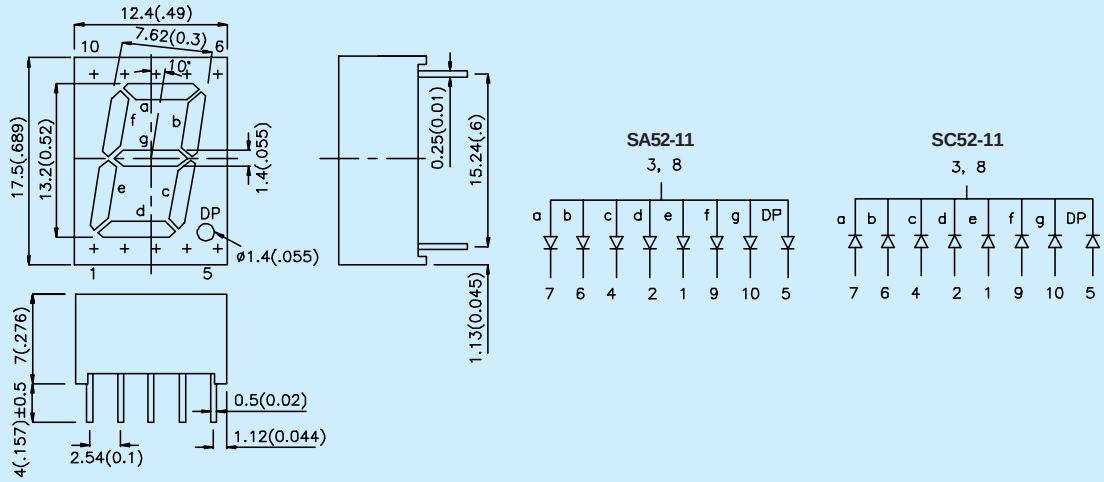
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NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

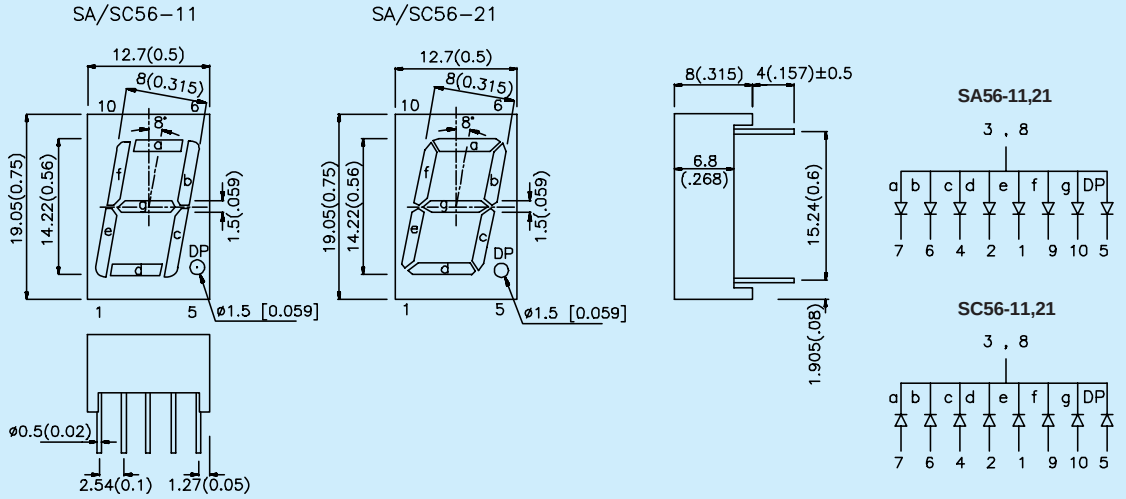
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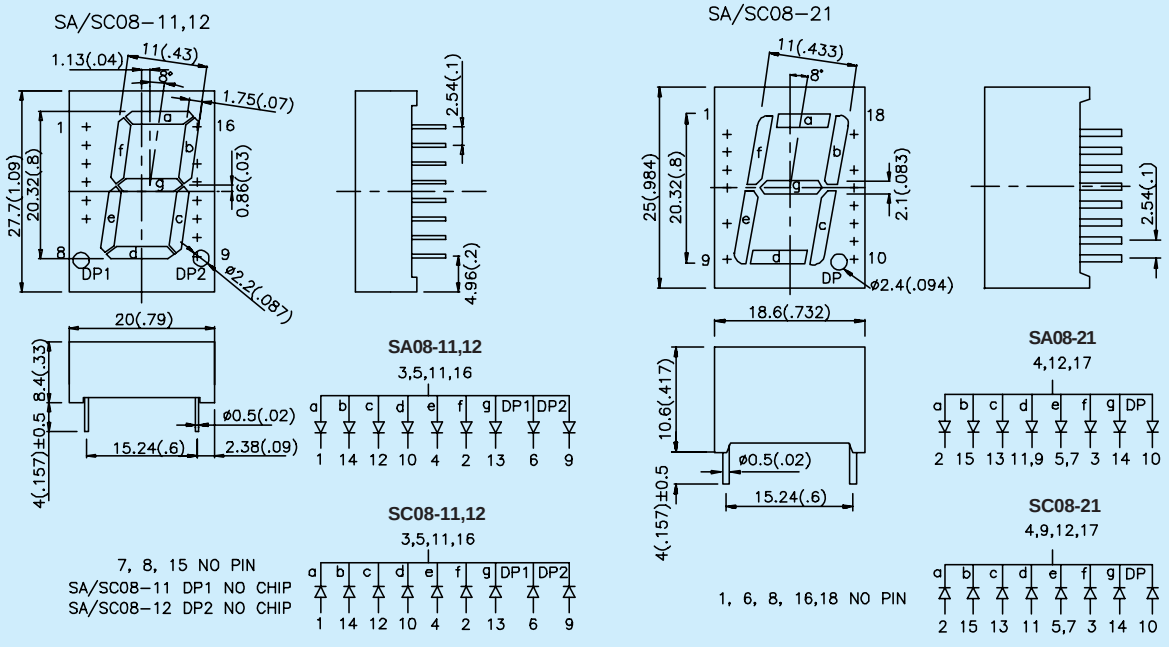
SA/SC56 Series

18



SA/SC08 Series

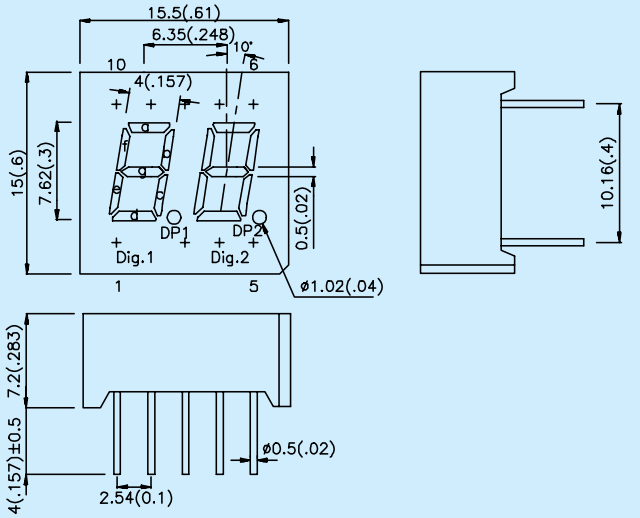
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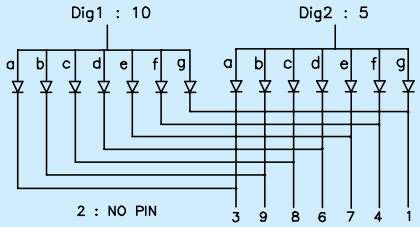
NOTES:
1. All dimensions are in millimeters(inches).
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DA/DC03 Series

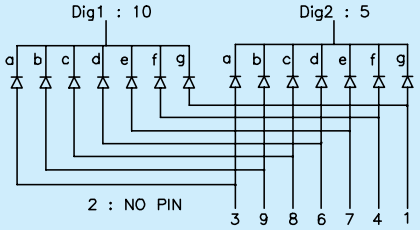
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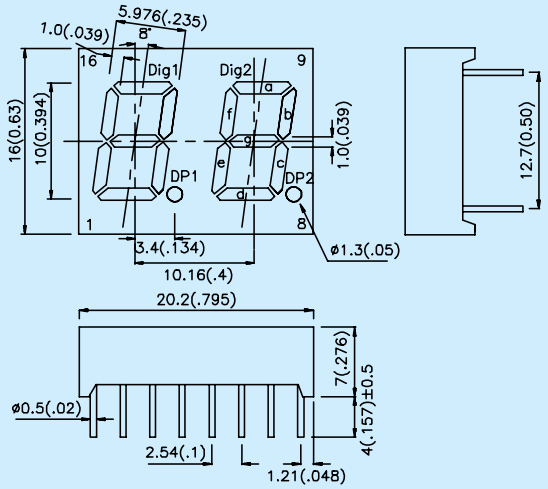


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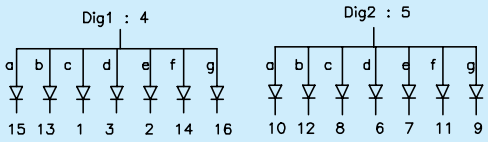


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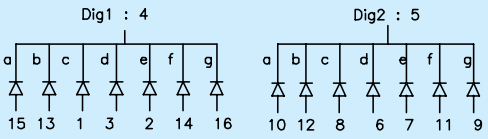
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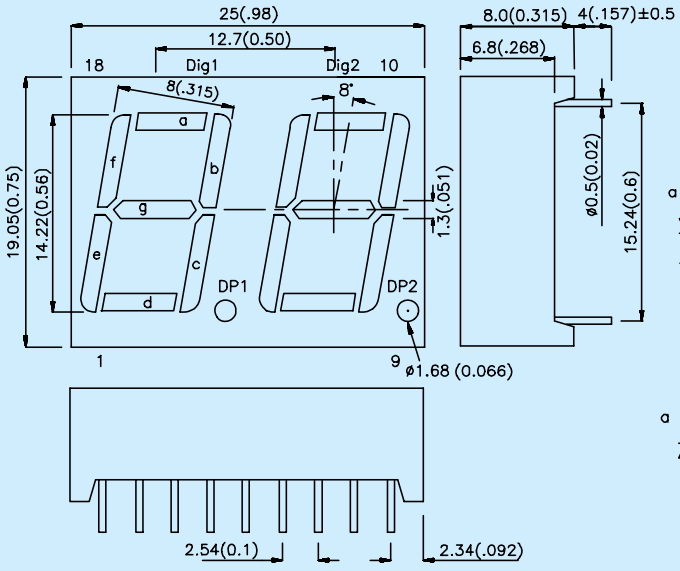


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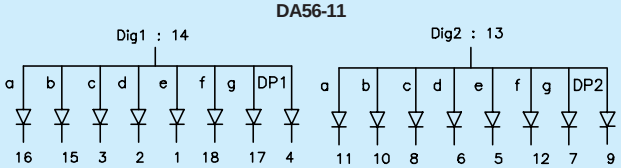


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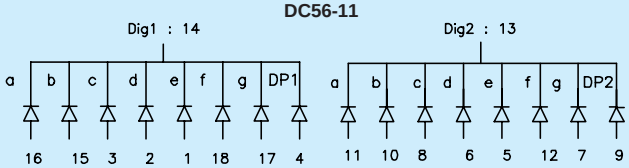
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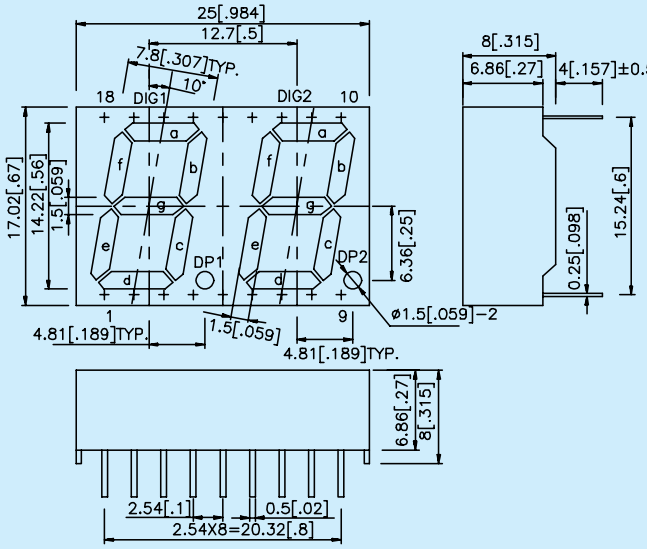


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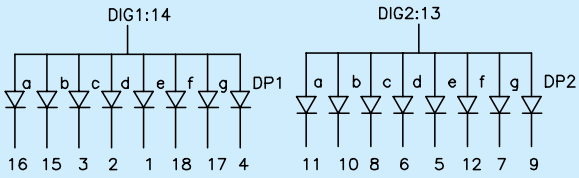


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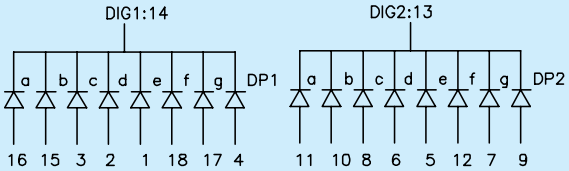
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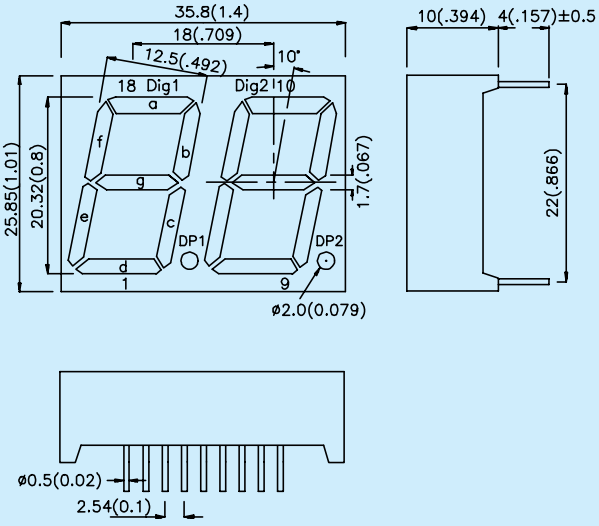
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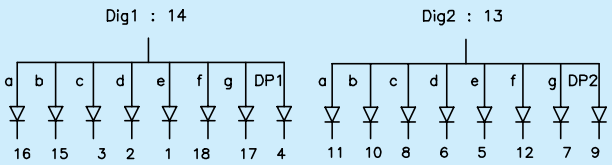
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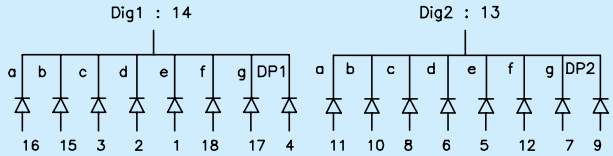
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DA08-11



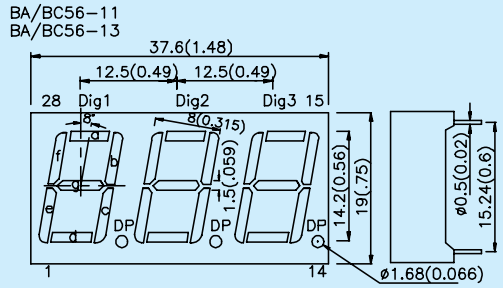
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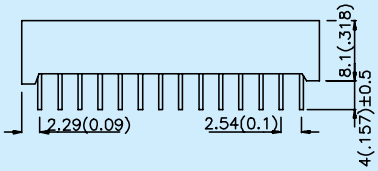


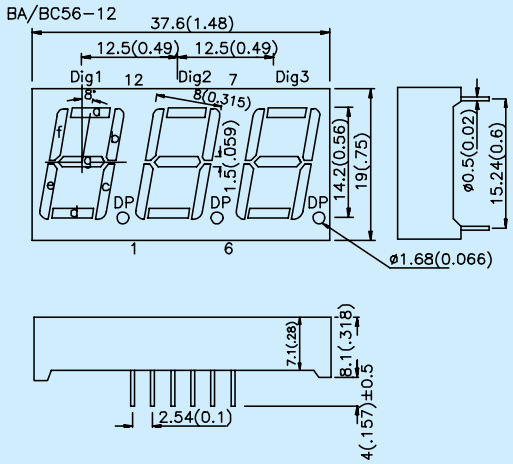
NOTES:
1. All dimensions are in millimeters(inches).
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BA/BC56 Series

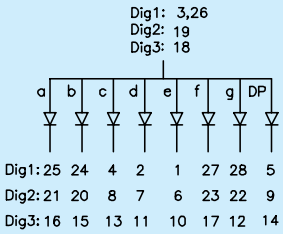
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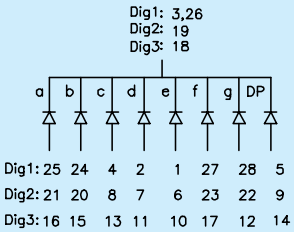




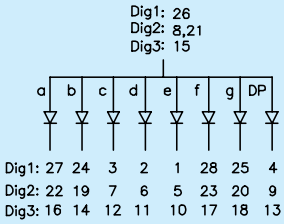
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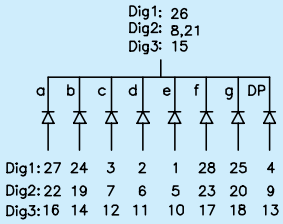
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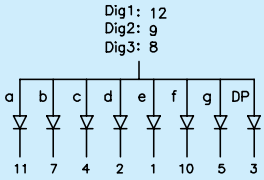
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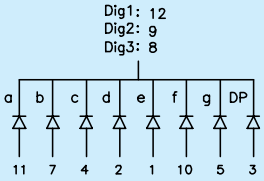
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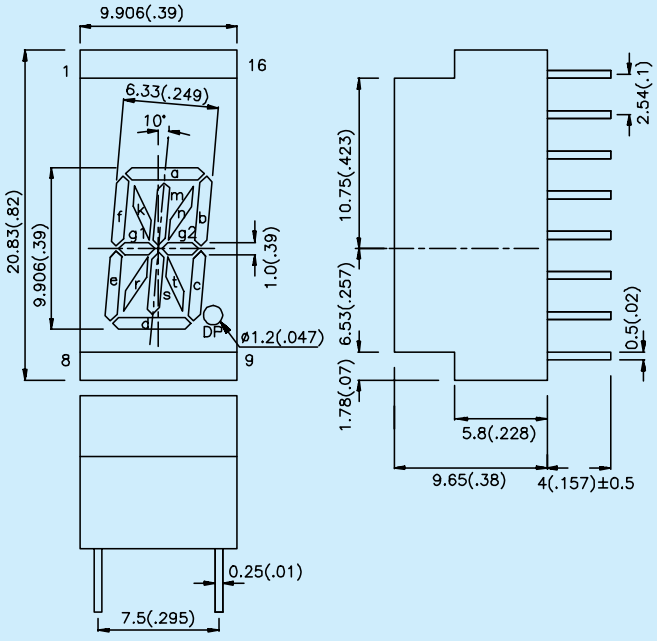


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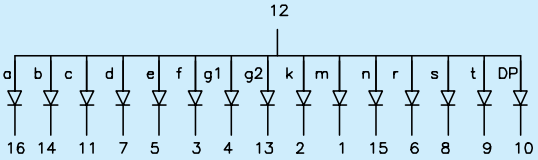


PSA/PSC39 Series

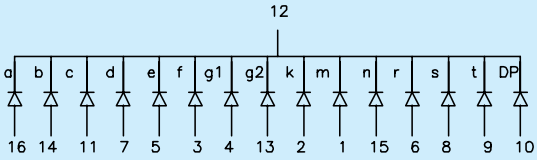
26



PSA39-21



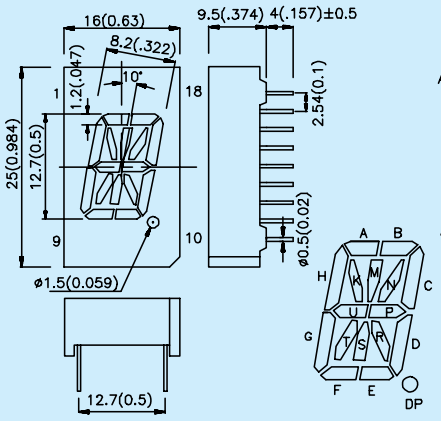
PSC39-21



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PSA/PSC05 Series

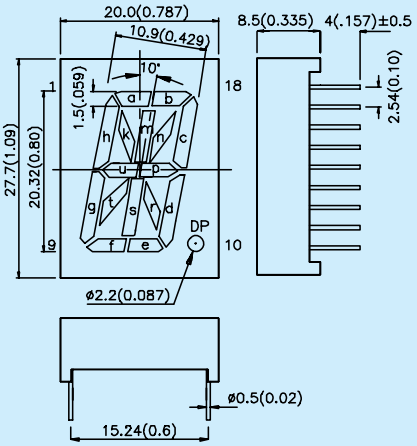
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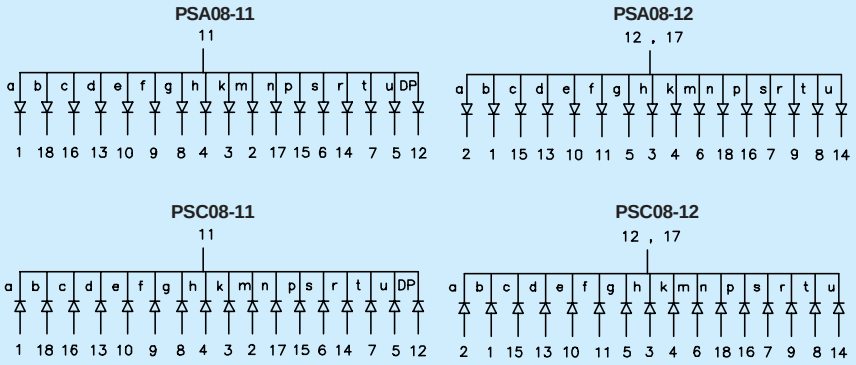




PSA/PSC08 Series

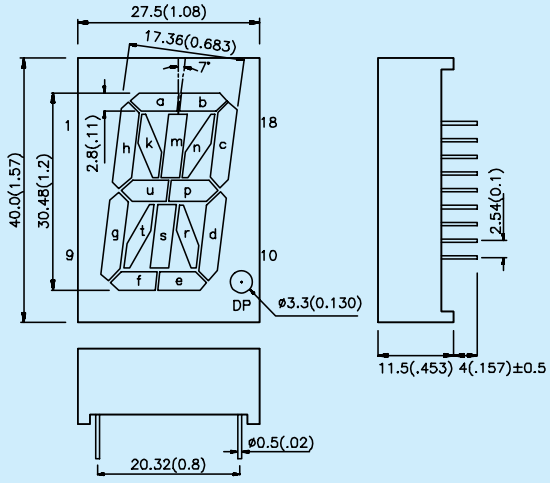
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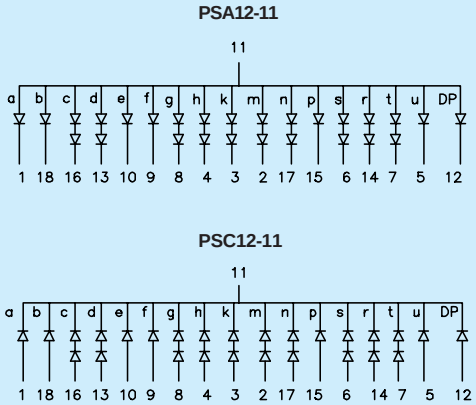




PSA/PSC12 Series

29

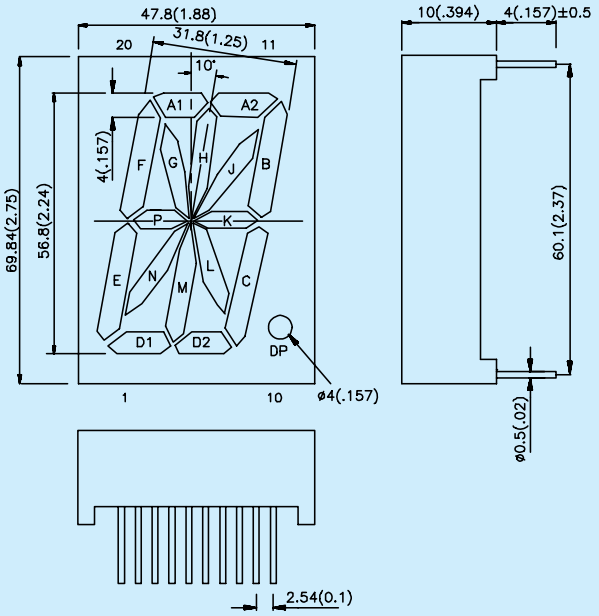




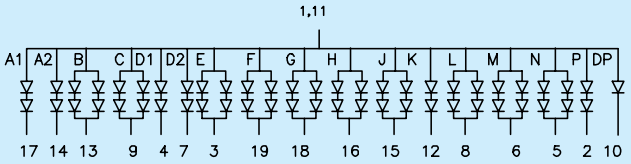
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PSA/PSC23 Series

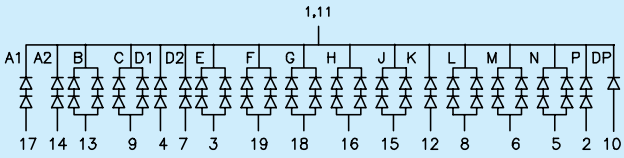
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PSA23-11

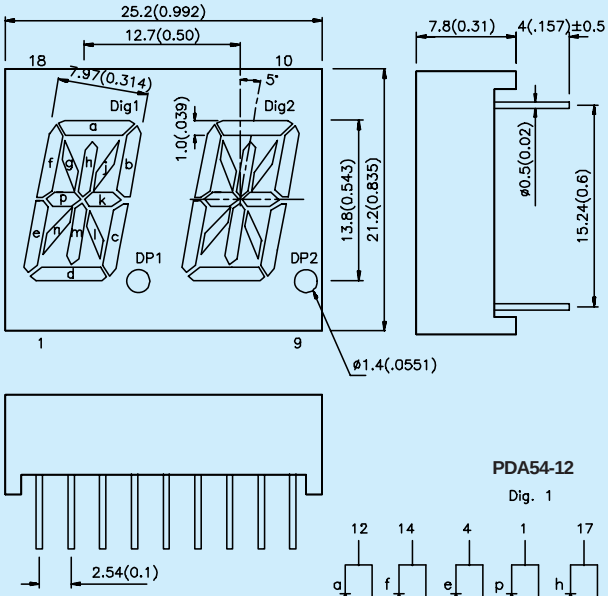


PSC23-11

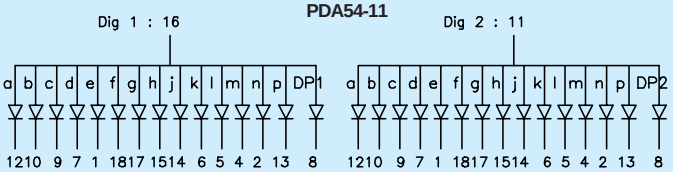


PDA/PDC54 Series

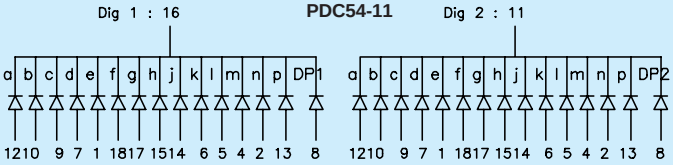
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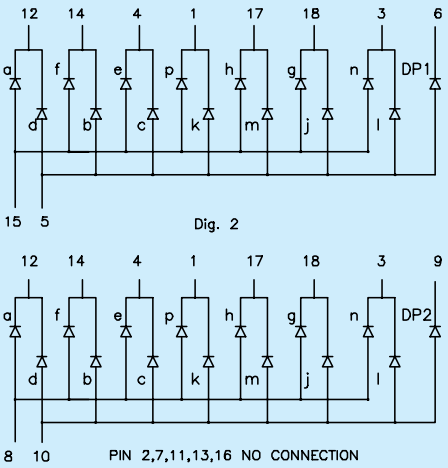
PDA54-11



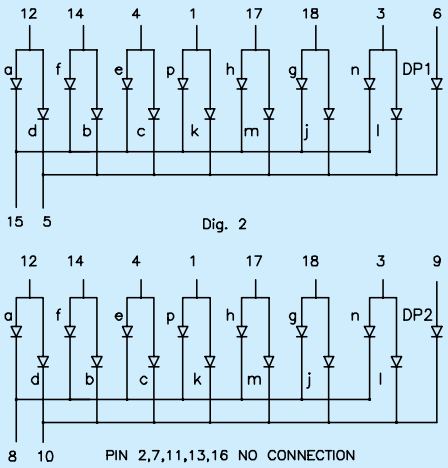
PDC54-11



PDA54-12

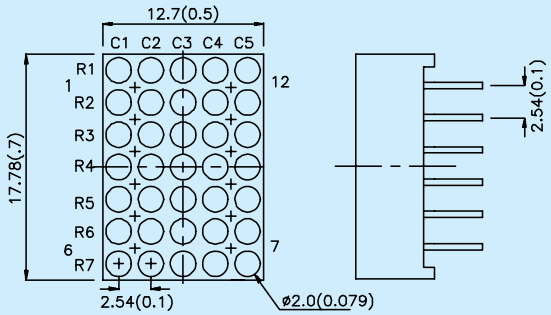


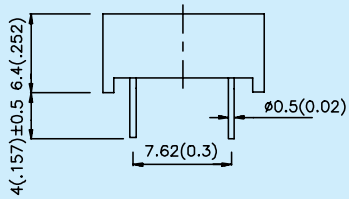
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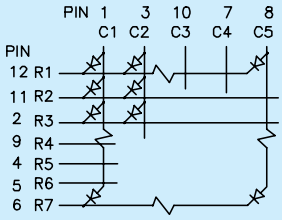
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

TA/TC07 Series

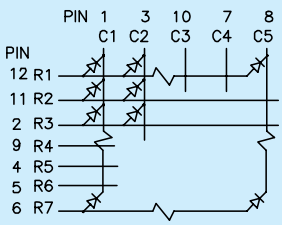




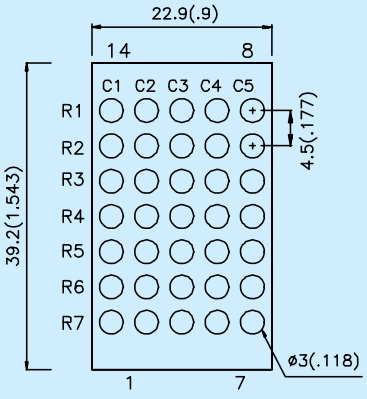
TA07-11

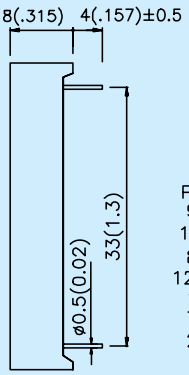


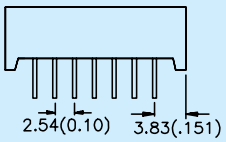
TC07-11



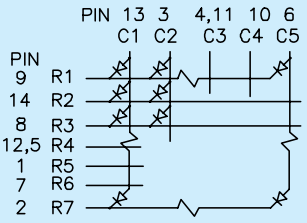
TA/TC12 Series



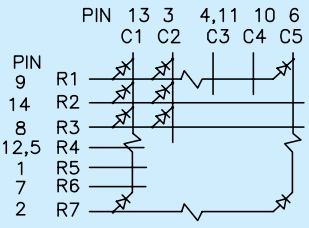




TA12-11



TC12-11

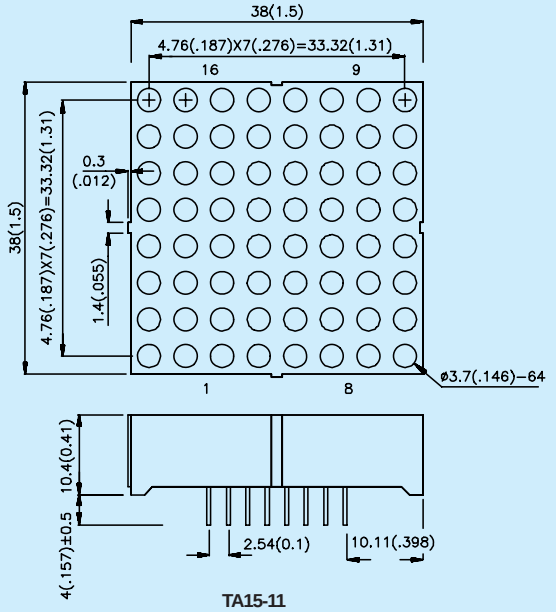


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

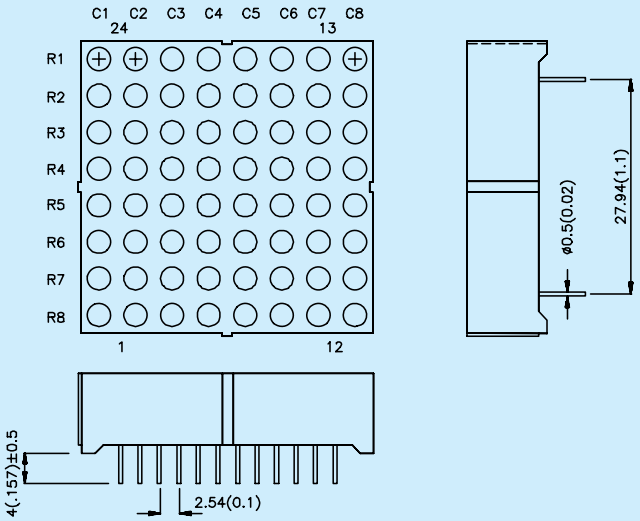
TA/TC15,TBA/TBC15 Series

34

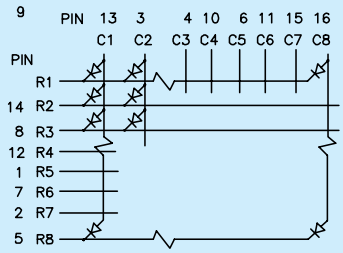
TA/TC15−11



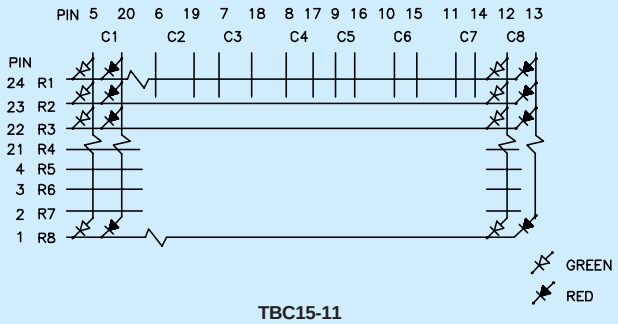
TBA/TBC15−11



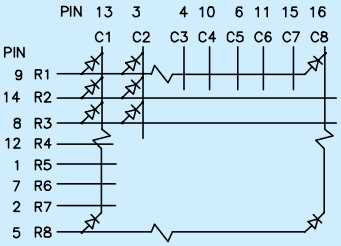
TA15-11



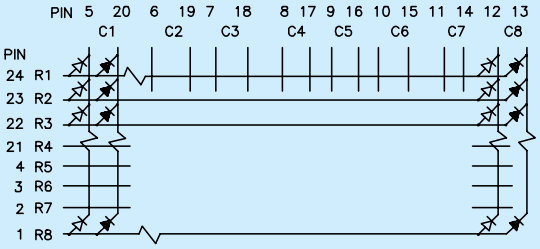
TBA15-11



TC15-11

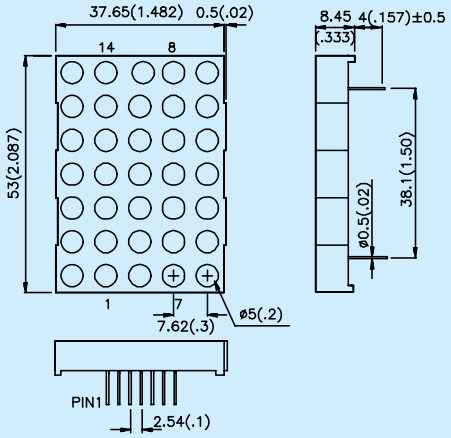


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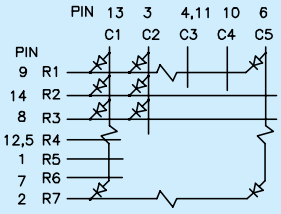


TA/TC20 Series

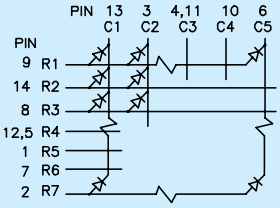
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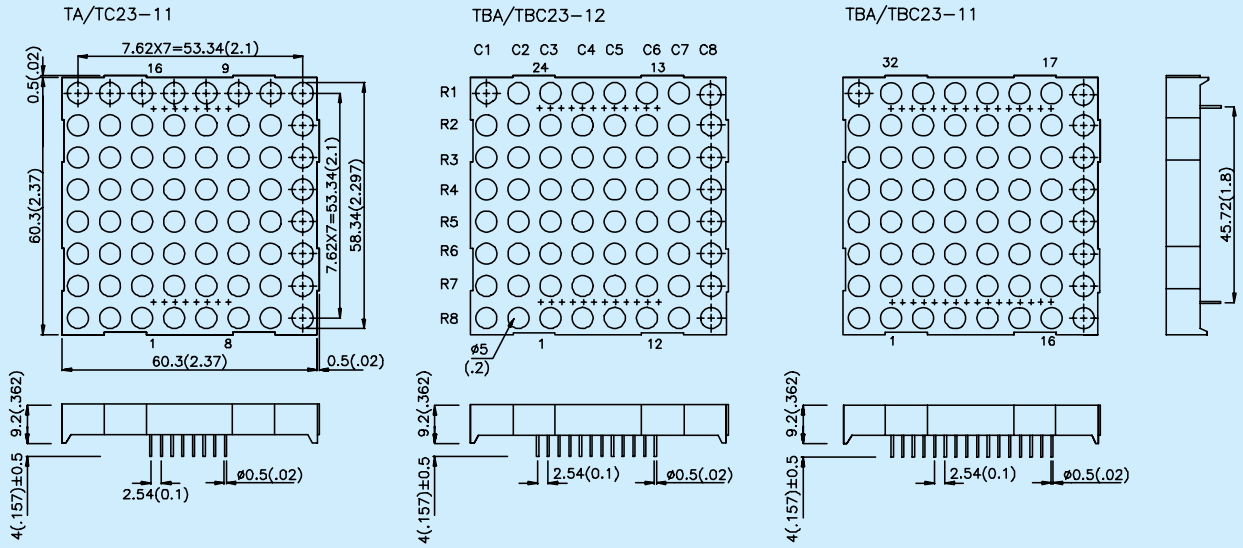
TA20-11



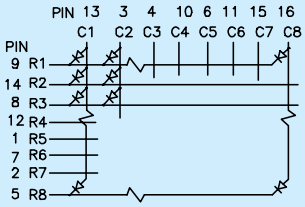
TC20-11



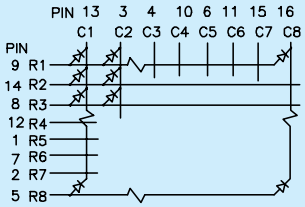
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



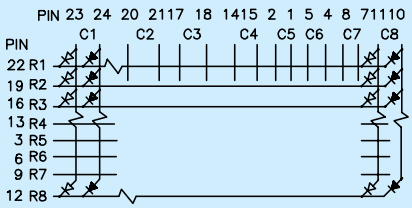
TA23-11



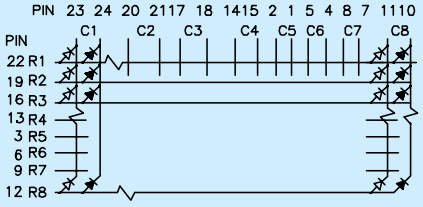
TC23-11



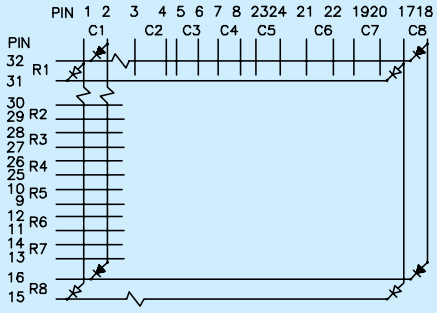
TBA23-12



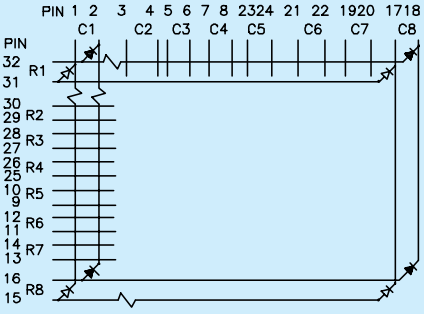
TBC23-12



TBA23-11

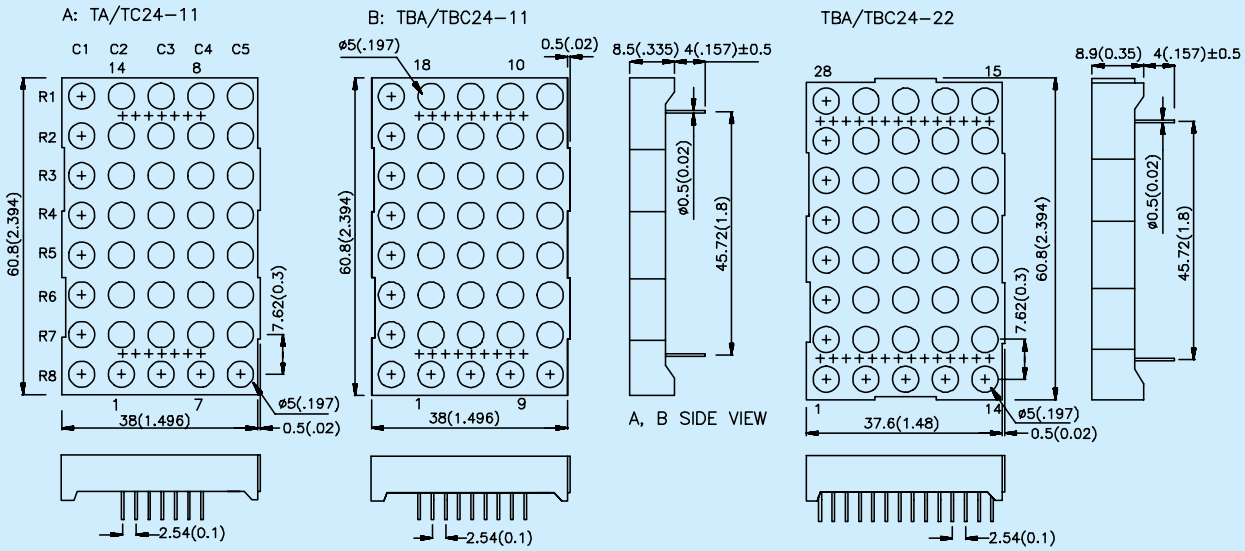


TBC23-11

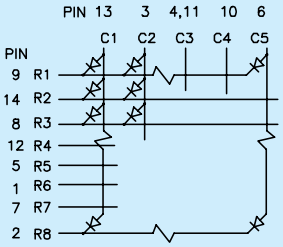




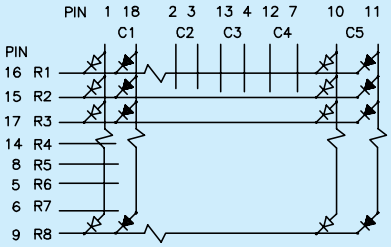
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



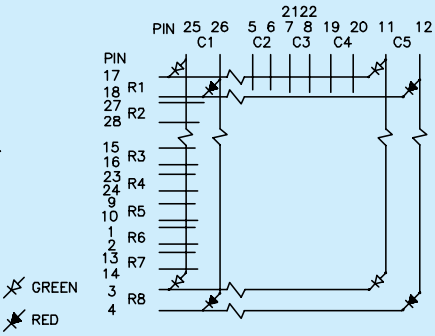
TA24-11



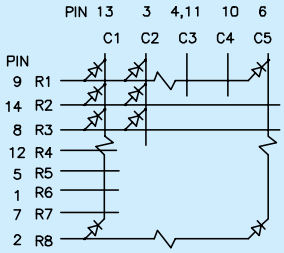
TBA24-11



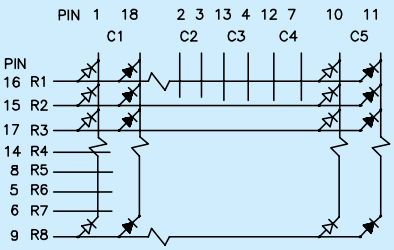
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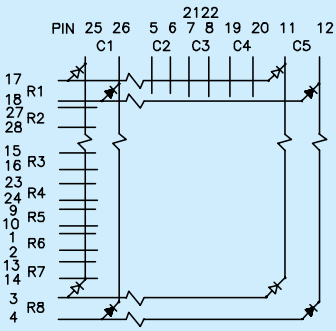
TC24-11



TBC24-11

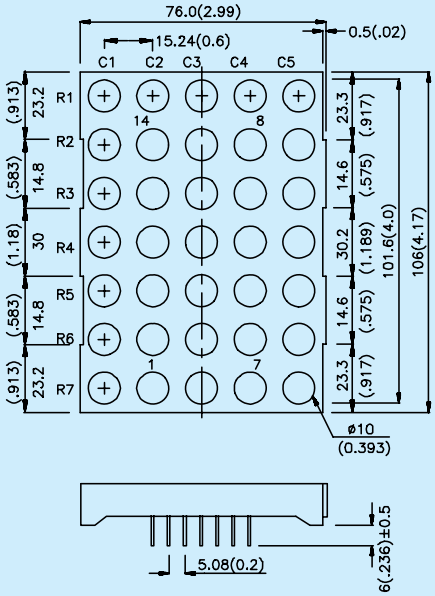


TBC24-22

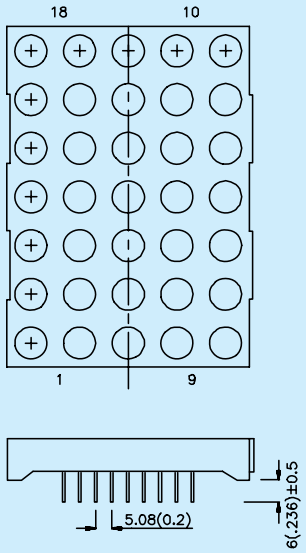


NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

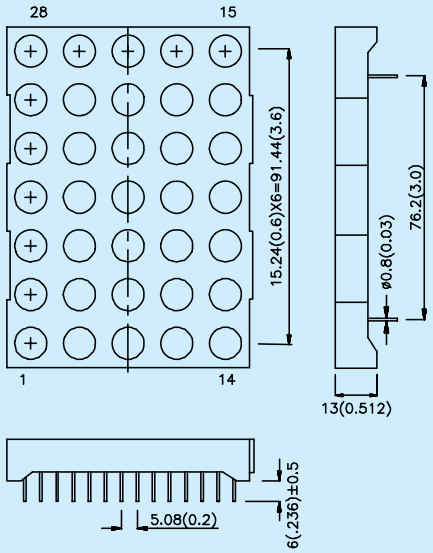
TA/TC40−11



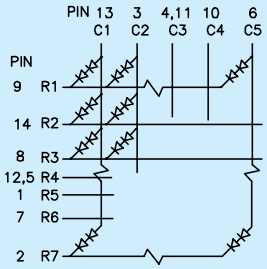
TBA/TBC40−11



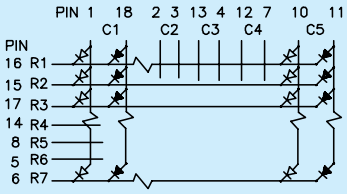
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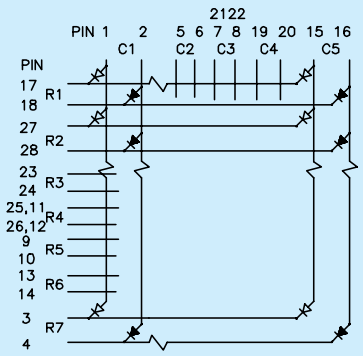
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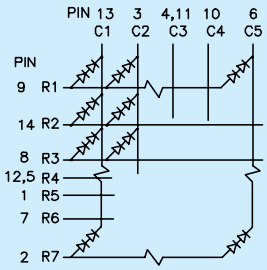
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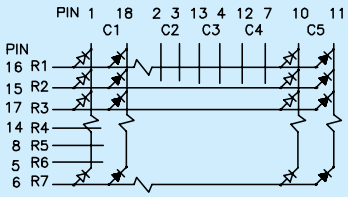
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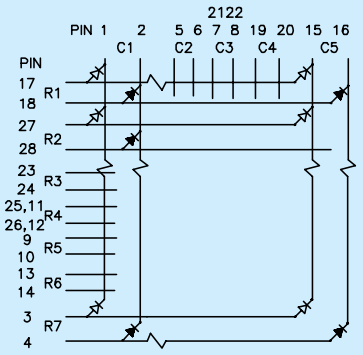
TC40-11



TBC40-11

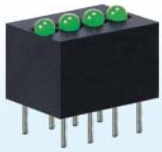


TBC40-12

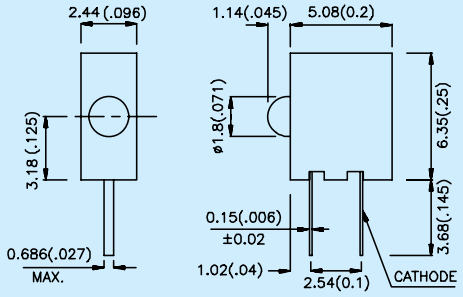


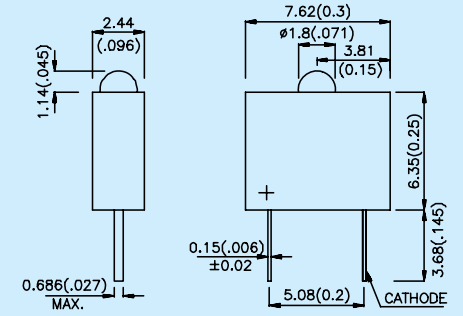
FOR 2 RED CHIPS FOR 2 GREEN CHIPS

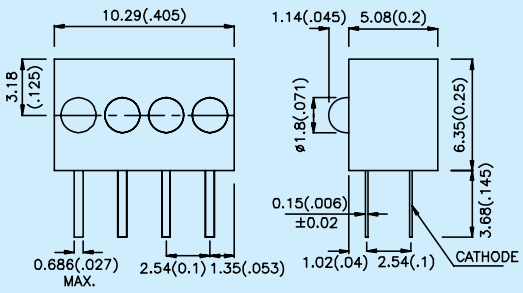
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

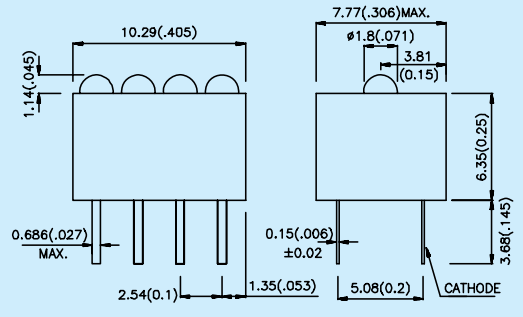
AM2520EH/xxx5V	AM2520EJ/xxx5V	AM2520EF/4xxx5V	AM2520EG/4xxx5V
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA *V=5V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AM2520EH/ID	GaAsP/GaP	625	red diffused	7	30	40º	Subminiature Solid State Lamps
AM2520EH/ID5V	GaAsP/GaP	625	red diffused	*1.8	*8	40º	
AM2520EH/YD	GaAsP/GaP	588	yellow diffused	2.6	10	40º	
AM2520EH/YD5V	GaAsP/GaP	588	yellow diffused	*1.0	*3	40º	
AM2520EH/SGD	GaP	568	green diffused	2.6	10	40º	
AM2520EH/SGD5V	GaP	568	green diffused	*1.8	*10	40º	
AM2520EJ/ID	GaAsP/GaP	625	red diffused	7	30	40º	Subminiature Solid State Lamps
AM2520EJ/ID5V	GaAsP/GaP	625	red diffused	*1.8	*8	40º	
AM2520EJ/YD	GaAsP/GaP	588	yellow diffused	2.6	10	40º	
AM2520EJ/YD5V	GaAsP/GaP	588	yellow diffused	*1.0	*3	40º	
AM2520EJ/SGD	GaP	568	green diffused	2.6	10	40º	
AM2520EJ/SGD5V	GaP	568	green diffused	*1.8	*10	40º	
AM2520EF/4ID	GaAsP/GaP	625	red diffused	7	30	40º	Subminiature Solid State Lamps
AM2520EF/4ID5V	GaAsP/GaP	625	red diffused	*1.8	*8	40º	
AM2520EF/4YD	GaAsP/GaP	588	yellow diffused	2.6	10	40º	
AM2520EF/4YD5V	GaAsP/GaP	588	yellow diffused	*1.0	*3	40º	
AM2520EF/4SGD	GaP	568	green diffused	2.6	10	40º	
AM2520EF/4SGD5V	GaP	568	green diffused	*1.8	*10	40º	
AM2520EG/4ID	GaAsP/GaP	625	red diffused	7	30	40º	Subminiature Solid State Lamps
AM2520EG/4ID5V	GaAsP/GaP	625	red diffused	*1.8	*8	40º	
AM2520EG/4YD	GaAsP/GaP	588	yellow diffused	2.6	10	40º	
AM2520EG/4YD5V	GaAsP/GaP	588	yellow diffused	*1.0	*3	40º	
AM2520EG/4SGD	GaP	568	green diffused	2.6	10	40º	
AM2520EG/4SGD5V	GaP	568	green diffused	*1.8	*10	40º	



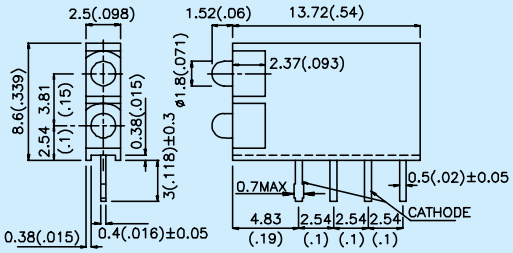
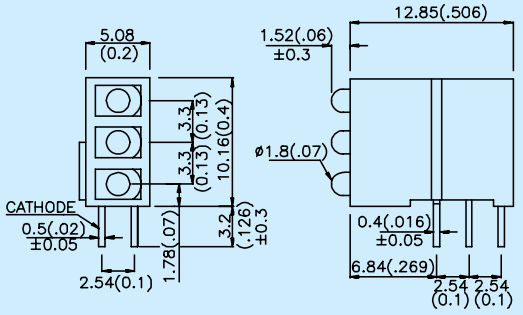
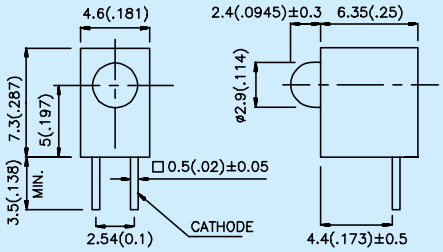
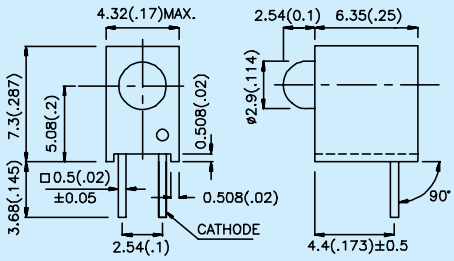






NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.
3. Parts with different 6V, 12V & 24V internal resistor are available. Please check with our sales offices worldwide.

WP4060VH/2	WP4060XH/3	WP934CB/	WP934EW/
			

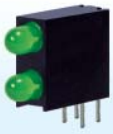
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP4060VH/2ID	GaAsP/GaP	625	red diffused	8	15	70º	1.8mm Bi-Level 
WP4060VH/2SRD	GaAlAs	640	red diffused	*70	*200	70º	
WP4060VH/2YD	GaAsP/GaP	588	yellow diffused	1.8	5	70º	
WP4060VH/2GD	GaP	568	green diffused	5	10	70º	
WP4060XH/3ID	GaAsP/GaP	625	red diffused	8	15	70º	1.8mm Tri-Level 
WP4060XH/3SRD	GaAlAs	640	red diffused	*70	*200	70º	
WP4060XH/3YD	GaAsP/GaP	588	yellow diffused	1.8	5	70º	
WP4060XH/3GD	GaP	568	green diffused	5	10	70º	
WP934CB/ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Right Angle 
WP934CB/SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934CB/YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934CB/GD	GaP	568	green diffused	8	20	40º	
WP934EW/ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Right Angle 
WP934EW/SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934EW/YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934EW/GD	GaP	568	green diffused	8	20	40º	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

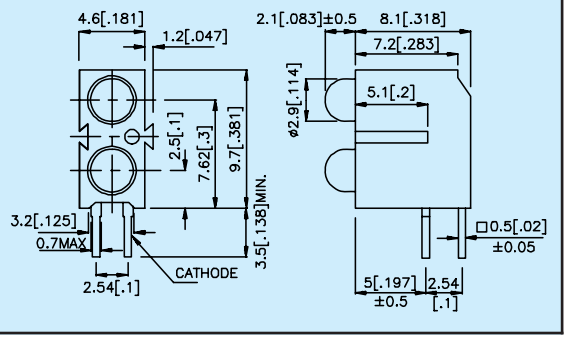
WP934RS/	WP934ZH/	WP130WDT/	WP42WUM/
			

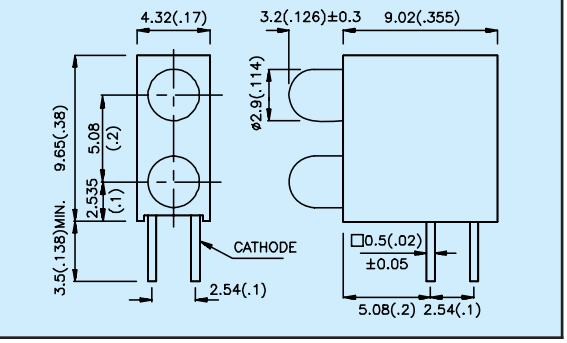
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP934RS/ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Right Angle
WP934RS/SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934RS/YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934RS/GD	GaP	568	green diffused	8	20	40º	
WP934ZH/ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Right Angle
WP934ZH/SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934ZH/YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934ZH/GD	GaP	568	green diffused	8	20	40º	
WP130WDT/EGW	GaAsP/GaP	625	white diffused	*7	*30	60º	T-1 (3mm) Right Angle
	GaP	568		*7	*25		
WP130WDT/EYW	GaAsP/GaP	625	white diffused	*7	*30	60º	
	GaAsP/GaP	588		*7	*20		
WP130WDT/GYW	GaP	568	white diffused	*7	*25	60º	
	GaAsP/GaP	588		*7	*20		
WP42WUM/EGW	GaAsP/GaP	625	white diffused	*4	*13	100º	T-1 (3mm) Right Angle
	GaP	568		*4	*13		
WP42WUM/EYW	GaAsP/GaP	625	white diffused	*4	*13	100º	
	GaAsP/GaP	588		*2.6	*6		
WP42WUM/GYW	GaP	568	white diffused	*4	*13	100º	
	GaAsP/GaP	588		*2.6	*6		

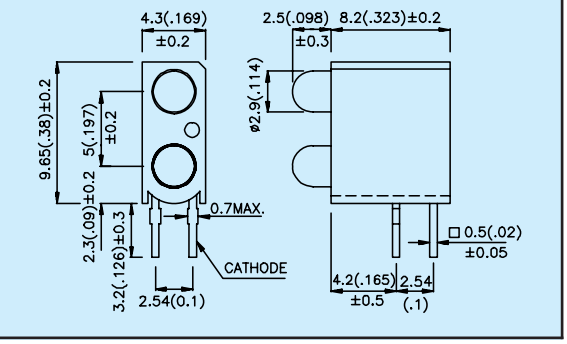
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

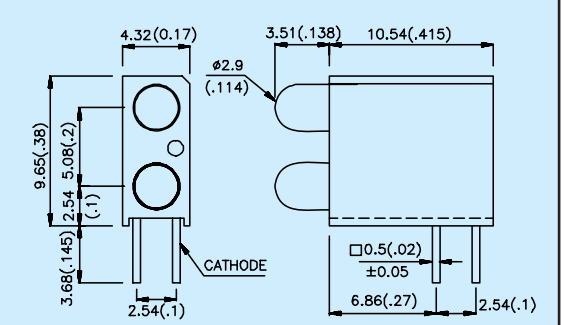
WP934CA/2	WP934EB/2	WP934FG/2	WP934GE/2
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP934CA/2ID-90	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Bi-Level
WP934CA/2SRD-90	GaAlAs	640	red diffused	*110	*300	40º	
WP934CA/2YD-90	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934CA/2GD-90	GaP	568	green diffused	8	20	40º	
WP934EB/2ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Bi-Level
WP934EB/2SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934EB/2YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934EB/2GD	GaP	568	green diffused	8	20	40º	
WP934FG/2ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Bi-Level
WP934FG/2SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934FG/2YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934FG/2GD	GaP	568	green diffused	8	20	40º	
WP934GE/2ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Bi-Level
WP934GE/2SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934GE/2YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934GE/2GD	GaP	568	green diffused	8	20	40º	





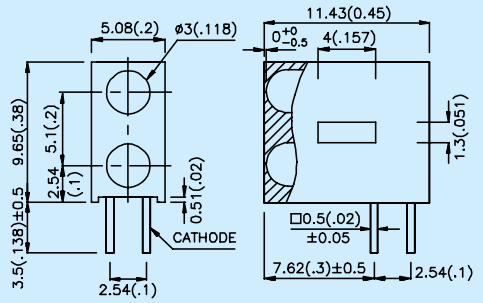


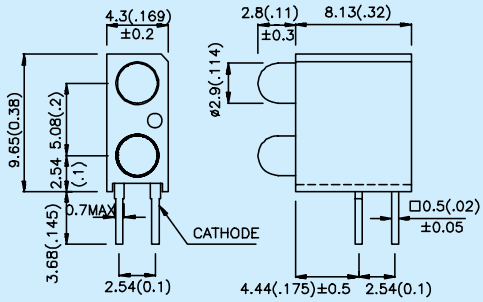


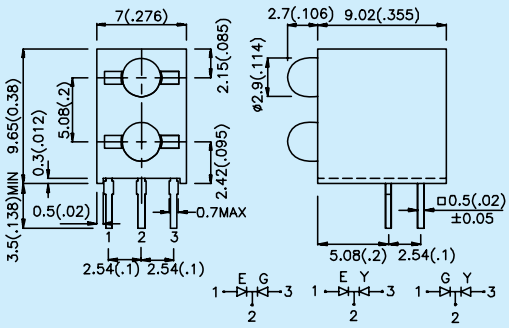
NOTES:
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WP934GO/2	WP934MD/2	WP130WCP/2
		

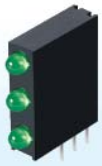
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP934GO/2ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Bi-Level
WP934GO/2SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934GO/2YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934GO/2GD	GaP	568	green diffused	8	20	40º	
WP934MD/2ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Bi-Level
WP934MD/2SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934MD/2YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934MD/2GD	GaP	568	green diffused	8	20	40º	
WP130WCP/2EGW	GaAsP/GaP	625	white diffused	*7	*30	60º	T-1(3mm) Bi-Level
	GaP	568		*7	*25		
WP130WCP/2EYW	GaAsP/GaP	625	white diffused	*7	*30	60º	
	GaAsP/GaP	588		*7	*20		
WP130WCP/2GYW	GaP	568	white diffused	*7	*25	60º	
	GaAsP/GaP	588		*7	*20		



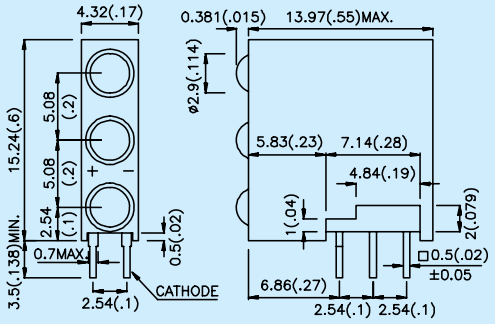


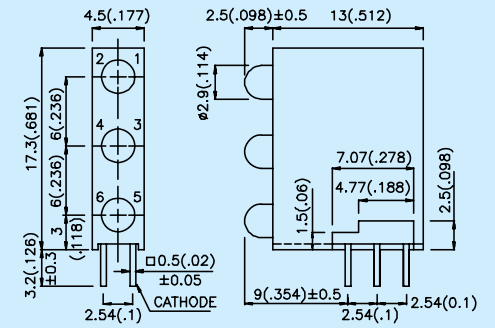


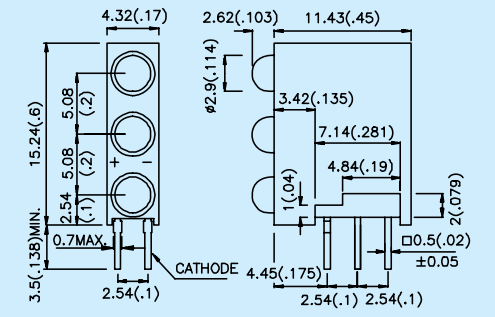
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

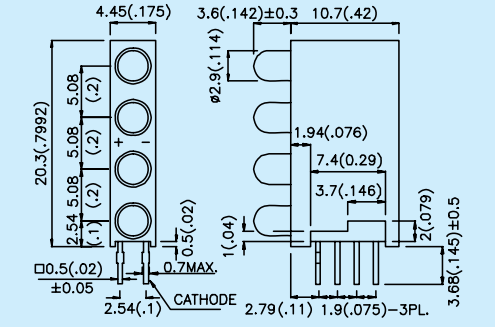
WP934RZ/3	WP934PJ/3	WP934SA/3	WP934SB/4
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP934RZ/3ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Tri-Level
WP934RZ/3SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934RZ/3YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934RZ/3GD	GaP	568	green diffused	8	20	40º	
WP934PJ/3ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Tri-Level
WP934PJ/3SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934PJ/3YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934PJ/3GD	GaP	568	green diffused	8	20	40º	
WP934SA/3ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Tri-Level
WP934SA/3SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934SA/3YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934SA/3GD	GaP	568	green diffused	8	20	40º	
WP934SB/4ID	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Quad-Level
WP934SB/4SRD	GaAlAs	640	red diffused	*110	*300	40º	
WP934SB/4YD	GaAsP/GaP	588	yellow diffused	5	15	40º	
WP934SB/4GD	GaP	568	green diffused	8	20	40º	





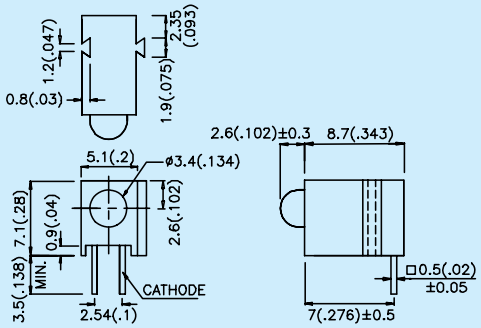


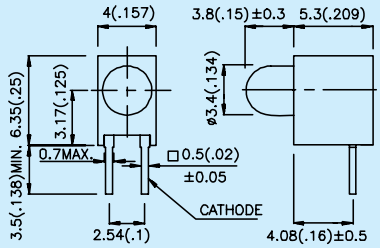


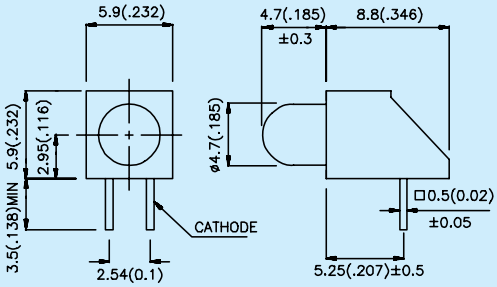
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

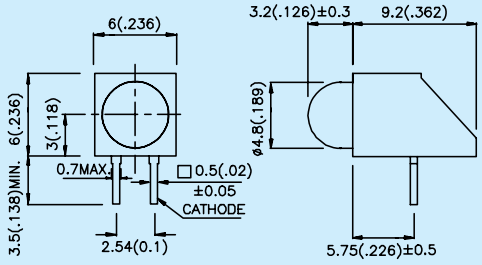
WP1384AL/	WP1384AD/	WP1533BQ/	WP73JB/
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP1384AL/ID	GaAsP/GaP	625	red diffused	12	20	60º	3.4mm Right Angle
WP1384AL/SRD	GaAlAs	640	red diffused	*70	*200	60º	
WP1384AL/YD	GaAsP/GaP	588	yellow diffused	8	15	60º	
WP1384AL/GD	GaP	568	green diffused	8	15	60º	
WP1384AD/ID	GaAsP/GaP	625	red diffused	12	20	60º	3.4mm Right Angle
WP1384AD/SRD	GaAlAs	640	red diffused	*70	*200	60º	
WP1384AD/YD	GaAsP/GaP	588	yellow diffused	8	15	60º	
WP1384AD/GD	GaP	568	green diffused	8	15	60º	
WP1533BQ/ID	GaAsP/GaP	625	red diffused	8	30	60º	4.7mm Right Angle
WP1533BQ/SRD	GaAlAs	640	red diffused	*110	*400	60º	
WP1533BQ/YD	GaAsP/GaP	588	yellow diffused	5	18	60º	
WP1533BQ/GD	GaP	568	green diffused	5	20	60º	
WP73JB/IDA	GaAsP/GaP	625	red diffused	8	30	60º	4.8mm Right Angle
WP73JB/SRDA	GaAlAs	640	red diffused	*110	*300	60º	
WP73JB/YDA	GaAsP/GaP	588	yellow diffused	5	20	60º	
WP73JB/GDA	GaP	568	green diffused	8	20	60º	

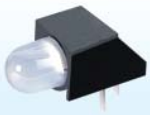






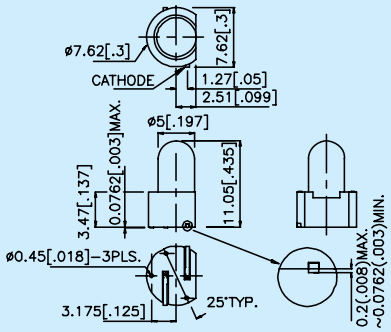


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP7113WYP/	WP1503CB/	WP150A9VS/	WP59CB/
			

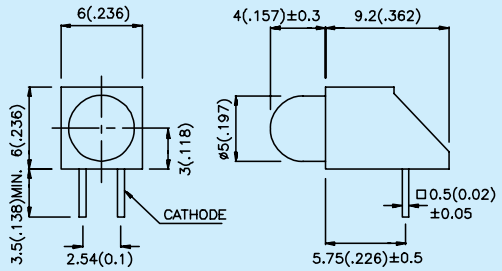
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle
				Min.	Typ.	2θ1/2
WP7113WYP/SEC/H	InGaAlP	630	water clear	*3800	*10000	20º
WP7113WYP/VGC/H	InGaN	525	water clear	*7500	*18000	20º
WP7113WYP/PBC/H	InGaN	470	water clear	*1500	*3200	16º

T-1 3/4 (5mm) With Spacer



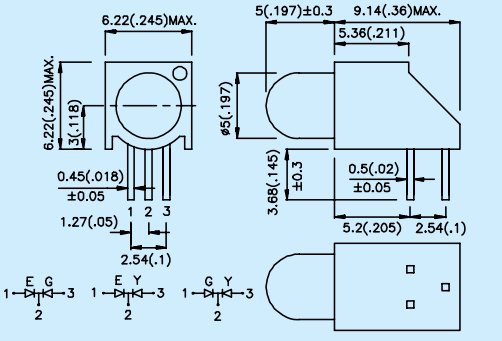
WP1503CB/ID	GaAsP/GaP	625	red diffused	8	30	60º
WP1503CB/SRD	GaAlAs	640	red diffused	*380	*700	60º
WP1503CB/YD	GaAsP/GaP	588	yellow diffused	5	20	60º
WP1503CB/GD	GaP	568	green diffused	5	20	60º

T-1 3/4 (5mm) Right Angle



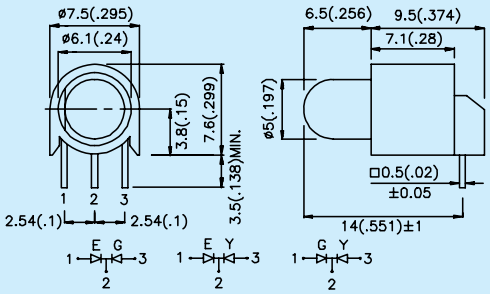
WP150A9VS/EGW	GaAsP/GaP	625	white diffused	*18	*50	30º
	GaP	568		*10	*45	
WP150A9VS/EYW	GaAsP/GaP	625	white diffused	*18	*50	30º
	GaAsP/GaP	588		*7	*30	
WP150A9VS/GYW	GaP	568	white diffused	*10	*45	30º
	GaAsP/GaP	588		*7	*30	

T-1 3/4 (5mm) Right Angle



WP59CB/EGW	GaAsP/GaP	625	white diffused	*18	*60	60º
	GaP	568		*18	*50	
WP59CB/EYW	GaAsP/GaP	625	white diffused	*18	*60	60º
	GaAsP/GaP	588		*18	*40	
WP59CB/GYW	GaP	568	white diffused	*18	*50	60º
	GaAsP/GaP	588		*18	*40	

T-1 3/4 (5mm) Right Angle



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP59BL/	WP73EB/2	WP1503EB/2	WP7113BR
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP59BL/EGW	GaAsP/GaP	625	white diffused	*18	*60	60º	T-1 3/4 (5mm) Right Angle
	GaP	568		*18	*50		
WP59BL/EYW	GaAsP/GaP	625	white diffused	*18	*60	60º	
	GaAsP/GaP	588		*18	*40		
WP59BL/GYW	GaP	568	white diffused	*18	*50	60º	
	GaAsP/GaP	588		*18	*40		
WP73EB/2IDA	GaAsP/GaP	625	red diffused	8	30	60º	4.8mm Bi-Level
WP73EB/2SRDA	GaAlAs	640	red diffused	*110	*300	60º	
WP73EB/2YDA	GaAsP/GaP	588	yellow diffused	5	20	60º	
WP73EB/2GDA	GaP	568	green diffused	8	20	60º	
WP1503EB/2ID	GaAsP/GaP	625	red diffused	8	30	60º	T-1 3/4 (5mm) Bi-Level
WP1503EB/2SRD	GaAlAs	640	red diffused	*380	*700	60º	
WP1503EB/2YD	GaAsP/GaP	588	yellow diffused	5	20	60º	
WP1503EB/2GD	GaP	568	green diffused	5	20	60º	
WP7113BR5.08/ID WP7113BR6.35/ID WP7113BR9.52/ID	GaAsP/GaP	625	red diffused	8	45	30º	T-1 3/4 (5mm) With Spacer
WP7113BR5.08/SRD WP7113BR6.35/SRD WP7113BR9.52/SRD	GaAlAs	640	red diffused	*110	*300	30º	
WP7113BR5.08/YD WP7113BR6.35/YD WP7113BR9.52/YD	GaAsP/GaP	588	yellow diffused	5	20	30º	
WP7113BR5.08/GD WP7113BR6.35/GD WP7113BR9.52/GD	GaP	568	green diffused	5	20	30º	
WP7113BR5.08/SGD WP7113BR6.35/SGD WP7113BR9.52/SGD	GaP	568	green diffused	*18	*40	30º	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

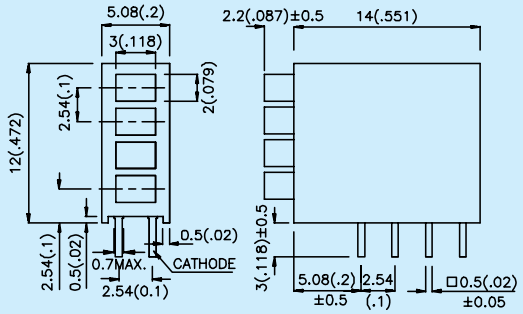
WP914CK/4

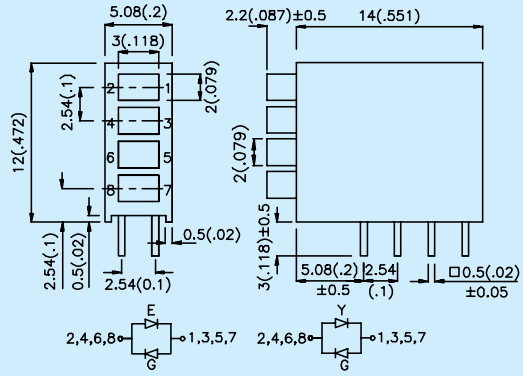


WP917CK/4



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP914CK/4IDT	GaAsP/GaP	625	red diffused	1.8	8	100º	2mm x 3mm Quad-Level
WP914CK/4YDT	GaAsP/GaP	588	yellow diffused	1	4	100º	
WP914CK/4GDT	GaP	568	green diffused	1.8	6	100º	
WP917CK/4EGWT	GaAsP/GaP	625	white diffused	*4	*10	100º	2mm x 3mm Quad-Level
	GaP	568		*4	*10		
WP917CK/4YGWT	GaAsP/GaP	588	white diffused	*2.6	*6	100º	
	GaP	568		*4	*10		

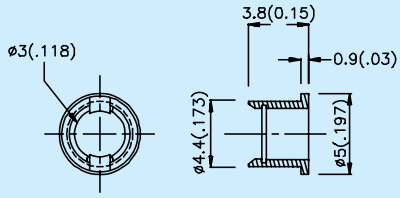




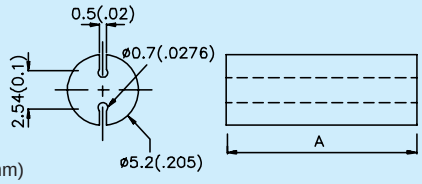
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

RTC31	RTC32	RTC51	RTC52	BRA	CB30	CB50	CB55
							

RTC31

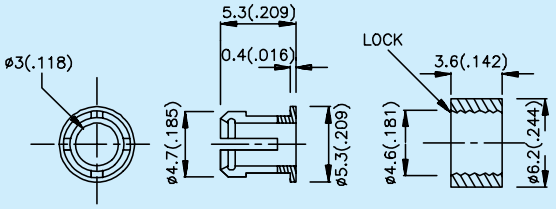


BRA

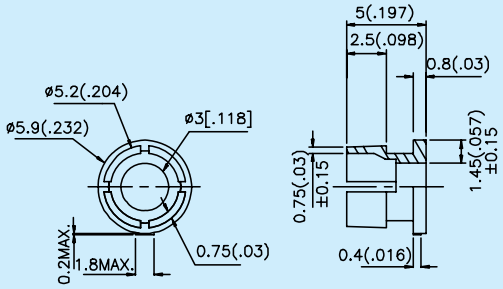


DIM A:(mm)
4.3,4.83,5.08,5.85,6.35,
7.25,7.62,7.7,8.24,8.7,
9.52,9.85,10.7,12.7,17.8,
18.59,19.86,23.5

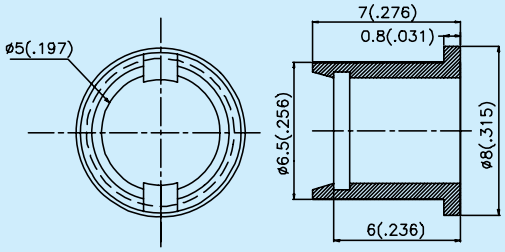
RTC32



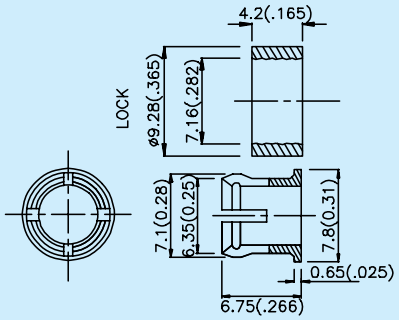
CB30



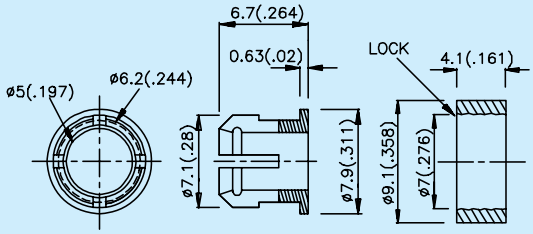
RTC51



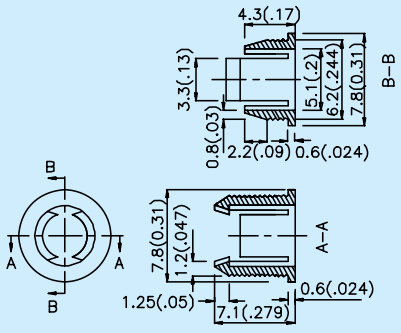
CB50



RTC52



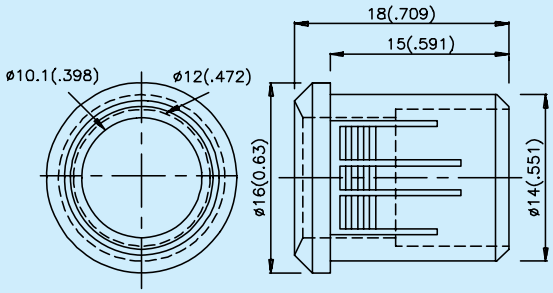
CB55



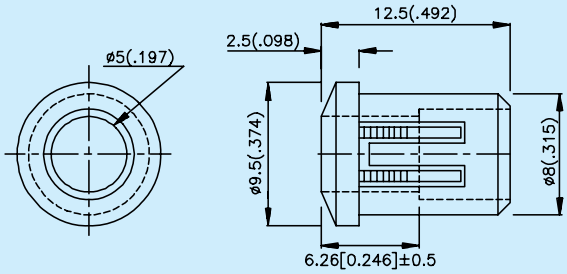
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

RTF1090	RTF5010	RTF5020	RTF8080	AF	TQA
					

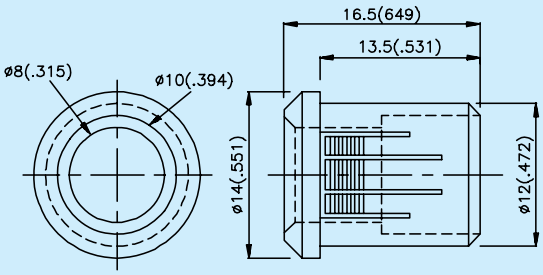
RTF1090



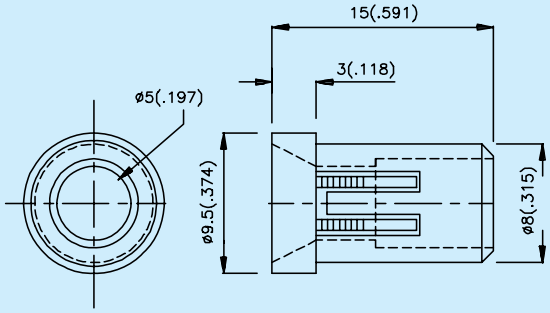
RTF5010



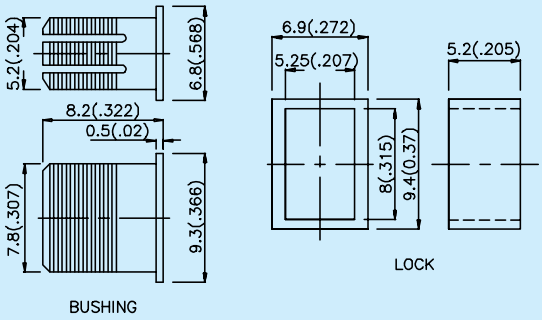
RTF8080



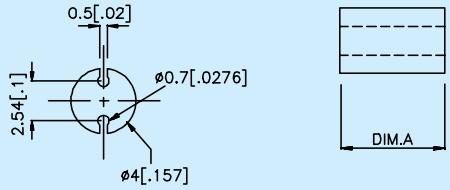
RTF5020



AF



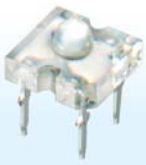
TQA



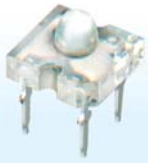
PART NO.	DIM.A
TQ15.2	15.2[.598]±0.5
TQ6.35	6.35[.25]±0.5

NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP7676C

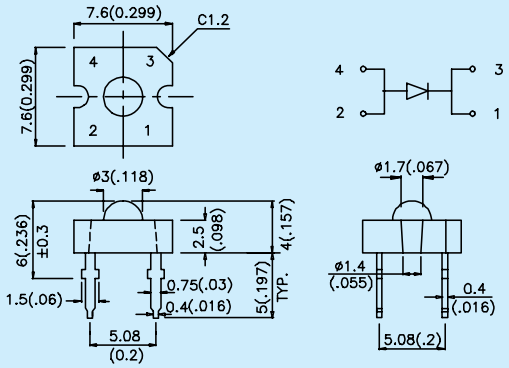


WP76761C



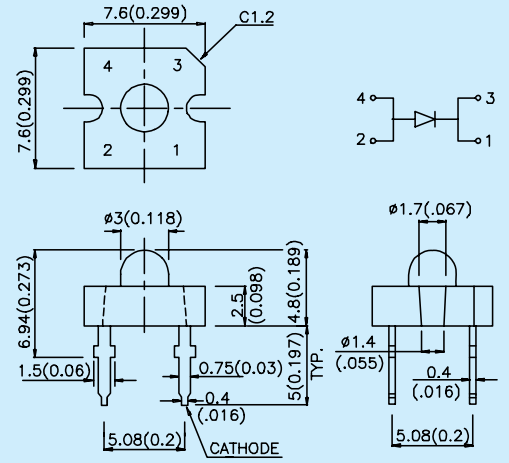
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA *70mA		Viewing Angle
				Min.	Typ.	2θ1/2
WP7676CSURC	InGaAlP	628	water clear	280	500	70º
				*480	*1000	70º
WP7676CSEC/E	InGaAlP	621	water clear	480	800	70º
				*1500	*2800	70º
WP7676CSEC/H	InGaAlP	630	water clear	1500	1800	70º
				*4700	*7000	70º
WP7676CSYC	InGaAlP	588	water clear	180	400	70º
				*280	*700	70º
WP7676CSYC/H	InGaAlP	589	water clear	280	450	70º
				*480	*1100	70º
WP7676CPBC/H	InGaN	470	water clear	380	800	70º
				*1200	*1900	70º

Dimension: 7.6mm x 7.6mm



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA *70mA		Viewing Angle
				Min.	Typ.	2θ1/2
WP76761CSURC	InGaAlP	628	water clear	900	2000	20º
				*3300	*7000	20º
WP76761CSEC/E	InGaAlP	621	water clear	1800	3400	20º
				*5700	*10000	20º
WP76761CSEC/H	InGaAlP	630	water clear	2800	4500	20º
				*12000	*18000	20º
WP76761CSYC	InGaAlP	588	water clear	380	800	20º
				*1500	*2700	20º
WP76761CSYC/H	InGaAlP	589	water clear	480	900	20º
				*1800	*3200	20º
WP76761CPBC/H	InGaN	470	water clear	1200	2400	20º
				*3300	*5800	20º

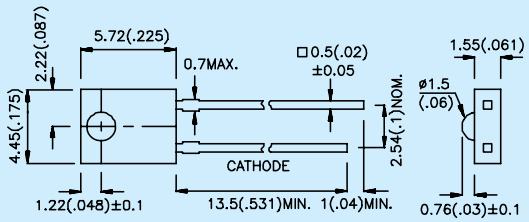
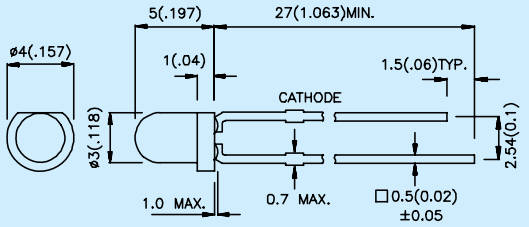
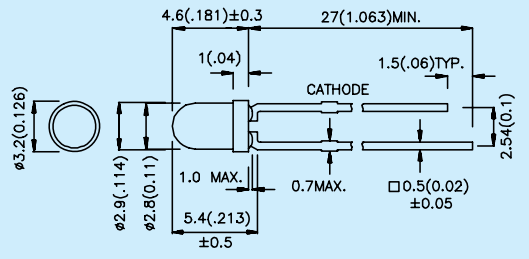
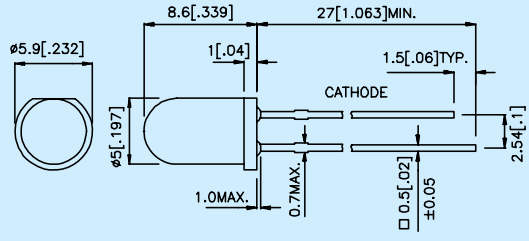
Dimension: 7.6mm x 7.6mm



1. DRIVE CURRENT BETWEEN 10mA AND 30mA ARE RECOMMENDED FOR LONG TERM PERFORMANCE.
2. OPERATION AT CURRENT BELOW 10mA IS NOT RECOMMENDED.

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

AM4457F3C	WP34F3C	WP7104F3C	WP7113F3C
			

Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AM4457F3C	GaAs	940	water clear	0.8	4	70º	1.5mm (Side Look) 
WP34F3C	GaAs	940	water clear	1.6	10	50º	T-1 (3mm) Round 
				*4	*20	50º	
WP34F3BT	GaAs	940	blue transparent	1.6	10	50º	
				*7	*20	50º	
WP34SF4C	GaAlAs	880	water clear	1.6	4	50º	
				*4	*20	50º	
WP34SF4BT	GaAlAs	880	blue transparent	1.6	4	50º	
				*7	*20	50º	
WP34SF6C	GaAlAs	860	water clear	7	15	50º	
				*10	*40	50º	
WP34SF6BT	GaAlAs	860	blue transparent	7	15	50º	
				*10	*40	50º	
WP34SF7C	GaAlAs	850	water clear	7	18	50º	
				*10	*45	50º	
WP34SF7BT	GaAlAs	850	blue transparent	7	18	50º	
				*10	*45	50º	
WP7104F3C	GaAs	940	water clear	7	30	34º	T-1 (3mm) Round 
				*18	*80	34º	
WP7104F3BT	GaAs	940	blue transparent	7	28	34º	
				*18	*70	34º	
WP7113F3BT	GaAs	940	blue transparent	4	20	20º	T-1 3/4 (5mm) Round 
				*7	*30	20º	
WP7113SF4C	GaAlAs	880	water clear	7	20	20º	
				*10	*30	20º	
WP7113SF6C	GaAlAs	860	water clear	10	40	20º	
				*50	*100	20º	
WP7113SF7C	GaAlAs	850	water clear	10	40	20º	
				*50	*100	20º	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP32P3C



WP7113P3C



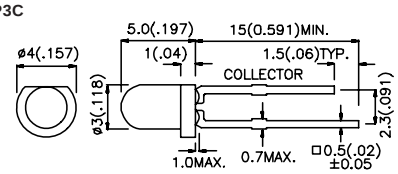
T-1 (3mm) PHOTOTRANSISTOR

WP32P3C WATER CLEAR LENS

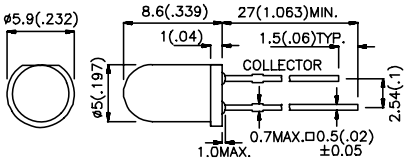
T-1 3/4 (5mm) PHOTOTRANSISTOR

WP7113P3C WATER CLEAR LENS

WP32P3C



WP7113P3C



ELECTRICAL AND RADIANT CHARACTERISTICS T_A=25°C

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
$V_{BR\,CEO}$	Collector-to-Emitter Breakdown Voltage	30	-	-	V	I_C=100μA Ee=0mW/cm²
$V_{BR\,ECO}$	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I_E=100μA Ee=0mW/cm²
$V_{CE\,(SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	0.8	V	I_C=2mA Ee=20mW/cm²
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
T_R	Rise Time (10% to 90%)	-	3	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
T_F	Fall Time (90% to 10%)	-	3	-	μs	
$I_{(ON)}$	On State Collector Current	0.1	0.5	-	mA	V_{CE}=5V, Ee=1mW/cm², λ=940nm

ABSOLUTE MAXIMUM RATING T_A=25°C

Parameter	Max. Ratings
Collector-to-Emitter Breakdown Voltage	30V
Emitter-to-Collector Breakdown Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
Lead Soldering Temperature (>5mm For 5sec)	260°C

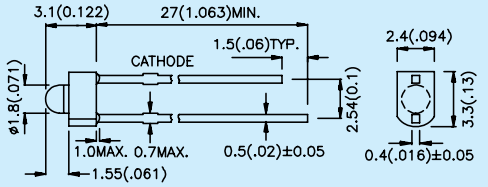
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP1060	WP7104	WP1154	WP132X
			

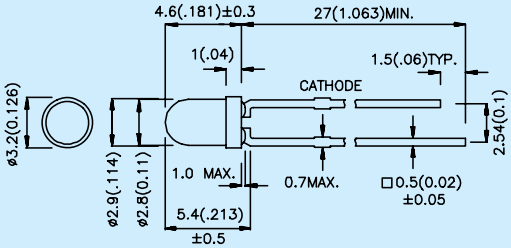
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle
				Min.	Typ.	2θ1/2
WP1060ID	GaAsP/GaP	625	red diffused	8	15	70º
WP1060ED	GaAsP/GaP	625	orange diffused	8	15	70º
WP1060SRD	GaAlAs	640	red diffused	*70	*200	70º
WP1060YD	GaAsP/GaP	588	yellow diffused	5	8	70º
WP1060GD	GaP	568	green diffused	5	10	70º
WP7104ID	GaAsP/GaP	625	red diffused	8	20	40º
WP7104IT	GaAsP/GaP	625	red transparent	18	60	34º
WP7104ED	GaAsP/GaP	625	orange diffused	8	20	40º
WP7104EC	GaAsP/GaP	625	water clear	18	60	34º
WP7104ND	GaAsP/GaP	610	orange diffused	8	30	40º
WP7104NT	GaAsP/GaP	610	orange transparent	18	50	34º
WP7104NC	GaAsP/GaP	610	water clear	18	50	34º
WP7104YD	GaAsP/GaP	588	yellow diffused	5	15	40º
WP7104YT	GaAsP/GaP	588	yellow transparent	8	20	34º
WP7104YC	GaAsP/GaP	588	water clear	8	20	34º
WP7104GD	GaP	568	green diffused	8	20	40º
WP7104GT	GaP	568	green transparent	18	60	34º
WP7104GC	GaP	568	water clear	18	60	34º
WP7104PGD	GaP	555	green diffused	1.8	5	40º
WP7104PGT	GaP	555	green transparent	3	15	34º
WP7104PGC	GaP	555	water clear	3	15	34º
WP1154ID	GaAsP/GaP	625	red diffused	8	25	60º
WP1154IT	GaAsP/GaP	625	red transparent	18	60	50º
WP1154ND	GaAsP/GaP	610	orange diffused	8	30	60º
WP1154NT	GaAsP/GaP	610	orange transparent	18	50	50º
WP1154YD	GaAsP/GaP	588	yellow diffused	5	15	60º
WP1154YT	GaAsP/GaP	588	yellow transparent	8	20	50º
WP1154GD	GaP	568	green diffused	8	15	60º
WP1154GT	GaP	568	green transparent	18	40	50º
WP1154PGD	GaP	555	green diffused	1.8	5	60º
WP1154PGT	GaP	555	green transparent	3	10	50º
WP132XID	GaAsP/GaP	625	red diffused	8	25	60º
WP132XIT	GaAsP/GaP	625	red transparent	18	60	50º
WP132XND	GaAsP/GaP	610	orange diffused	8	30	60º
WP132XNT	GaAsP/GaP	610	orange transparent	18	50	50º
WP132XNC	GaAsP/GaP	610	water clear	18	50	50º
WP132XYD	GaAsP/GaP	588	yellow diffused	5	15	60º
WP132XYT	GaAsP/GaP	588	yellow transparent	8	20	50º
WP132XYC	GaAsP/GaP	588	water clear	8	20	50º
WP132XGD	GaP	568	green diffused	8	15	60º
WP132XGT	GaP	568	green transparent	12	40	50º
WP132XGC	GaP	568	water clear	12	40	50º
WP132XPGD	GaP	555	green diffused	1.8	5	60º
WP132XPGT	GaP	555	green transparent	3	10	50º
WP132XPGC	GaP	555	water clear	3	10	50º

Dimension

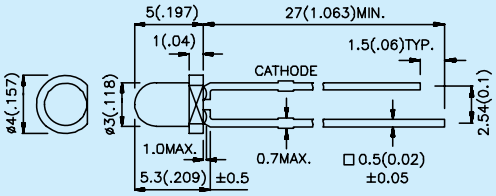
1.8mm Round



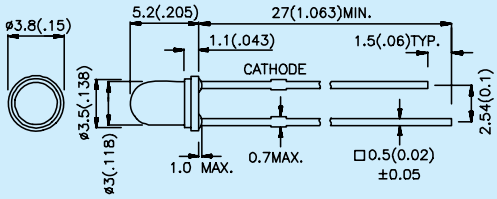
T-1 (3mm) Round



T-1 (3mm) Round

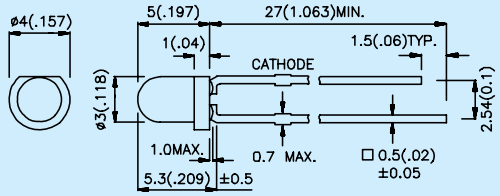
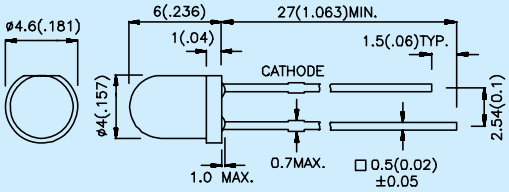
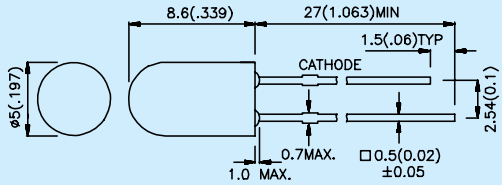
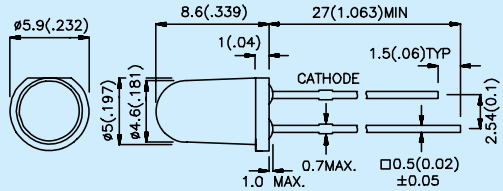


T-1 (3mm) Round



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

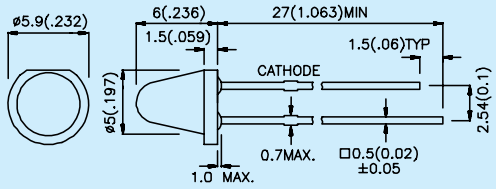
WP34	WP44	WP1503	WP1513
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP34HD	GaP	660	red diffused	1	3	60º	T-1 (3mm) Round 
WP34ID	GaAsP/GaP	625	red diffused	8	25	60º	
WP34AD	GaAsP/GaP	588	amber diffused	3	12	60º	
WP34YD	GaAsP/GaP	588	yellow diffused	1.8	6	60º	
WP34GD	GaP	568	green diffused	5	20	60º	
WP44HD	GaP	660	red diffused	0.7	2	80º	4mm Round 
WP44ID	GaAsP/GaP	625	red diffused	5	15	80º	
WP44YD	GaAsP/GaP	588	yellow diffused	3	10	80º	
WP44GD	GaP	568	green diffused	3	12	80º	
WP1503ID	GaAsP/GaP	625	red diffused	8	30	60º	T-1 3/4 (5mm) Round 
WP1503IT	GaAsP/GaP	625	red transparent	28	80	30º	
WP1503EC	GaAsP/GaP	625	water clear	28	80	30º	
WP1503SRC/D	GaAlAs	640	water clear	*900	*1500	30º	
WP1503SRC/E	GaAlAs	640	water clear	*1800	*2800	30º	
WP1503SRC/F	GaAlAs	640	water clear	*3300	*4000	30º	
WP1503SRD	GaAlAs	640	red diffused	*380	*700	60º	
WP1503YD	GaAsP/GaP	588	yellow diffused	5	20	60º	
WP1503YT	GaAsP/GaP	588	yellow transparent	18	40	30º	
WP1503YC	GaAsP/GaP	588	water clear	18	40	30º	
WP1503GD	GaP	568	green diffused	5	20	60º	
WP1503GT	GaP	568	green transparent	18	60	30º	
WP1503GC	GaP	568	water clear	18	60	30º	
WP1503SGC	GaP	568	water clear	*70	*200	30º	
WP1503SGT	GaP	568	green transparent	*70	*150	30º	
WP1513IT	GaAsP/GaP	625	red transparent	40	80	20º	T-1 3/4 (5mm) Round 
WP1513EC	GaAsP/GaP	625	water clear	40	80	20º	
WP1513SURC	InGaAlP	628	water clear	*1200	*1800	20º	
WP1513SURC/E	InGaAlP	630	water clear	*1500	*2200	20º	
WP1513YT	GaAsP/GaP	588	yellow transparent	18	40	20º	
WP1513YC	GaAsP/GaP	588	water clear	18	40	20º	
WP1513GT	GaP	568	green transparent	18	50	20º	
WP1513GC	GaP	568	water clear	18	50	20º	

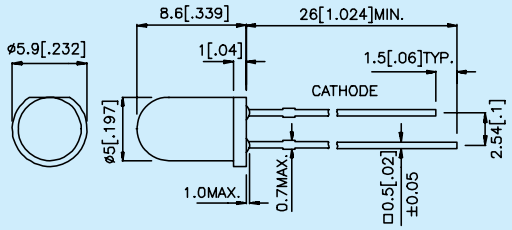
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP63	WP7143	WP1703	WP7113
			

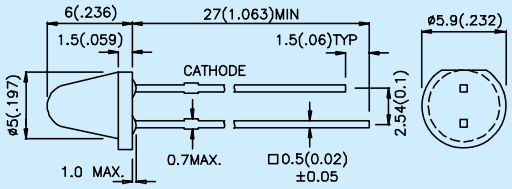
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP63ID	GaAsP/GaP	625	red diffused	12	20	60º	T-1 3/4 (5mm) Round
WP63IT	GaAsP/GaP	625	red transparent	28	50	30º	
WP63SRD	GaAlAs	640	red diffused	*110	*300	60º	
WP63SRT	GaAlAs	640	red transparent	*280	*600	30º	
WP63SRC	GaAlAs	640	water clear	*180	*700	30º	
WP63YD	GaAsP/GaP	588	yellow diffused	1.8	6	60º	
WP63YT	GaAsP/GaP	588	yellow transparent	18	35	30º	
WP63GD	GaP	568	green diffused	5	12	60º	
WP63GT	GaP	568	green transparent	18	40	30º	



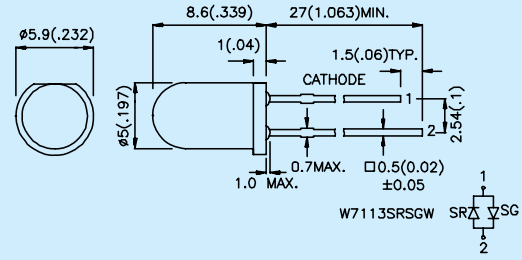
WP7143SRC/D	GaAlAs	640	water clear	*650	*900	30º	T-1 3/4 (5mm) Round
WP7143SURC	InGaAlP	628	water clear	*480	*850	30º	
WP7143SURC/E	InGaAlP	630	water clear	*650	*1300	30º	
WP7143SGC	GaP	568	water clear	*70	*150	30º	



WP1703SURC	InGaAlP	628	water clear	*280	*700	50º	T-1 3/4 (5mm) Round
WP1703SURC/E	InGaAlP	630	water clear	*650	*1000	50º	

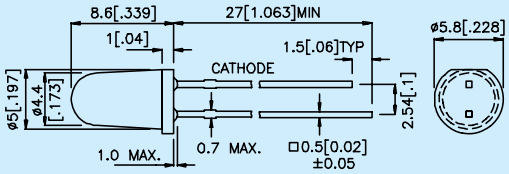
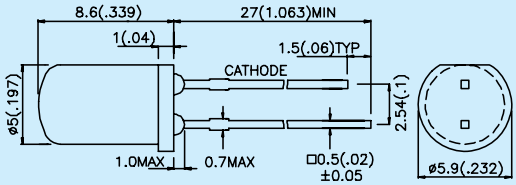
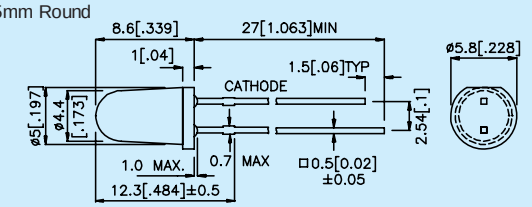
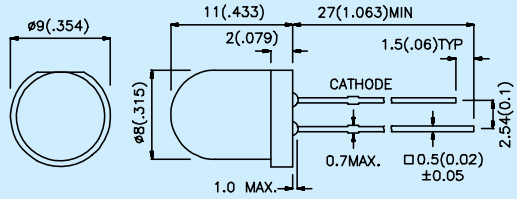
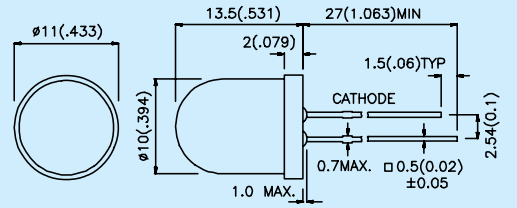


WP7113ID	GaAsP/GaP	625	red diffused	8	45	30º	T-1 3/4 (5mm) Round
WP7113IT	GaAsP/GaP	625	red transparent	28	80	20º	
WP7113EC	GaAsP/GaP	625	water clear	28	80	20º	
WP7113ED	GaAsP/GaP	625	orange diffused	8	25	30º	
WP7113ND	GaAsP/GaP	610	orange diffused	12	30	30º	
WP7113NT	GaAsP/GaP	610	orange transparent	40	80	20º	
WP7113NC	GaAsP/GaP	610	water clear	40	80	20º	
WP7113YD	GaAsP/GaP	588	yellow diffused	5	20	30º	
WP7113YT	GaAsP/GaP	588	yellow transparent	18	40	20º	
WP7113YC	GaAsP/GaP	588	water clear	18	40	20º	
WP7113GD	GaP	568	green diffused	5	20	30º	
WP7113GT	GaP	568	green transparent	18	60	20º	
WP7113GC	GaP	568	water clear	18	60	20º	
WP7113PGD	GaP	555	green diffused	1.8	5	30º	
WP7113PGT	GaP	555	green transparent	5	10	20º	
WP7113PGC	GaP	555	water clear	5	10	20º	
WP7113SRSGW	GaAlAs	640	white diffused	*110	*200	35º	
	GaP	568		*18	*60		



NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

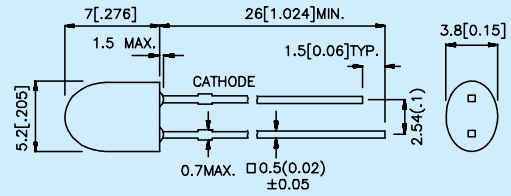
WP2523	WP7083	WP7524	WP793	WP813
				

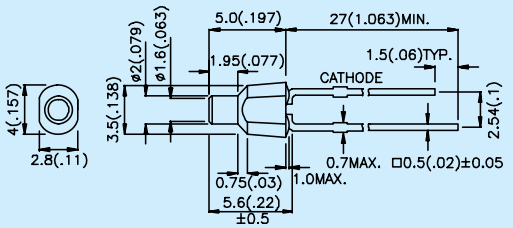
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP2523SURC	InGaAlP	628	water clear	*1200	*4000	12º	T-1 3/4 (5mm) Round 
WP2523SURC/E	InGaAlP	630	water clear	*1500	*4500	12º	
WP7083ID	GaAsP/GaP	625	red diffused	8	25	60º	5mm Round 
WP7083SED/H	InGaAlP	630	orange diffused	*2200	*3600	60º	
WP7083YD	GaAsP/GaP	588	yellow diffused	1.8	8	60º	
WP7083SYD/H	InGaAlP	589	yellow diffused	*180	*420	60º	
WP7083SGD	GaP	568	green diffused	*10	*35	60º	
WP7083VGD/H	InGaN	525	green diffused	*1500	*2200	60º	
WP7083PBD/H	InGaN	470	blue diffused	*280	*450	60º	
WP7524SEC/H	InGaAlP	630	water clear	*5700	*9500	18º	5mm Round 
WP7524SYC/H	InGaAlP	589	water clear	*1800	*2800	18º	
WP7524VGC/H	InGaN	525	water clear	*6700	*13000	18º	
WP7524PBC/H	InGaN	470	water clear	*1800	*3300	18º	
WP793ID	GaAsP/GaP	625	red diffused	*36	*100	60º	8mm Round 
WP793SRC/D	GaAlAs	640	water clear	*1500	*1700	40º	
WP793SRC/E	GaAlAs	640	water clear	*1800	*2700	40º	
WP793SRC/F	GaAlAs	640	water clear	*2800	*3800	40º	
WP793SRD/D	GaAlAs	640	red diffused	*280	*350	60º	
WP793SRD/E	GaAlAs	640	red diffused	*380	*450	60º	
WP793SRD/F	GaAlAs	640	red diffused	*480	*600	60º	
WP793SRD/G	GaAlAs	640	red diffused	*650	*700	60º	
WP793SRD/H	GaAlAs	640	red diffused	*900	*1200	60º	
WP793ED	GaAsP/GaP	625	orange diffused	*36	*100	60º	
WP793YD	GaAsP/GaP	588	yellow diffused	*18	*50	60º	
WP793GD	GaP	568	green diffused	*18	*60	60º	
WP813ID	GaAsP/GaP	625	red diffused	*36	*100	60º	10mm Round 
WP813SRC/D	GaAlAs	640	water clear	*1500	*1700	40º	
WP813SRC/E	GaAlAs	640	water clear	*1800	*2700	40º	
WP813SRC/F	GaAlAs	640	water clear	*2800	*3800	40º	
WP813SRD/D	GaAlAs	640	red diffused	*280	*350	60º	
WP813SRD/E	GaAlAs	640	red diffused	*380	*450	60º	
WP813SRD/F	GaAlAs	640	red diffused	*480	*600	60º	
WP813SRD/G	GaAlAs	640	red diffused	*650	*700	60º	
WP813SRD/H	GaAlAs	640	red diffused	*900	*1200	60º	
WP813ED	GaAsP/GaP	625	orange diffused	*36	*100	60º	
WP813YD	GaAsP/GaP	588	yellow diffused	*10	*50	60º	
WP813GD	GaP	568	green diffused	*18	*60	60º	

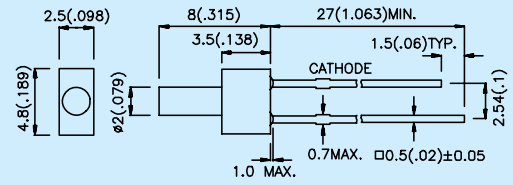
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

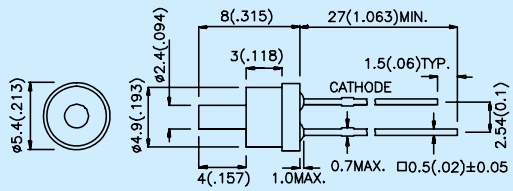
WP5603	WP1034	WP13	WP443	WP424
				

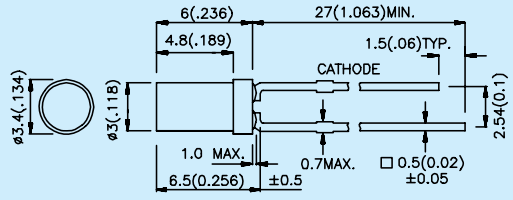
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP5603SIDL/SD/H	InGaAlP	630	red semi diffused	*650	*2500	100°(H) 50°(V)	5.2mm Oval
WP5603SYDL/SD/H	InGaAlP	589	yellow semi diffused	*380	*750	100°(H) 50°(V)	
WP5603VGDL/SD/H	InGaN	525	green semi diffused	*650	*2100	100°(H) 50°(V)	
WP5603PBDL/SD/H	InGaN	470	blue semi diffused	*480	*1100	100°(H) 50°(V)	
WP1034IDT	GaAsP/GaP	625	red diffused	3	8	70°	2mm Flat Top
WP1034HDT	GaP	660	red diffused	0.4	1	70°	
WP1034YDT	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
WP1034GDT	GaP	568	green diffused	1.8	6	70°	
WP13HD	GaP	660	red diffused	0.4	1.5	70°	2mm Flat Top
WP13ID	GaAsP/GaP	625	red diffused	5	10	70°	
WP13YD	GaAsP/GaP	588	yellow diffused	3	8	70°	
WP13GD	GaP	568	green diffused	3	10	70°	
WP443HDT	GaP	660	red diffused	0.4	2	100°	2.4mm Flat Top
WP443IDT	GaAsP/GaP	625	red diffused	3	10	100°	
WP443EDT	GaAsP/GaP	625	orange diffused	3	10	100°	
WP443YDT	GaAsP/GaP	588	yellow diffused	1	5	100°	
WP443GDT	GaP	568	green diffused	1	5	100°	
WP424HDT	GaP	660	red diffused	0.4	1	100°	T-1 (3mm) Cylindrical
WP424IDT	GaAsP/GaP	625	red diffused	3	5	100°	
WP424SRDT	GaAlAs	640	red diffused	*36	*100	100°	
WP424EDT	GaAsP/GaP	625	orange diffused	3	5	100°	
WP424YDT	GaAsP/GaP	588	yellow diffused	1	4	100°	
WP424GDT	GaP	568	green diffused	1	4	100°	







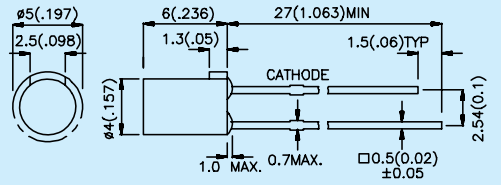


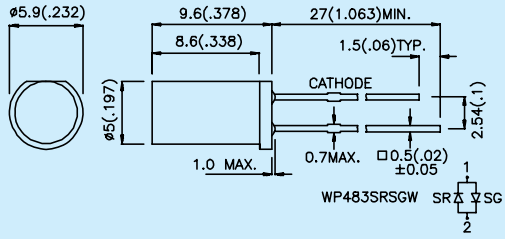


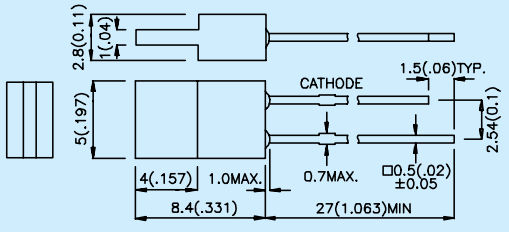
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

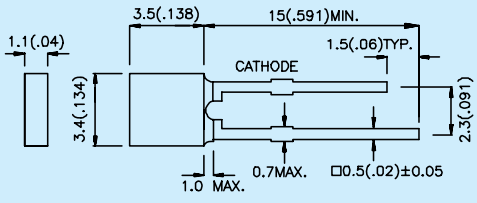
WP1413	WP483	WP1053	WP1002
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP1413HDT	GaP	660	red diffused	0.3	1	100º	4mm Cylindrical
WP1413IDT	GaAsP/GaP	625	red diffused	3	5	100º	
WP1413ITL	GaAsP/GaP	625	red transparent	12	20	70º	
WP1413SRDT	GaAlAs	640	red diffused	*50	*80	100º	
WP1413YDT	GaAsP/GaP	588	yellow diffused	1	3	100º	
WP1413GDT	GaP	568	green diffused	1	3	100º	
WP1413SGDL	GaP	568	green diffused	*2.6	*10	100º	
WP483HDT	GaP	660	red diffused	0.4	1	100º	T-1 3/4 (5mm) Cylindrical
WP483IDT	GaAsP/GaP	625	red diffused	1.8	5	100º	
WP483EDT	GaAsP/GaP	625	orange diffused	3	7	100º	
WP483YDT	GaAsP/GaP	588	yellow diffused	0.7	3	100º	
WP483GDT	GaP	568	green diffused	1	4	100º	
WP483SRSGW	GaAlAs	640	white diffused	*18	*50	80º	
	GaP	568		*4	*10		
WP1053HDT	GaP	660	red diffused	0.4	1	110º	1mm x 5mm Rectangular
WP1053IDT	GaAsP/GaP	625	red diffused	3	8	110º	
WP1053YDT	GaAsP/GaP	588	yellow diffused	1.8	5	110º	
WP1053GDT	GaP	568	green diffused	1.8	5	110º	
WP1002HD	GaP	660	red diffused	0.2	0.7	110º	1.1mm x 3.4mm Rectangular
WP1002ID	GaAsP/GaP	625	red diffused	1	3	110º	
WP1002YD	GaAsP/GaP	588	yellow diffused	0.4	2.5	110º	
WP1002GD	GaP	568	green diffused	0.4	2.5	110º	









NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

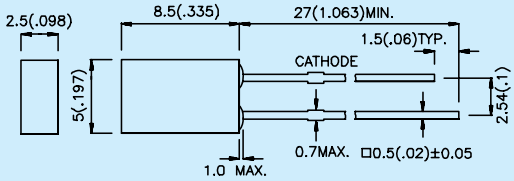
WP1773	WP144	WP914	WP103	WP113
				

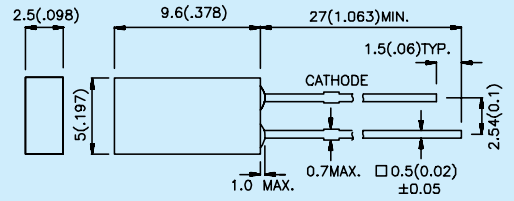
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP1773HD	GaP	660	red diffused	0.7	2	100º	1.75mm x 4mm Rectangular
WP1773ID	GaAsP/GaP	625	red diffused	5	10	100º	
WP1773ED	GaAsP/GaP	625	orange diffused	5	10	100º	
WP1773ND	GaAsP/GaP	610	orange diffused	5	8	100º	
WP1773YD	GaAsP/GaP	588	yellow diffused	3	8	100º	
WP1773GD	GaP	568	green diffused	3	10	100º	
WP144HDT	GaP	660	red diffused	0.4	1	110º	1.9mm x 3.9mm Rectangular
WP144IDT	GaAsP/GaP	625	red diffused	3	6	110º	
WP144SRDT	GaAlAs	640	red diffused	*36	*70	110º	
WP144EDT	GaAsP/GaP	625	orange diffused	3	6	110º	
WP144YDT	GaAsP/GaP	588	yellow diffused	1	3	110º	
WP144GDT	GaP	568	green diffused	1	4	110º	
WP914HDT	GaP	660	red diffused	0.2	1	100º	2mm x 3mm Rectangular
WP914HT	GaP	660	red transparent	0.4	1	90º	
WP914IDT	GaAsP/GaP	625	red diffused	1.8	8	100º	
WP914IT	GaAsP/GaP	625	red transparent	3	8	90º	
WP914EDT	GaAsP/GaP	625	orange diffused	1.8	8	100º	
WP914ET	GaAsP/GaP	625	orange transparent	3	8	90º	
WP914ADT	GaAsP/GaP	588	amber diffused	1.8	5	100º	
WP914AT	GaAsP/GaP	588	amber transparent	1.8	7	90º	
WP914GDT	GaP	568	green diffused	1.8	6	100º	
WP914GT	GaP	568	green transparent	3	8	90º	
WP914PGT	GaP	555	green transparent	0.4	1	90º	
WP103HDT	GaP	660	red diffused	0.4	1	110º	2mm x 5mm Rectangular
WP103IDT	GaAsP/GaP	625	red diffused	1.8	5	110º	
WP103SRDT	GaAlAs	640	red diffused	*36	*80	110º	
WP103EDT	GaAsP/GaP	625	orange diffused	1.8	5	110º	
WP103YDT	GaAsP/GaP	588	yellow diffused	1	4	110º	
WP103GDT	GaP	568	green diffused	1.8	5	110º	
WP113HDT	GaP	660	red diffused	0.4	1	110º	2mm x 5mm Rectangular
WP113IDT	GaAsP/GaP	625	red diffused	3	5	110º	
WP113SRDT	GaAlAs	640	red diffused	*36	*80	110º	
WP113EDT	GaAsP/GaP	625	orange diffused	3	5	110º	
WP113YDT	GaAsP/GaP	588	yellow diffused	1	4	110º	
WP113GDT	GaP	568	green diffused	1.8	5	110º	
WP113SRSGWT	GaAlAs	640	white diffused	*36	*70	100º	
	GaP	568		*7	*10		

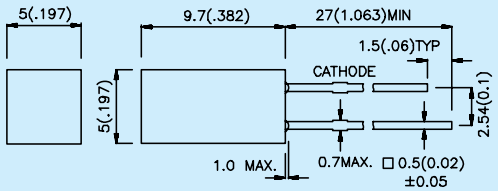
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

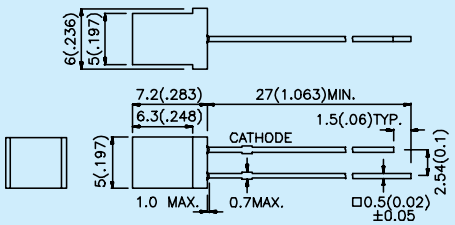
WP513	WP383	WP1553	WP503	DLX/6
				

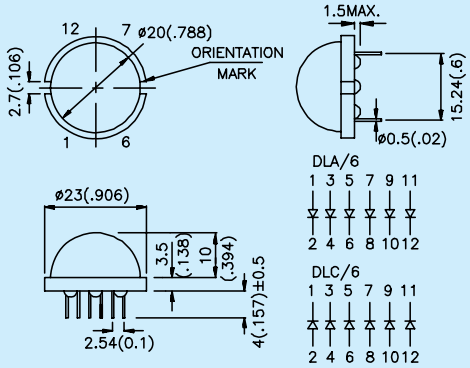
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				Min.	Typ.	2θ1/2	
WP513HDT	GaP	660	red diffused	0.4	1	110º	2.5mm x 5mm Rectangular
WP513IDT	GaAsP/GaP	625	red diffused	1.8	5	110º	
WP513EDT	GaAsP/GaP	625	orange diffused	1.8	5	110º	
WP513YDT	GaAsP/GaP	588	yellow diffused	1	3	110º	
WP513GDT	GaP	568	green diffused	1	3	110º	
WP513SGDT	GaP	568	green diffused	*7	*10	110º	
WP383HDT	GaP	660	red diffused	0.4	1	110º	2.5mm x 5mm Rectangular
WP383IDT	GaAsP/GaP	625	red diffused	3	5	110º	
WP383SRDT	GaAlAs	640	red diffused	*36	*70	110º	
WP383EDT	GaAsP/GaP	625	orange diffused	3	5	110º	
WP383YDT	GaAsP/GaP	588	yellow diffused	1	4	110º	
WP383GDT	GaP	568	green diffused	1	4	110º	
WP1553HDT	GaP	660	red diffused	0.4	1	110º	5mm x 5mm Square
WP1553IDT	GaAsP/GaP	625	red diffused	3	8	110º	
WP1553SRDT	GaAlAs	640	red diffused	*36	*80	110º	
WP1553EDT	GaAsP/GaP	625	orange diffused	3	8	110º	
WP1553YDT	GaAsP/GaP	588	yellow diffused	1	5	110º	
WP1553GDT	GaP	568	green diffused	1	5	110º	
WP503HDT	GaP	660	red diffused	0.4	1	110º	5mm x 5mm Square
WP503IDT	GaAsP/GaP	625	red diffused	3	6	110º	
WP503YDT	GaAsP/GaP	588	yellow diffused	1	3	110º	
WP503GDT	GaP	568	green diffused	1	3	110º	
DLA/6ID DLC/6ID	GaAsP/GaP	625	red diffused	12	50	120º	20mm
DLA/6SRD DLC/6SRD	GaAlAs	640	red diffused	*110	*400	120º	
DLA/6YD DLC/6YD	GaAsP/GaP	588	yellow diffused	12	50	120º	
DLA/6GD DLC/6GD	GaP	568	green diffused	18	80	120º	
DLA/6SGD DLC/6SGD	GaP	568	green diffused	*70	*200	120º	











NOTES:
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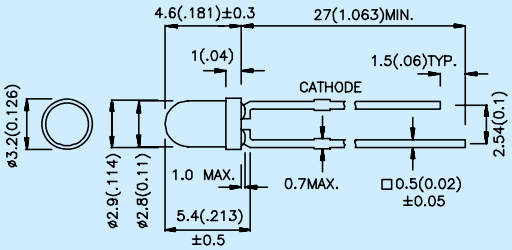
WP7104



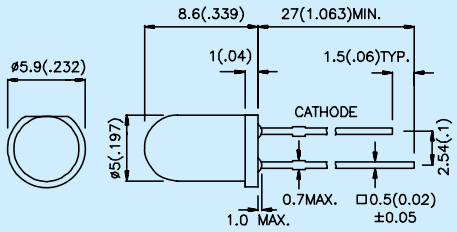
WP7113



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP7104SRC/D	GaAlAs	640	water clear	480	600	34º	T-1 (3mm) Round
WP7104SRC/E	GaAlAs	640	water clear	650	800	34º	
WP7104SRD/D	GaAlAs	640	red diffused	110	150	40º	
WP7104SRD/E	GaAlAs	640	red diffused	180	250	40º	
WP7104SRD/F	GaAlAs	640	red diffused	280	350	40º	
WP7104SURC/E	InGaAlP	630	water clear	900	1300	34º	
WP7104SEC	InGaAlP	601	water clear	480	1300	34º	
WP7104SED	InGaAlP	601	orange diffused	280	800	40º	
WP7104SET	InGaAlP	601	orange transparent	480	1300	34º	
WP7104SEC/E	InGaAlP	621	water clear	900	2000	34º	
WP7104SEC/H	InGaAlP	630	water clear	1800	3500	34º	
WP7104SYC	InGaAlP	588	water clear	280	700	34º	
WP7104SYT	InGaAlP	588	yellow transparent	280	700	34º	
WP7104SYD	InGaAlP	588	yellow diffused	110	250	40º	
WP7104SYC/H	InGaAlP	589	water clear	480	900	34º	
WP7104SGC	GaP	568	water clear	70	150	34º	
WP7104SGD	GaP	568	green diffused	18	40	40º	
WP7104CGCK	InGaAlP	570	water clear	110	350	34º	
WP7104VGC/E	InGaN	525	water clear	1500	2000	34º	
WP7104PBC	InGaN	470	water clear	180	450	20º	
WP7104PBD	InGaN	470	blue diffused	70	200	30º	
WP7104PBC/A	InGaN	465	water clear	900	1600	20º	
WP7104PBC/E	InGaN	470	water clear	280	550	20º	
WP7104PBC/H	InGaN	470	water clear	1200	2000	20º	



WP7113SRC/DU	GaAlAs	640	water clear	900	1100	20º	T-1 3/4 (5mm) Round
WP7113SRC/DV	GaAlAs	640	water clear	1200	1400	20º	
WP7113SRC/DW	GaAlAs	640	water clear	1500	1700	20º	
WP7113SRD/D	GaAlAs	640	red diffused	180	250	30º	
WP7113SRD/E	GaAlAs	640	red diffused	280	400	30º	
WP7113SRD/F	GaAlAs	640	red diffused	480	600	30º	
WP7113SURC	InGaAlP	628	water clear	1200	1400	20º	
WP7113SURC/E	InGaAlP	630	water clear	1500	2200	20º	
WP7113SEC	InGaAlP	601	water clear	650	2500	20º	
WP7113SET	InGaAlP	601	orange transparent	650	2500	20º	
WP7113SED	InGaAlP	601	orange diffused	380	800	30º	
WP7113SEC/E	InGaAlP	621	water clear	1500	5000	20º	
WP7113SEC/H	InGaAlP	630	water clear	3800	10000	20º	
WP7113SYC	InGaAlP	588	water clear	650	2000	20º	
WP7113SYT	InGaAlP	588	yellow transparent	650	2000	20º	
WP7113SYD	InGaAlP	588	yellow diffused	110	400	30º	
WP7113SYC/H	InGaAlP	589	water clear	1500	4500	20º	
WP7113SGC	GaP	568	water clear	70	200	20º	
WP7113SGD	GaP	568	green diffused	18	40	30º	
WP7113CGCK	InGaAlP	570	water clear	380	900	20º	
WP7113VGC/E	InGaN	525	water clear	1800	3000	20º	
WP7113VGC/H	InGaN	525	water clear	7500	18000	20º	
WP7113PBD	InGaN	470	blue diffused	70	400	20º	
WP7113PBT	InGaN	470	blue transparent	280	450	16º	
WP7113PBC	InGaN	470	water clear	280	1000	16º	
WP7113PBC/A	InGaN	465	water clear	900	1800	16º	
WP7113PBC/E	InGaN	470	water clear	650	1200	16º	
WP7113PBC/H	InGaN	470	water clear	1500	3200	16º	



NOTES:
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WP937	WP115V	WP115W	WP3V
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP937IID	GaAsP/GaP	625	red diffused	7	20	60º	T-1 (3mm) Round
	GaAsP/GaP	625		7	20		
WP937GGD	GaP	568	green diffused	4	15	60º	
	GaP	568		4	15		
WP937YYD	GaAsP/GaP	588	yellow diffused	4	10	60º	
	GaAsP/GaP	588		4	10		
WP937EGW	GaAsP/GaP	625	white diffused	7	20	60º	
	GaP	568		7	16		
WP937EYW	GaAsP/GaP	625	white diffused	7	20	60º	
	GaAsP/GaP	588		1.6	7		
WP937GYW	GaP	568	white diffused	7	16	60º	
	GaAsP/GaP	588		1.6	7		
WP115VEGW	GaAsP/GaP	625	white diffused	10	50	60º	T-1 (3mm) Round
	GaP	568		10	30		
WP115VEYW	GaAsP/GaP	625	white diffused	10	50	60º	
	GaAsP/GaP	588		7	15		
WP115VGYW	GaP	568	white diffused	10	30	60º	
	GaAsP/GaP	588		7	15		
WP115WEGW	GaAsP/GaP	625	white diffused	10	40	60º	T-1 (3mm) Round
	GaP	568		10	35		
WP115WEYW	GaAsP/GaP	625	white diffused	10	40	60º	
	GaAsP/GaP	588		7	20		
WP115WGYW	GaP	568	white diffused	10	35	60º	
	GaAsP/GaP	588		7	20		
WP3VEGW	GaAsP/GaP	625	white diffused	10	40	60º	T-1 (3mm) Round
	GaP	568		10	35		
WP3VEYW	GaAsP/GaP	625	white diffused	10	40	60º	
	GaAsP/GaP	588		7	15		
WP3VGYW	GaP	568	white diffused	10	35	60º	
	GaAsP/GaP	588		7	15		

NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP57	WP59	WP799
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP57IID	GaAsP/GaP	625	red diffused	7	20	60°	T-1 3/4 (5mm) Round
	GaAsP/GaP	625		7	20		
WP57GGD	GaP	568	green diffused	4	10	60°	
	GaP	568		4	10		
WP57YYD	GaAsP/GaP	588	yellow diffused	4	10	60°	
	GaAsP/GaP	588		4	10		
WP57SRSRD	GaAlAs	640	red diffused	70	150	60°	
	GaAlAs	640		70	150		
WP57EGW	GaAsP/GaP	625	white diffused	10	30	60°	
	GaP	568		10	20		
WP57EYW	GaAsP/GaP	625	white diffused	10	30	60°	
	GaAsP/GaP	588		4	10		
WP57GYW	GaP	568	white diffused	10	20	60°	
	GaAsP/GaP	588		4	10		
WP59EGW	GaAsP/GaP	625	white diffused	18	60	60°	T-1 3/4 (5mm) Round
	GaP	568		18	50		
WP59EGW/CA	GaAsP/GaP	625	white diffused	2.6	5	60°	
	GaP	568		1.6	5		
WP59EYW	GaAsP/GaP	625	white diffused	18	60	60°	
	GaAsP/GaP	588		18	40		
WP59GYW	GaP	568	white diffused	18	50	60°	
	GaAsP/GaP	588		18	40		
WP59SRSGW/CC	GaAlAs	640	white diffused	110	220	60°	
	GaP	568		36	60		
WP59SURKMGKW	InGaAlP	635	white diffused	280	700	60°	
	InGaAlP	570		50	170		
WP59EGC	GaAsP/GaP	625	water clear	70	150	24°	
	GaP	568		70	150		
WP59EYC	GaAsP/GaP	625	water clear	70	150	24°	
	GaAsP/GaP	588		18	60		
WP59GYC	GaP	568	water clear	70	150	24°	
	GaAsP/GaP	588		18	60		
WP59SRSGC/CC	GaAlAs	640	water clear	280	600	24°	
	GaP	568		70	200		
WP59SURKSGC	InGaAlP	635	water clear	480	1100	24°	
	GaP	568		70	200		
WP799EGW	GaAsP/GaP	625	white diffused	36	80	50°	8mm Round
	GaP	568		18	50		
WP799SRSGW/CC	GaAlAs	640	white diffused	110	200	50°	
	GaP	568		18	50		
WP799SURKMGKW	InGaAlP	635	white diffused	380	600	50°	
	InGaAlP	570		50	130		

NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

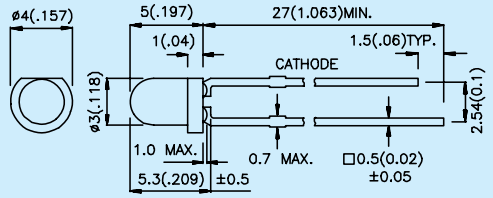
WP819	WP117	WP119
		

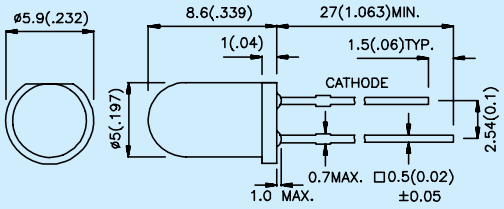
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP819IID	GaAsP/GaP	625	red diffused	36	80	50°	10mm Round
	GaAsP/GaP	625		36	80		
WP819GGD	GaP	568	green diffused	10	40	50°	
	GaP	568		10	40		
WP819YYD	GaAsP/GaP	588	yellow diffused	10	30	50°	
	GaAsP/GaP	588		10	30		
WP819EGW	GaAsP/GaP	625	white diffused	36	80	50°	
	GaP	568		18	50		
WP819SRSGW/CC	GaAlAs	640	white diffused	110	200	50°	
	GaP	568		36	50		
WP819SURKMGKW	InGaAlP	635	white diffused	380	750	50°	
	InGaAlP	570		50	130		
WP117EGWT	GaAsP/GaP	625	white diffused	4	10	110°	2mm x 5mm Rectangular
	GaP	568		4	8		
WP117EYWT	GaAsP/GaP	625	white diffused	4	10	110°	
	GaAsP/GaP	588		2.6	6		
WP117GYWT	GaP	568	white diffused	4	8	110°	
	GaAsP/GaP	588		2.6	6		
WP119EGWT	GaAsP/GaP	625	white diffused	7	20	110°	2mm x 5mm Rectangular
	GaP	568		4	12		
WP119SRSGWT/CC	GaAlAs	640	white diffused	18	60	110°	
	GaP	568		4	12		
WP119SURKMGKWT	InGaAlP	635	white diffused	70	170	110°	
	InGaAlP	570		10	30		

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

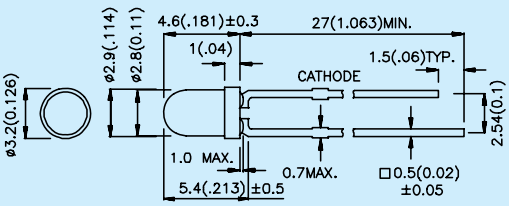
WP36B	WP56B	WP7104L	WP7113L
			

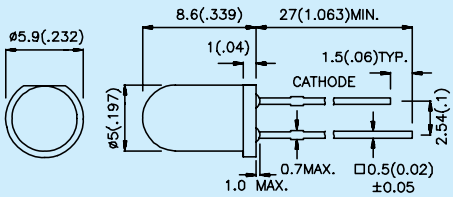
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=9V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP36BHD	GaP	660	red diffused	1	2	60º	T-1 (3mm) Round
WP36BID	GaAsP/GaP	625	red diffused	12	20	60º	
WP36BSRD/B	GaAlAs	640	red diffused	110	200	60º	
WP36BYD	GaAsP/GaP	588	yellow diffused	5	10	60º	
WP36BGD	GaP	568	green diffused	5	15	60º	
WP56BHD	GaP	660	red diffused	1.8	5	60º	T-1 3/4 (5mm) Round
WP56BID	GaAsP/GaP	625	red diffused	18	40	60º	
WP56BSRD/B	GaAlAs	640	red diffused	110	200	60º	
WP56BYD	GaAsP/GaP	588	yellow diffused	5	20	60º	
WP56BGD	GaP	568	green diffused	5	20	60º	





Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 2mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP7104LID	GaAsP/GaP	625	red diffused	0.7	3	40º	T-1 (3mm) Round
WP7104LSRD	GaAlAs	640	red diffused	8	20	40º	
WP7104LYD	GaAsP/GaP	588	yellow diffused	0.7	1.5	40º	
WP7104LGD	GaP	568	green diffused	0.7	2	40º	
WP7113LID	GaAsP/GaP	625	red diffused	0.7	5	30º	T-1 3/4 (5mm) Round
WP7113LSRD	GaAlAs	640	red diffused	8	20	30º	
WP7113LYD	GaAsP/GaP	588	yellow diffused	0.7	2	30º	
WP7113LGD	GaP	568	green diffused	0.7	2	30º	





NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

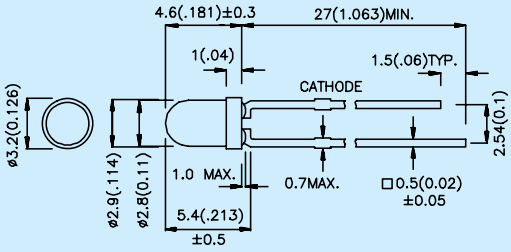
WP7104xxx5V/14V



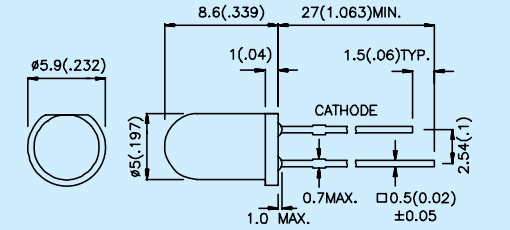
WP7113xxx5V/14V



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=5V *V=14V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP7104ID5V	GaAsP/GaP	625	red diffused	8	20	40º	T-1 (3mm) Round
WP7104ID14V	GaAsP/GaP	625	red diffused	*8	*20	40º	
WP7104SRD5V	GaAlAs	640	red diffused	70	150	40º	
WP7104SRD14V	GaAlAs	640	red diffused	*28	*90	40º	
WP7104YD5V	GaAsP/GaP	588	yellow diffused	8	15	40º	
WP7104YD14V	GaAsP/GaP	588	yellow diffused	*3	*11	40º	
WP7104GD5V	GaP	568	green diffused	8	20	40º	
WP7104GD14V	GaP	568	green diffused	*8	*20	40º	
WP7104SGD5V	GaP	568	green diffused	8	20	40º	
WP7104SGD14V	GaP	568	green diffused	*8	*20	40º	

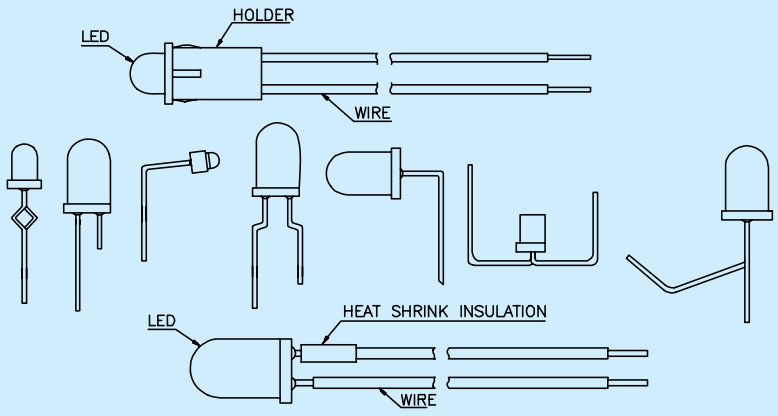


WP7113ID5V	GaAsP/GaP	625	red diffused	12	30	30º	T-1 3/4 (5mm) Round
WP7113ID14V	GaAsP/GaP	625	red diffused	*12	*30	30º	
WP7113SRD5V	GaAlAs	640	red diffused	110	180	30º	
WP7113SRD14V	GaAlAs	640	red diffused	*70	*160	30º	
WP7113YD5V	GaAsP/GaP	588	yellow diffused	5	20	30º	
WP7113YD14V	GaAsP/GaP	588	yellow diffused	*5	*16	30º	
WP7113SGD5V	GaP	568	green diffused	8	20	30º	
WP7113SGD14V	GaP	568	green diffused	*5	*18	30º	



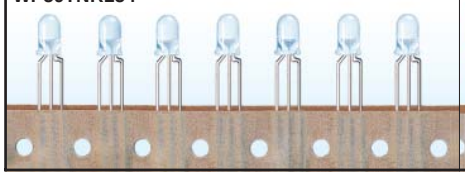
VALUE ADDED LED LAMPS

LED lamp with forming/wire leads available

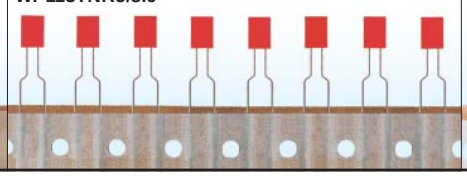


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

WP59TNR254



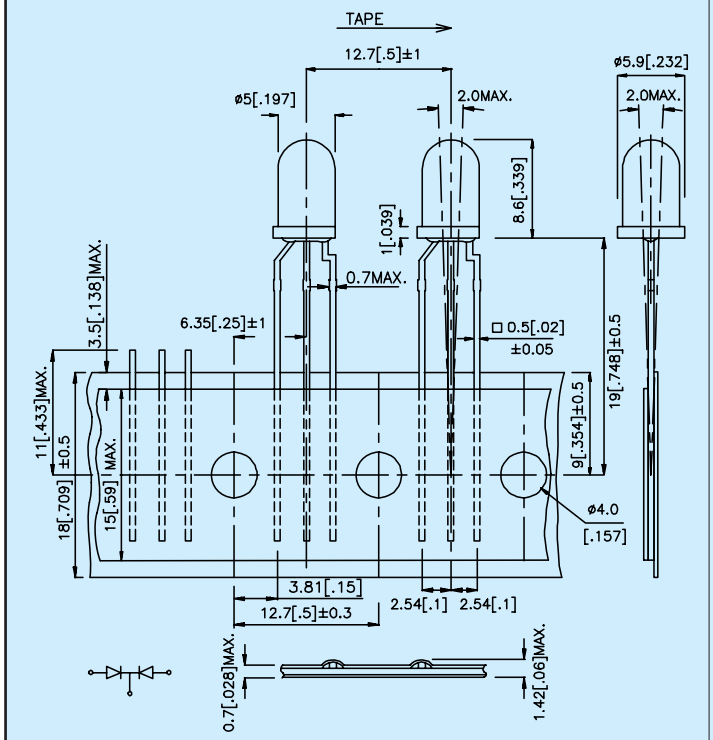
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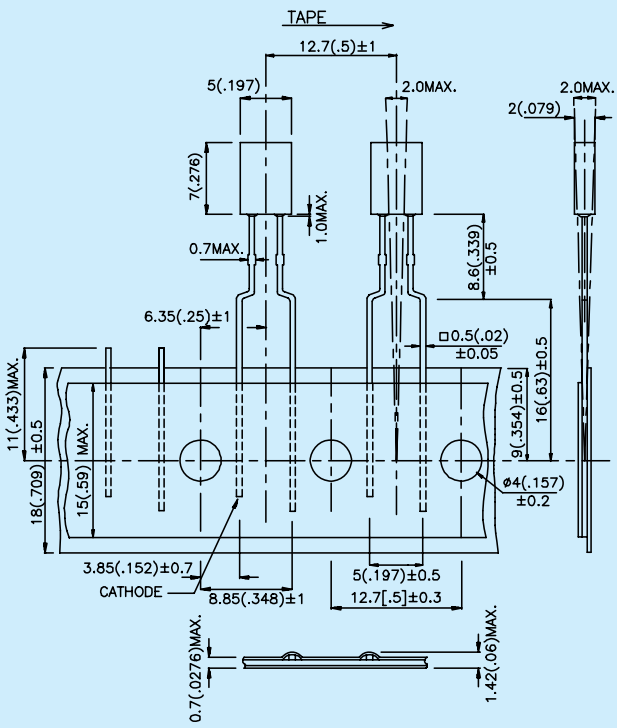
WP132XBR7.7/xxTNR254



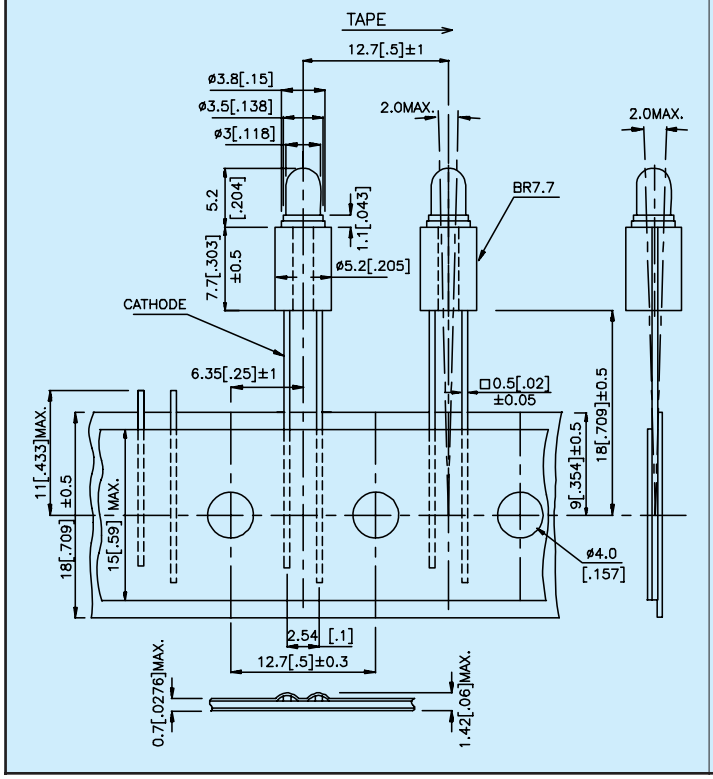
WP59TNR254



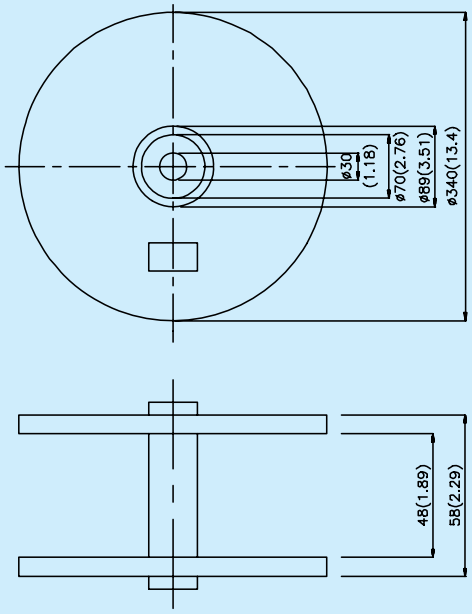
WP113TNR5/8.6



WP132XBR7.7/xxTNR254

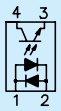
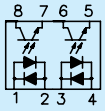


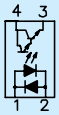
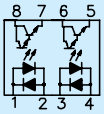
REEL DIMENSIONS



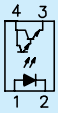
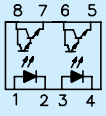
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KB814	KB824	KB8141	KB8241
			

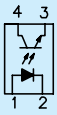
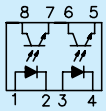
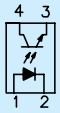
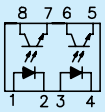
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=±1mA,VCE=5V		IF=±20mA,IC=1mA		VCE=2V,IC=2mA,RL=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB814		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage AC input response	5000	35	20	300	0.1	0.2	4	3	1
KB824												2

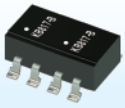
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=±1mA,VCE=2V		IF=±20mA,IC=5mA		VCE=2V,IC=10mA,RL=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB8141		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High sensitivity AC input response	5000	35	600	7500	0.8	1	60	53	1
KB8241												2

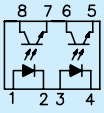
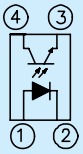
KB815	KB825
	

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
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						IF=1mA,VCE=2V		IF=20mA,IC=5mA		VCE=2V,IC=10mA,RL=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB815		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High sensitivity	5000	35	600	7500	0.8	1	60	53	1
KB825												2

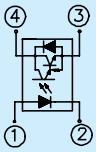
KB816	KB826	KB817	KB827
			

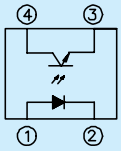
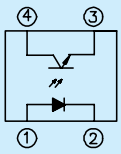
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB816		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High collector-emitter voltage	5000	70	50	600	0.1	0.2	4	3	1
KB826												2
KB817		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage	5000	35	50	600	0.1	0.2	4	3	1
KB827												2

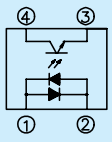
KB817-B	KB827-B	KB851
		

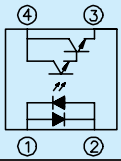
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB817-B		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage SMD Type	5000	35	50	600	0.1	0.2	4	3	3
KB827-B												4
KB851		VDE0884. NO.40006364	High collector emitter Voltage	5000	350	-	-	0.1	**0.3**	4	**3**	1

KB852	KB356NT	KB357NT	KB354NT	KB3541NT
				

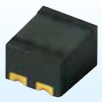
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=1mA,V_{CE}=2V		I_F=20mA,I_C=100mA		V_{CE}=2V,I_C=20mA,R_L=1000Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB852		VDE0884. NO.40006364	High collector-emitter voltage High sensitivity	5000	350	1000	15000	-	1.2	100	20	1

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB356NT		UL NO.E225308	High collector-emitter Voltage Small package size	3750	80	50	600	0.1	0.2	6	8	5
KB357NT			Small package size	3750	35	50	600	-	0.2	4	3	5

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=±1mA,V_{CE}=5V		I_F=±20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB354NT		UL NO.E225308	AC input response Small package size	3750	35	20	400	0.1	0.2	4	3	5

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=±1mA,V_{CE}=2V		I_F=±20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB3541NT		UL NO.E225308	AC.input response High sensitivity Small package size	3750	35	450	7400	0.8	1.0	60	53	5

KBT011



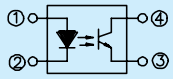
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=5mA,VCE=5V		IF=20mA,IC=1mA		VCE=2V,IC=2mA,RL=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KBT011		--	PCB Surface mounting type	2000	35	50	300	0.1	0.2	4	3	6

Fig.1

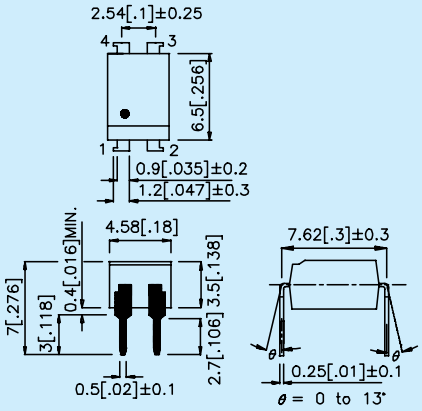


Fig.2

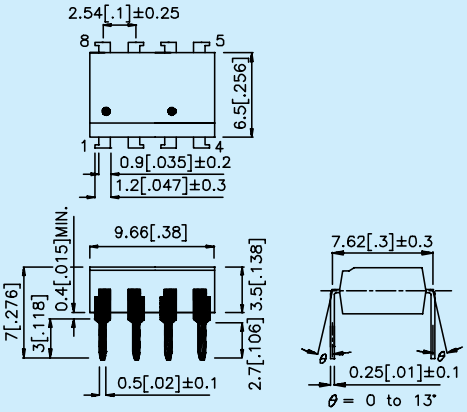


Fig.3

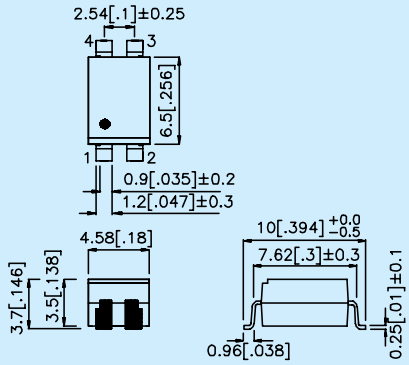


Fig.4

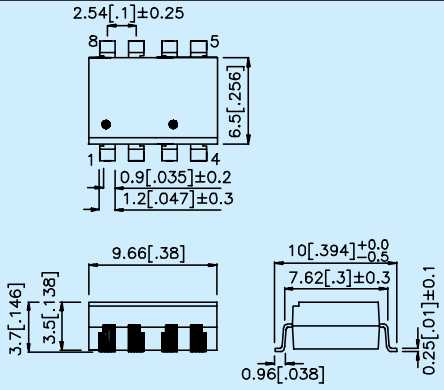


Fig.5

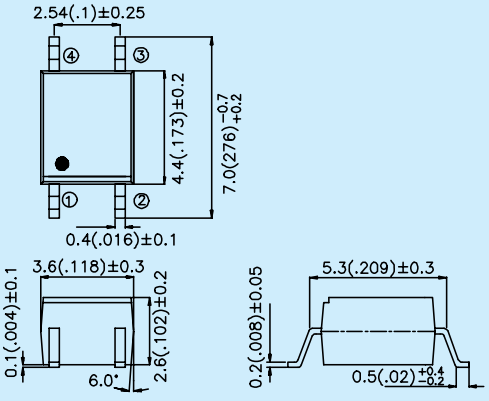
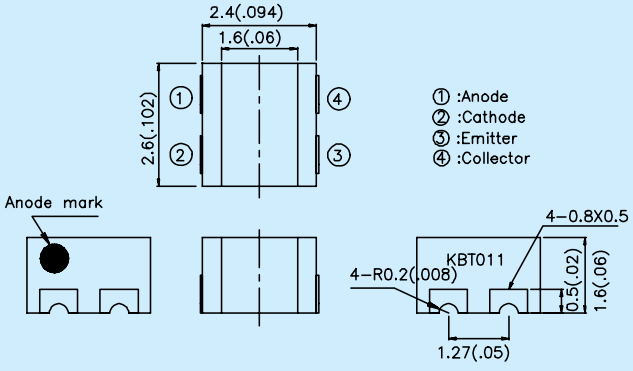


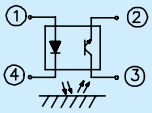
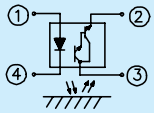
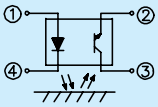
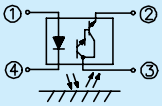
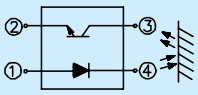
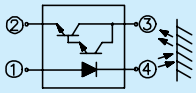
Fig.6

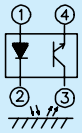
Tolerance :±0.2mm(0.008")



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.5mm(0.02") unless otherwise noted.

ATIR0711S & 0721DS	ATIR0811S & 0821DS	ATIR0A11S & 0A21DS	KRC011	KLTA022
				

Part No.	Pin Configuration	Material	λ P (nm)	Ic (μA) VCE=2V,IF=4mA			VCE(SAT)			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				Min.	Typ.	Max.	IF(mA)	IC(mA)	Max.(V)			
ATIR0711S		GaAs/SiC	940	10	-	400	-	-	-	20	20	1
ATIR0721DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70	
ATIR0811S		GaAs/SiC	940	10	-	400	-	-	-	20	20	2
ATIR0821DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70	
ATIR0A11S		GaAs/SiC	940	10	-	400	-	-	-	20	20	3
ATIR0A21DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70	

Part No.	Pin Configuration	Material	λ P (nm)	Ic (μA) VCE=5V,IF=20mA			VCE(SAT)			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				Min.	Typ.	Max.	IF(mA)	IC(mA)	Max.(V)			
KRC011		GaAs/SiC	940	10	-	300	-	-	-	20	20	4

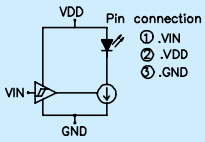
Part No.	Pin Configuration	λ P (nm)			V_{DD} (V)		T (Mbps)	P_C (dBm)			Δt_j (ns)	Fig.
		Min.	Typ.	Max.	Min.	Max.	Max.	Min.	Typ.	Max.	Typ.	
KLTA022		630	660	690	2.7	5.5	13	-21	-17	-15	1	5

Fig.1

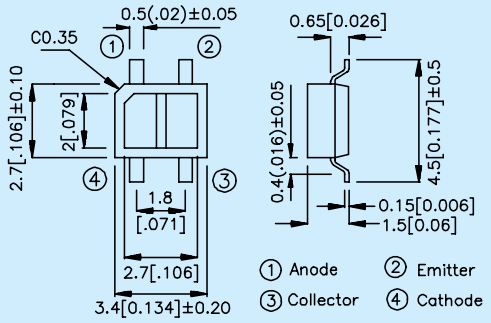


Fig.3

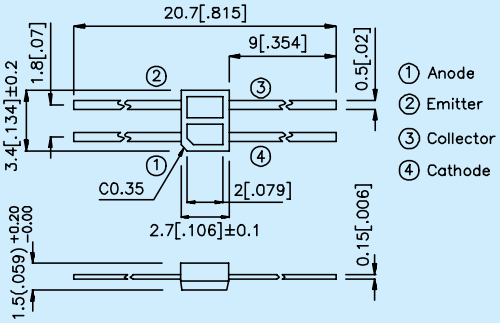


Fig.2

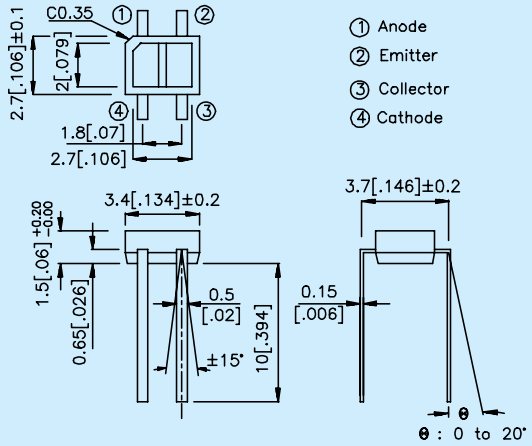


Fig.4

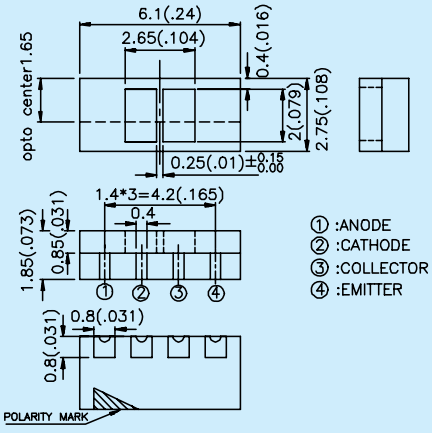
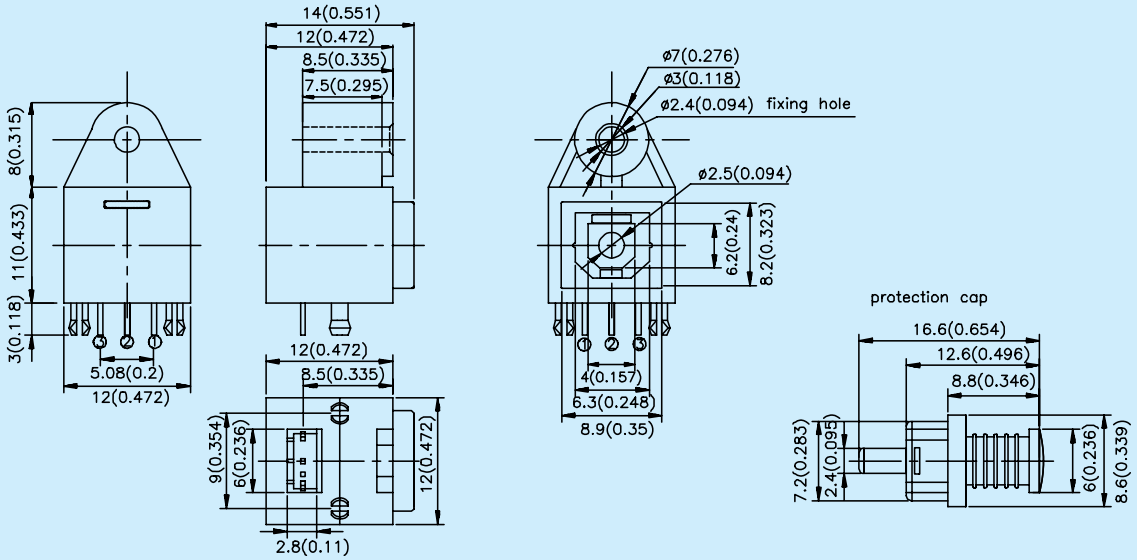
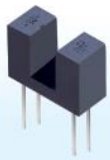
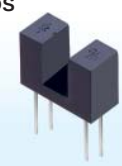
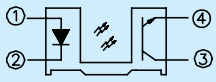
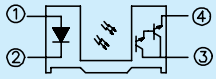
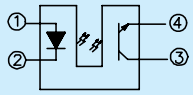
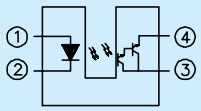


Fig.5

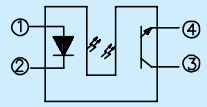
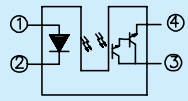
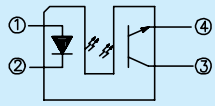
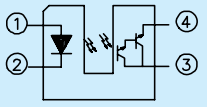


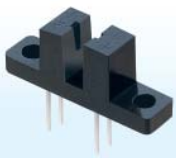
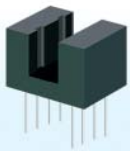
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

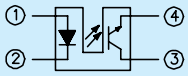
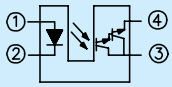
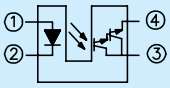
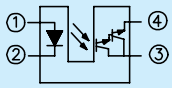
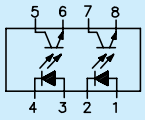
ATIR0511S	ATIR0521DS	ATIR0611S	ATIR0621DS
			

Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
ATIR0511S		GaAs/SiC	940	20	5	10	40	1	0.4	5	4	6
ATIR0521DS		GaAs/SiC	940	1	2	180	2	1	1	90	80	7
ATIR0611S		GaAs/SiC	940	20	5	14	40	1	0.4	5	4	8
ATIR0621DS		GaAs/SiC	940	1	2	200	2	1	1	90	80	9

ATIR0311S	ATIR0321DS	ATIR0411S	ATIR0421DS
			

Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
ATIR0311S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4	10
ATIR0321DS		GaAs/SiC	940	1	2	650	2	1	1	90	80	11
ATIR0411S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4	12
ATIR0421DS		GaAs/SiC	940	1	2	650	2	1	1	90	80	13

ATIR0911S	ATIR0921DS	ATIR0121DS	ATIR0221DS	ATIR0J11S
				

Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
ATIR0911S		GaAs/SiC	940	20	5	9.5	40	1	0.4	5	4	14
ATIR0921DS		GaAs/SiC	940	1	2	120	2	1	1	90	80	15
ATIR0121DS		GaAs/SiC	940	1	2	600	2	1	1	90	80	16
ATIR0221DS		GaAs/SiC	940	1	2	600	2	1	1	90	80	17
ATIR0J11S		GaAs/SiC	940	20	10	15	20	0.1	0.4	3	5	18

KRA011	KRB011	KRB021	KRB031
			

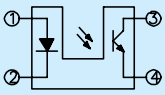
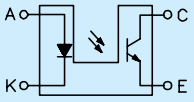
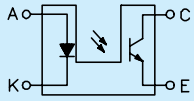
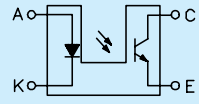
Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KRA011		GaAs/SiC	940	5	5	8	10	0.04	0.4	50	50	19
KRB011		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	20
KRB021		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	21
KRB031		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	22

Fig.6

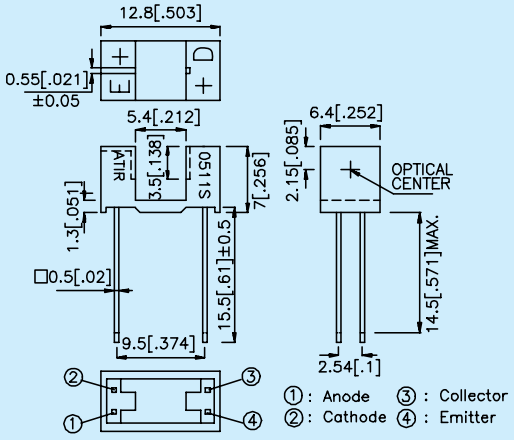


Fig.7

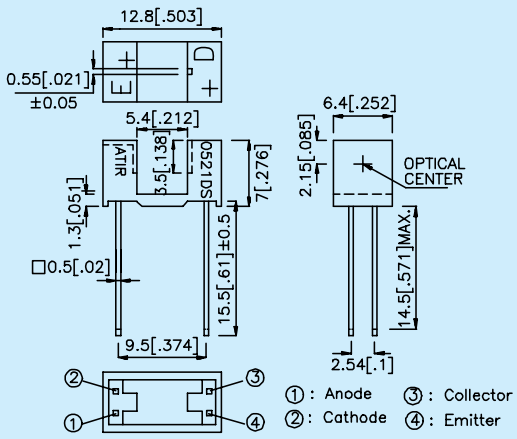


Fig.8

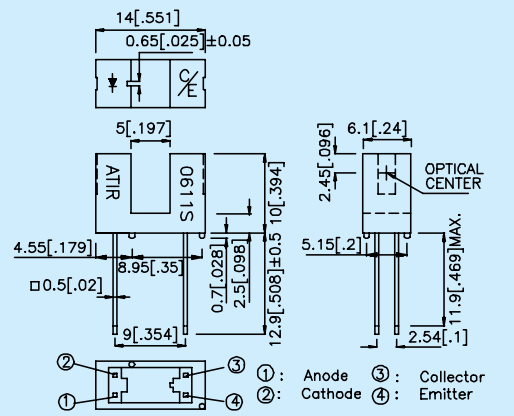


Fig.9

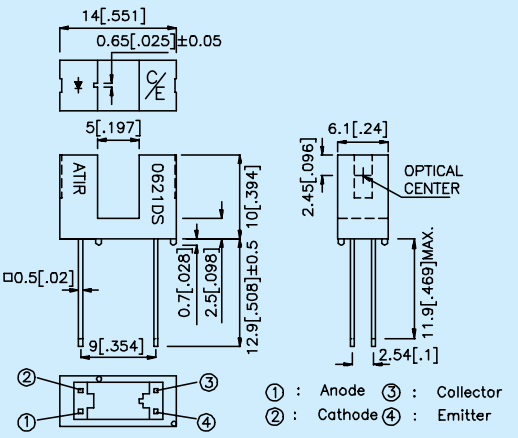


Fig.10

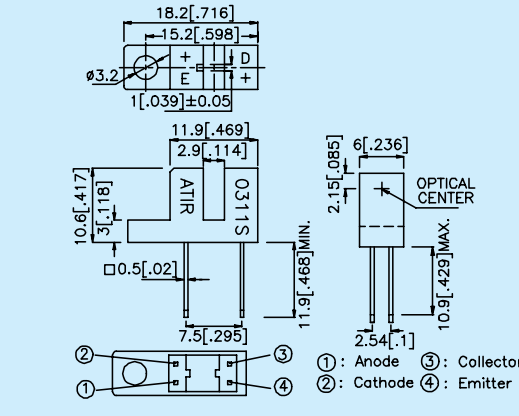


Fig.11

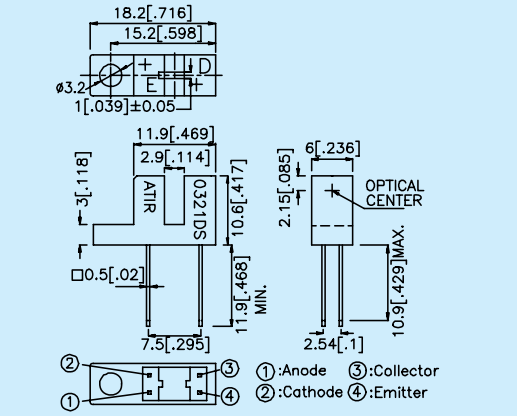


Fig.12

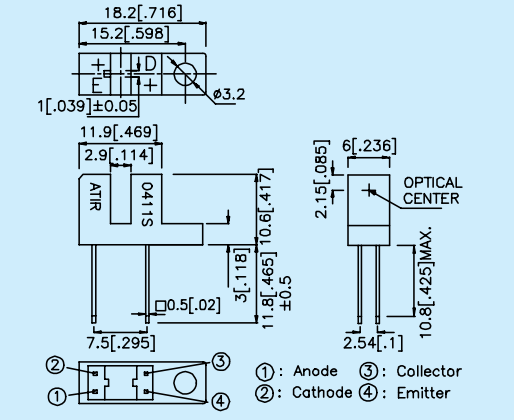
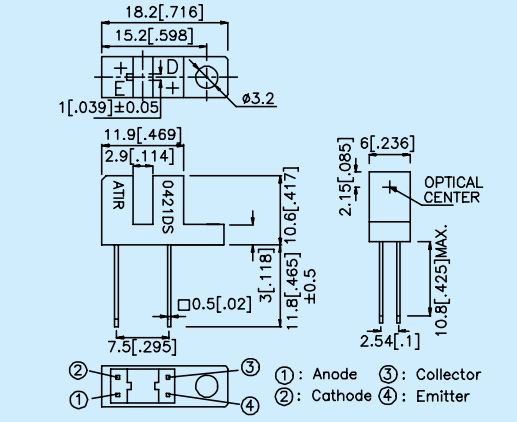


Fig.13



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Fig.14

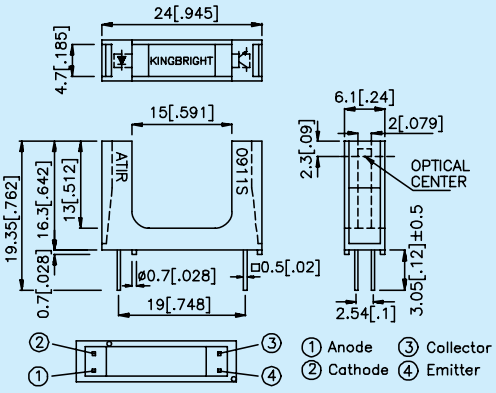


Fig.15

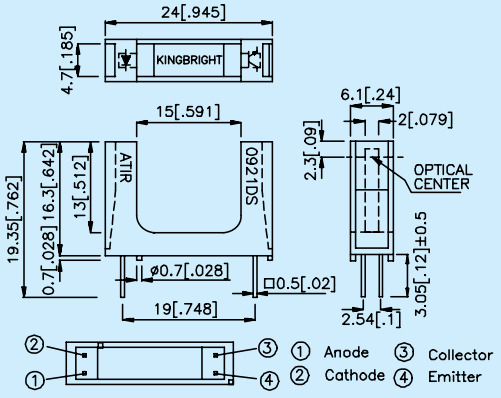


Fig.16

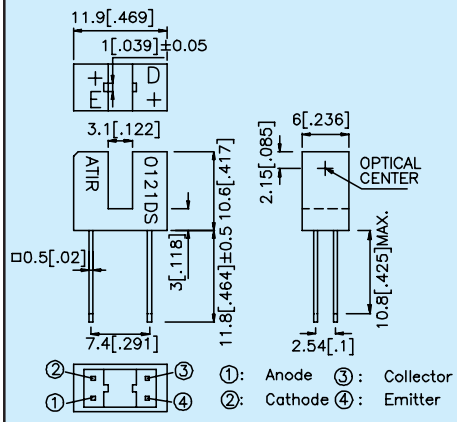


Fig.17

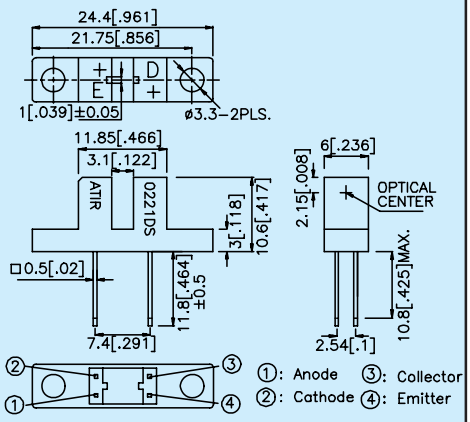


Fig.18

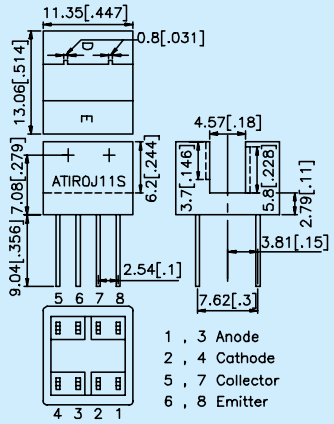


Fig.19

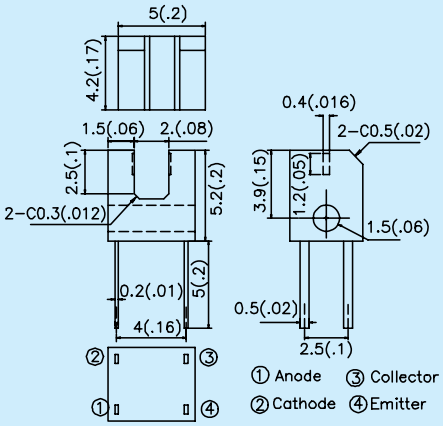


Fig.20

Tolerance : ±0.15mm(0.006")

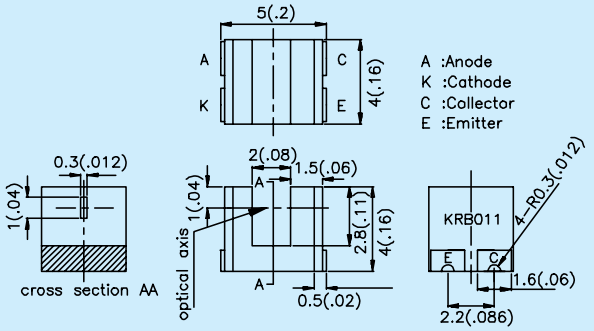


Fig.21

Tolerance : ±0.15mm(0.006")

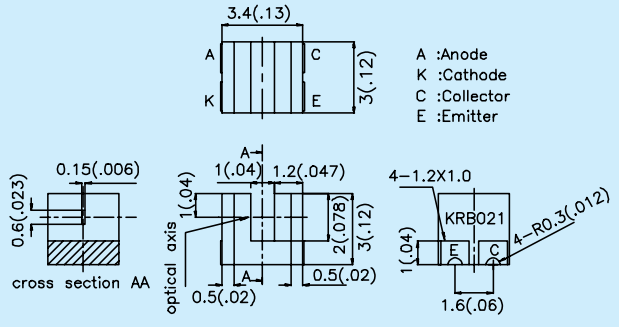
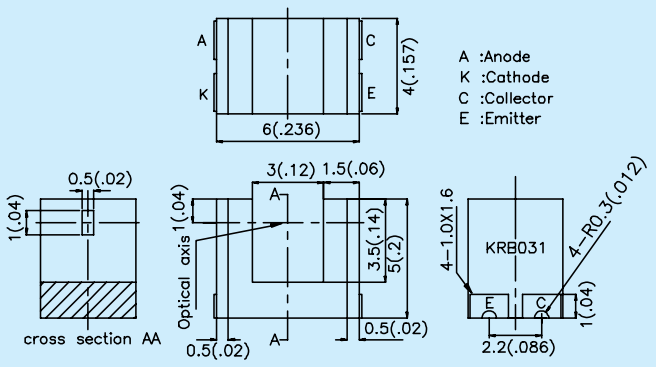


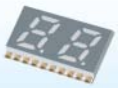
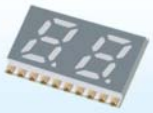
Fig.22

Tolerance : ±0.15mm(0.006")



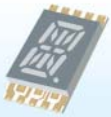
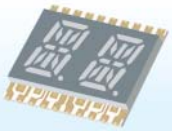
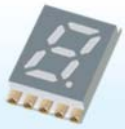
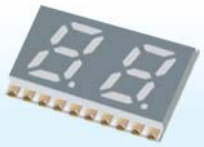
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SMD NUMERIC DISPLAYS

APSX02-41xxx-F01	APDX02-41xxx-F01	APSX03-41xxx-F01	APDX03-41xxx-F01	APSX04-41xxx-F01	APDX04-41xxx-F01
					

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
APSA02-41SURKWA-F01 APDA02-41SURKWA-F01	APSC02-41SURKWA-F01 APDC02-41SURKWA-F01	0.2 inch (5.08mm) Gray Face White Segment	InGaAlP	635	8000	30400	1,2
APSA02-41SEKWA-F01 APDA02-41SEKWA-F01	APSC02-41SEKWA-F01 APDC02-41SEKWA-F01		InGaAlP	601	8000	37200	
APSA02-41SYKWA-F01 APDA02-41SYKWA-F01	APSC02-41SYKWA-F01 APDC02-41SYKWA-F01		InGaAlP	590	8000	34000	
APSA02-41SGWA-F01 APDA02-41SGWA-F01	APSC02-41SGWA-F01 APDC02-41SGWA-F01		GaP	568	1900	10000	
APSA02-41CGKWA-F01 APDA02-41CGKWA-F01	APSC02-41CGKWA-F01 APDC02-41CGKWA-F01		InGaAlP	570	4700	26000	
APSA03-41SRWA-F01 APDA03-41SRWA-F01	APSC03-41SRWA-F01 APDC03-41SRWA-F01	0.3 inch (7.62mm) Gray Face White Segment	GaAlAs	640	1900	7657	3,4
APSA03-41SURKWA-F01 APDA03-41SURKWA-F01	APSC03-41SURKWA-F01 APDC03-41SURKWA-F01		InGaAlP	635	3000	15257	
APSA03-41SEKWA-F01 APDA03-41SEKWA-F01	APSC03-41SEKWA-F01 APDC03-41SEKWA-F01		InGaAlP	601	4700	21371	
APSA03-41SYKWA-F01 APDA03-41SYKWA-F01	APSC03-41SYKWA-F01 APDC03-41SYKWA-F01		InGaAlP	590	8000	35400	
APSA03-41CGKWA-F01 APDA03-41CGKWA-F01	APSC03-41CGKWA-F01 APDC03-41CGKWA-F01		InGaAlP	570	1900	11000	
APSA03-41PBWA-F01 APDA03-41PBWA-F01	APSC03-41PBWA-F01 APDC03-41PBWA-F01		InGaN	470	1900	7400	
APSA04-41SRWA-F01 APDA04-41SRWA-F01	APSC04-41SRWA-F01 APDC04-41SRWA-F01	0.4 inch (10.16mm) Gray Face White Segment	GaAlAs	640	8000	27500	5,6
APSA04-41SURKWA-F01 APDA04-41SURKWA-F01	APSC04-41SURKWA-F01 APDC04-41SURKWA-F01		InGaAlP	635	8000	26000	
APSA04-41SEKWA-F01 APDA04-41SEKWA-F01	APSC04-41SEKWA-F01 APDC04-41SEKWA-F01		InGaAlP	601	12000	41200	
APSA04-41SYKWA-F01 APDA04-41SYKWA-F01	APSC04-41SYKWA-F01 APDC04-41SYKWA-F01		InGaAlP	590	4700	22000	
APSA04-41CGKWA-F01 APDA04-41CGKWA-F01	APSC04-41CGKWA-F01 APDC04-41CGKWA-F01		InGaAlP	570	4700	17400	
APSA04-41PBWA-F01 APDA04-41PBWA-F01	APSC04-41PBWA-F01 APDC04-41PBWA-F01		InGaN	470	3000	12200	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

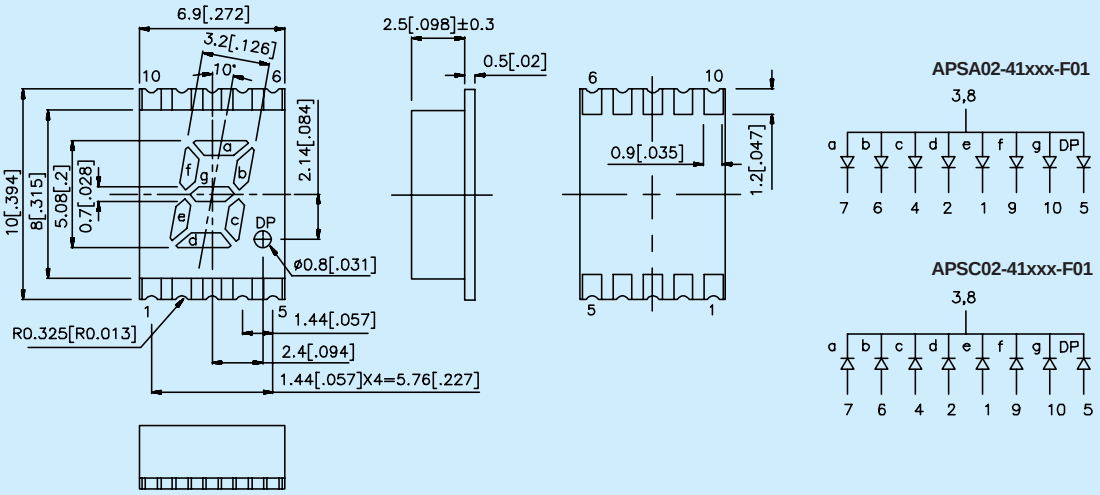
APPSX04-41xxx-F01	APPDX04-41xxx-F01	APSX56-41xxx-F01	APDX56-41xxx-F01
			

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
APPSA04-41SRWA-F01 APPDA04-41SRWA-F01	APPSC04-41SRWA-F01 APPDC04-41SRWA-F01	0.4 inch (10.16mm) Gray Face White Segment	GaAlAs	640	4700	16200	7,8
APPSA04-41SURKWA-F01 APPDA04-41SURKWA-F01	APPSC04-41SURKWA-F01 APPDC04-41SURKWA-F01		InGaAlP	635	4700	22800	
APPSA04-41SEKWA-F01 APPDA04-41SEKWA-F01	APPSC04-41SEKWA-F01 APPDC04-41SEKWA-F01		InGaAlP	601	1900	7800	
APPSA04-41SYKWA-F01 APPDA04-41SYKWA-F01	APPSC04-41SYKWA-F01 APPDC04-41SYKWA-F01		InGaAlP	590	8000	24700	
APPSA04-41CGKWA-F01 APPDA04-41CGKWA-F01	APPSC04-41CGKWA-F01 APPDC04-41CGKWA-F01		InGaAlP	570	3000	11200	
APPSA04-41PBWA-F01 APPDA04-41PBWA-F01	APPSC04-41PBWA-F01 APPDC04-41PBWA-F01		InGaN	470	1900	8300	
APSA56-41SRWA-F01 APDA56-41SRWA-F01	APSC56-41SRWA-F01 APDC56-41SRWA-F01	0.56 inch (14.22mm) Gray Face White Segment	GaAlAs	640	3000	15500	9,10
APSA56-41SURKWA-F01 APDA56-41SURKWA-F01	APSC56-41SURKWA-F01 APDC56-41SURKWA-F01		InGaAlP	635	4700	17700	
APSA56-41SEKWA-F01 APDA56-41SEKWA-F01	APSC56-41SEKWA-F01 APDC56-41SEKWA-F01		InGaAlP	601	12000	40100	
APSA56-41SYKWA-F01 APDA56-41SYKWA-F01	APSC56-41SYKWA-F01 APDC56-41SYKWA-F01		InGaAlP	590	12000	42100	
APSA56-41CGKWA-F01 APDA56-41CGKWA-F01	APSC56-41CGKWA-F01 APDC56-41CGKWA-F01		InGaAlP	570	8000	35500	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

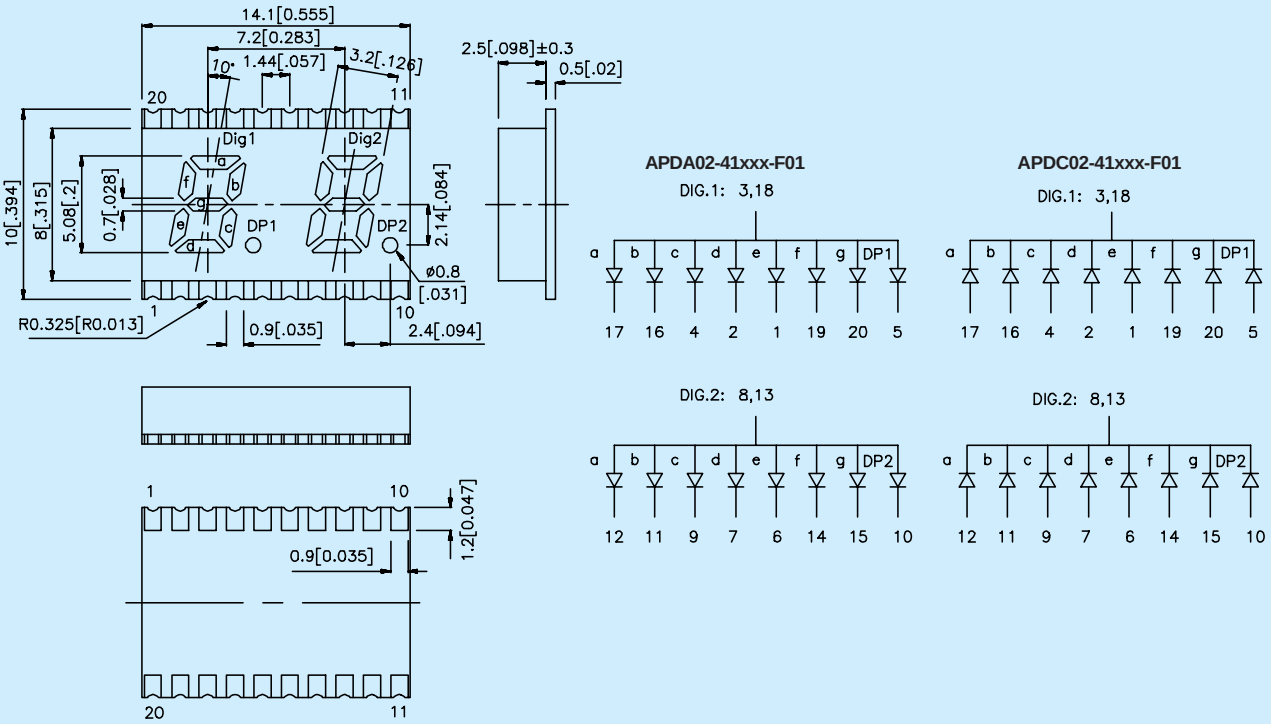
APSA/APSC02-41xxx-F01 Series

1



APDA/APDC02-41xxx-F01 Series

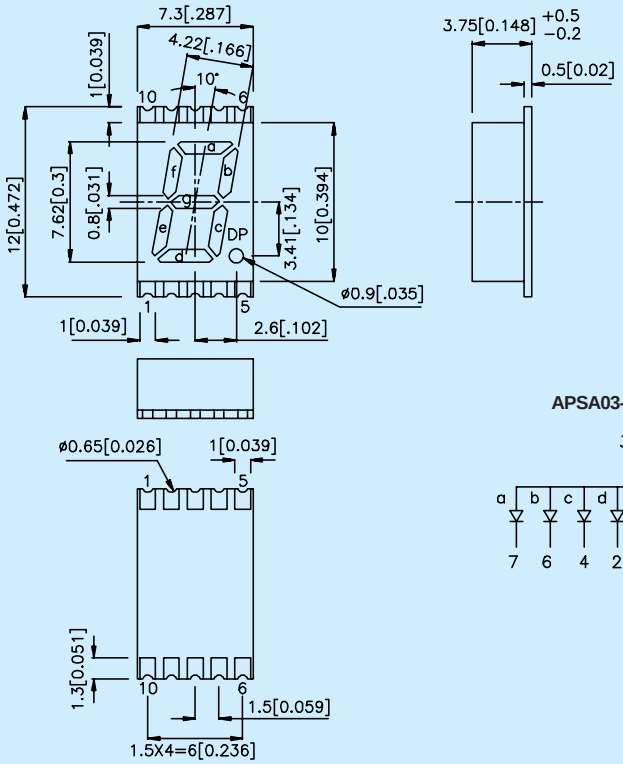
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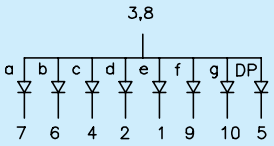
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

APSA/APSC03-41xxx-F01 Series

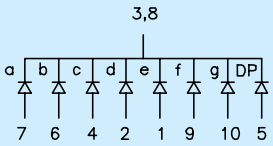
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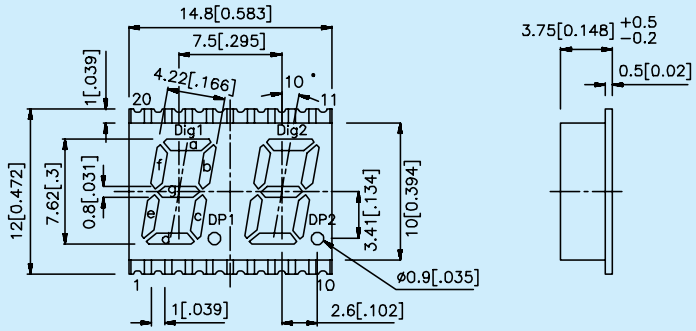


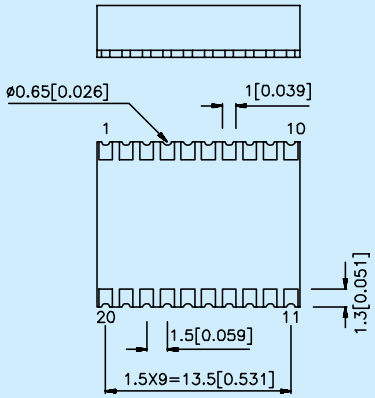
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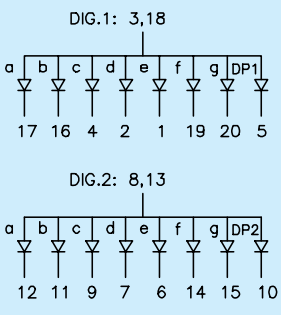
APDA/APDC03-41xxx-F01 Series

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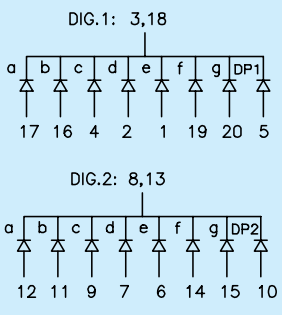




APDA03-41xxx-F01



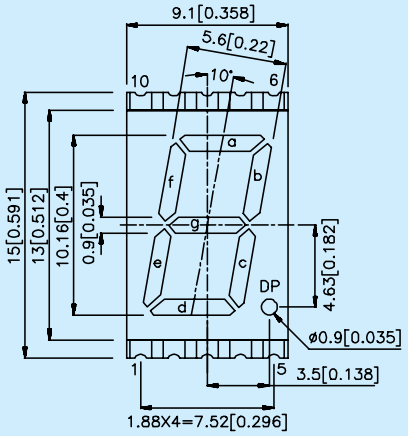
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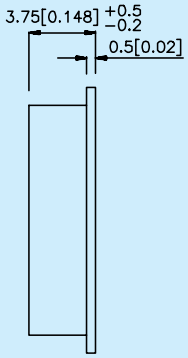


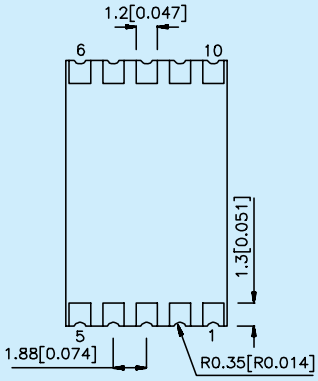
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

APSA/APSC04-41xxx-F01 Series

5

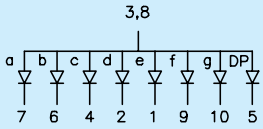




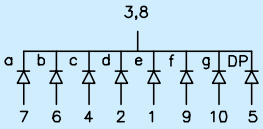




APSA04-41xxx-F01

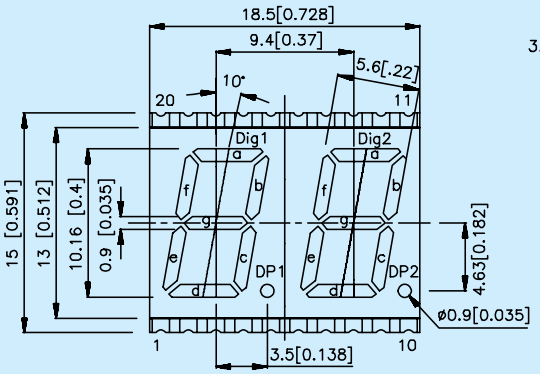


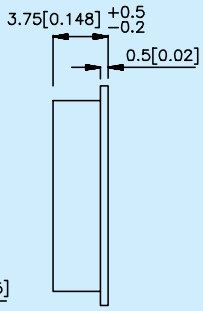
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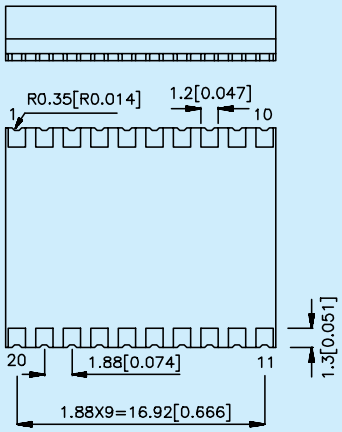


APDA/APDC04-41xxx-F01 Series

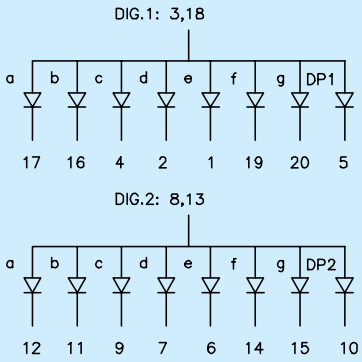
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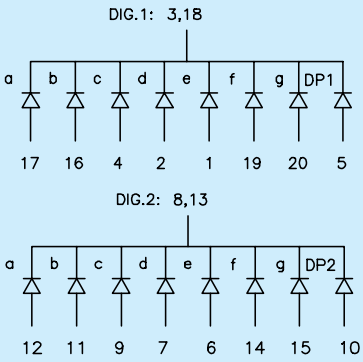




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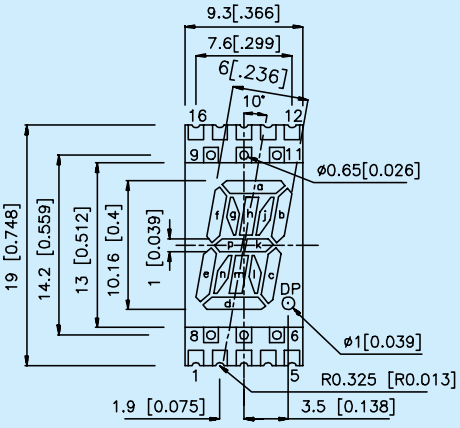
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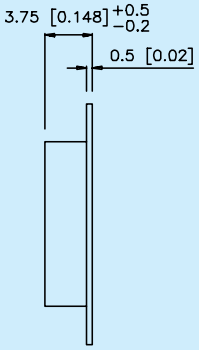


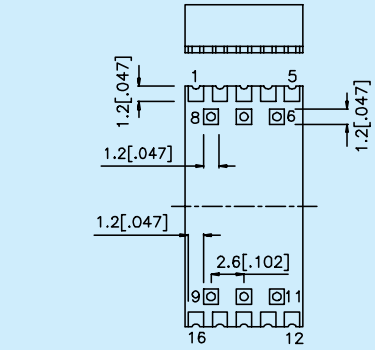
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

APPSA/APPSC04-41xxx-F01 Series

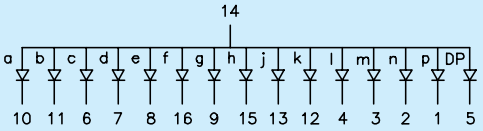
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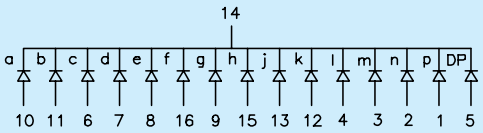




APPSA04-41xxx-F01

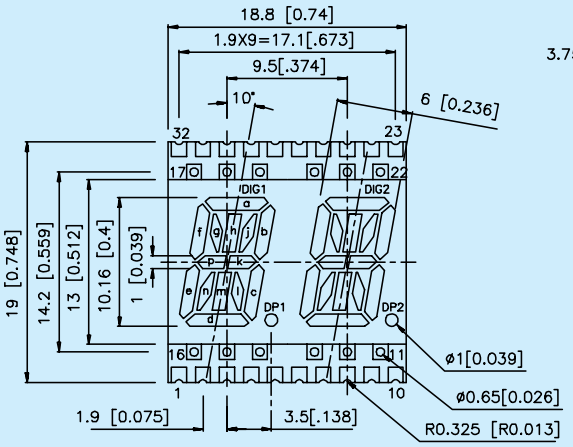


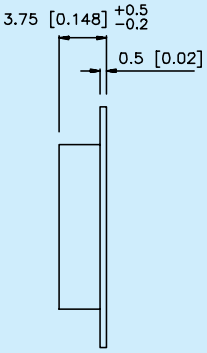
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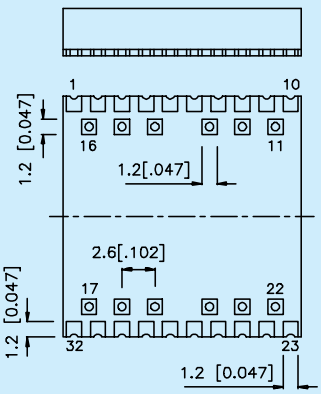


APPDA/APPDC04-41xxx-F01 Series

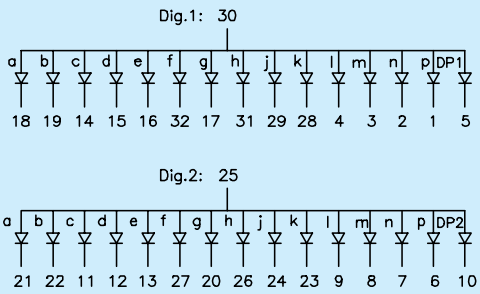
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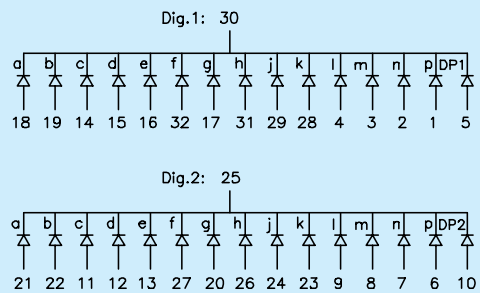




APPDA04-41xxx-F01



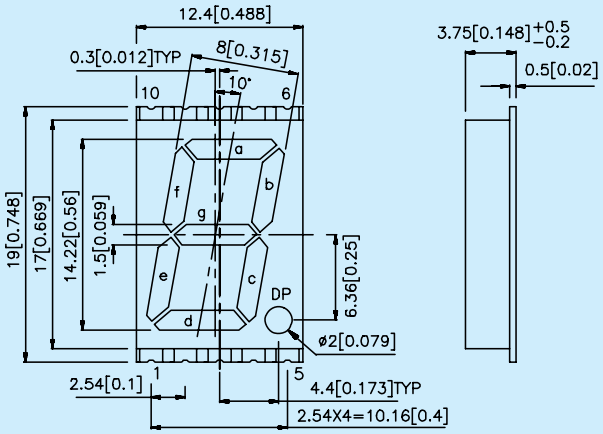
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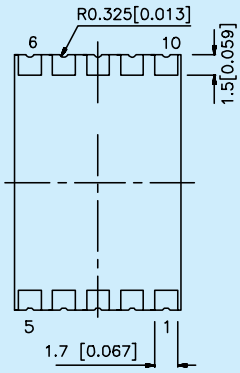


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

APSA/APSC56-41xxx-F01 Series

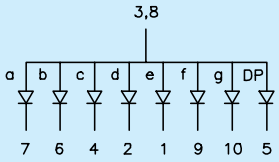
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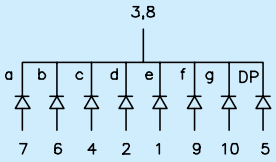




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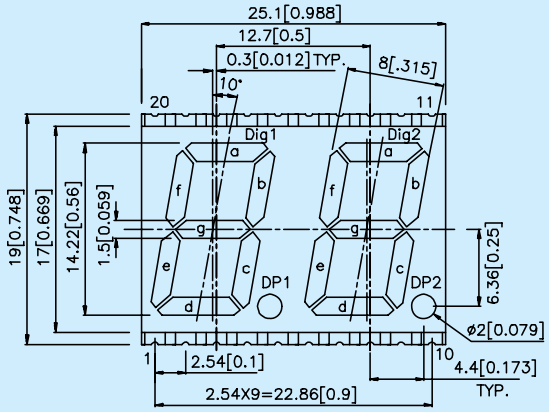


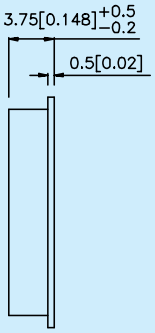
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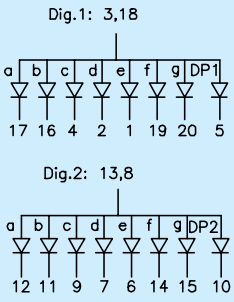
APDA/APDC56-41xxx-F01 Series

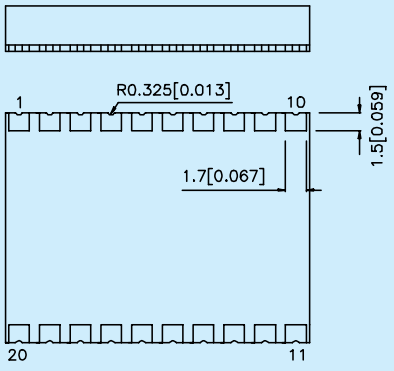
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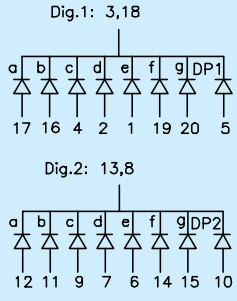


APDA56-41xxx-F01



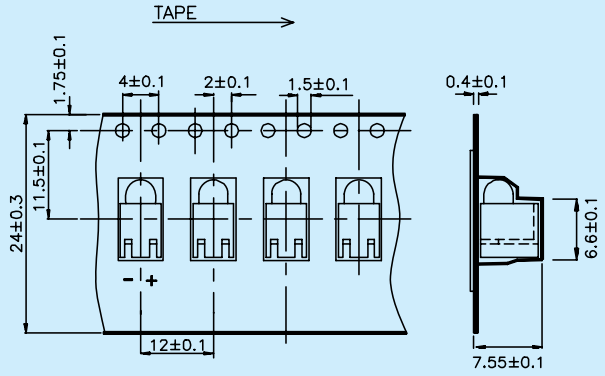


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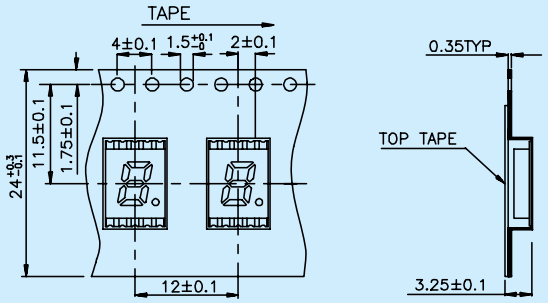


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

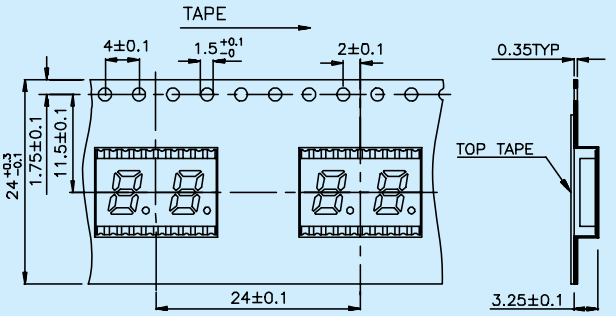
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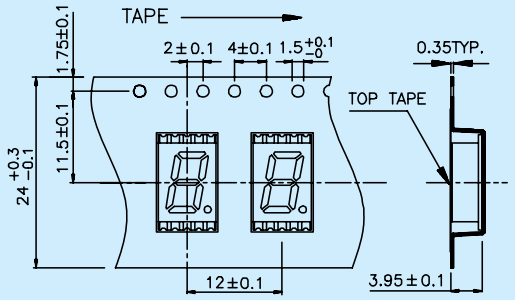
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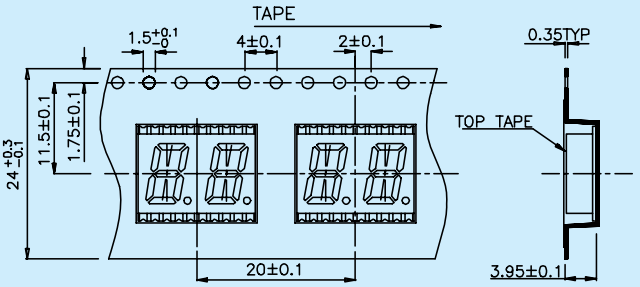
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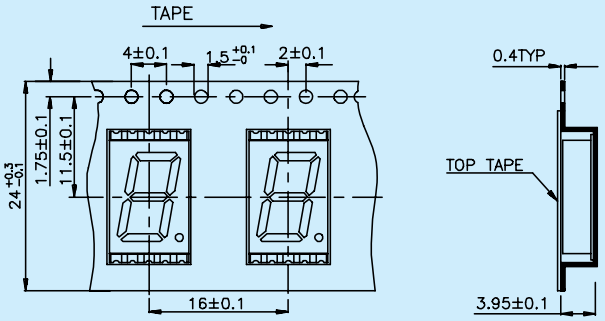
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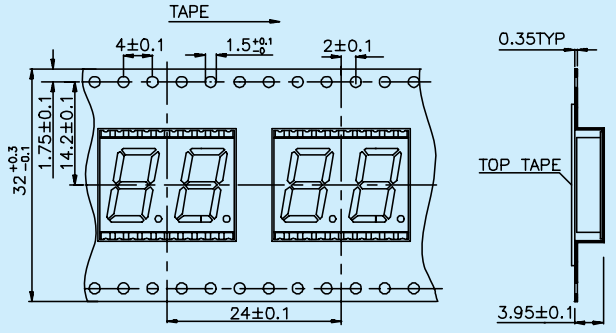
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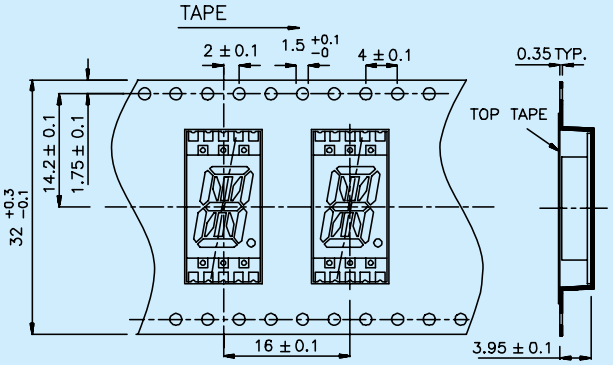
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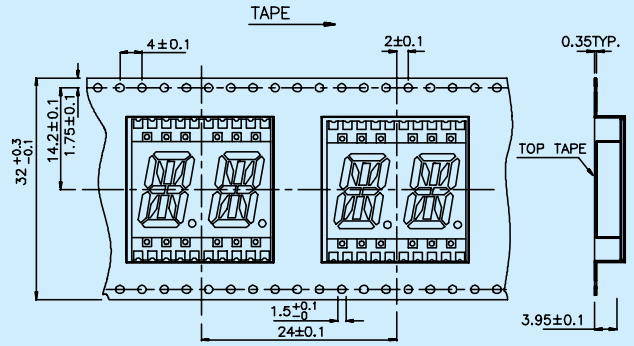


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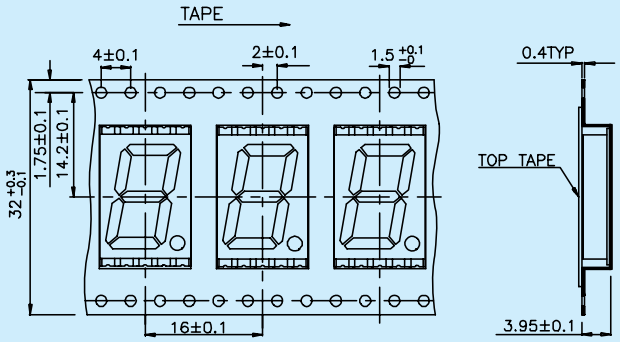


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

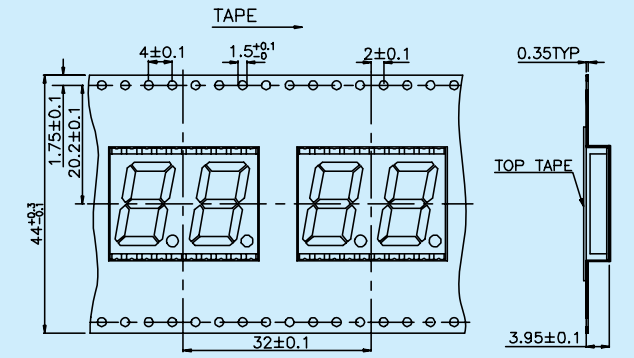
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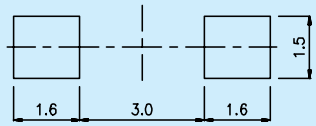


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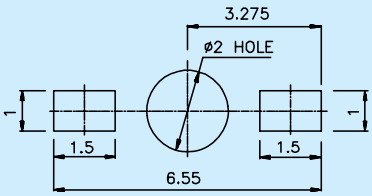


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

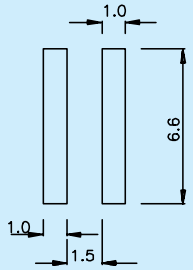
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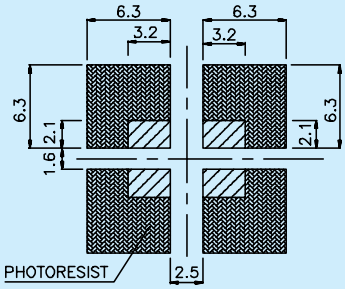
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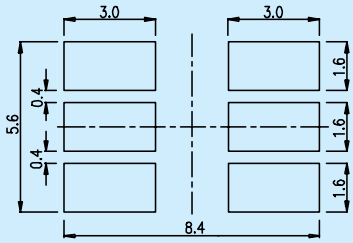
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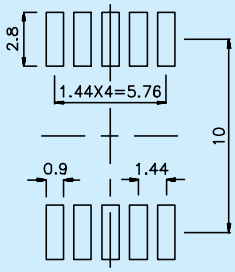
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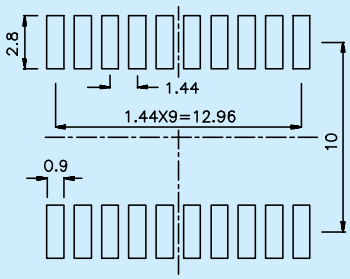
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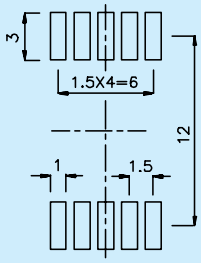
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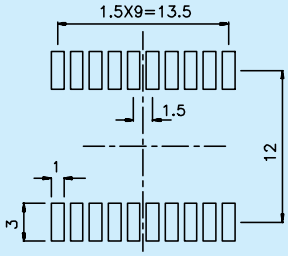
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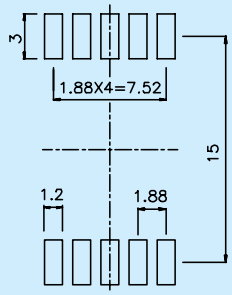
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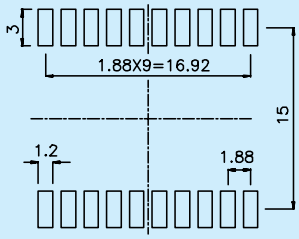
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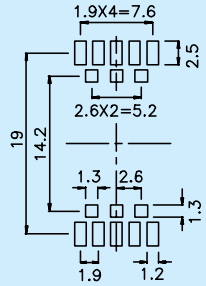
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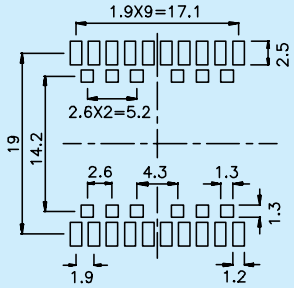
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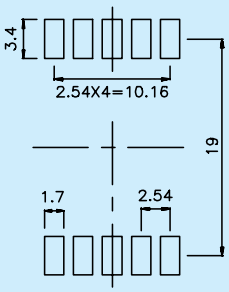
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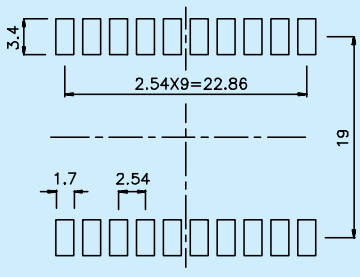
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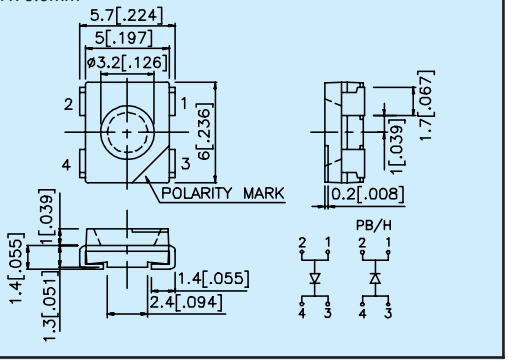
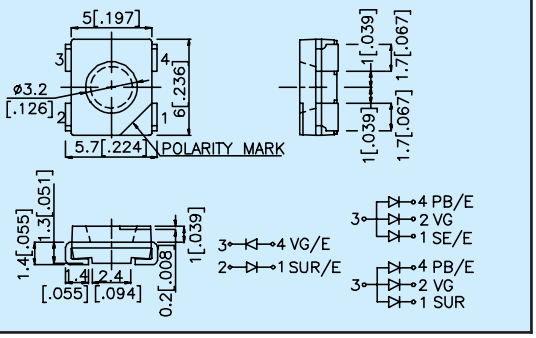
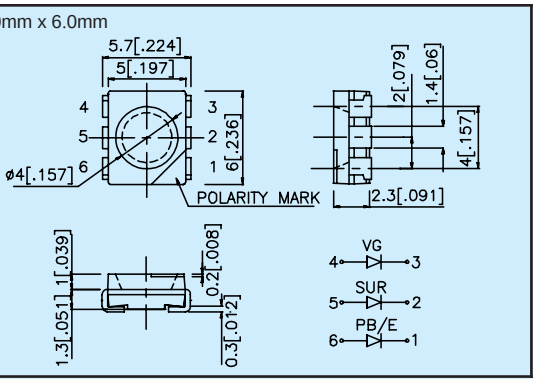
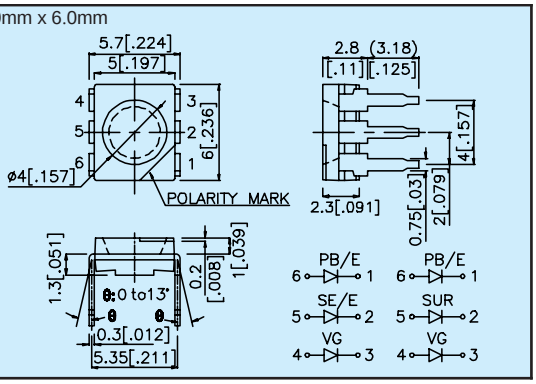


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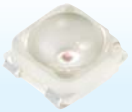


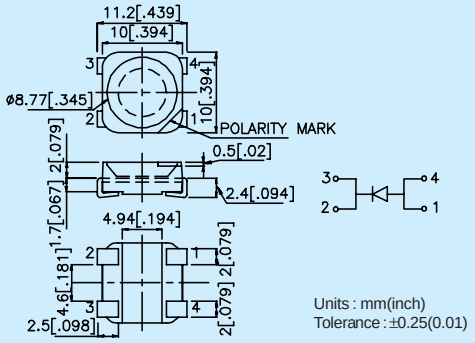
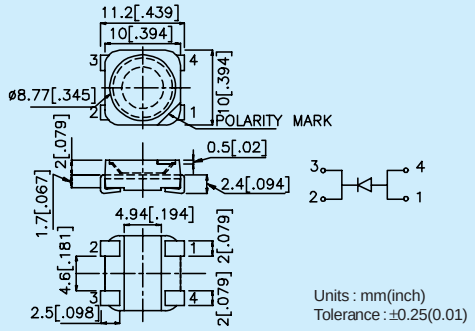
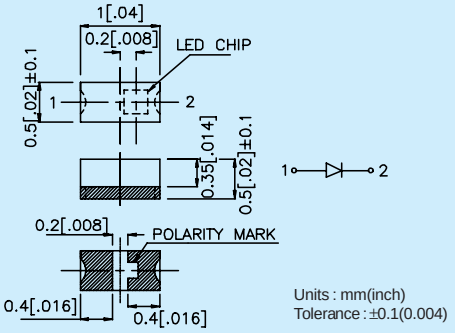
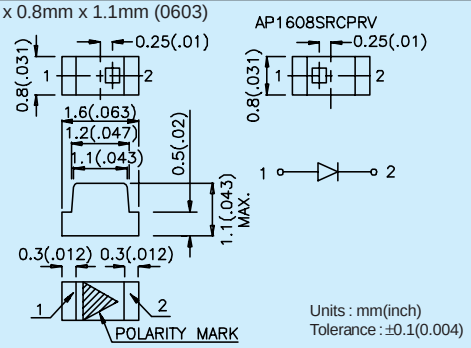
NOTES:
1. All dimensions are in millimeters(inches).
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AA5060	AAA5060	AAAF5060	AAF5060
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @30mA*50mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AA5060SEC/E	InGaAlP	621	water clear	*650	*1000	100º	5.0mm x 6.0mm 
AA5060SEC/H	InGaAlP	630	water clear	*1500	*2300	100º	
AA5060SYC/E	InGaAlP	590	water clear	*280	*500	100º	
AA5060SYC/H	InGaAlP	589	water clear	*380	*700	100º	
AA5060VGC	InGaN	525	water clear	180	350	100°	
AA5060PBC/H	InGaN	470	water clear	280	500	100º	
AAA5060SUREVGEC	InGaAlP	630	water clear	*380	*700	100º	5.0mm x 6.0mm 
	InGaN	525		280	600		
AAA5060SURVGPBEC	InGaAlP	628		*380	*500		
	InGaN	525	water clear	180	350	100º	
	InGaN	470		110	250		
AAA5060SEEVGPBEC	InGaAlP	621		*650	*1000		
	InGaN	525	water clear	180	350	100º	
	InGaN	470		110	250		
AAAF5060BESUVGC	InGaN	470		110	250		5.0mm x 6.0mm 
	InGaAlP	628	water clear	*380	*500	100º	
	InGaN	525		180	350		
AAF5060PBESEEVG	InGaN	470		110	250		5.0mm x 6.0mm 
	InGaAlP	621	water clear	*650	*1000	100º	
	InGaN	525		180	350		
AAF5060PBESURVG	InGaN	470		110	250		
	InGaAlP	628	water clear	*380	*500	100º	
	InGaN	525		180	350		

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

AA1010	AA1011	APHS1005	AP1608
			

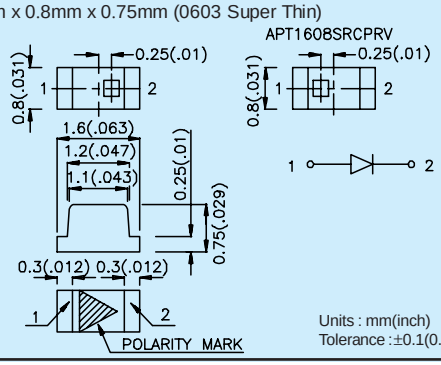
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA*350mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AA1010SEC28	InGaAlP	625	water clear	*15000	*20000	120º	10mm x 10mm (XPower)  Units : mm(inch) Tolerance : ±0.25(0.01)
AA1010SYC28	InGaAlP	588		*6000	*8500		
AA1011SEC28	InGaAlP	625	water clear	*19000	*25000	30º	10mm x 10mm (XPower)  Units : mm(inch) Tolerance : ±0.25(0.01)
AA1011SYC28	InGaAlP	588		*14000	*19000		
APHS1005SECK	InGaAlP	601	water clear	50	160	120º	1.0mm x 0.5mm x 0.5mm (0402)  Units : mm(inch) Tolerance : ±0.1(0.004)
APHS1005SURCK	InGaAlP	635	water clear	50	150	120º	
APHS1005SYCK	InGaAlP	590	water clear	18	120	120º	
APHS1005CGCK	InGaAlP	570	water clear	10	40	120°	
AP1608EC	GaAsP/GaP	625	water clear	4	12	120º	1.6mm x 0.8mm x 1.1mm (0603)  Units : mm(inch) Tolerance : ±0.1(0.004)
AP1608SRCPRV	GaAlAs	640	water clear	36	100	120º	
AP1608SURCK	InGaAlP	635	water clear	50	150	120º	
AP1608SECK	InGaAlP	601	water clear	50	160	120º	
AP1608YC	GaAsP/GaP	588	water clear	2.6	8	120º	
AP1608SYCK	InGaAlP	590	water clear	18	120	120º	
AP1608SGC	GaP	568	water clear	4	15	120º	
AP1608MGC	InGaAlP	568	water clear	18	70	120º	
AP1608CGCK	InGaAlP	570	water clear	10	40	120º	
AP1608PBC/A	InGaN	465	water clear	36	80	120º	

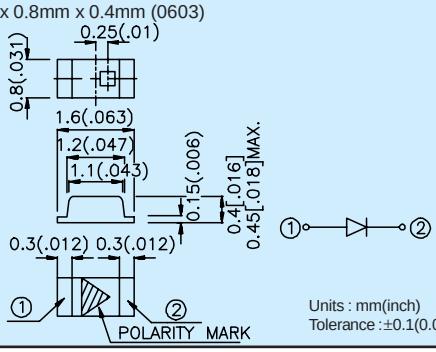
1.AA1010 & AA1011 series results from mounting on PC board FR4(pad size>=100mm² per pad).

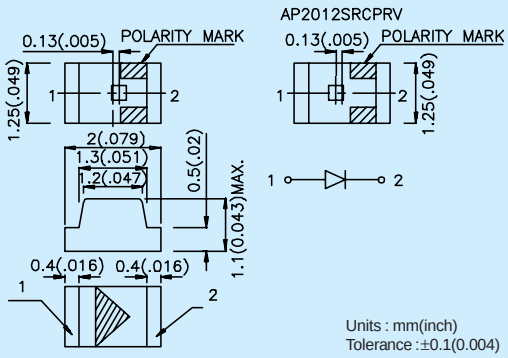
NOTE:
1.AP series custom-made is available upon request.

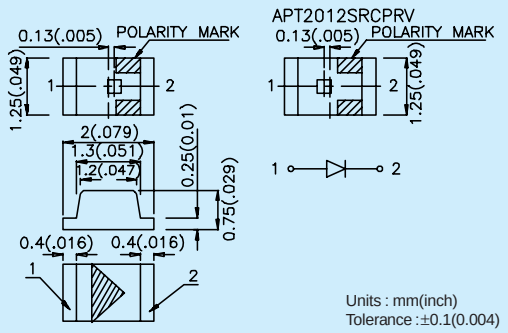
APT1608	APHM1608	AP2012	APT2012
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APT1608EC	GaAsP/GaP	625	water clear	4	12	120º	1.6mm x 0.8mm x 0.75mm (0603 Super Thin)
APT1608SRCPRV	GaAlAs	640	water clear	36	100	120º	
APT1608SURC	InGaAlP	628	water clear	70	200	120º	
APT1608SURCK	InGaAlP	635	water clear	50	150	120º	
APT1608SEC	InGaAlP	601	water clear	70	200	120º	
APT1608SECK	InGaAlP	601	water clear	50	160	120º	
APT1608YC	GaAsP/GaP	588	water clear	2.6	8	120º	
APT1608SYCK	InGaAlP	590	water clear	18	120	120º	
APT1608SGC	GaP	568	water clear	4	15	120º	
APT1608CGCK	InGaAlP	570	water clear	10	40	120º	
APT1608PBC/A	InGaN	465	water clear	36	80	120º	
APHM1608ECT	GaAsP/GaP	625	water clear	7	20	110º	1.6mm x 0.8mm x 0.4mm (0603)
APHM1608SGCT	GaP	568	water clear	10	25	110º	
APHM1608YCT	GaAsP/GaP	588	water clear	2.6	8	110º	
AP2012EC	GaAsP/GaP	625	water clear	4	12	120º	2.0mm x 1.25mm x 1.1mm (0805)
AP2012SRCPRV	GaAlAs	640	water clear	36	100	120º	
AP2012SURCK	InGaAlP	635	water clear	50	150	120º	
AP2012SECK	InGaAlP	601	water clear	50	160	120º	
AP2012YC	GaAsP/GaP	588	water clear	2.6	8	120º	
AP2012SYCK	InGaAlP	590	water clear	18	120	120º	
AP2012SGC	GaP	568	water clear	4	15	120º	
AP2012MGC	InGaAlP	568	water clear	18	70	120º	
AP2012CGCK	InGaAlP	570	water clear	10	40	120º	
AP2012PBC/A	InGaN	465	water clear	36	80	120º	
APT2012EC	GaAsP/GaP	625	water clear	4	12	120º	2.0mm x 1.25mm x 0.75mm (0805 Super Thin)
APT2012SRCPRV	GaAlAs	640	water clear	36	100	120º	
APT2012SURC	InGaAlP	628	water clear	70	200	120º	
APT2012SURCK	InGaAlP	635	water clear	50	150	120º	
APT2012SEC	InGaAlP	601	water clear	70	200	120º	
APT2012SECK	InGaAlP	601	water clear	50	160	120º	
APT2012YC	GaAsP/GaP	588	water clear	2.6	8	120º	
APT2012SYCK	InGaAlP	590	water clear	18	120	120º	
APT2012SGC	GaP	568	water clear	4	15	120º	
APT2012CGCK	InGaAlP	570	water clear	10	40	120º	
APT2012PBC/A	InGaN	465	water clear	36	80	120º	







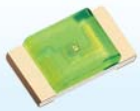
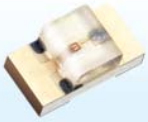


NOTE:
1.AP series custom-made is available upon request.

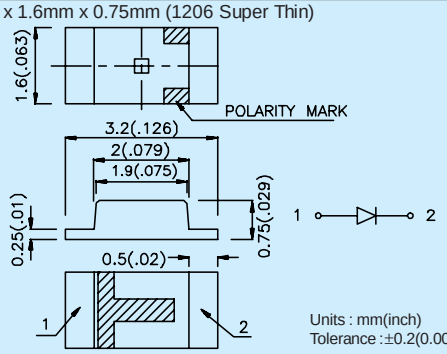
APHCM2012xxx-F01	APE2712	AP23xxx-F01	AP3216
			

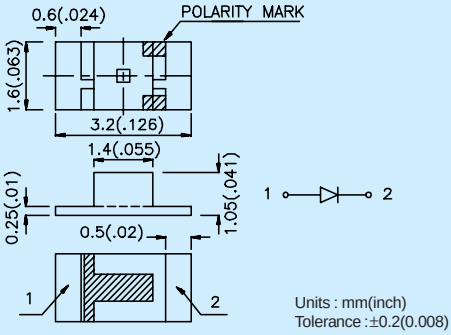
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APHCM2012SURCK-F01	InGaAlP	635	water clear	50	150	110º	2.0mm x 1.25mm x 0.4mm (0805)
APHCM2012SECK-F01	InGaAlP	601	water clear	50	160	110º	
APHCM2012SYCK-F01	InGaAlP	590	water clear	18	120	110º	
APHCM2012CGCK-F01	InGaAlP	570	water clear	10	50	110º	
APE2712SURCK	InGaAlP	635	water clear	70	150	120º	2.7mm x 1.2mm x 1.3mm
APE2712SECK	InGaAlP	601	water clear	70	200	120º	
APE2712SYCK	InGaAlP	590	water clear	36	80	120º	
APE2712CGCK	InGaAlP	570	water clear	10	40	120º	
AP23EC/F-F01	GaAsP/GaP	625	water clear	7	20	120º	3.0mm x 2.4mm x 1.05mm
AP23SRC/F-F01	GaAlAs	640	water clear	36	100	120º	
AP23SURCK/F-F01	InGaAlP	635	water clear	50	150	120º	
AP23SECK/F-F01	InGaAlP	601	water clear	50	160	120º	
AP23YC-F/F01	GaAsP/GaP	588	water clear	2.6	8	120º	
AP23SYCK/F-F01	InGaAlP	590	water clear	18	60	120º	
AP23SGC/F-F01	GaP	568	water clear	7	20	120º	
AP23CGCK/F-F01	InGaAlP	570	water clear	18	60	120º	
AP23ESGC-F01	GaAsP/GaP	625	water clear	7	20	120º	
	GaP	568		7	20		
AP23YSGC-F01	GaAsP/GaP	588	water clear	2.6	8	120º	
	GaP	568		7	20		
AP3216EC	GaAsP/GaP	625	water clear	4	12	120º	3.2mm x 1.6mm x 1.1mm (1206)
AP3216SRCPRV	GaAlAs	640	water clear	36	80	120º	
AP3216SURCK	InGaAlP	635	water clear	50	150	120º	
AP3216SECK	InGaAlP	601	water clear	50	160	120º	
AP3216YC	GaAsP/GaP	588	water clear	2.6	8	120º	
AP3216SYCK	InGaAlP	590	water clear	18	120	120º	
AP3216SGC	GaP	568	water clear	4	15	120º	
AP3216MGC	InGaAlP	568	water clear	18	70	120º	
AP3216CGCK	InGaAlP	570	water clear	10	40	120º	
AP3216PBC/A	InGaN	465	water clear	36	80	120º	

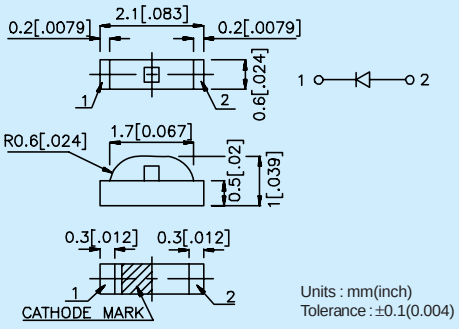
NOTE:
1.AP series custom-made is available upon request.

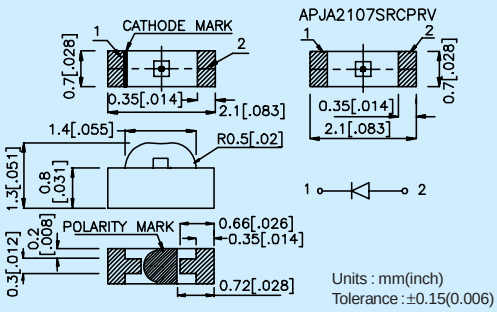
APT3216	APTR3216	APA2106	APJA2107
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APT3216EC	GaAsP/GaP	625	water clear	4	12	120º	3.2mm x 1.6mm x 0.75mm (1206 Super Thin)
APT3216SRCPRV	GaAlAs	640	water clear	36	80	120º	
APT3216SURC	InGaAlP	628	water clear	70	200	120º	
APT3216SURCK	InGaAlP	635	water clear	50	150	120º	
APT3216SEC	InGaAlP	601	water clear	70	200	120º	
APT3216SECK	InGaAlP	601	water clear	50	160	120º	
APT3216YC	GaAsP/GaP	588	water clear	2.6	8	120º	
APT3216SYCK	InGaAlP	590	water clear	18	120	120º	
APT3216SGC	GaP	568	water clear	4	15	120º	
APT3216CGCK	InGaAlP	570	water clear	10	40	120º	
APT3216PBC/A	InGaN	465	water clear	36	80	120º	
APTR3216EC	GaAsP/GaP	625	water clear	4	12	120º	3.2mm x 1.6mm x 1.05mm (1206 Reverse Mount)
APTR3216SRCPRV	GaAlAs	640	water clear	36	80	120º	
APTR3216SURC	InGaAlP	628	water clear	70	200	120º	
APTR3216SURCK	InGaAlP	635	water clear	50	150	120º	
APTR3216SEC	InGaAlP	601	water clear	70	200	120º	
APTR3216SECK	InGaAlP	601	water clear	50	160	120º	
APTR3216YC	GaAsP/GaP	588	water clear	2.6	8	120º	
APTR3216SYCK	InGaAlP	590	water clear	18	120	120º	
APTR3216SGC	GaP	568	water clear	4	15	120º	
APTR3216CGCK	InGaAlP	570	water clear	10	40	120º	
APA2106EC	GaAsP/GaP	625	water clear	4	15	120º	2.1mm x 0.6mm x 1.0mm (0802 Right Angle)
APA2106SRCPRV	GaAlAs	640	water clear	50	100	120º	
APA2106SURCK	InGaAlP	635	water clear	50	150	120º	
APA2106SECK	InGaAlP	601	water clear	50	250	120º	
APA2106YC	GaAsP/GaP	588	water clear	2.6	7	120º	
APA2106SYCK	InGaAlP	590	water clear	18	100	120º	
APA2106SGC	GaP	568	water clear	4	15	120º	
APA2106MGC	InGaAlP	568	water clear	36	80	120º	
APA2106CGCK	InGaAlP	570	water clear	18	60	120º	
APJA2107EC	GaAsP/GaP	625	water clear	4	15	120º	2.1mm x 0.7mm x 1.3mm (0802 Right Angle)
APJA2107SRCPRV	GaAlAs	640	water clear	50	100	120º	
APJA2107SURCK	InGaAlP	635	water clear	50	150	120º	
APJA2107SECK	InGaAlP	601	water clear	50	250	120º	
APJA2107YC	GaAsP/GaP	588	water clear	2.6	7	120º	
APJA2107SYCK	InGaAlP	590	water clear	18	100	120º	
APJA2107SGC	GaP	568	water clear	4	15	120º	
APJA2107CGCK	InGaAlP	570	water clear	18	60	120º	

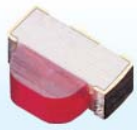




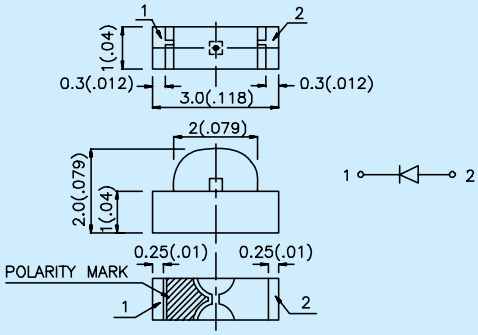




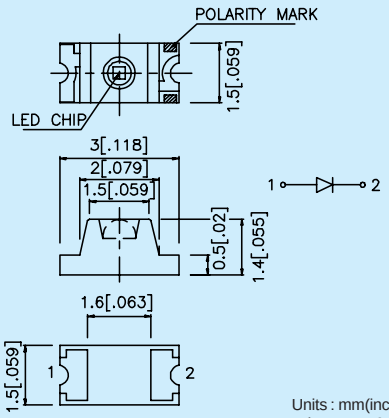
NOTE:
1.AP series custom-made is available upon request.

APA3010	APL3015xxx-F01	APTD3216
		

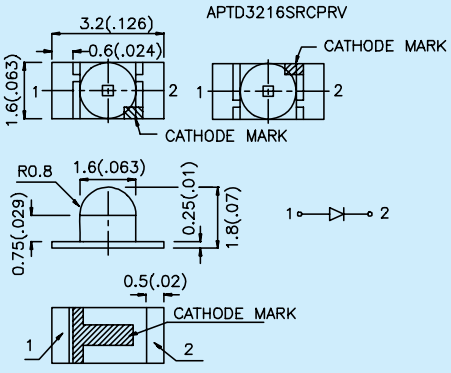
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APA3010EC	GaAsP/GaP	625	water clear	4	15	120º	3.0mm x 1.0mm x 2.0mm (1104 Right Angle)
APA3010SRCPRV	GaAlAs	640	water clear	50	100	120º	
APA3010SURC	InGaAlP	628	water clear	70	200	120º	
APA3010SURCK	InGaAlP	635	water clear	50	150	120º	
APA3010SEC	InGaAlP	601	water clear	70	300	120º	
APA3010SECK	InGaAlP	601	water clear	70	250	120º	
APA3010YC	GaAsP/GaP	588	water clear	2.6	7	120º	
APA3010SYC	InGaAlP	588	water clear	36	120	120º	
APA3010SYCK	InGaAlP	590	water clear	18	100	120º	
APA3010SGC	GaP	568	water clear	4	15	120º	
APA3010MGC	InGaAlP	568	water clear	36	80	120º	
APA3010CGCK	InGaAlP	570	water clear	18	60	120º	
APL3015EC- F01	GaAsP/GaP	625	water clear	4	20	70º	3.0mm x 1.5mm x 1.4mm (1106)
APL3015SRCPRV-F01	GaAlAs	640	water clear	36	80	70º	
APL3015SURC-F01	InGaAlP	628	water clear	110	280	70º	
APL3015SURCK-F01	InGaAlP	635	water clear	70	240	70º	
APL3015SEC-F01	InGaAlP	601	water clear	180	500	70º	
APL3015SECK-F01	InGaAlP	601	water clear	70	300	70º	
APL3015YC-F01	GaAsP/GaP	588	water clear	2.6	10	70º	
APL3015SYCK-F01	InGaAlP	590	water clear	36	100	70º	
APL3015SGC-F01	GaP	568	water clear	4	20	70º	
APL3015CGCK-F01	InGaAlP	570	water clear	36	90	70º	
APTD3216EC	GaAsP/GaP	625	water clear	10	50	40º	3.2mm x 1.6mm x 1.8mm (1206 Dome Lens)
APTD3216SRCPRV	GaAlAs	640	water clear	110	300	50º	
APTD3216SURC	InGaAlP	628	water clear	280	600	50º	
APTD3216SURCK	InGaAlP	635	water clear	180	500	50º	
APTD3216SEC	InGaAlP	601	water clear	380	1200	50º	
APTD3216SECK	InGaAlP	601	water clear	280	700	50º	
APTD3216YC	GaAsP/GaP	588	water clear	4	30	40º	
APTD3216SYCK	InGaAlP	590	water clear	70	250	50º	
APTD3216SGC	GaP	568	water clear	10	50	40º	
APTD3216CGCK	InGaAlP	570	water clear	70	200	50º	



Units : mm(inch)
Tolerance : ±0.15(0.006)

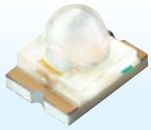


Units : mm(inch)
Tolerance : ±0.2(0.008)

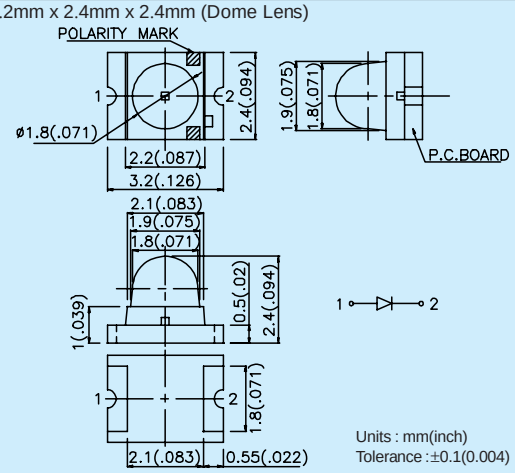


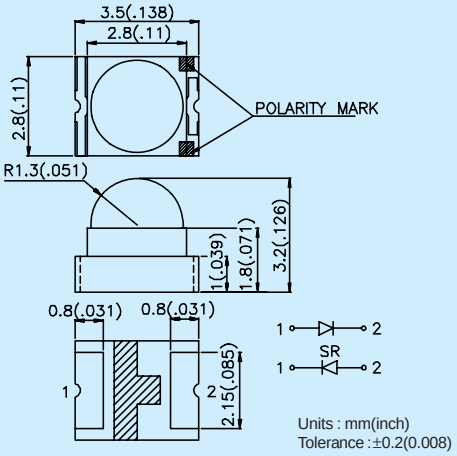
Units : mm(inch)
Tolerance : ±0.2(0.008)

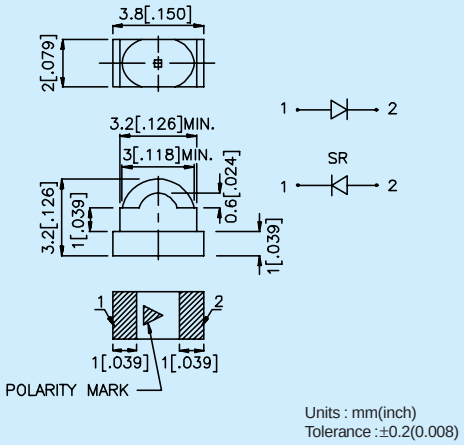
NOTE:
1.AP series custom-made is available upon request.

APD3224xxx-F01	APED3528xxx-F01	APED3820xxx-F01
		

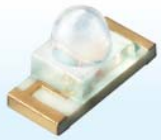
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APD3224EC-F01	GaAsP/GaP	625	water clear	36	70	20°	3.2mm x 2.4mm x 2.4mm (Dome Lens)
APD3224SURC-F01	InGaAlP	628	water clear	650	1200	20°	
APD3224SURCK-F01	InGaAlP	635	water clear	480	1000	20°	
APD3224SEC-F01	InGaAlP	601	water clear	650	2000	20°	
APD3224SECK-F01	InGaAlP	601	water clear	650	1300	20°	
APD3224YC-F01	GaAsP/GaP	588	water clear	10	40	20°	
APD3224SYCK-F01	InGaAlP	590	water clear	110	600	20°	
APD3224SGC-F01	GaP	568	water clear	18	70	20°	
APD3224MGC-F01	InGaAlP	568	water clear	280	550	20°	
APD3224CGCK-F01	InGaAlP	570	water clear	180	550	20°	
APD3224PBC-F01	InGaN	470	water clear	110	380	20°	
APED3528SRC-F01	GaAlAs	640	water clear	70	200	40°	3.5mm x 2.8mm x 3.2mm
APED3528SURC-F01	InGaAlP	628	water clear	110	500	40°	
APED3528SEC-F01	InGaAlP	601	water clear	380	700	40°	
APED3528SYCK-F01	InGaAlP	590	water clear	70	200	40°	
APED3528CGCK-F01	InGaAlP	570	water clear	70	170	40°	
APED3820SRC-F01	GaAlAs	640	water clear	110	240	60°(H) 35°(V)	3.8mm x 2.0mm x 3.2mm (Dome Lens)
APED3820SURC-F01	InGaAlP	628	water clear	180	500	60°(H) 35°(V)	
APED3820SEC-F01	InGaAlP	601	water clear	480	800	60°(H) 35°(V)	
APED3820SYCK-F01	InGaAlP	590	water clear	70	200	60°(H) 35°(V)	
APED3820CGCK-F01	InGaAlP	570	water clear	70	170	60°(H) 35°(V)	



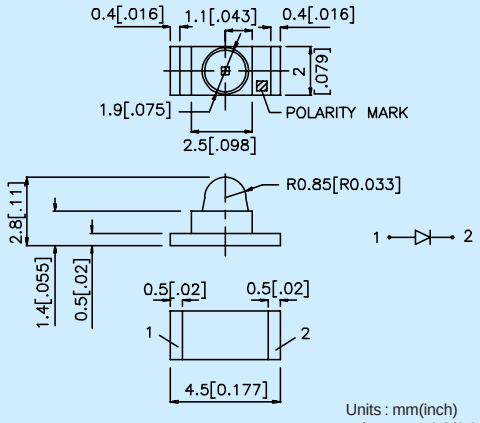


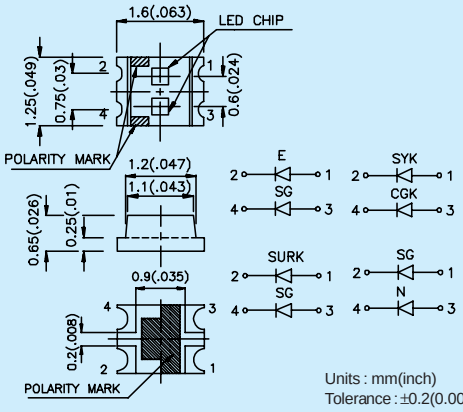


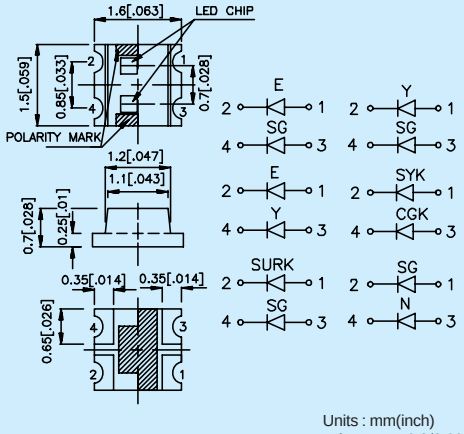
NOTE:
1.AP series custom-made is available upon request.

APD2520xxx03	APTB1612xxx-F01	APTB1615xxx-F01
		

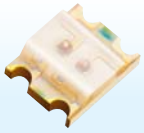
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APD2520EC03	GaAsP/GaP	625	water clear	10	60	20º	4.5mm x 2.0mm x 2.8mm
APD2520SURC03	InGaAlP	628	water clear	280	700	20º	
APD2520SURCK03	InGaAlP	635	water clear	180	650	20º	
APD2520SEC03	InGaAlP	601	water clear	380	1300	20º	
APD2520SECK03	InGaAlP	601	water clear	380	1200	20º	
APD2520YC03	GaAsP/GaP	588	water clear	10	25	20º	
APD2520SYCK03	InGaAlP	590	water clear	70	250	20º	
APD2520SGC03	GaP	568	water clear	36	90	20º	
APD2520CGCK03	InGaAlP	570	water clear	70	300	20º	
APTB1612ESGC-F01	GaAsP/GaP	625	water clear	4	12	120º	1.6mm x 1.25mm x 0.65mm (0605 Bi-Color)
	GaP	568		4	12		
APTB1612SURKSGC-F01	InGaAlP	635	water clear	70	150	120º	
	GaP	568		4	12		
APTB1612SYKCGKC-F01	InGaAlP	590	water clear	18	50	120º	
	InGaAlP	570		18	50		
APTB1612SGNC-F01	GaP	568	water clear	2.6	12	120º	
	GaAsP/GaP	610		4	12		
APTB1615ESGC-F01	GaAsP/GaP	625	water clear	4	12	120º	1.6mm x 1.5mm x 0.7mm (0606 Bi-Color)
	GaP	568		4	12		
APTB1615EYC-F01	GaAsP/GaP	625	water clear	4	12	120º	
	GaAsP/GaP	588		2.6	8		
APTB1615SURKSGC-F01	InGaAlP	635	water clear	70	150	120º	
	GaP	568		4	12		
APTB1615YSGC-F01	GaAsP/GaP	588	water clear	2.6	8	120º	
	GaP	568		4	12		
APTB1615SYKCGKC-F01	InGaAlP	590	water clear	18	50	120º	
	InGaAlP	570		18	50		
APTB1615SGNC-F01	GaP	568	water clear	4	12	120º	
	GaAsP/GaP	610		4	12		



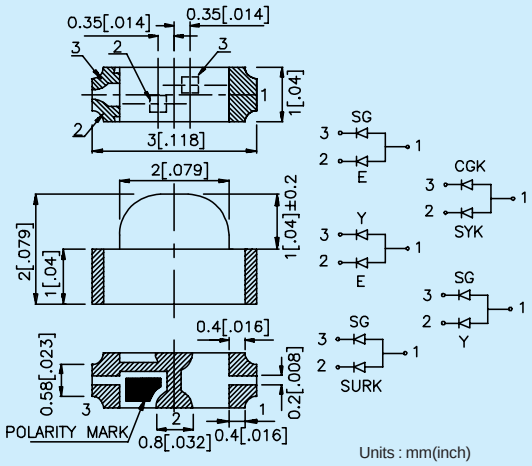


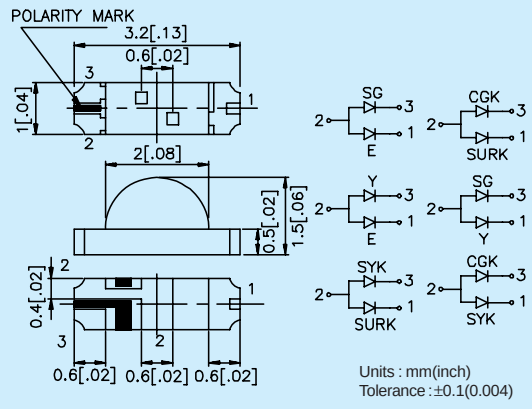


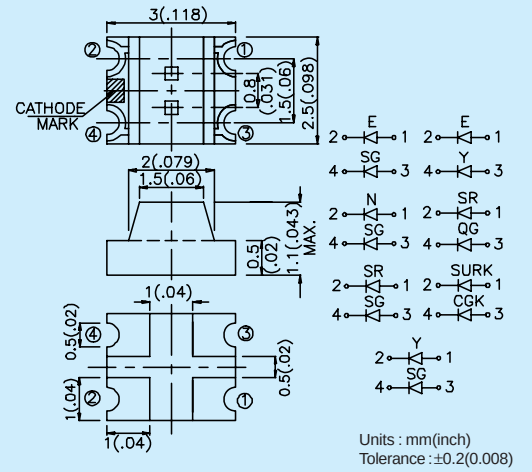
NOTE:
1.AP series custom-made is available upon request.

APBA3010xxx-F01	APBA3210xxx-F01	APB3025xxx-F01
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APBA3010ESGC-F01	GaAsP/GaP	625	water clear	4	12	140º	3.0mm x 1.0mm x 2mm (1104 Right Angle, Bi-Color)
	GaP	568		4	12		
APBA3010EYC-F01	GaAsP/GaP	625	water clear	4	12	140º	
	GaAsP/GaP	588		2.6	6		
APBA3010SURKSGC-F01	InGaAlP	635	water clear	110	200	140º	
	GaP	568		4	12		
APBA3010SYKCGKC-F01	InGaAlP	590	water clear	36	120	140º	
	InGaAlP	570		18	50		
APBA3010YSGC-F01	GaAsP/GaP	588	water clear	2.6	6	140º	
	GaP	568		4	12		
APBA3210ESGC-F01	GaAsP/GaP	625	water clear	4	12	120º	3.2mm x 1.0mm x 1.5mm (1304 Right Angle,Bi-Color)
	GaP	568		4	12		
APBA3210EYC-F01	GaAsP/GaP	625	water clear	4	12	120º	
	GaAsP/GaP	588		2.6	8		
APBA3210SURKSYKC-F01	InGaAlP	635	water clear	110	200	120º	
	InGaAlP	590		36	80		
APBA3210SURKCGKC-F01	InGaAlP	635	water clear	110	200	120º	
	InGaAlP	570		18	50		
APBA3210YSGC-F01	GaAsP/GaP	588	water clear	2.6	8	120º	
	GaP	568		4	12		
APBA3210SYKCGKC-F01	InGaAlP	590	water clear	36	80	120º	
	InGaAlP	570		18	50		
APB3025ESGC-F01	GaAsP/GaP	625	water clear	4	12	120º	3.0mm x 2.5mm x 1.1mm (1109 Bi-Color)
	GaP	568		4	12		
APB3025EYC-F01	GaAsP/GaP	625	water clear	4	12	120º	
	GaAsP/GaP	588		2.6	8		
APB3025NSGC-F01	GaAsP/GaP	610	water clear	4	12	120º	
	GaP	568		4	12		
APB3025SRQGCPRV-F01	GaAlAs	640	water clear	36	100	120º	
	GaP	565		4	12		
APB3025SRSGCPRV-F01	GaAlAs	640	water clear	36	100	120º	
	GaP	568		4	12		
APB3025SURKCGKC-F01	InGaAlP	635	water clear	50	160	120º	
	InGaAlP	570		10	40		
APB3025YSGC-F01	GaAsP/GaP	588	water clear	2.6	8	120º	
	GaP	568		4	12		





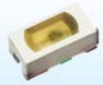


NOTE:
1.AP series custom-made is available upon request.

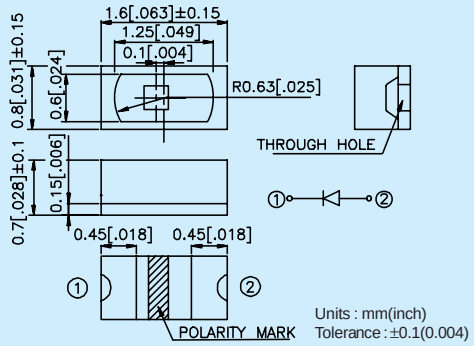
APBL3025xxx-F01	APBD3224xxx-F01	APFA3210xxx-F01
		

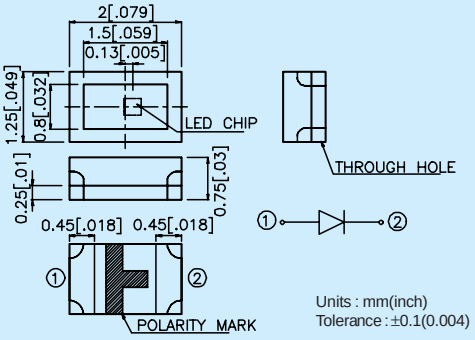
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APBL3025ESGC-F01	GaAsP/GaP	625	water clear	7	20	100º	3.0mm x 2.5mm x 1.4mm (1109 Bi-Color)
	GaP	568		7	20		
APBL3025EYC-F01	GaAsP/GaP	625	water clear	7	20	100º	
	GaAsP/GaP	588		4	15		
APBL3025NSGC-F01	GaAsP/GaP	610	water clear	7	20	100º	
	GaP	568		7	20		
APBL3025SRPGCPR-F01	GaAlAs	640	water clear	36	100	100º	
	GaP	555		2.6	8		
APBL3025SRQGCPR-F01	GaAlAs	640	water clear	36	100	100º	
	GaP	565		7	20		
APBL3025SRSGCPR-F01	GaAlAs	640	water clear	36	100	100º	
	GaP	568		7	20		
APBL3025SURKCGK-F01	InGaAlP	635	water clear	110	300	100º	
	InGaAlP	570		18	80		
APBL3025YSGC-F01	GaAsP/GaP	588	water clear	4	15	100º	
	GaP	568		7	20		
APBD3224ESGC-F01	GaAsP/GaP	625	water clear	18	60	20º	3.2mm x 2.4mm x 2.4mm (Dome Lens)
	GaP	568		10	40		
APBD3224SURKSGC-F01	InGaAlP	635	water clear	70	350	20º	
	GaP	568		10	40		
APBD3224SYKCGKC-F01	InGaAlP	590	water clear	36	150	20º	
	InGaAlP	570		18	120		
APFA3210QBCVGSEKC-F01	GaN	470		36	70		3.2mm x 1.0mm x 1.5mm (1304 Right Angle,Full Color)
	InGaN	525	water clear	50	200	130º	
	InGaAlP	601		70	200		

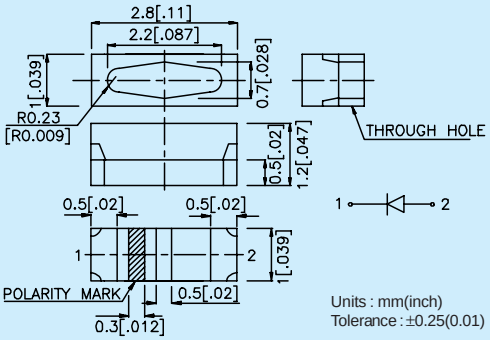
NOTE:
1.AP series custom-made is available upon request.

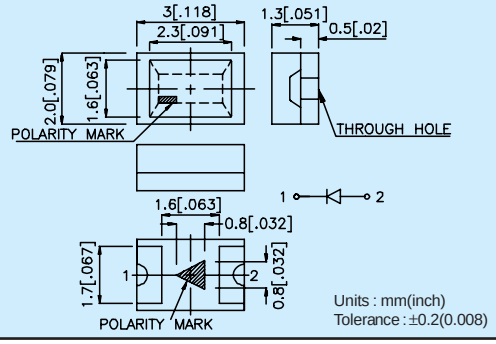
APHK1608	APTK2012xxx-F01	APKA2810xxx-F01	APK3020xxx-F01
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APHK1608SURC	InGaAlP	628	water clear	110	250	90º	1.6mm x 0.8mm x 0.7mm (0603)
APHK1608SEC	InGaAlP	601	water clear	110	280	90º	
APHK1608SYC	InGaAlP	588	water clear	50	150	90º	
APHK1608MGCK	InGaAlP	570	water clear	36	80	90º	
APHK1608VGC	InGaN	525	water clear	70	180	90º	
APHK1608PBC	InGaN	470	water clear	36	70	90º	
APTK2012SURCK-F01	InGaAlP	635	water clear	70	200	100º	2.0mm x 1.25mm x 0.75mm (0805)
APTK2012SYCK-F01	InGaAlP	590	water clear	36	100	100º	
APTK2012CGCK-F01	InGaAlP	570	water clear	18	60	100º	
APTK2012PBC-F01	InGaN	470	water clear	36	70	100º	
APKA2810SURCK-F01	InGaAlP	635	water clear	50	170	90º	2.8mm x 1.0mm x 1.2mm (1104 Right Angle)
APKA2810SECK-F01	InGaAlP	601	water clear	70	250	90º	
APKA2810SYCK-F01	InGaAlP	590	water clear	36	120	90º	
APKA2810CGCK-F01	InGaAlP	570	water clear	36	60	90º	
APKA2810PBC-F01	InGaN	470	water clear	36	70	90º	
APK3020SURC-F01	InGaAlP	628	water clear	70	230	120º	3.0mm x 2.0mm x 1.3mm(1108)
APK3020SURCK-F01	InGaAlP	635	water clear	50	200	120º	
APK3020SEC-F01	InGaAlP	601	water clear	110	300	120º	
APK3020SECK-F01	InGaAlP	601	water clear	70	150	120º	
APK3020SYCK-F01	InGaAlP	590	water clear	36	120	120º	
APK3020CGCK-F01	InGaAlP	570	water clear	18	50	120º	

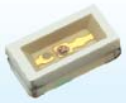




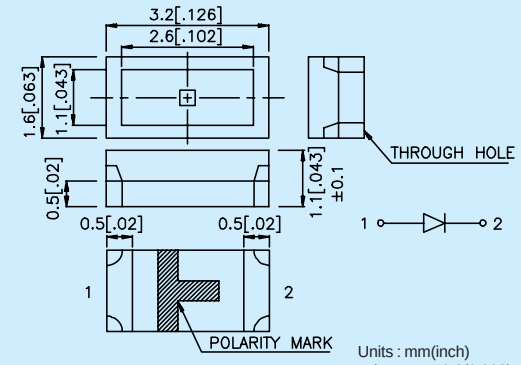




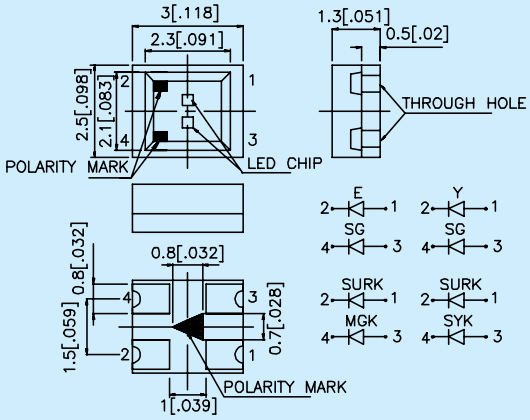
NOTE:
1.AP series custom-made is available upon request.

APK3216xxx-F01	APKB3025xxx-F01	AA3020
		

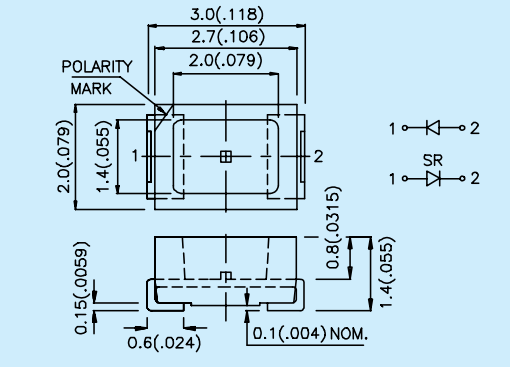
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APK3216SURCK-F01	InGaAlP	635	water clear	70	200	90º	3.2mm x 1.6mm x 1.1mm(1206)
APK3216SECK-F01	InGaAlP	601	water clear	70	250	90º	
APK3216SYCK-F01	InGaAlP	590	water clear	36	120	90º	
APK3216CGCK-F01	InGaAlP	570	water clear	36	80	90º	
APK3216PBC-F01	InGaN	470	water clear	36	70	90º	
APKB3025ESGC-F01	GaAsP/GaP	625	water clear	10	20	120º	3.0mm x 2.5mm x 1.3mm (1109 Bi-Color)
	GaP	568		10	20		
APKB3025YSGC-F01	GaAsP/GaP	588	water clear	2.6	8	120º	
	GaP	568		10	20		
APKB3025SURKMGK-F01	InGaAlP	635	water clear	70	150	120º	
	InGaAlP	570		10	50		
APKB3025SURKSYK-F01	InGaAlP	635	water clear	70	150	120º	
	InGaAlP	590		18	50		
AA3020EC	GaAsP/GaP	625	water clear	7	20	90º	3.0mm x 2.0mm (1208)
AA3020SRC	GaAlAs	640	water clear	36	120	90º	
AA3020SURCK	InGaAlP	635	water clear	70	200	90º	
AA3020SEC	InGaAlP	601	water clear	110	300	90º	
AA3020YC	GaAsP/GaP	588	water clear	4	15	90º	
AA3020SYCK	InGaAlP	590	water clear	36	100	90º	
AA3020SGC	GaP	568	water clear	7	30	90º	
AA3020CGCK	InGaAlP	570	water clear	18	60	90º	



Units : mm(inch)
Tolerance : ±0.2(0.008)

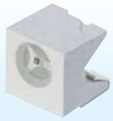


Units : mm(inch)
Tolerance : ±0.2(0.008)



Units : mm(inch)
Tolerance : ±0.25(0.01)

NOTE:
1.AP series custom-made is available upon request.

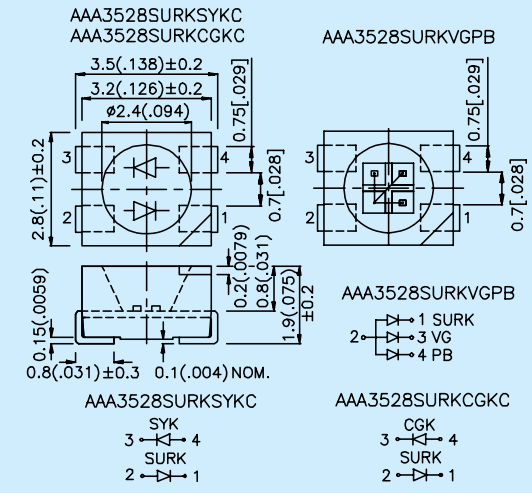
AA3022-4.5SF	AA3528	AA4040
		

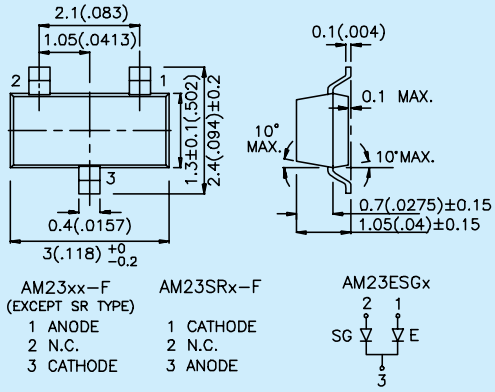
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AA3022EC-4.5SF	GaAsP/GaP	625	water clear	7	30	90º	3.0mm x 2.2mm
AA3022SRC-4.5SF	GaAlAs	640	water clear	36	150	90º	
AA3022SGC-4.5SF	GaP	568	water clear	7	20	90º	
AA3528EC	GaAsP/GaP	625	water clear	7	30	120º	3.5mm x 2.8mm
AA3528SRC	GaAlAs	640	water clear	50	150	120º	
AA3528SURCK	InGaAlP	635	water clear	70	200	120º	
AA3528SECK	InGaAlP	601	water clear	70	300	120º	
AA3528SYCK	InGaAlP	590	water clear	36	100	120º	
AA3528YC	GaAsP/GaP	588	water clear	4	15	120º	
AA3528SGC	GaP	568	water clear	10	25	120º	
AA3528MGC	InGaAlP	568	water clear	70	150	120º	
AA4040SRC	GaAlAs	640	water clear	50	120	90º	4.0mm x 4.0mm Right Angle
AA4040SURC	InGaAlP	628	water clear	70	200	90º	
AA4040YC	GaAsP/GaP	588	water clear	4	9	90°	
AA4040SYC	InGaAlP	588	water clear	50	120	90º	
AA4040SGC	GaP	568	water clear	10	25	90°	
AA4040MGC	InGaAlP	568	water clear	50	100	90º	

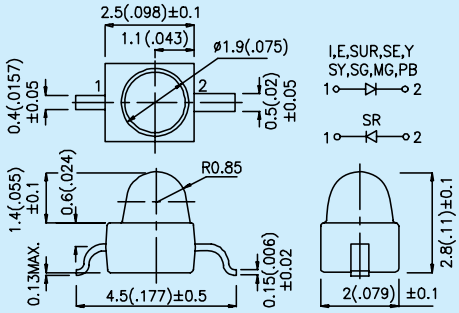
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

AAA3528	AM23-F	AM2520xxx03
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AAA3528SURKSYKC	InGaAlP	635	water clear	70	200	120º	3.5mm x 2.8mm
	InGaAlP	590		18	100		
AAA3528SURKCGKC	InGaAlP	635	water clear	70	200	120º	
	InGaAlP	570		18	80		
AAA3528SURKVGPB	InGaAlP	635		70	200		
	InGaN	525	water clear	70	200	120º	
	InGaN	470		36	70		
AM23ID-F	GaAsP/GaP	625	red diffused	4	15	140º	SOT-23 Surface Mount LED Lamp (3mm x 1.3mm)
AM23EC-F	GaAsP/GaP	625	water clear	4	15	140º	
AM23SRD-F	GaAlAs	640	red diffused	36	70	140º	
AM23SRC-F	GaAlAs	640	water clear	36	70	140º	
AM23YD-F	GaAsP/GaP	588	yellow diffused	1.6	5	140º	
AM23YC-F	GaAsP/GaP	588	water clear	1.6	5	140º	
AM23SYD-F	InGaAlP	588	yellow diffused	50	100	140º	
AM23SYC-F	InGaAlP	588	water clear	50	100	140º	
AM23SGD-F	GaP	568	green diffused	2.6	8	140º	
AM23SGC-F	GaP	568	water clear	4	15	140º	
AM23ESGW	GaAsP/GaP	625	white diffused	4	15	140º	
	GaP	568		4	15	140º	
AM23ESGC	GaAsP/GaP	625	water clear	4	15	140º	
	GaP	568		4	15	140º	
AM2520ID03	GaAsP/GaP	625	red diffused	7	30	40º	Subminiature Solid State Lamps Gull Wing Lead
AM2520EC03	GaAsP/GaP	625	water clear	10	70	20º	
AM2520SRC03	GaAlAs	640	water clear	110	600	20º	
AM2520SURC03	InGaAlP	628	water clear	280	1000	20º	
AM2520SEC03	InGaAlP	601	water clear	480	1300	20º	
AM2520YC03	GaAsP/GaP	588	water clear	10	30	20º	
AM2520SYC03	InGaAlP	588	water clear	110	700	20º	
AM2520SGC03	GaP	568	water clear	36	80	20º	
AM2520MGC03	InGaAlP	568	water clear	280	600	20º	
AM2520PBC03	InGaN	470	water clear	110	250	20º	







NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

AM2520xxx09	AM27xxx03	AM27xxx09
		

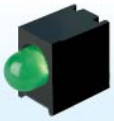
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AM2520ID09	GaAsP/GaP	625	red diffused	7	30	40º	Subminiature Solid State Lamps Z-Bend Lead
AM2520EC09	GaAsP/GaP	625	water clear	10	70	20º	
AM2520SRC09	GaAlAs	640	water clear	110	600	20º	
AM2520SURC09	InGaAlP	628	water clear	280	1000	20º	
AM2520SEC09	InGaAlP	601	water clear	480	1300	20º	
AM2520YC09	GaAsP/GaP	588	water clear	10	30	20º	
AM2520SYC09	InGaAlP	588	water clear	110	700	20º	
AM2520SGC09	GaP	568	water clear	36	80	20º	
AM2520MGC09	InGaAlP	568	water clear	280	600	20º	
AM2520PBC09	InGaN	470	water clear	110	250	20º	
AM27EC03	GaAsP/GaP	625	water clear	10	70	20º	Subminiature Solid State Lamps Gull Wing Lead
AM27SRC03	GaAlAs	640	water clear	110	600	20º	
AM27SURC03	InGaAlP	628	water clear	280	1000	20º	
AM27SEC03	InGaAlP	601	water clear	480	1300	20º	
AM27YC03	GaAsP/GaP	588	water clear	10	30	20º	
AM27SYC03	InGaAlP	588	water clear	110	700	20º	
AM27SGC03	GaP	568	water clear	36	80	20º	
AM27MGC03	InGaAlP	568	water clear	280	600	20º	
AM27EC09	GaAsP/GaP	625	water clear	10	70	20º	Subminiature Solid State Lamps Z-Bend Lead
AM27SRC09	GaAlAs	640	water clear	110	600	20º	
AM27SURC09	InGaAlP	628	water clear	280	1000	20º	
AM27SEC09	InGaAlP	601	water clear	480	1300	20º	
AM27YC09	GaAsP/GaP	588	water clear	10	30	20º	
AM27SYC09	InGaAlP	588	water clear	110	700	20º	
AM27SGC09	GaP	568	water clear	36	80	20º	
AM27MGC09	InGaAlP	568	water clear	280	600	20º	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SURFACE MOUNT LED LAMPS

Kingbright

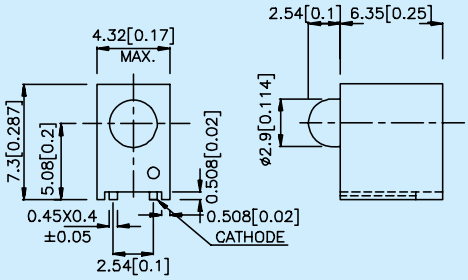
WP93A8EWP/xDTG0L



AA9219/2



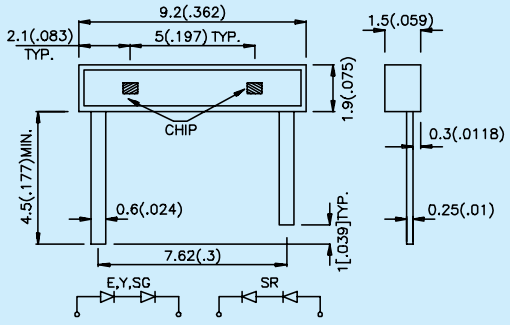
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
WP93A8EWP/GDTG0L	GaP	568	green diffused	8	20	60º	T-1 (3mm) Right Angle
WP93A8EWP/IDTG0L	GaAsP/GaP	625	red diffused	12	25	60º	
WP93A8EWP/YDTG0L	GaAsP/GaP	588	yellow diffused	5	12	60º	



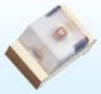
SIDE VIEW LEDS

Kingbright

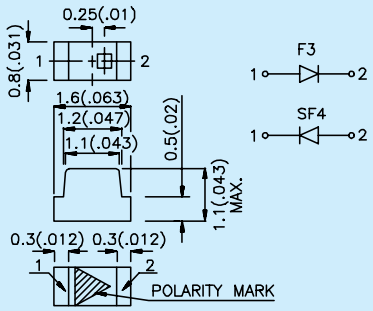
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AA9219/2EC	GaAsP/GaP	625	water clear	18	50	100º	9.2mm x 1.9mm
AA9219/2SRC	GaAlAs	640	water clear	70	200	100º	
AA9219/2YC	GaAsP/GaP	588	water clear	10	20	100º	
AA9219/2SGC	GaP	568	water clear	7	40	100º	



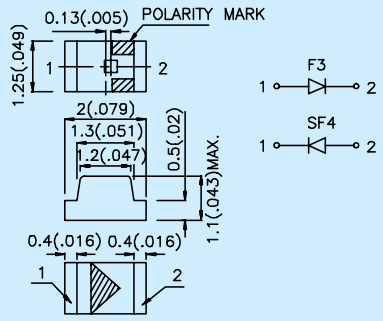
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

AP1608(0603)	AP2012(0805)	AP3216(1206)
		

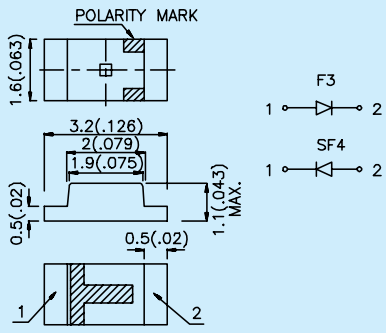
Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
AP1608F3C	GaAs	940	water clear	0.4	1.2	120º	1.6mm x 0.8mm x 1.1mm (0603)
AP1608SF4C	GaAlAs	880	water clear	0.4	1	120º	
AP2012F3C	GaAs	940	water clear	0.4	1.2	120º	2.0mm x 1.25mm x 1.1mm (0805)
AP2012SF4C	GaAlAs	880	water clear	0.4	1	120º	
AP3216F3C	GaAs	940	water clear	0.4	1.2	120º	3.2mm x 1.6mm x 1.1mm (1206)
AP3216SF4C	GaAlAs	880	water clear	0.4	1	120º	



Units : mm(inch)
Tolerance : ±0.1(0.004)



Units : mm(inch)
Tolerance : ±0.1(0.004)

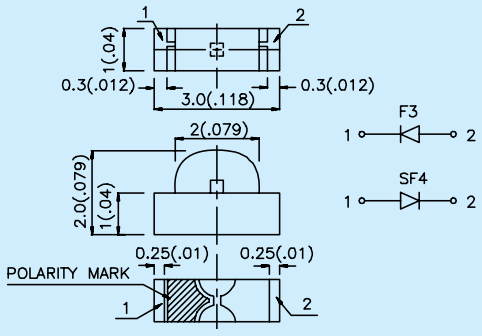


Units : mm(inch)
Tolerance : ±0.2(0.008)

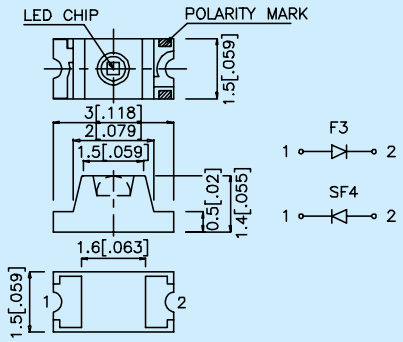
NOTES:
1. All dimensions are in millimeters(inches).

APA3010(1104)	APL3015xxx-F01(1106)
	

Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
APA3010F3C	GaAs	940	water clear	0.4	1.2	120º	3.0mm x 1.0mm x 2mm (1104 Right Angle)
APA3010SF4C	GaAlAs	880	water clear	0.4	1	120º	
APL3015F3C-F01	GaAs	940	water clear	0.4	1.2	70º	3.0mm x 1.5mm x 1.4mm (1106)
APL3015SF4C-F01	GaAlAs	880	water clear	0.4	1	70º	



Units : mm(inch)
Tolerance : ±0.15(0.006)



Units : mm(inch)
Tolerance : ±0.2(0.008)

NOTES:
1. All dimensions are in millimeters(inches).

AP1608P1C(0603)	AP2012P3C(0805)	AP3216P3C(1206)	APA3010P3C(1104)
			

PHOTOTRANSISTORS

1.6mm x 0.8mm x 1.1mm (0603)

AP1608P1C WATER CLEAR LENS

AP1608P1BT BLUE TRANSPARENT LENS

2.0mm x 1.25mm x 1.1mm (0805)

AP2012P3C WATER CLEAR LENS

AP2012P3BT BLUE TRANSPARENT LENS

3.2mm x 1.6mm x 1.1mm (1206)

AP3216P3C WATER CLEAR LENS

AP3216P3BT BLUE TRANSPARENT LENS

3.0mm x 1.0mm x 2.0mm (1104)

APA3010P3C WATER CLEAR LENS

APA3010P3BT BLUE TRANSPARENT LENS

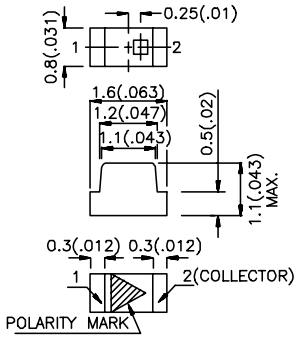
ABSOLUTE MAXIMUM RATING T_A=25°C

Parameter	Max. Ratings
Collector-to-Emitter Breakdown Voltage	30V
Emitter-to-Collector Breakdown Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C

ELECTRICAL AND RADIANT CHARACTERISTICS T_A=25°C

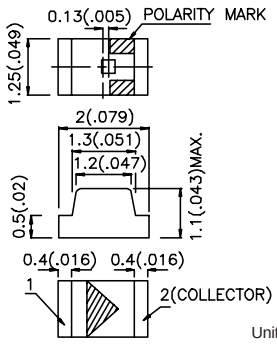
Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
$V_{BR\ CEO}$	Collector-to-Emitter Breakdown Voltage	30	-	-	V	I_C=100μA Ee=0mW/cm²
$V_{BR\ ECO}$	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I_E=100μA Ee=0mW/cm²
$V_{CE\ (SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	0.8	V	I_C=2mA Ee=20mW/cm²
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
T_R	Rise Time (10% to 90%)	-	3	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
T_F	Fall Time (90% to 10%)	-	3	-	μs	
$I_{(ON)}$	On State Collector Current	0.1	0.3	-	mA	V_{CE}=5V, Ee=1mW/cm², λ=940nm

AP1608P1 1.6mm x 0.8mm x 1.1mm (0603)



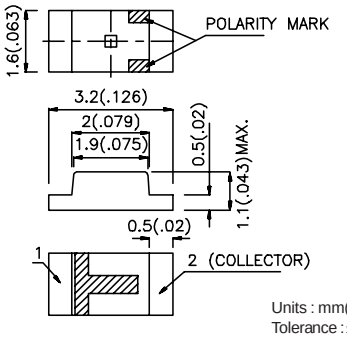
Units : mm(inch)
Tolerance : ±0.1(0.004)

AP2012P3 2.0mm x 1.25mm x 1.1mm (0805)



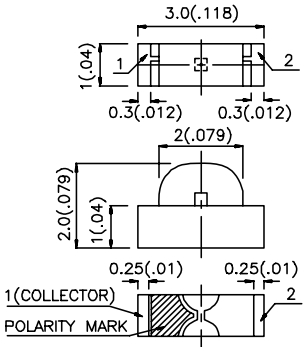
Units : mm(inch)
Tolerance : ±0.1(0.004)

AP3216P3 3.2mm x 1.6mm x 1.1mm (1206)



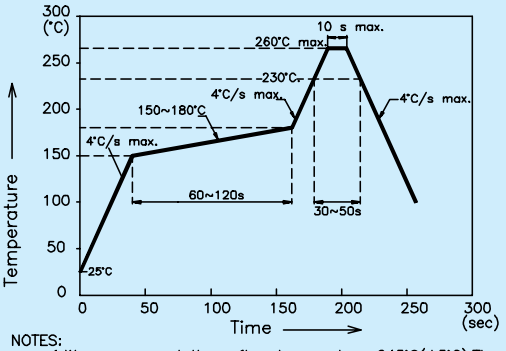
Units : mm(inch)
Tolerance : ±0.2(0.008)

APA3010P3 3.0mm x 1.0mm x 2.0mm (1104)



Units : mm(inch)
Tolerance : ±0.15(0.006)

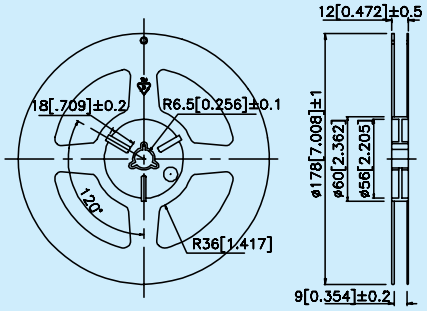
Reflow Soldering Profile For Lead-free SMT Process.



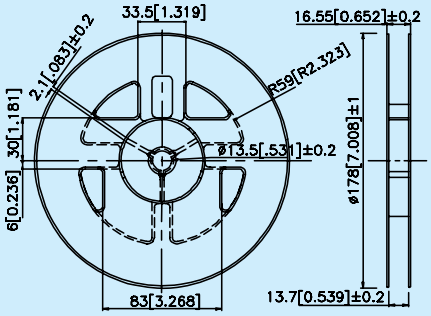
NOTES:
1.We recommend the reflow temperature 245°C(±5°C).The maximum soldering temperature should be limited to 260°C.
2.Don't cause stress to the epoxy resin while it is exposed to high temperature.
3.Number of reflow process shall be 2 times or less.

PART NO.	REEL DIMENSION
AA3020,AM23-F,AP1608,AP2012,AP23xxx-F01,AP3216, APA2106,APA3010,APB3025xxx-F01,APBA3010xxx-F01, APBA3210xxx-F01,APBD3224xxx-F01,APBL3025xxx-F01 APD3224xxx-F01,APE2712,APFA3210xxx-F01, APHCM2012xxx-F01,APHK1608,APHM1608,APHS1005, APJA2107,APK3020xxx-F01,APK3216xxx-F01, APKA2810xxx-F01,APKB3025xxx-F01,APL3015xxx-F01, APT1608,APT2012,APT3216,APTB1612xxx-F01, APTB1615xxx-F01,APTK2012xxx-F01,APTD3216,APTR3216.	7"(for 8mm width tape)
APDX04-41xxx-F01,APPDX04-41xxx-F01, APPSX04-41xxx-F01, APSX56-41xxx-F01.	13"(for 32mm width tape)
AA3022-4.5SF,AA3528,AA4040,AA5060,AAA3528, AAA5060,AAAF5060,AM2520xxx03,AM2520xxx09,AM27xxx03, AM27xxx09,APD2520xxx03,APED3528xxx-F01, APED3820xxx-F01,	7"(for 12mm width tape)
AA1010,AA1011,APDX02-41xxx-F01,APDX03-41xxx-F01 APSX02-41xxx-F01,APSX03-41xxx-F01,APSX04-41xxx-F01 WP93A8EWP/xDTG0L.	13"(for 24mm width tape)
APDX56-41xxx-F01.	13"(for 44mm width tape)

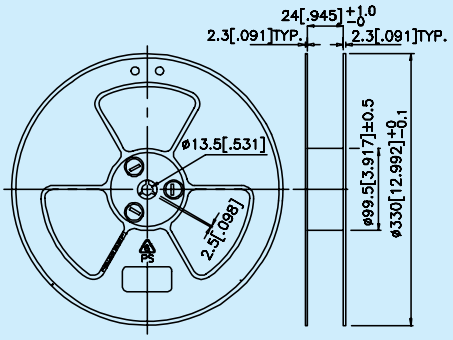
7"(for 8mm width tape)



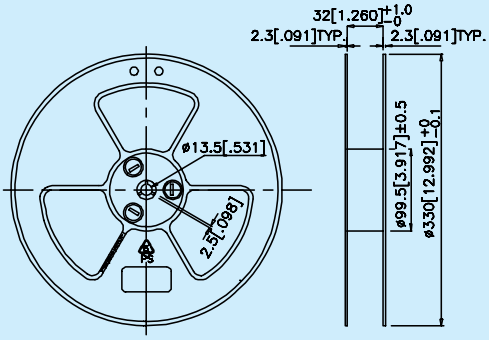
7"(for 12mm width tape)



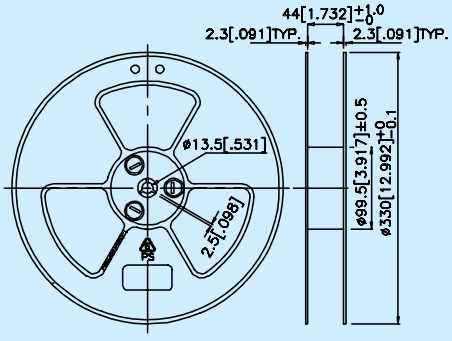
13"(for 24mm width tape)



13"(for 32mm width tape)

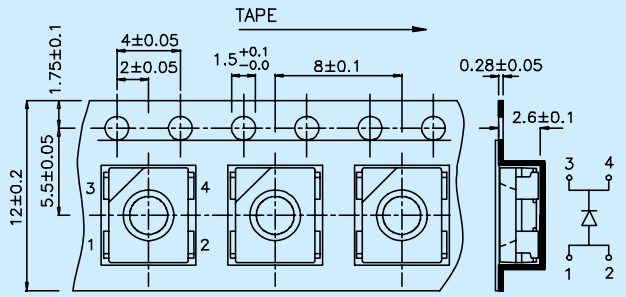


13"(for 44mm width tape)

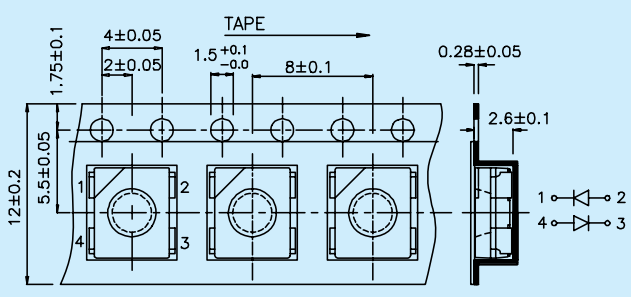


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

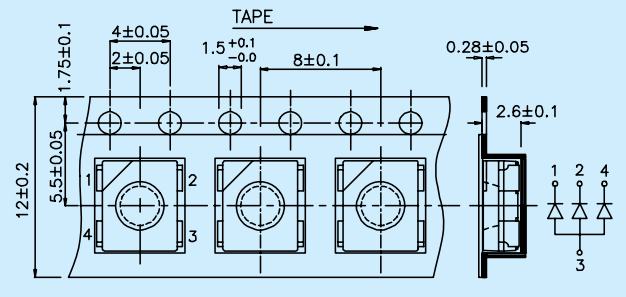
AA5060 PACKAGE: 500PCS / REEL



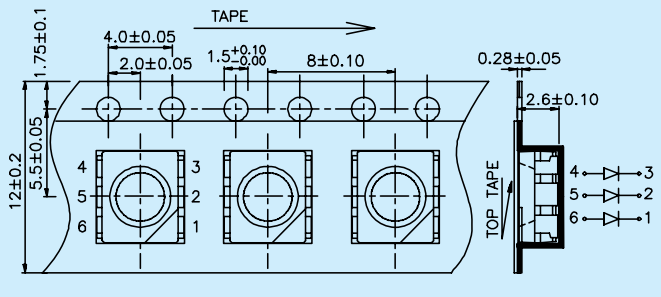
AAA5060 Bi-Color PACKAGE: 500PCS / REEL



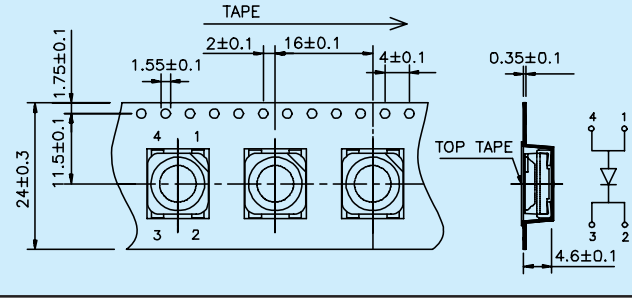
AAA5060 Full-Color PACKAGE: 500PCS / REEL



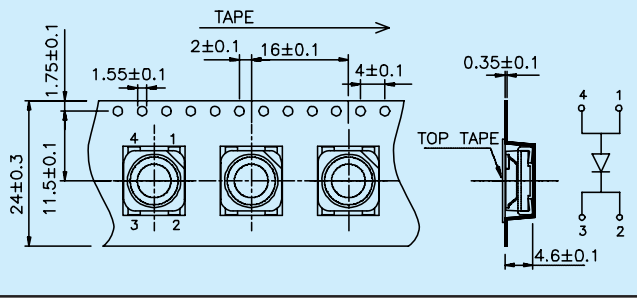
AAAF5060 PACKAGE: 500PCS / REEL



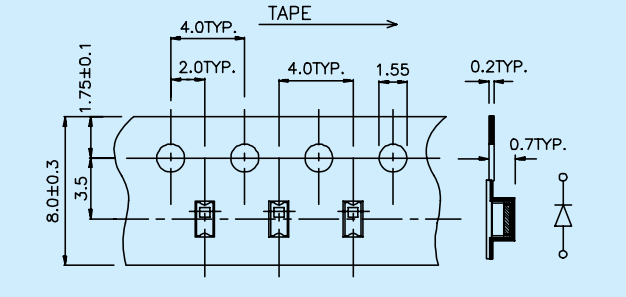
AA1010 PACKAGE: 1000PCS / REEL



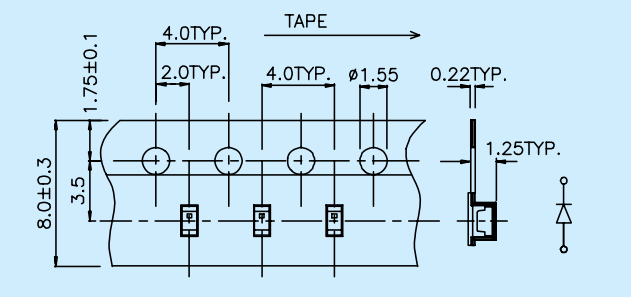
AA1011 PACKAGE: 1000PCS / REEL



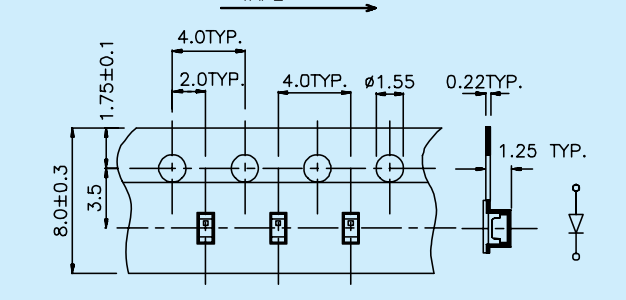
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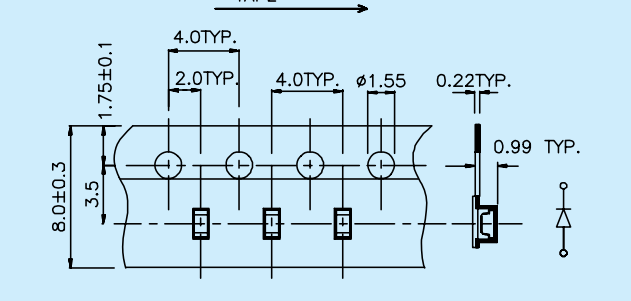
AP1608 PACKAGE: 2000PCS / REEL



AP1608SF4C PACKAGE: 2000PCS / REEL

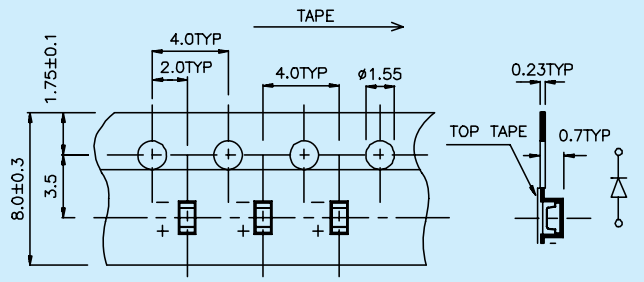


APT1608 PACKAGE: 2000PCS / REEL

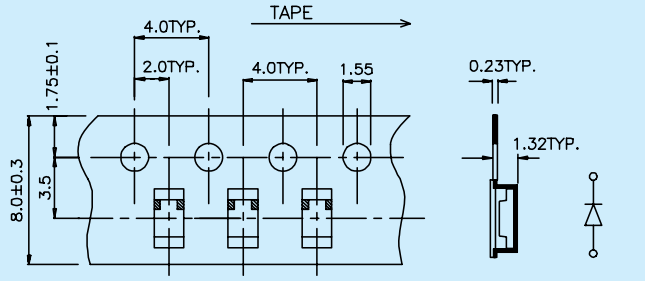


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

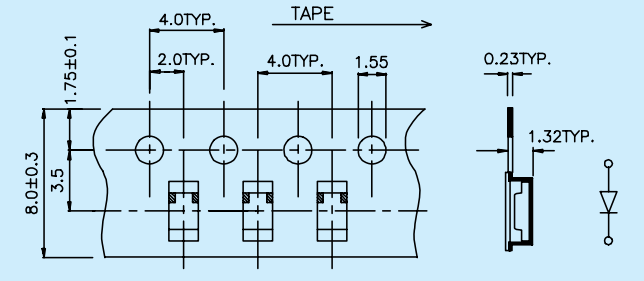
APHM1608 PACKAGE: 2000PCS / REEL



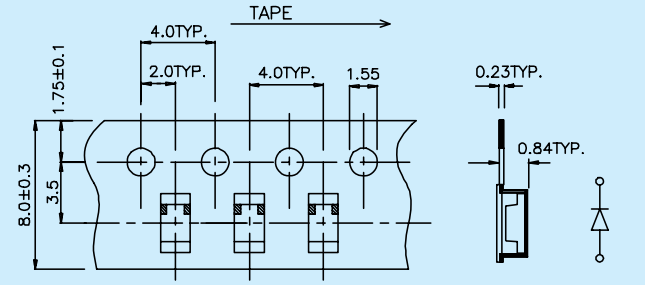
AP2012 PACKAGE: 2000PCS / REEL



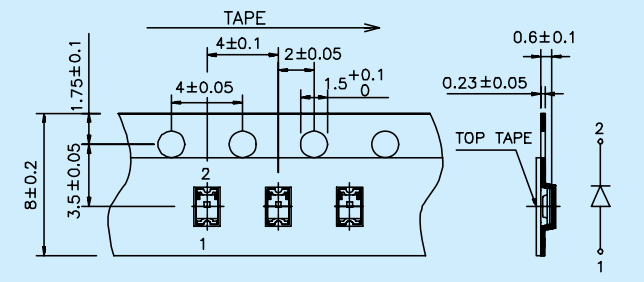
AP2012SF4C PACKAGE: 2000PCS / REEL



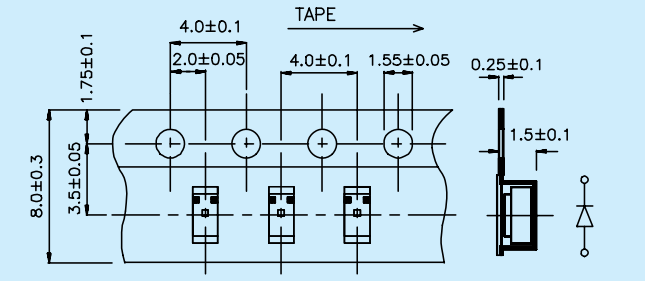
APT2012 PACKAGE: 2000PCS / REEL



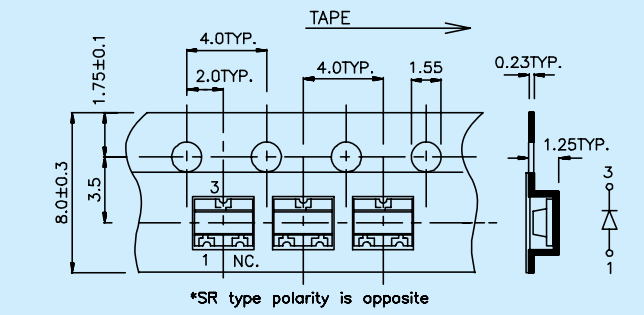
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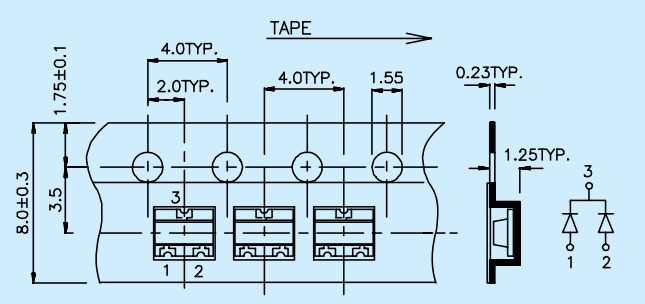
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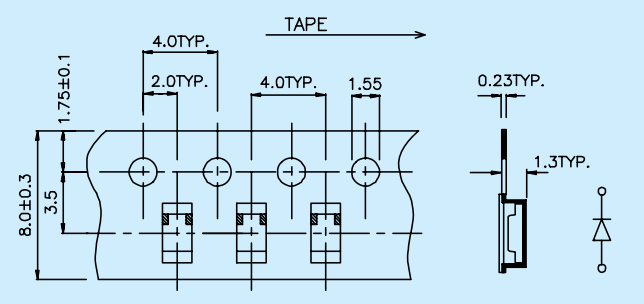
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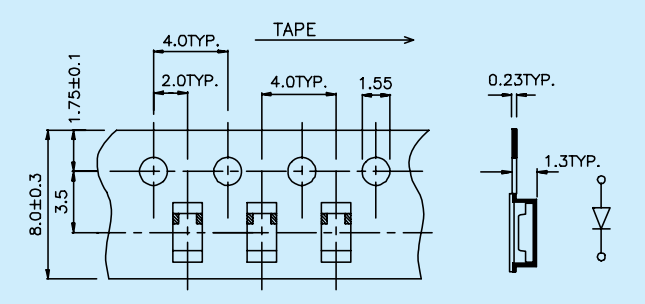
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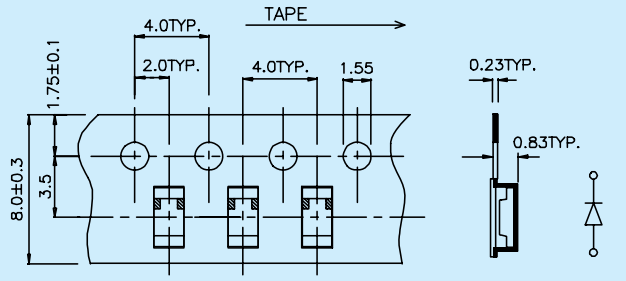


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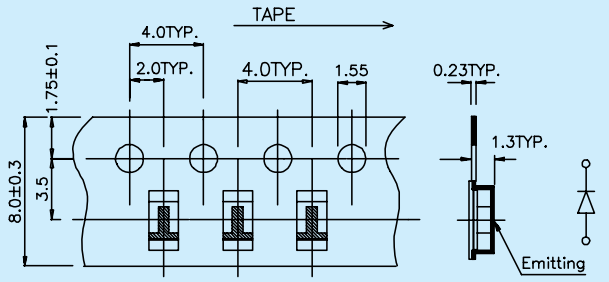


NOTES:
1. All dimensions are in millimeters(inches).
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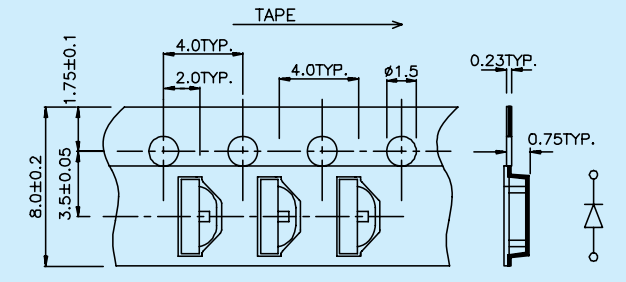
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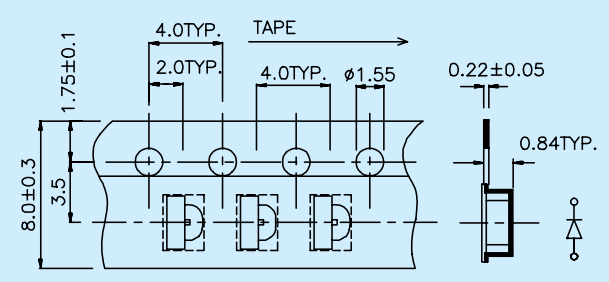
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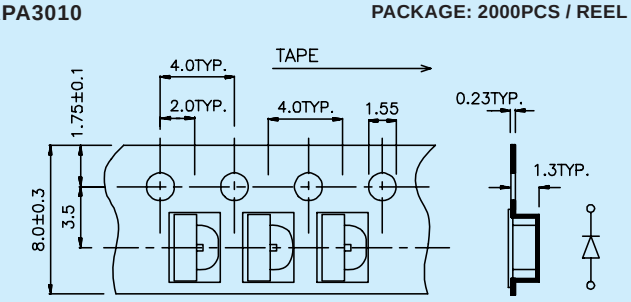
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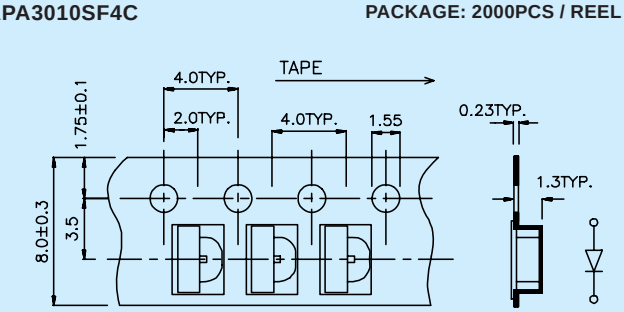
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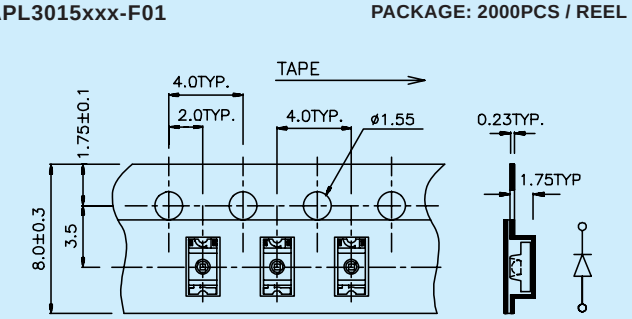
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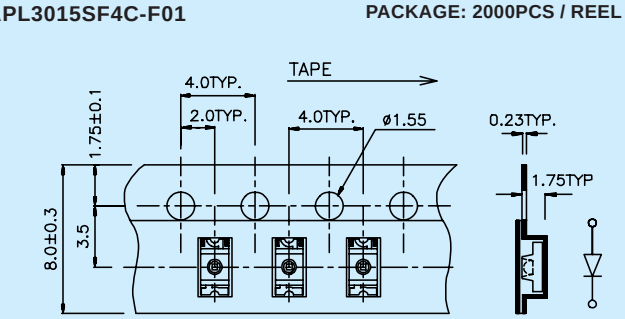
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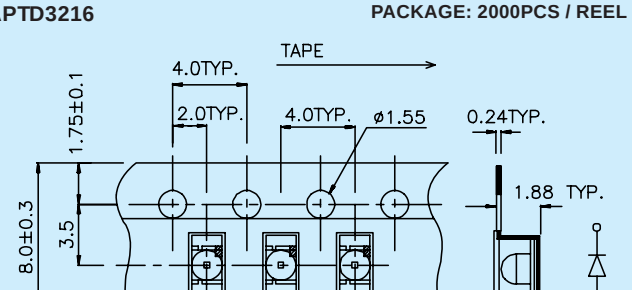
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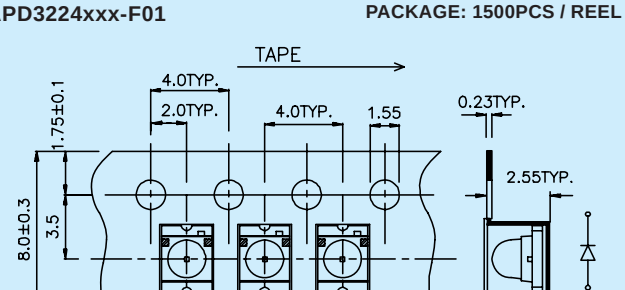
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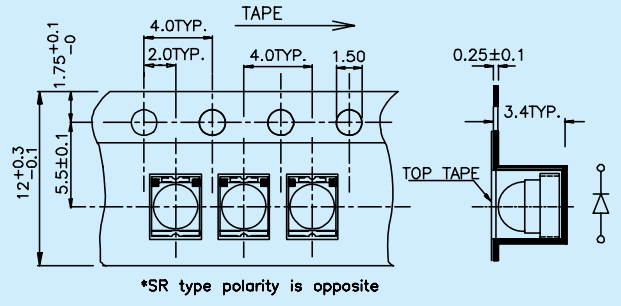


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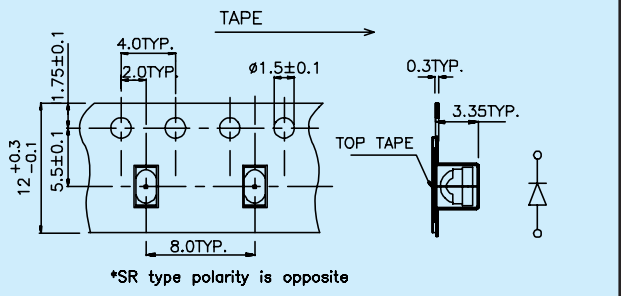


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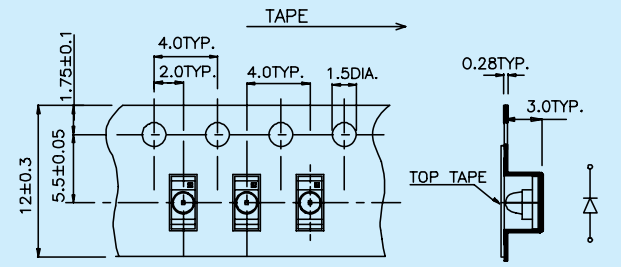
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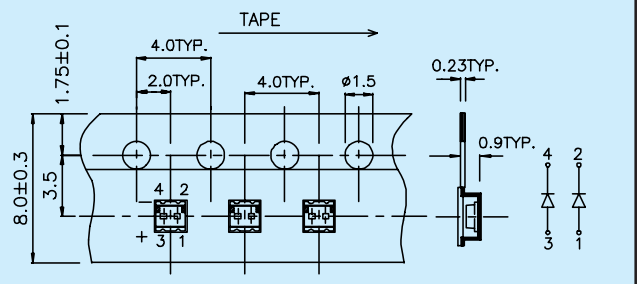
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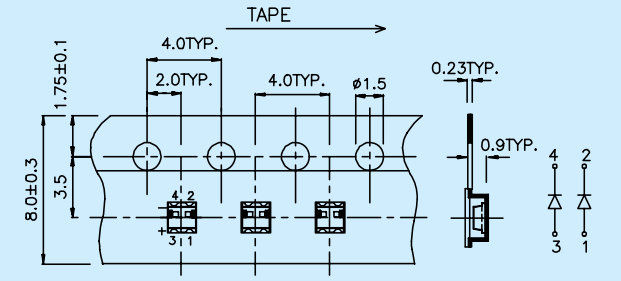
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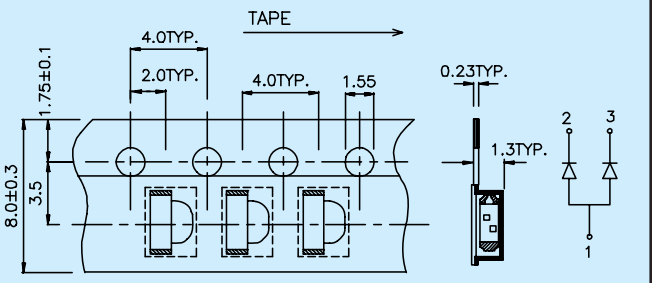
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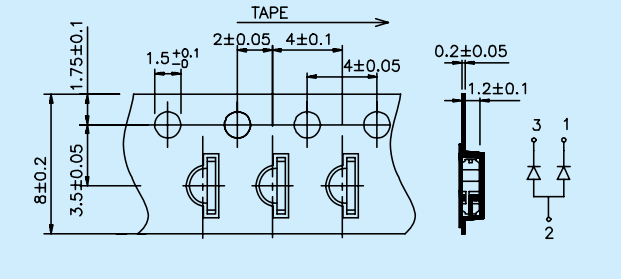
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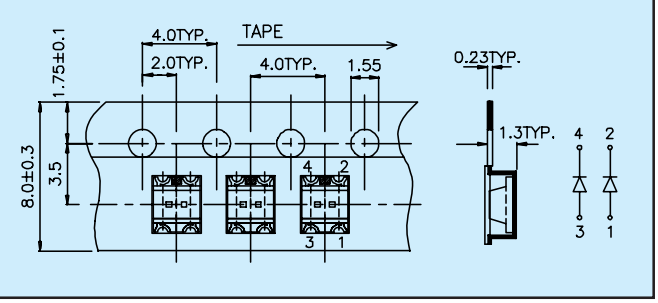
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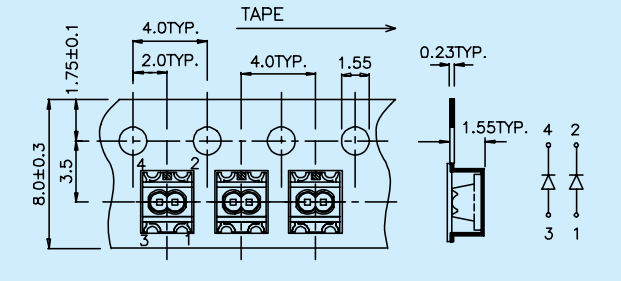
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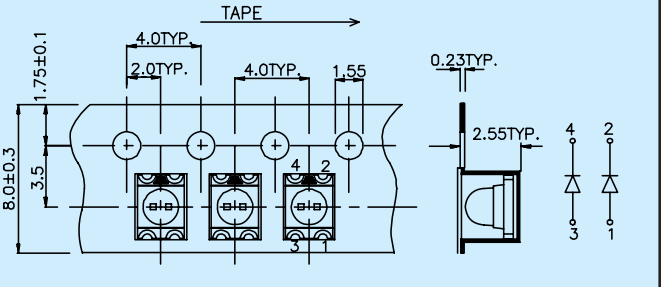
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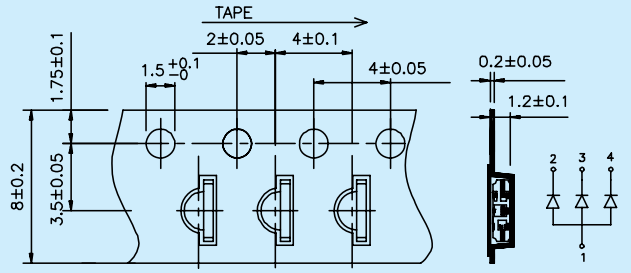


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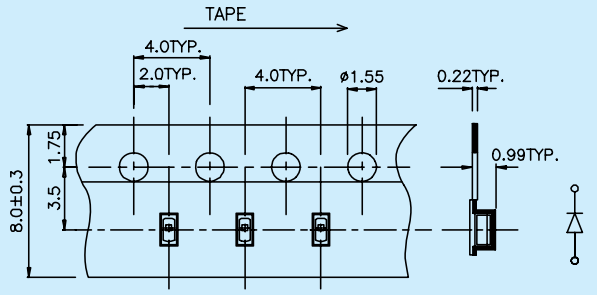


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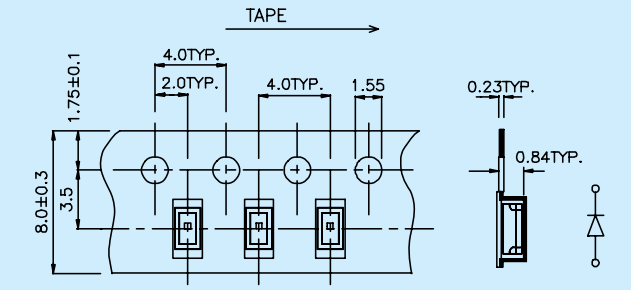
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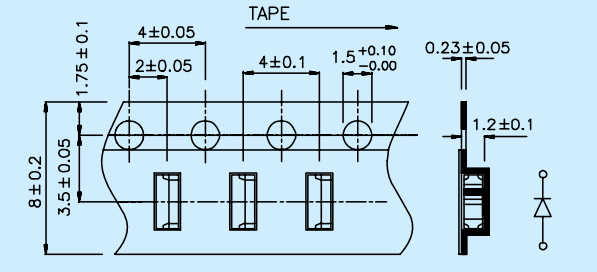
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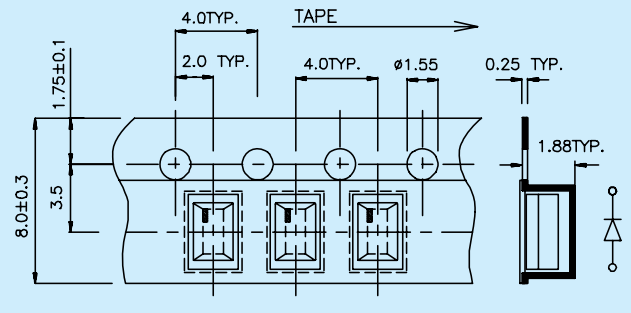
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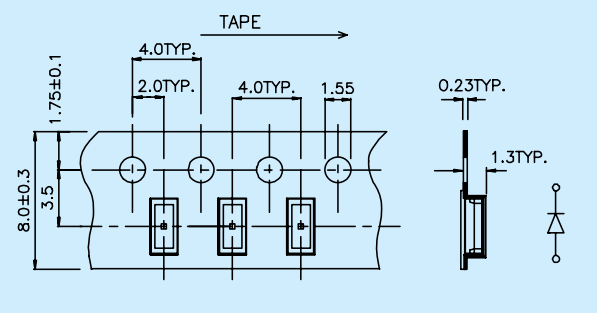
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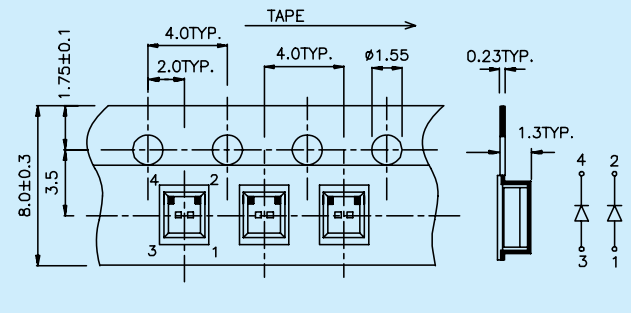
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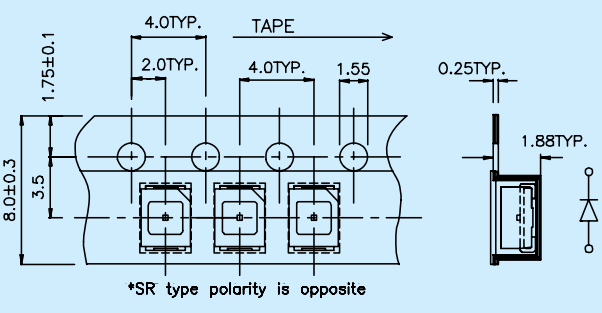
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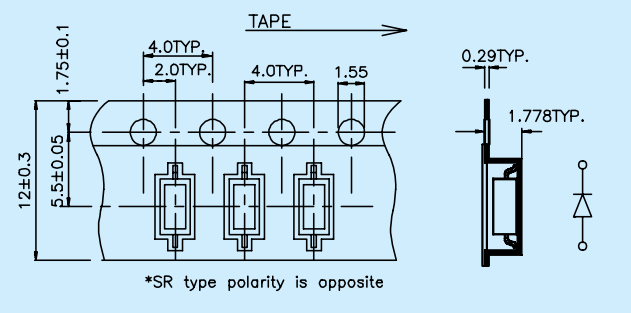
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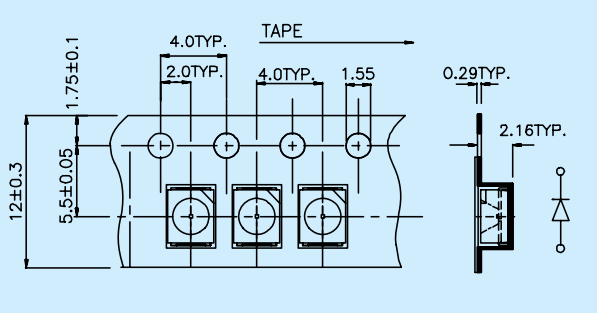
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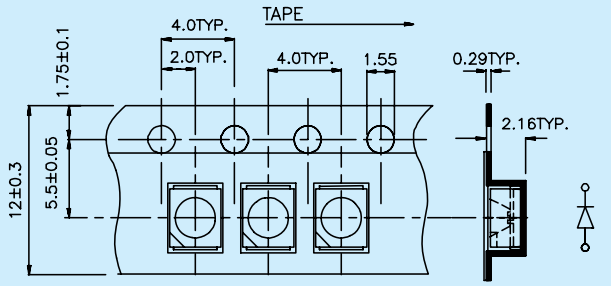


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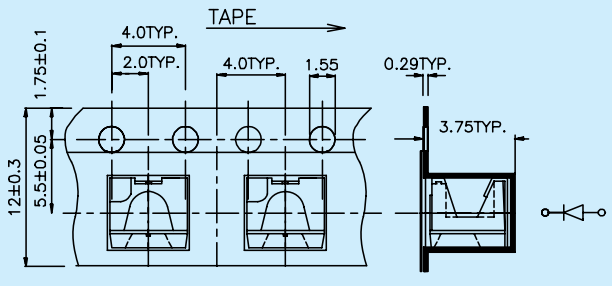


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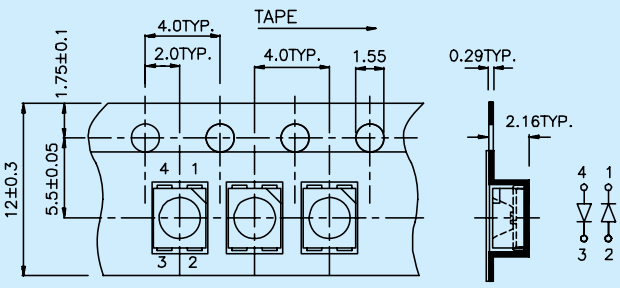
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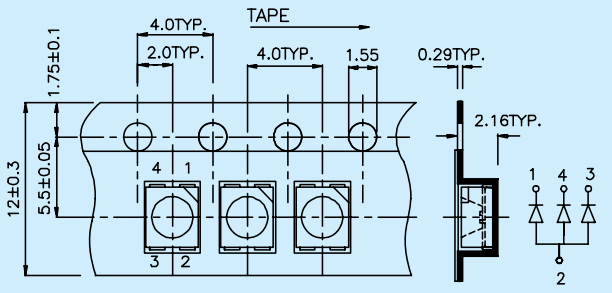
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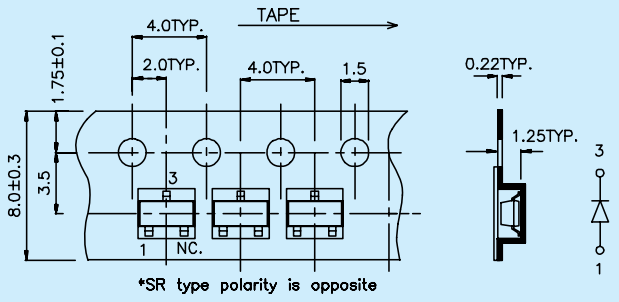
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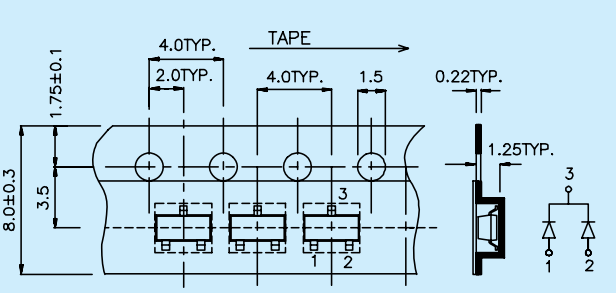
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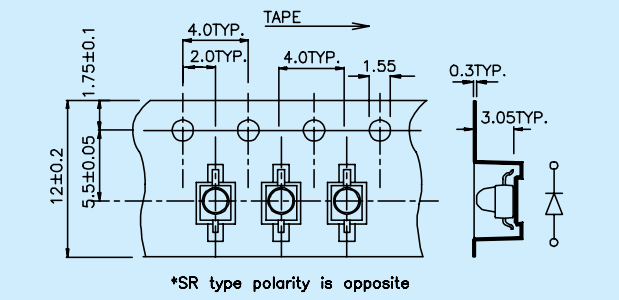
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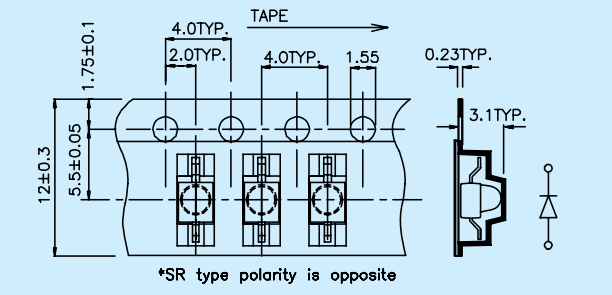
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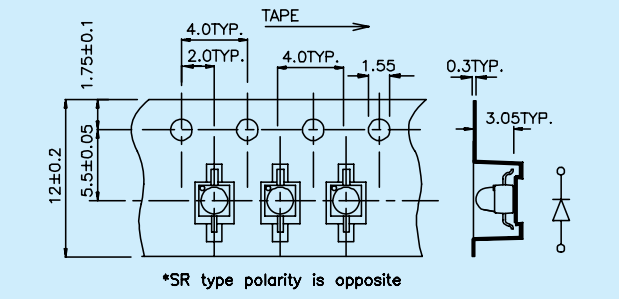
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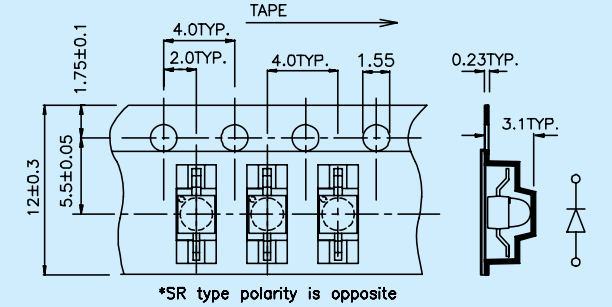
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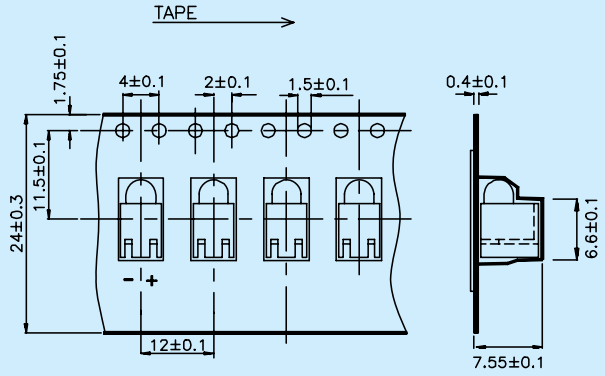


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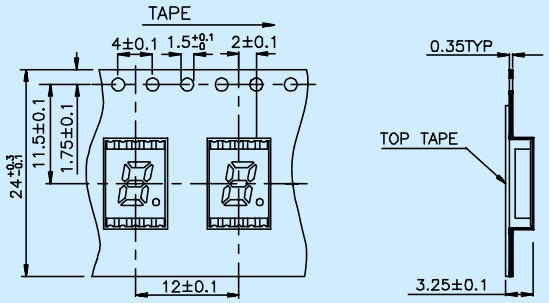


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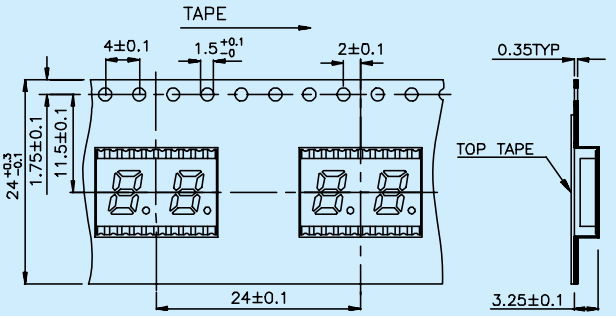
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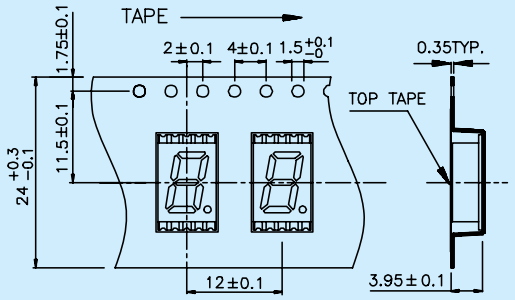
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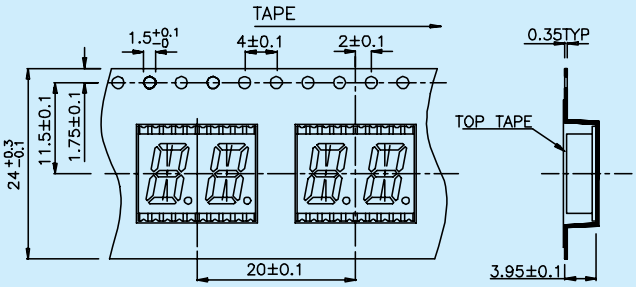
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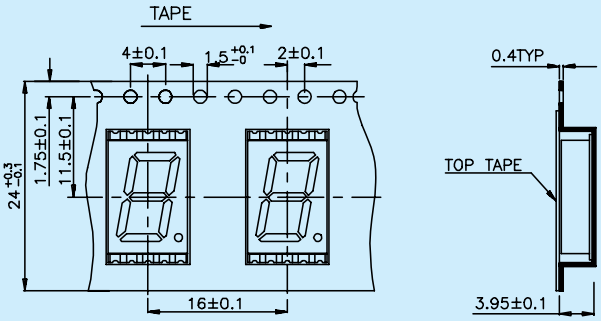
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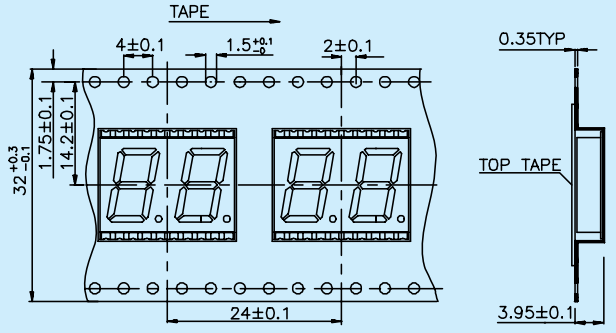
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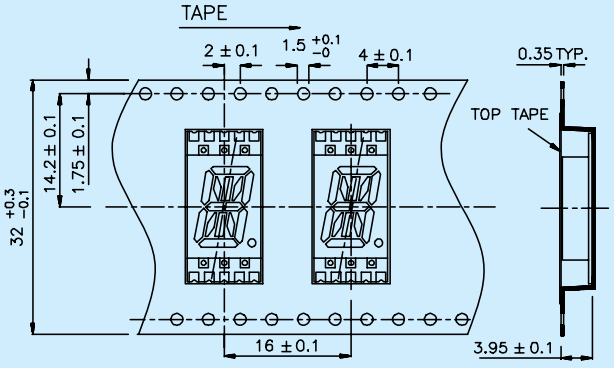
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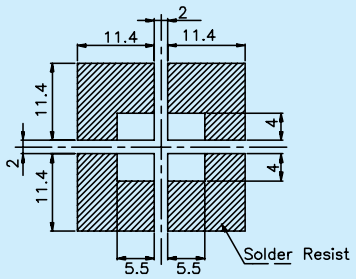


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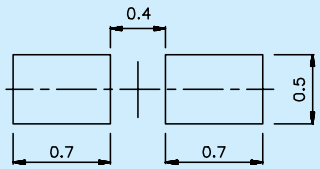


NOTES:
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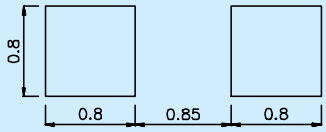
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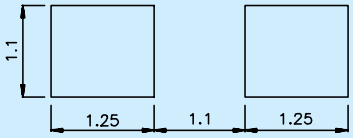
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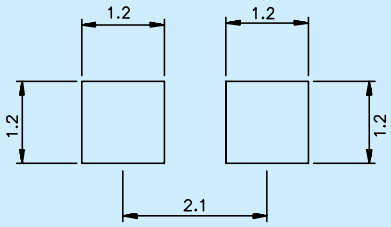
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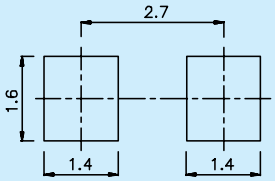
AP2012, APT2012,APTK2012xxx-F01



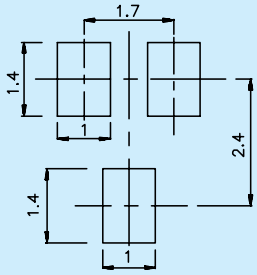
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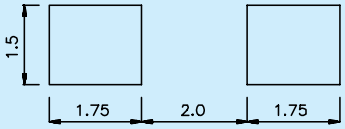
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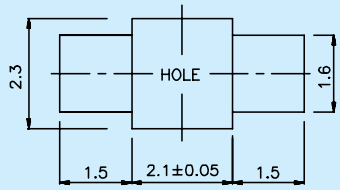
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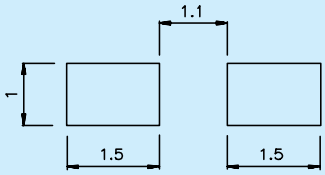
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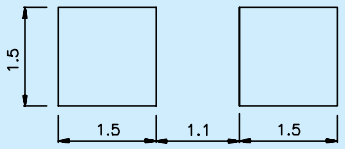
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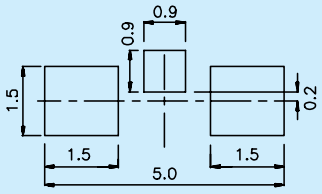
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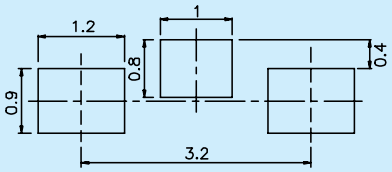
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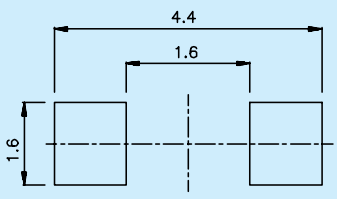
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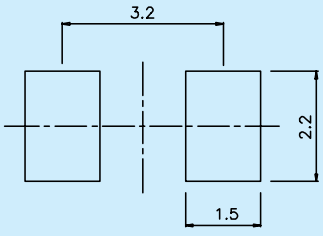
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APL3015xxx-F01

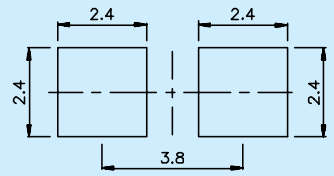


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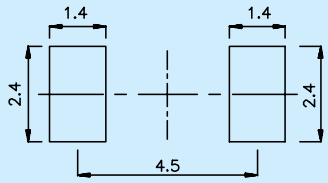


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

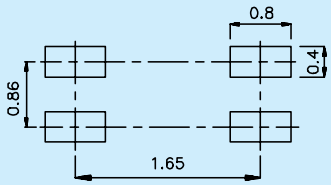
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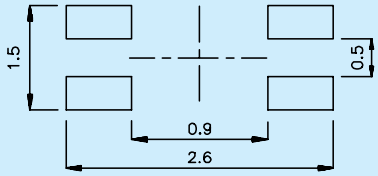
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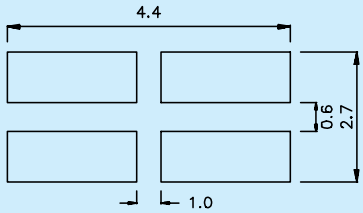
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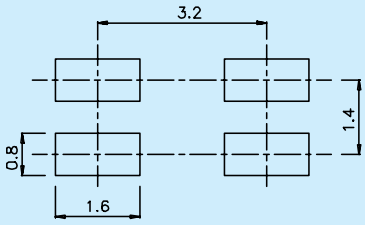
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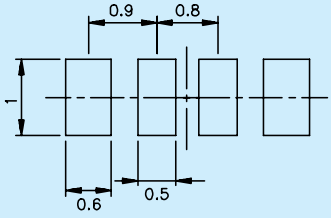
APB3025xxx-F01, APBL3025xxx-F01, APKB3025xxx-F01



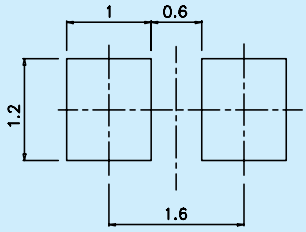
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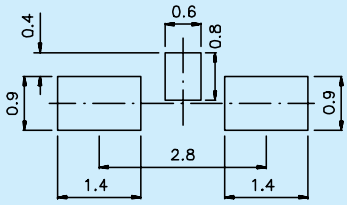
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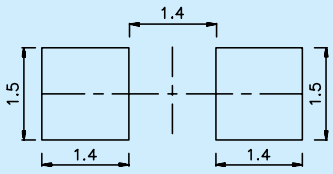
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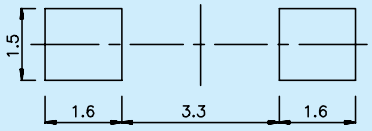
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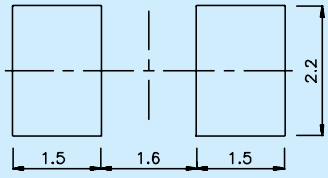
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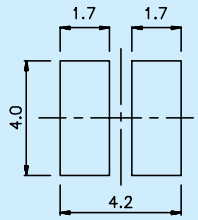
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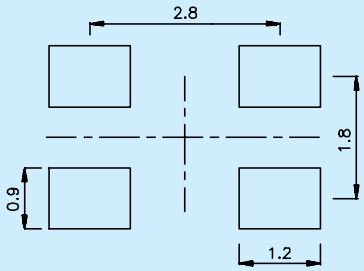
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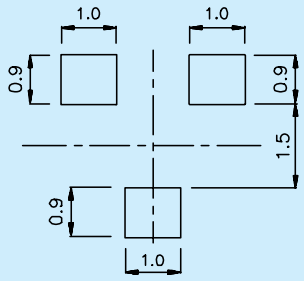
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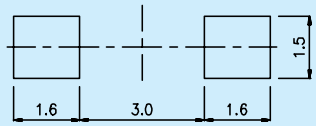


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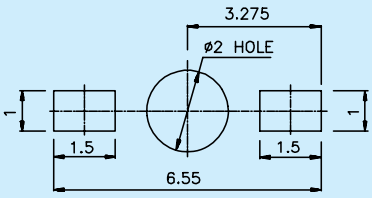


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

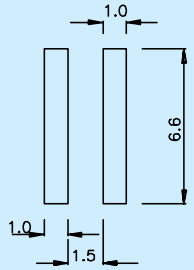
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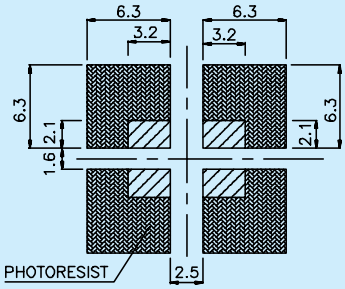
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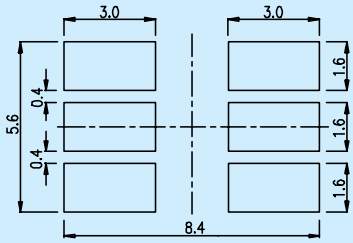
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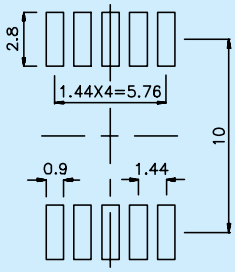
AA5060, AAA5060



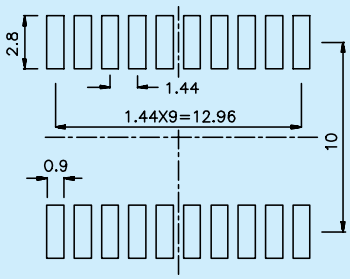
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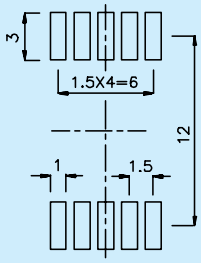
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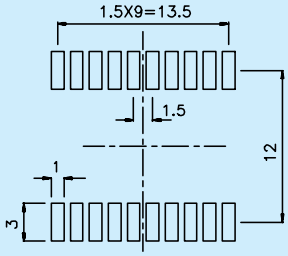
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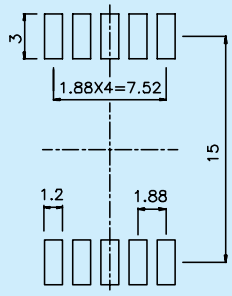
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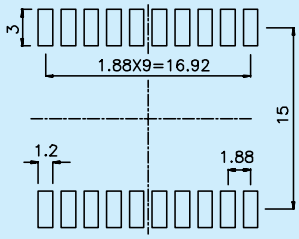
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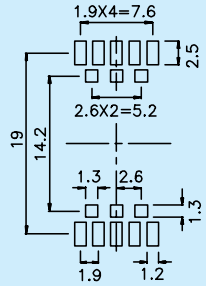
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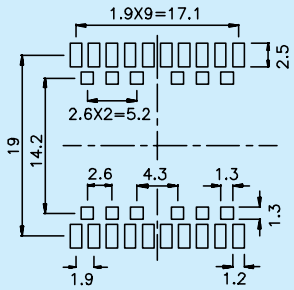
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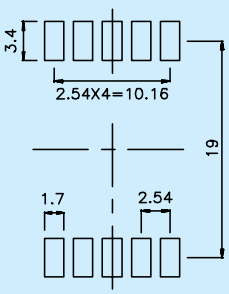
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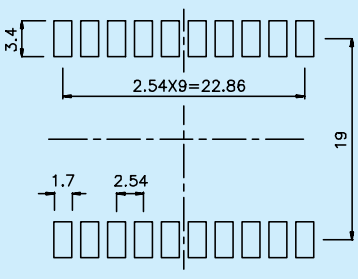
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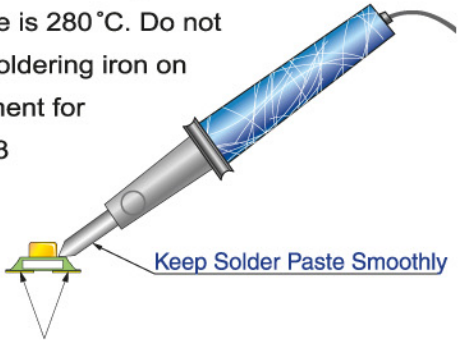


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Soldering

General Notes

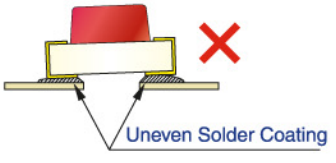
1. We recommend manual soldering operations only for repair and rework purposes. The soldering iron should not exceed 30W in power. The maximum soldering temperature is 300°C for Pb-Sn solder and 350°C for lead-free solder for normal lamps and displays. For blue (425nm), and blue-green (525nm) LEDs, the maximum soldering iron temperature is 280°C. Do not place the soldering iron on the component for more than 3 seconds.



2. The tip of the soldering iron should never touch the lens epoxy.

3. Do not apply stress to the leads when the component is heated above 85°C, otherwise internal wire bonds may be damaged.

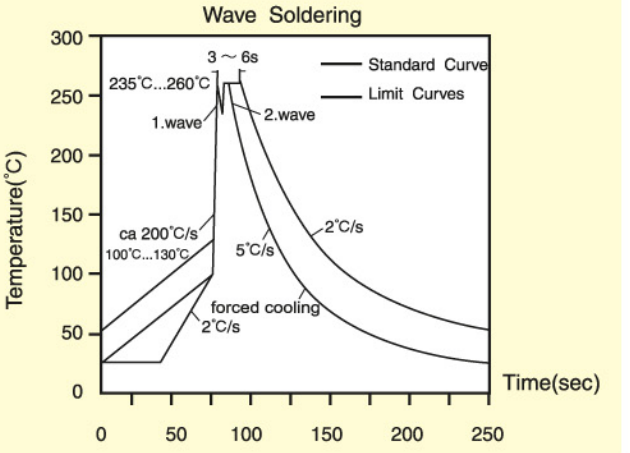
4. SMD products must be mounted according to specified soldering pad patterns. Refer to the product datasheet for details. Solder paste must be evenly applied to each soldering pad to insure proper bonding and positioning of the component.



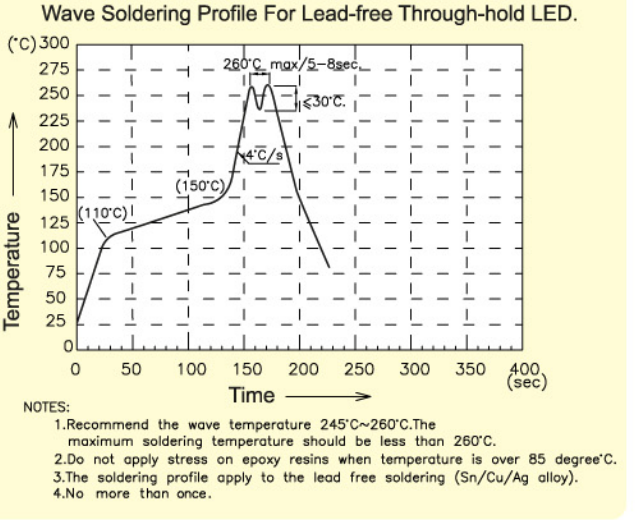
5. After soldering, allow at least three minutes for the component to cool to room temperature before further operations.

Recommended Wave Soldering Profiles For Kingbright Thru-Hole Products

1. Wave Soldering Profile With Pb-Sn Solder



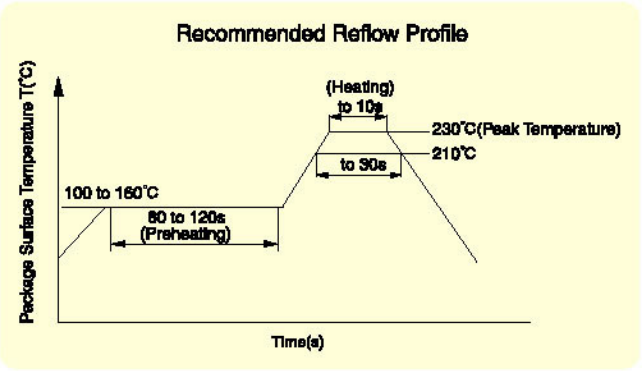
2. Lead-Free Wave Soldering Profile



Recommended Reflow Soldering Profiles For Kingbright SMD Products

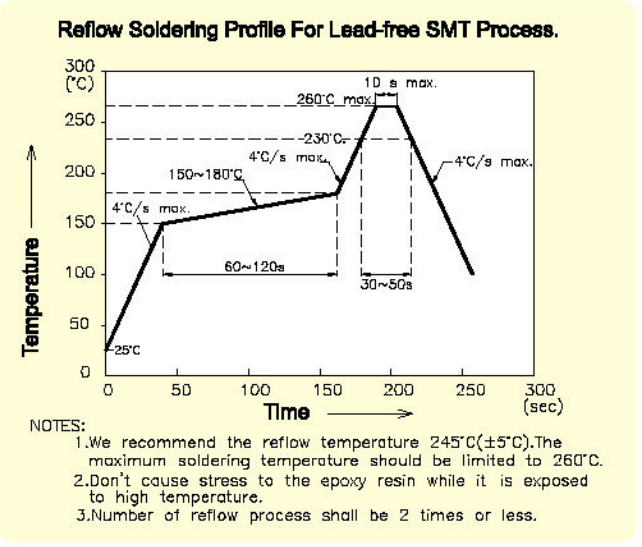
1. Reflow Soldering Profile With Pb-Sn Solder

No more than two soldering passes with the recommended profile.



2. Lead-Free Reflow Soldering Profile

No more than two soldering passes with the recommended profile.



NOTES:
1. We recommend the reflow temperature 245°C(±5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Static Electricity and Voltage Spikes in InGaN/GaN Products

InGaN/GaN products are sensitive to electrostatic discharge (ESD) and other transient voltage spikes. ESD and voltage spikes can affect the component's reliability, increase reverse current, and decrease forward voltage. This may result in reduced light intensity or cause component failure.

Kingbright InGaN/GaN products are stored in anti-static packaging for protection during transport and storage. Please note the anti-static measures below when handling Kingbright InGaN/GaN products:

Design Precautions

Products using InGaN/GaN components must incorporate protection circuitry to prevent ESD and voltage spikes from reaching the vulnerable component.

ESD Protection During Production

Static discharge can result when static-sensitive products come in contact with the operator or other conductors. The following procedures may decrease the possibility of ESD damage:

a. Minimize friction between the product and surroundings to avoid static buildup.

b. All production machinery and test instruments must be electrically grounded.

c. Operators must wear anti-static bracelets.

d. Wear anti-static suit when entering work areas with conductive machinery.

e. Set up ESD protection areas using grounded metal plating for component handling.

f. All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.

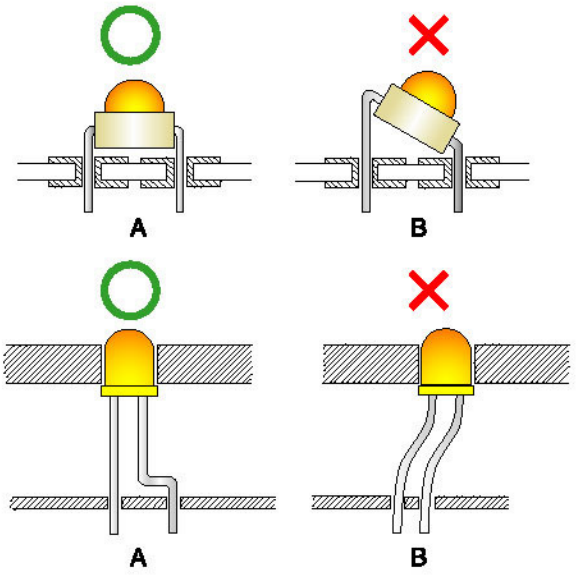
g. Maintain a humidity level of 50% or higher in production areas.

h. Use anti-static packaging for transport and storage.

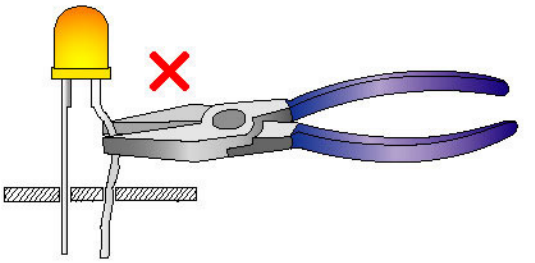
i. All anti-static equipment and procedures should be periodically inspected and evaluated for proper functionality.

Lead Forming

1. Any lead forming or bending must be done before soldering, never during or after soldering.
2. Avoid placing stress the LED lens in order to prevent fracture in the lens epoxy and to prevent damage to the internal wire bonding.
3. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures.
4. There must be a minimum of 2mm clearance between the base of the LED lens and the lead bend.
5. Avoid bending the leads at the same point more than once.
6. Assembly Precautions
   The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead forming may be required to insure matching pitches between the leads and the mounting holes. Refer to figure below for proper lead forming procedures.



7. Avoid lead forming once the component has been mounted onto the PCB.

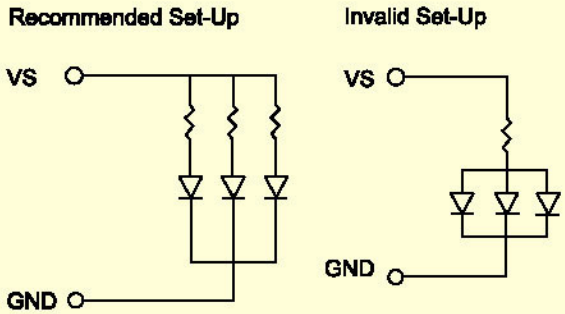


Cleaning

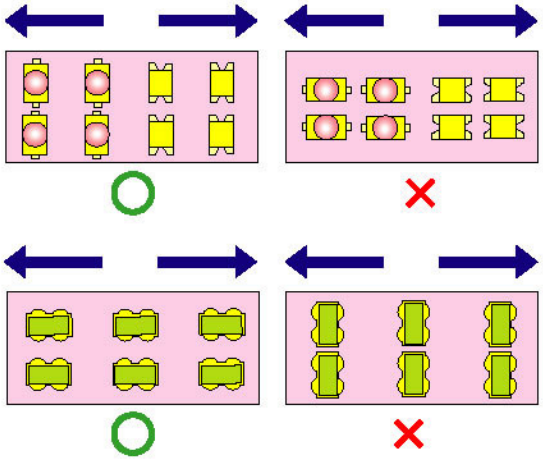
1. Do not use harsh organic solvents such as trichloroethylene, acetone, Chlorosen, and Diflon S3MC for cleaning because they may cloud or damage the LED lens.
2. Isopropyl alcohol or deionized water are recommended solvents for cleaning.
3. Special attention should be taken if other chemicals are used for cleaning because other solvents may damage the epoxy in the lens or housing.
4. The cleaning process should take place at room temperature and the devices should not be washed for more than one minute.
5. When water is used in the cleaning process, immediately remove excess moisture from the LED via forced-air drying afterwards.

Miscellaneous Design Notes

1. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.
2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.

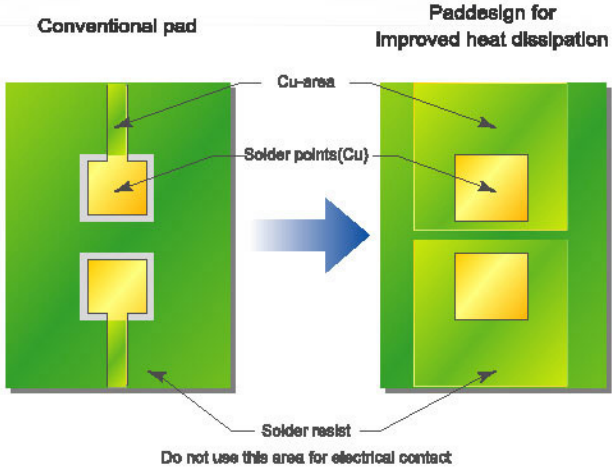


3. The driving circuit should be designed to avoid reverse voltages and transient voltage spikes when the circuit is powered up or shut down.
4. During soldering, SMD components should be mounted such that the leads are placed perpendicular to the direction of PCB travel to insure the solder on each lead melts simultaneously during reflow.





5. Optimal usage of high-power LED devices requires careful design by the end-user to optimize heat dissipation, such as increasing the size of the metal backing around the soldering pad. Refer to the product datasheet for specific design recommendations regarding heat dissipation.

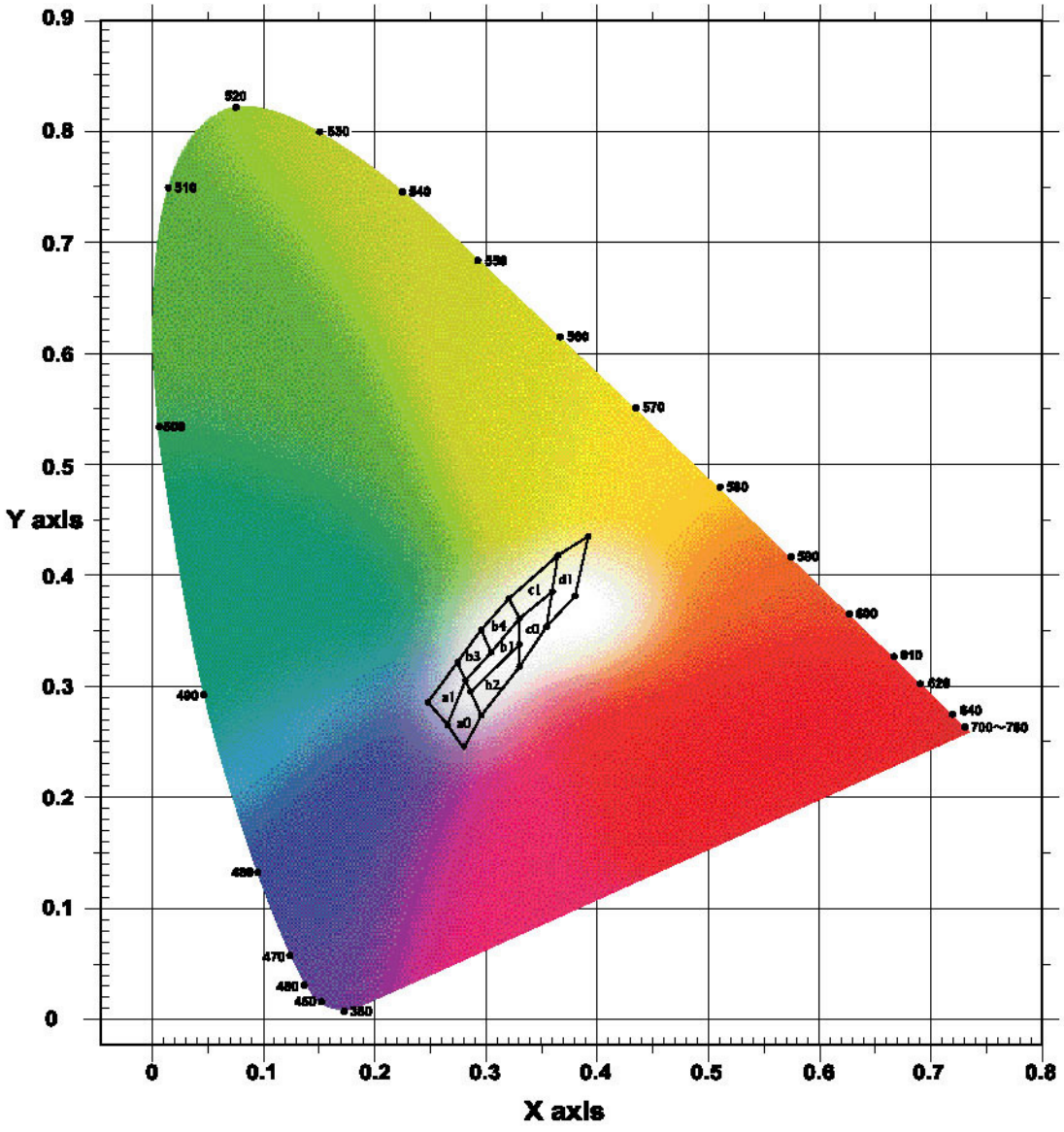


6. High temperatures can reduce device performance and reliability. Keep LED devices away from heat sources for best performance.

Restrictions on Product Use

1. The information contained within this document is subject to change without notice. Before referencing this document, please confirm that it is the most current version available.
2. Not all devices and product families are available in every country.
3. The light output from UV, blue, white, and other high-power LEDs may cause injury to the human eye when viewed directly.
4. LED devices may contain gallium arsenide (GaAs) material. GaAs is harmful if ingested. GaAs dust and fumes are toxic. Do not break, cut, or pulverize LED devices. Do not dissolve LEDs in chemical solvents.
5. Semiconductor devices can fail or malfunction due to their sensitivity to electrical fluctuation and physical stress. It is the responsibility of the user to observe all safety standards when using Kingbright products, In order to avoid situations In which the malfunction or failure of a Kingbright product could cause injury, property damage, or the loss of human life. In developing designs, please insure that Kingbright products are used within specified operating conditions as set forth in the most recent product specification datasheet.





● Color and color coordinates on this diagram are approximate.

a1				
X	0.248	0.275	0.283	0.264
Y	0.286	0.321	0.305	0.267

a0				
X	0.264	0.283	0.296	0.280
Y	0.267	0.305	0.276	0.248

b3				
X	0.275	0.298	0.306	0.283
Y	0.321	0.350	0.332	0.305

b1				
X	0.283	0.330	0.330	0.287
Y	0.305	0.360	0.339	0.295

b2				
X	0.287	0.330	0.330	0.296
Y	0.295	0.339	0.318	0.276

b4				
X	0.298	0.321	0.330	0.306
Y	0.350	0.379	0.360	0.332

c1				
X	0.321	0.366	0.361	0.330
Y	0.379	0.419	0.385	0.360

c0				
X	0.330	0.361	0.356	0.330
Y	0.360	0.385	0.351	0.318

d1				
X	0.366	0.391	0.380	0.356
Y	0.419	0.436	0.381	0.351

● Ta=25°C, I_F =20mA

● Measurement Uncertainty of the Color Coordinates:±0.01

SELECTION CODE FOR STANDARD LEDS					
Group	Light intensity in mcd(10mA)		Group	Light intensity in mcd(10mA)	
	min.	max.		min.	max.
F	0.1	0.25	R	12	23
G	0.2	0.4	S	18	35
H	0.3	0.6	T	28	55
I	0.4	1	U	40	90
K	0.7	1.5	V	70	130
L	1	3	W	110	200
M	1.8	5	X	170	280
N	3	7	Y	230	350
P	5	12	Z	300	500
Q	8	17			

SELECTION CODE FOR DISPLAYS					
Group	Light intensity in ucd(10mA)		Group	Light intensity in ucd(10mA)	
	min.	max.		min.	max.
C	60	160	P	12000	24000
D	120	280	Q	18000	36000
E	200	410	R	26000	60000
F	300	640	S	44000	101000
G	480	1040	T	75000	173000
H	800	1600	U	128000	293000
I	1200	2500	V	217000	498000
K	1900	4100	W	368000	846000
L	3000	6400	X	626000	1438000
M	4700	10500	Y	1063000	2445000
N	8000	16000	Z	1807000	4156000

SELECTION CODE FOR NPN PHOTOTRANSISTORS					
Group	Photocurrent(mA)		Group	Photocurrent(mA)	
	min.	max.		min.	max.
F	0.1	0.25	L	1	3
G	0.2	0.4	M	1.8	5
H	0.3	0.6	N	3	7
I	0.4	1	P	5	12
K	0.7	1.5			

SELECTION CODE FOR SUPER BRIGHT LEDS					
Group	Light intensity in mcd(20mA)		Group	Light intensity in mcd(20mA)	
	min.	max.		min.	max.
A	1.6	3.5	ZA	2800	3800
B	2.6	5.5	ZB	3300	4500
C	4	10	ZC	3800	5500
D	7	15	ZD	4700	6500
E	10	24	ZE	5700	7500
F	18	44	ZF	6700	8500
G	36	60	ZG	7500	10000
H	50	90	ZH	8000	12000
M	70	130	ZM	10000	16000
N	110	220	ZN	12000	20000
P	180	320	ZP	16000	24000
Q	280	420	ZQ	20000	32000
R	380	550	ZR	24000	40000
S	480	750	ZS	32000	50000
T	650	1100	ZT	40000	60000
U	900	1500	ZU	50000	80000
V	1200	1800	ZV	60000	100000
W	1500	2100	ZW	80000	120000
X	1800	2500	ZX	100000	160000
Y	2200	3000	ZY	120000	200000
Z	2500	3300	ZZ	160000	240000

SELECTION CODE FOR INFRARED EMITTING DIODES					
Group	Radiant intensity in mW/sr(20mA)		Group	Radiant intensity in mW/sr(20mA)	
	min.	max.		min.	max.
AK	0.5	2	D	7	15
AL	0.8	3.2	E	10	24
A	1.6	3.5	F	18	44
B	2.6	5.5	G	36	60
C	4	10	H	50	90

COLOR CODE FOR BLUE LEDS + DISPLAYS					
Group	Dom. WaveLength (nm)		Group	Dom. WaveLength (nm)	
	min.	max.		min.	max.
1	443	452	3A	469	475
2	448	457	3B	471	477
3	453	462	4A	473	479
1A	458	465	4B	475	481
1B	461	468	5A	477	483
2A	464	471	5B	479	485
2B	467	473	5C	481	488

COLOR CODE FOR LEDS + DISPLAYS				
Group	Dom. WaveLength (nm)			
	Green		Yellow	
	min.	max.	min.	max.
0	556	559		
1	559	561	581	584
2	561	563	584	586
3	563	565	586	588
4	565	567	588	590
5	567	569	590	592
6	569	571	592	594
7	571	573	594	597
8	573	575	597	600

SOLDERING INSTRUCTIONS						
Types	Dip and wave soldering			Iron soldering (with 1.5mm iron tip)		
	Temperature of the soldering bath	Maximum soldering time	Distance from solder joint to package	Temperature of soldering iron	Maximum soldering time	Distance from solder joint to package
LEDS	<=260°C	3s	>=2mm	<=350°C	3s	>2mm
	<=260°C	5s	>=5mm	<=350°C	5s	>5mm
SMDS	/	/	/	<=230°C	10s	/
DISPLAYS	<=260°C	3s	>2mm	<=350°C	3s	>2mm
PHOTOCOUPLER	<=260°C	3s	>2mm	<=310°C	3s	/
	/	/	/	<=260°C	10s	/