JIANN WA

ELECTRONICS CO.,LTD.

- SUPER BRIGHT LED
- FLASH LED
- INFRARED LED
- PHOTO-TRANSISTOR LED
- LOW CURRENT
- AXIAL LED
- RESISTOR LED
- SMD LED
- HIGH POWER LED

JIANN WA
ELECTRONICS

建樺電子股份有限公司
JIANN WA ELECTRONICS CO.,LTD.
台中縣梧棲鎮43504港埠路一段844號
Add: 844, SEC. 1 KONG FU RD., WU-CHI
TAICHUNG HSIEN, TAIWAN. R.O.C.
Tel: 886-4-26561373-4. 26566416
Fax: 886-4-26566418
http://www.jiannwa.com.tw
E-mail: jiannwa@ms35.hinet.net
jiannwa.led@msa.hinet.net

建樺電子股份有限公司

●公司創立於民國74年7月10日
●資本額：新台幣貳億元正
●員工：35人
●廠房：600平方公尺
●主要生產設備：歐美、日本進口生產設備
●主要生產材料：日本進口材料

目前主要產品

●可見光發光二極體：有紅、橙、黃、綠、藍、白等顏色。
●不可見光：有紅外線二極體、光電晶體。
本公司專業生產製造各種發光二極體（可見光、不可見光）品質穩定，產品精美。

JIANN WA
ELECTRONICS

JIANN WA ELECTRONICS CO., LTD.

Established on July 10, 1985
Investment Amount: N.T.$200,000,000
Employees: 35 persons
Area of Factor Building: 600M^2
Production Equipments: Imported from Europe & Japan
Main Materials: Imported from Japan

Main Products

Emitting color: red, orange, yellow, green, blue and white.
Non-emitting: Infrared ray & photoelectric objects.
Specialize in manufacturing all kinds of L.E.D. (emitting & non-emitting) stable quality, delicate and precise products.

（關係企業）

建文電子工業股份有限公司

●公司創立於民國68年3月5日
●資本額：新台幣陸仟萬元
●員工：30人
●廠房：600平方公尺
●主要生產設備：日本進口生產設備
●主要生產材料：日本進口材料

目前主要產品

●塑膠膜電容器生產製造
●金屬塑膠膜電容器生產製造

Relative Enterprises

JIANN WEN ELECTRONICS CO., LTD.

Established on March 5, 1979
Investment Amount: N.T.$60,000,000
Employees: 30 persons
Area of Factor Building: 600M^2
Production Equipments: Imported from Japan
Main Materials: Imported from Japan

*Main Products

Polyester film capacitor
Metallized film capacitor

TYPE NUMBER SYSTEM

JL-□□□□□

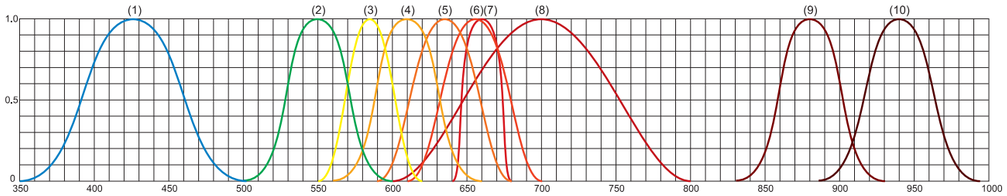
- DEVELOP ORDER
- LEAD FRAME: 1 →2001, 2→2002 , 3→2003 , 0→3001.
  4 →2004LD , 5→2003-2
- LENS TYPE: 1 →Color Diffused, 2→Color Transparent,
  3 →White Diffused, 4→ Water Clear.
- LIGHT SOURCE: 1 →Red (GaAsP), 2→Yellow, 3→Green,
  4 →Orange, 5→Hi-Red (Gap),
  6 →Super Red (AlGaInp)
  7 →Low Current Red, 8 →Super Red (GaAlAS)
  9 →Super Red (GaAlAS), UR→(Red AlGaInp)
  Sos→(Orange AlGaInp), SyS→(Yellow AlGaInp)
  B →(Blue InGaN),G→(Green Gan)
  SoLv→(Red AlGaInp), 40→(Soft Orange),W→(White InGaN)
  Sym→(yellow AlGaInp)
- PACKAGE TYPE: B →Bell(Round), R→Rectangular (Square)
  C →Cylindric, S→ Step, T→Triangular, A→Array

CONTENTS

TECHNICAL DATA

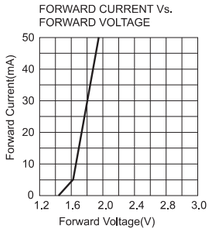
ABSOLUTE MAXIMUM RATINGS (TA=25°C)	SYMBOL	RATING	UNIT
Power Dissipation	PD	100	mw
Operating Temperature	TA	-40~+85	°C
Storage Temperature	Tstg	-40~+85	°C
Peak Forward Current	IFM	120	ma
Reverse Voltage	VR	5	V
Reverse Current (VR=5V)	IR	10	μa
Lead Soldering Temperature (3m/m From Body) 260 °C (For 3 Seconds)			

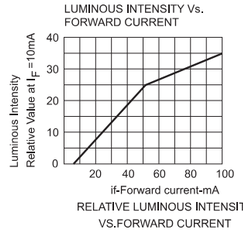
CHARACTERISTICS CURVES

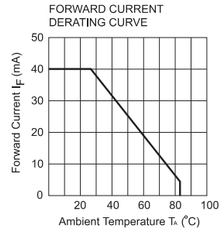


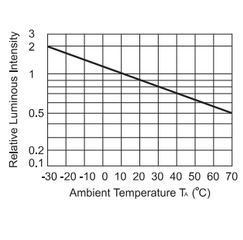
1 430nm/Blue,470nm/Blue
2 568nm/Yellow Green
3 585nm/Yellow
4 610nm/Amber
5 635nm/Orange
6 655nm/Red
7 660nm/Super Red
8 700nm/Bright Red
9 GaAlAS 880nm
10 GaAS/GaAS & GaAlAS/GaAS 940nm

RED (GaASP / GaAS)

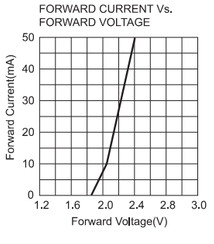


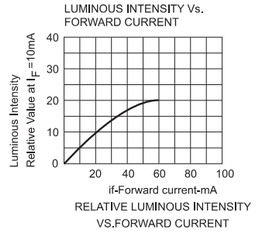


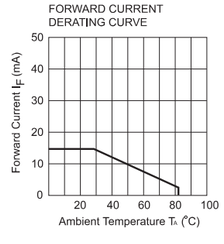


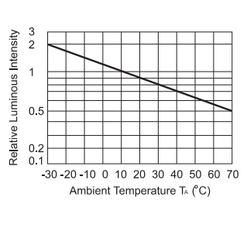


RED (Gap)



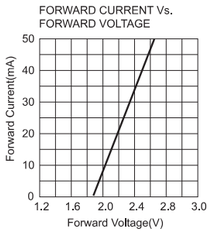


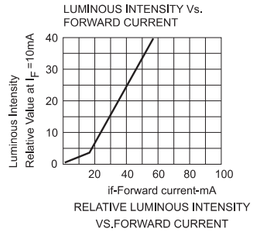


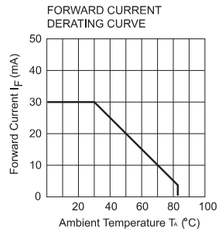


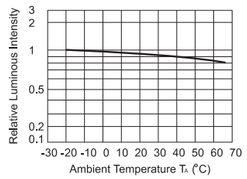
CHARACTERISTICS CURVES

GREEN (Gap)

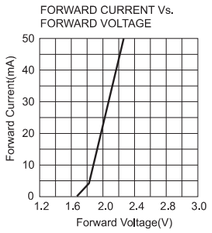


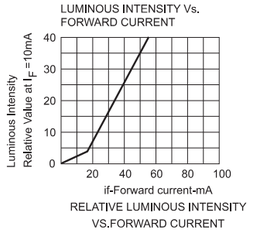


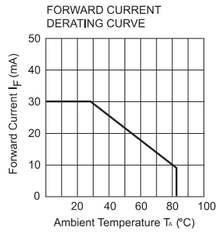


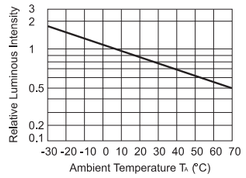


ORANGE (GaASP / Gap)

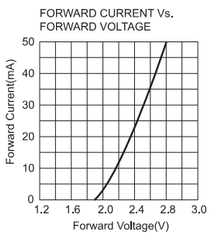


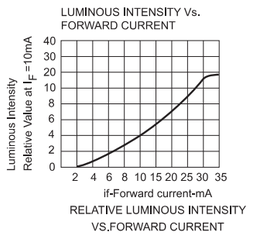


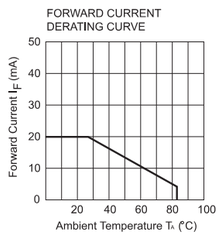


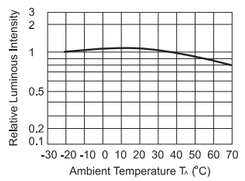


YELLOW (GaASP / Gap)

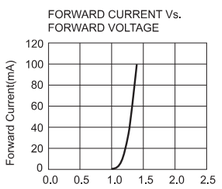


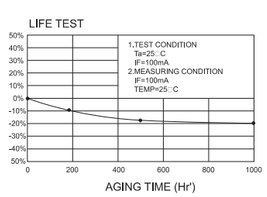


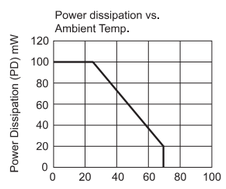


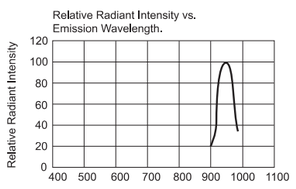


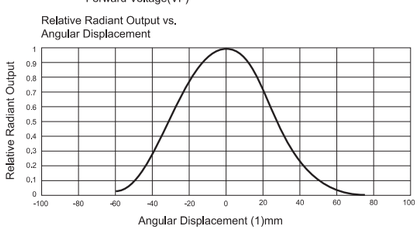
GaAlAS / GaAS







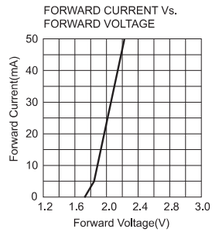


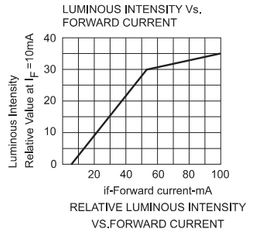


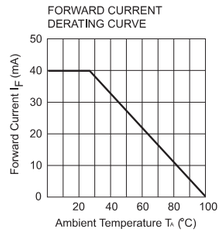
JIANN WA CHARACTERISTICS CURVES

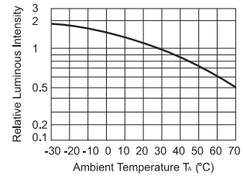
CHARACTERISTICS CURVES

RED (GaAlAS)

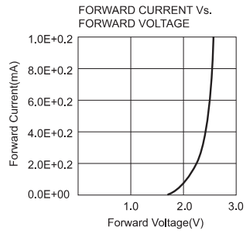


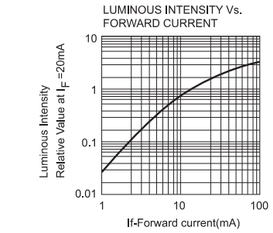


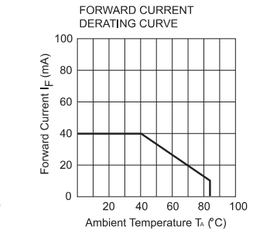


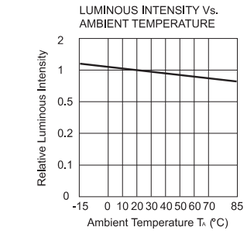


RED (AlGaInp)

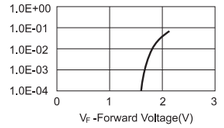


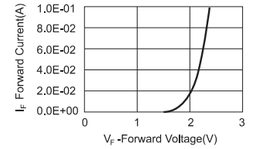


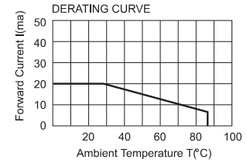


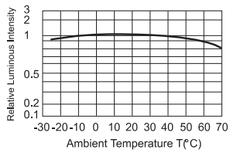


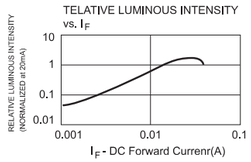
YELLOW (AlGaInp)



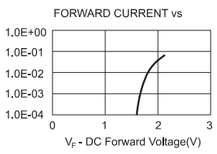


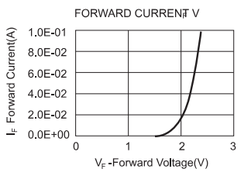


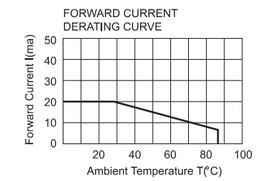


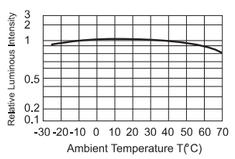


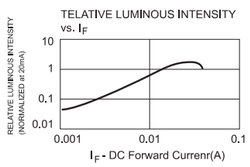
GREEN (AlGaInp)







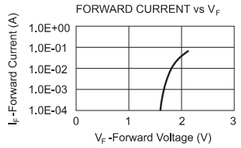




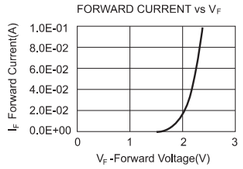
CHARACTERISTICS CURVES

ORANGE (AlGaInp)

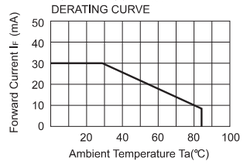
FORWARD CURRENT vs V_F

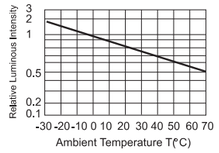


FORWARD CURRENT vs V_F

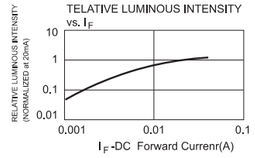


FORWARD CURRENT DERATING CURVE



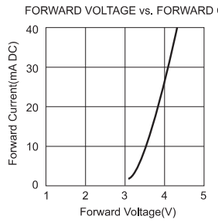


TELATIVE LUMINOUS INTENSITY vs. I_F

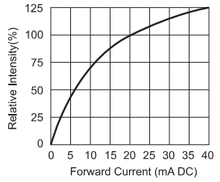


BLUE (InGaN)

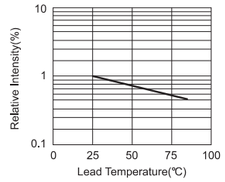
FORWARD VOLTAGE vs. FORWARD CUR



RELATIVE INTENSITY vs. FORWARD CURRENT



RELATIVE INTENSITY vs. LEAD TEMPERATURE (PULSED 20 mA; 300µs PULSE, 10ms PERIOD)

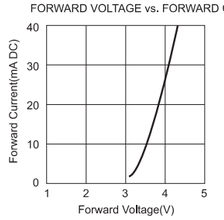


FORWARD CURRENT vs. AMBIENT TEMPERATURE

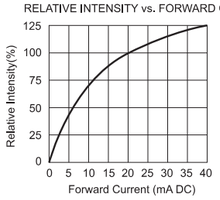
PEAK FORWARD vs. FORWARD CURRENT (100µs TEST PULSE, 1% DUTY CYCLE)

GREEN (GaN)

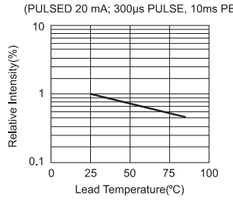
FORWARD VOLTAGE vs. FORWARD CUR



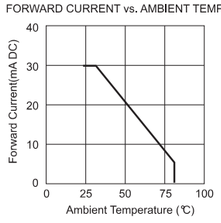
RELATIVE INTENSITY vs. FORWARD CURRENT



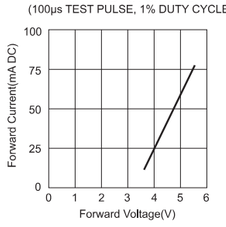
RELATIVE INTENSITY vs. LEAD TEMPERATURE (PULSED 20 mA; 300µs PULSE, 10ms PERIOD)



FORWARD CURRENT vs. AMBIENT TEMPERATURE



PEAK FORWARD vs. FORWARD CURRENT (100µs TEST PULSE, 1% DUTY CYCLE)



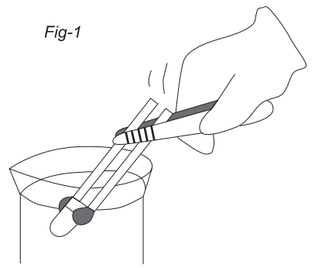
HOW TO USE LED

Generally, the LED can be used the same way as other general purposed semiconductors. However, the following prcautions must be taken to protect the LED.

▶ CLEANING

Don't used unspecified chemical liquids to clean the LED, they could harm the resin of the LED, If cleaning is necessary, please immerse the LED in alcohol or Freon TE at normal temperature for less than one minute. When other chemical solutions not specified are used, it may cause cracks or haze on the surfaces of the lens.(Fig-1)

Fig-1



▶ FORMING

1.Don't from the leads during or after soldering. If forming is required, it must be done before soldering.
2.Please remember, any pressure applied on resin can break gold wire in LED.
3.Form pin leads by securing under the tie bar cut(Fig-2-1), and bending with radio pliers, or the equivalent to avoid pressure on resin.(Fig-2-2)

Fig-2-1

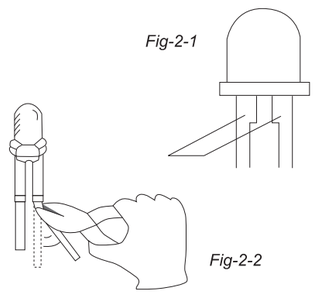
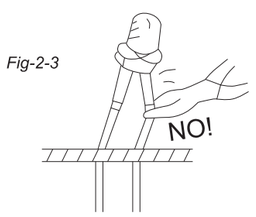


Fig-2-2

Fig-2-3



▶ SOLDERING

1.Solder under the tie bar cut(Fig-4). Hold pin leads with tweezers during solding, especially for smaller LEDs.

Fig-4

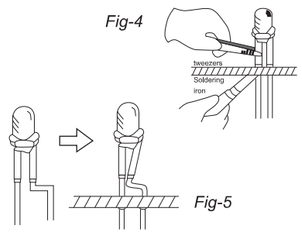
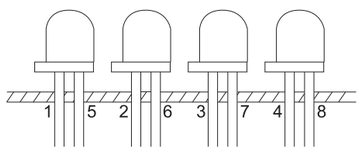


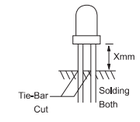
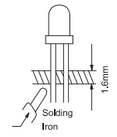
Fig-5

2.If pressure is a applied on LED while it is being on P.C. board, disconnection may occur during soldering or after mounting due to creep. Pin lead mounting holes must be coincided with original or formed pin lead pitch to prevent pressures.
3.During lead forming process should not be added any stressto the LED, otherwise fractures will be happended, The device epoxy and possibly break bond wires, which will cause failure.
4.When an LED is mounted into a P.C. board, pitch spacing should be aligned carefully to avoid causing any stress to the lead wires. Otherwise the stress will cause problem in high temperature operation. It is necessary for the LED to return to normal temperature in three minutes after the soldering operation.(Fig-5)
5.If soldering one line of LEDs on a P.C. board by using a soldering iron, don't solder both leads of the LED at the same time.(Fig-6)

Fig-6

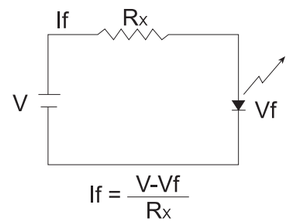


6.The soldering iron should be operated under 30W power consumption.
7.The LED soldering specification is shown as below:

Method	Conditions	Temp.	Time
Soldering both Method	Dip LED up to Xmm from Resin 	230℃±5	Within 3 Seconds
Soldering Method	Soldering iron: 30W Tip: 4.5ø x 32mm Through hole P.C.B. 1.6mm thick 	Tip Temp: 295℃±5℃	Within 3 Seconds

▶ BRIGHTNESS AND COLOR

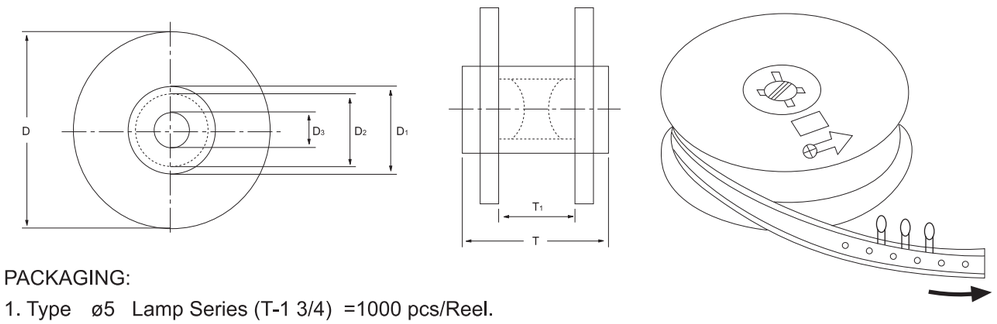
1.For obtaining more brightness, multiple LEDs should be kept at the same current.
2.Increase current to increase brightness.
3.Check defects at a distance of 30cm from the LED to the eye.
4.Use on If 20mA If possible to obtain the most uniform brightness on yellow and green LEDs.



TAPED LED LAMP

REEL TYPE:

ITEM	SYMBOL	SPECIFICATION			
		Minimum		Maximum	
		mm	inch	mm	inch
Reel Diameter	D	78.20	3.079	380.00	14.960
Core Diameter	D1	34.90	1.374	102.00	4.016
Hub Recess Inside Diameter	D2	28.60	1.126	88.00	3.465
Arbor Hole Diameter	D3	13.80	0.543	38.10	1.500
Overall Reel Thickness	T	-	-	57.20	2.252
Inside Reel Flange Thick	T1	30.00	1.181	50.00	1.969

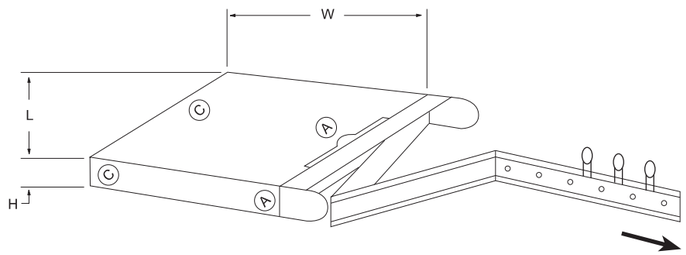


PACKAGING:

1. Type ø5 Lamp Series (T-1 3/4) =1000 pcs/Reel.
2. Type ø3 Lamp Series (T-1) =2000 pcs/Reel.
3. Type 2X5 Lamp Series =2000 pcs/Reel.

BOX TYPE:

ITEM	SYMBOL	SPECIFICATION			
		Minimum		Maximum	
		mm	inch	mm	inch
Overall Length	L	325.00	12.8	340.00	13.40
Overall Width	W	245.00	9.65	276.00	10.87
Overall Thickness	H	50.00	1.97	60.00	2.36

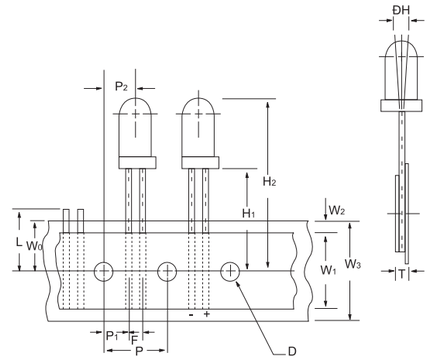


PACKAGING:

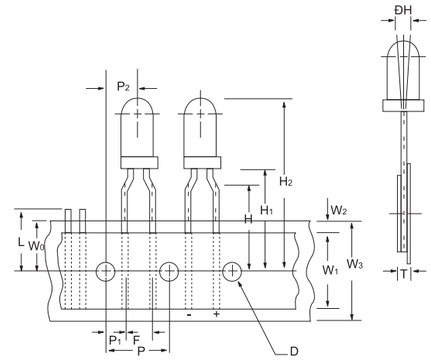
1. Type ø5 Lamp Series (T-1 3/4) =2000 pcs/Box.
2. Type ø3 Lamp Series (T-1) =2500 pcs/Box.
3. Type 2X5 Lamp Series =2500 pcs/Box.

TAPED LED LAMP

ITEM			SYMBOL	SPECIFICATION			
				Minimum		Maximum	
				mm	inch	mm	inch
Tape Feed Hole Diameter			D	3.80	0.149	4.20	0.165
Component Lead Pitch	Straight Leads		F	2.30	0.091	3.00	0.118
	Preformed Leads			4.80	0.188	5.80	0.228
Front To Rear Deflection			△H	-	-	2.00	0.078
Feed Hole To Seating Plane			H	14.50	0.571	15.50	0.610
Feed Hole To Bottom of Component	Straight Leads	TxS18x	H_1	17.50	0.689	18.50	0.728
		TxS22x		21.50	0.846	22.50	0.886
		TxS26x		25.50	1.004	26.50	1.043
	Preformed Leads	TxF18x	H_1	17.50	0.689	19.50	0.767
		TxF20x		19.00	0.748	21.00	0.826
		TxF23x		22.50	0.886	24.50	0.965
Feed Hole To Overall Component			H_2	-	-	32.00	1.259
Lead Length After Component Height			L	Wo		11.00	0.433
Feed Hole Pitch			P	12.40	0.488	13.00	0.511
Lead Location	Straight Leads		P_1	4.40	0.173	5.80	0.228
	Preformed Leads			3.15	0.124	4.55	0.179
Center Of Component Location			P_2	5.05	0.198	7.56	0.301
Overall Taped Package Thickness			T	-	-	1.42	0.056
Feed Hole Location			W_0	8.50	0.334	9.75	0.384
Adhesive Tape Width			W_1	14.50	0.571	15.50	0.610
Adhesive Tape Position			W_2	0	0	4.00	0.157
Tape Width			W_3	17.50	0.689	19.00	0.748



TxSxxx (2.54 PITCH STRAIGHT LEADS)



TxFxxx (5.08 PITCH PREFORMED LEADS)

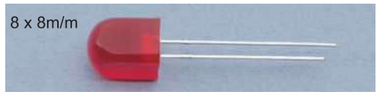
NOTES:

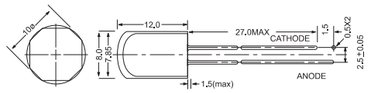
1.The permission of fallen off is with continous 3 pcs.
2.The edge of the tape has the space longer than at least 4 LEDS.

ROUND TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
B4130R	GaAsp/Gap	Orange	630	Red Diffused	80	35	2.05	3.0
B3130	Gap	Green	571	Green Diffused	70	35	2.25	3.0
BW430E	InGaN	White	X=0.26 Y=0.24	Water Clear	2500	20	3.30	4.0
B4130AR	GaAsp/Gap	Orange	630	Red Diffused	60	45	2.05	3.0
B3430Au	Gap	Green	571	Water Clear	200	40	2.25	3.0
B3130Au	Gap	Green	571	Green Diffused	60	45	2.25	3.0
BB430AE	InGaN	Blue	465	Water Clear	2000	35	3.30	4.0
BB330AE	InGaN	Blue	465	White Diffused	800	45	3.30	4.0
B8130A	GaAlAS	Super Red	650	Red Diffused	150	45	1.85	3.0
B8430A	GaAlAS	SuperRed	650	Water Clear	500	40	1.85	3.0
BSOLV430AD	AlGaInP	Super Red	625	Water Clear	2000	35	2.10	3.0
BSOLV430AF	AlGaInP	Super Red	625	Water Clear	2500	35	2.10	3.0
BSYS430AF	AlGaInP	Super Yellow	590	Water Clear	2500	35	2.10	3.0
B8130B	GaAlAS	Super Red	650	Red Diffused	150	50	1.85	3.0
B6430B	GaAlAS	Super Red	650	Water Clear	550	45	1.85	3.0
B9430B	GaAlAS	Super Red	650	Water Clear	1200	45	1.85	3.0
BSOLV430BD	AlGaInP	Super Red	625	Water Clear	2000	20	2.10	3.0
BSYS430BF	AlGaInP	Super Yellow	590	Water Clear	3000	20	2.10	3.0
BB430BE	InGaN	Blue	465	Water Clear	2500	20	3.30	4.0
BW430BF	InGaN	White	X=0.26 Y=0.24	Water Clear	4000	20	3.30	4.0
BB430CE	InGaN	Blue	465	Water Clear	1500	40	3.30	4.0
B6430C	GaAlAS	Super Red	650	Water Clear	550	45	1.85	3.0
B9430C	GaAlAS	Super Red	650	Water Clear	1200	45	1.85	3.0
B2131	GaAsp/Gap	Yellow	590	Yellow Diffused	65	50	2.20	3.0
BSYS431D	AlGaInP	Super Yellow	590	Water Clear	500	45	2.10	3.0
BSYS431F	AlGaInP	Super Yellow	590	Water Clear	800	45	2.10	3.0
BSYS431G	AlGaInP	Super Yellow	590	Water Clear	1000	45	2.10	3.0
B3131	Gap	Green	571	Green Diffused	65	50	2.25	3.0
B5131	Gap	Bright Red	700	Red Diffused	9.5	50	2.25	3.0
B8131	GaAlAS	Super Red	650	Red Diffused	100	42	1.85	3.0
BSOLV431F	AlGaInP	Super Red	625	Water Clear	700	45	2.10	3.0
B5132	Gap	Bright Red	700	Red Diffused	8	60	2.25	3.0

8 x 8m/m





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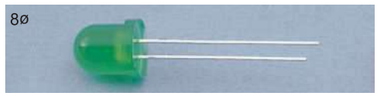

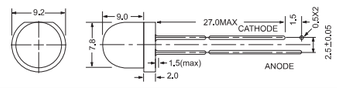

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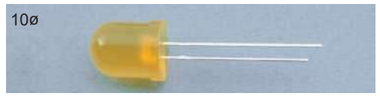

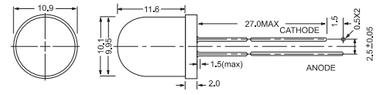

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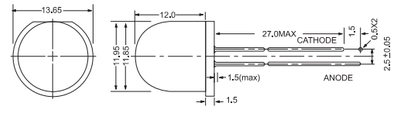

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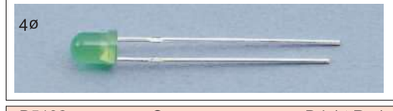

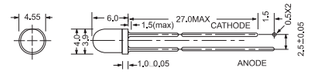

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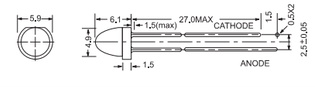

All Dimensions are in millimeters . Tolerance is ±0.15mm

ROUND TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
B4123b	GaAsp/Gap	Orange	630	Orange Diffused	55	45	2.05	3.0
B3123b	Gap	Green	571	Green Diffused	45	45	2.25	3.0
B2123b	GaAsp/Gap	Yellow	590	Yellow Diffused	45	45	2.20	3.0
B5123b	Gap	Bright Red	700	Red Diffused	7	45	2.25	3.0
B8435A	GaAlAS	Super Red	650	Water Clear	600	42	1.85	3.0
B5133b	Gap	Bright Red	700	Red Diffused	9	50	2.25	3.0
B5233b	Gap	Bright Red	700	Red Transparent	50	15	2.25	3.0
B5433b	Gap	Bright Red	700	Water Clear	50	15	2.25	3.0
B8133b	GaAlAS	Super Red	650	Red Diffused	140	50	1.85	3.0
B8233b	GaAlAS	Super Red	650	Red Transparent	600	15	1.85	3.0
B6133b	AlGaInp	Super Red	650	Red Diffused	300	50	2.10	3.0
B8433b	GaAlAS	Super Red	650	Water Clear	600	15	1.85	3.0
B6433b	AlGaInp	Super Red	650	Water Clear	800	15	2.10	3.0
B9433b	GaA1AS	Super Red	650	Water Clear	1600	15	2.00	3.0
BSOLV433bD	AlGaInp	Super Red	625	Water Clear	2000	15	2.10	3.0
BSOLV433bF	AlGaInp	Super Red	625	Water Clear	2600	15	2.10	3.0
BSOLV433bG	AlGaInp	Super Red	625	Water Clear	3000	15	2.10	3.0
BSOLV433bH	AlGaInp	Super Red	625	Water Clear	3500	15	2.10	3.0
BSOLV433bFHP	AlGaInp	Super Red	625	Water Clear	4000	15	2.30	3.0
BSOLV433bHGB	AlGaInp	Super Red	625	Water Clear	4500	15	2.10	3.0
BSOLV433bJGB	AlGaInp	Super Red	625	Water Clear	6500	15	2.10	3.0
B4133b	GaAsp/Gap	Orange	630	Orange Diffused	70	50	2.05	3.0
B4133br	GaAsp/Gap	Orange	630	Red Diffused	70	50	2.05	3.0
B4233br	GaAsp/Gap	Orange	630	Red Transparent	220	15	2.05	3.0
B4433b	GaAsp/Gap	Orange	630	Water Clear	220	15	2.05	3.0
BSOS433bD	AlGaInp	Super Orange	605	Water Clear	2000	15	2.10	3.0
BSOS433bF	AlGaInp	Super Orange	605	Water Clear	2800	15	2.10	3.0
BSOS433bG	AlGaInp	Super Orange	605	Water Clear	3500	15	2.10	3.0
B3133b	Gap	Green	571	Green Diffused	60	50	2.25	3.0
B3133bu	Gap	Green	571	Green Diffused	120	45	2.25	3.0
B3233b	Gap	Green	571	Green Transparent	150	15	2.25	3.0
B3233bu	Gap	Green	571	Green Transparent	250	15	2.25	3.0
B3433b	Gap	Green	571	Water Clear	150	15	2.25	3.0
B3433bu	Gap	Green	571	Water Clear	220	15	2.25	3.0
B3133bp	Gap	Pure Green	560	Green Diffused	50	50	2.25	3.0
B3433bp	Gap	Pure Green	560	Water Clear	100	15	2.25	3.0
BGC1443b	AlGaInp	Super Green	571	Water Clear	1500	20	2.10	3.0
BGC1443bL4	GaN	Super Green	505	Water Clear	2800	20	3.30	4.0
BGD1443bL4	GaN	Super Green	505	Water Clear	4000	20	3.30	4.0
BGE1443bL4	GaN	Super Green	505	Water Clear	5500	20	3.30	4.0
BGC1443bL4(deep)	GaN	Super Green	505	Water Clear	2000	33	3.30	4.0
BGD1443bL4(deep)	GaN	Super Green	505	Water Clear	2600	33	3.30	4.0
BGC1443bL5	GaN	Super Green	525	Water Clear	2800	20	3.30	4.0
BGD1443bL5	GaN	Super Green	525	Water Clear	4000	20	3.30	4.0
BGE1443bL5	GaN	Super Green	525	Water Clear	5500	20	3.30	4.0
BGC1443bL5(deep)	GaN	Super Green	525	Water Clear	2000	33	3.3	4.0
BGD1443bL5(deep)	GaN	Super Green	525	Water Clear	2600	33	3.30	4.0
BGE1443bL5(deep)	GaN	Super Green	525	Water Clear	3200	33	3.30	4.0

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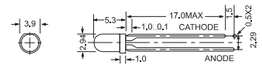

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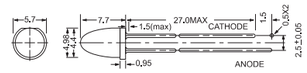

All Dimensions are in millimeters . Tolerance is ±0.15mm

ROUND TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
B2133b	GaAsp/Gap	Yellow	590	Yellow Diffused	60	50	2.20	3.0
B2233b	GaAsp/Gap	Yellow	590	Yellow Transparent	130	15	2.20	3.0
B2433b	GaAsp/Gap	Yellow	590	Water Clear	130	15	2.20	3.0
BSYS233bC	AlGaInp	Super Yellow	590	Yellow Transparent	1500	15	2.10	3.0
BSYS433bC	AlGaInp	Super Yellow	590	Water Clear	1500	15	2.10	3.0
BSYS433bD	AlGaInp	Super Yellow	590	Water Clear	2000	15	2.10	3.0
BSYS233bD	AlGaInp	Super Yellow	590	Yellow Transparent	2000	15	2.10	3.0
BSYS433bF	AlGaInp	Super Yellow	590	Water Clear	2600	15	2.10	3.0
BSYS433bG	AlGaInp	Super Yellow	590	Water Clear	3000	15	2.10	3.0
BSYS433bH	AlGaInp	Super Yellow	590	Water Clear	3500	15	2.10	3.0
BSYM433bFHP	AlGaInp	Super Yellow	590	Water Clear	4500	15	2.10	3.0
BSYM433bHGB	AlGaInp	Super Yellow	590	Water Clear	5000	15	2.10	3.0
BSYM433bJGB	AlGaInp	Super Yellow	590	Water Clear	7000	15	2.10	3.0
B2133bo	GaAsp/Gap	Amber	600	Orange Diffused	60	50	2.20	3.0
BW443bE	InGaN	White	X=0.26 Y=0.24	Water Clear	2000	20	3.30	4.0
BW443bF	InGaN	White	X=0.26 Y=0.24	Water Clear	2800	20	3.30	4.0
BW443bG	InGaN	White	X=0.26 Y=0.24	Water Clear	3500	20	3.30	4.0
BW443bH	InGaN	White	X=0.26 Y=0.24	Water Clear	4200	20	3.30	4.0
BW443bI	InGaN	White	X=0.26 Y=0.24	Water Clear	5000	20	3.30	4.0
BW443bE(deep)	InGaN	White	X=0.26 Y=0.24	Water Clear	1500	33	3.30	4.0
BW443bF(deep)	InGaN	White	X=0.26 Y=0.24	Water Clear	2500	33	3.30	4.0
BW443bG(deep)	InGaN	White	X=0.26 Y=0.24	Water Clear	4000	33	3.30	4.0
BB443bF	InGaN	Blue	465	Water Clear	2500	20	3.30	4.0
BB443bG	InGaN	Blue	465	Water Clear	3000	20	3.30	4.0
BB443bH	InGaN	Blue	465	Water Clear	3500	20	3.30	4.0
BB443bI	InGaN	Blue	465	Water Clear	4200	20	3.30	4.0
BB443bJ	InGaN	Blue	465	Water Clear	5000	20	3.30	4.0
BB443bE(deep)	InGaN	Blue	465	Water Clear	1200	33	3.30	4.0
BB443bF(deep)	InGaN	Blue	465	Water Clear	1800	33	3.30	4.0
BB443bG(deep)	InGaN	Blue	465	Water Clear	2700	33	3.30	4.0

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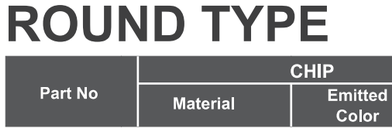

B5315	GaP	Bright Red	700	White Diffused	15	30	2.25	3.0
B5115	GaP	Bright Red	700	Red Diffused	15	30	2.25	3.0
B2115	GaAsp/GaP	Yellow	590	Yellow Diffused	60	30	2.20	3.0
B3115	GaP	Green	571	Green Diffused	60	30	2.25	3.0
B4115	GaAsp/Gap	Orange	630	Orange Diffused	70	30	2.05	3.0
B4115R	GaAsp/Gap	Orange	630	Red Diffused	70	30	2.05	3.0

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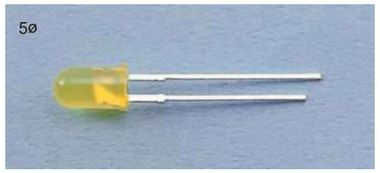
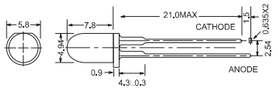




B2135	GaAsp/Gap	Yellow	590	Yellow Diffused	70	30	2.20	3.0
B2235	GaAsp/Gap	Yellow	590	Yellow Transparent	150	15	2.20	3.0
B2435	GaAsp/Gap	Yellow	590	Water Clear	150	15	2.20	3.0
BSYS235C	AlGaInp	Super Yellow	590	Yellow Transparent	2000	15	2.10	3.0
BSYS435C	AlGaInp	Super Yellow	590	Water Clear	2000	15	2.10	3.0
BSYS435D	AlGaInp	Super Yellow	590	Water Clear	3000	15	2.10	3.0
BSYS435F	AlGaInp	Super Yellow	590	Water Clear	4000	15	2.10	3.0

All Dimensions are in millimeters . Tolerance is ±0.15mm

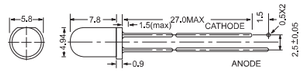
ROUND TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
BSYS435G	AlGaInp	Super Yellow	590	Water Clear	5400	15	2.10	3.0
BSYS435H	AlGaInp	Super Yellow	590	Water Clear	6500	15	2.10	3.0
BSYM435HGB	AlGaInp	Super Yellow	590	Water Clear	6000	15	2.10	3.0
BSYM435JGB	AlGaInp	Super Yellow	590	Water Clear	8000	15	2.10	3.0
BSYM435FHP	AlGaInp	Super Yellow	590	Water Clear	5500	15	2.30	3.0
B3135	Gap	Green	571	Green Diffused	70	30	2.25	3.0
B3235	Gap	Green	571	Green Transparent	160	15	2.25	3.0
B3435	Gap	Green	571	Water Clear	160	15	2.25	3.0
B3435u	Gap	Green	571	Water Clear	250	15	2.25	3.0
B3235u	Gap	Green	571	Green Transparent	250	15	2.25	3.0
B3135u	Gap	Green	571	Green Diffused	100	30	2.25	3.0
BGC1435	AlGaInp	Super Green	571	Water Clear	1200	15	2.10	3.0
BGC1455L4	GaN	Super Green	505	Water Clear	8500	17	3.30	4.0
BGD1455L4	GaN	Super Green	505	Water Clear	10500	17	3.30	4.0
BGE1455L4	GaN	Super Green	505	Water Clear	12000	17	3.30	4.0
BGF1455L4	GaN	Super Green	505	Water Clear	15000	17	3.30	4.0
BGC1455L5	GaN	Super Green	525	Water Clear	8500	17	3.30	4.0
BGD1455L5	GaN	Super Green	525	Water Clear	10500	17	3.30	4.0
BGE1455L5	GaN	Super Green	525	Water Clear	12000	17	3.30	4.0
BGF1455L5	GaN	Super Green	525	Water Clear	15000	17	3.30	4.0
B3135P	Gap	Pure Green	560	Green Diffused	60	30	2.25	3.0
B4135	GaAsp/Gap	Orange	630	Orange Diffused	80	30	2.05	3.0
B4135R	GaAsp/Gap	Orange	630	Red Diffused	80	30	2.05	3.0
B4235R	GaAsp/Gap	Orange	630	Red Transparent	250	15	2.05	3.0
B4435	GaAsp/Gap	Orange	630	Water Clear	250	15	2.05	3.0
B4235	GaAsp/Gap	Orange	630	Orange Transparent	250	25	2.05	3.0
BSOS435C	AlGaInp	Super Orange	605	Water Clear	2000	15	2.10	3.0
BSOS435D	AlGaInp	Super Orange	605	Water Clear	3000	15	2.10	3.0
BSOS435F	AlGaInp	Super Orange	605	Water Clear	4000	15	2.10	3.0
BSOS435G	AlGaInp	Super Orange	605	Water Clear	5400	15	2.10	3.0
BSOS435H	AlGaInp	Super Orange	605	Water Clear	6500	15	2.10	3.0
B5135	Gap	Bright Red	700	Red Diffused	10	30	2.25	3.0
B5235	Gap	Bright Red	700	Red Transparent	60	15	2.25	3.0
B5435	Gap	Bright Red	700	Water Clear	60	15	2.25	3.0
B8135	GaAlAS	Super Red	650	Red Diffused	160	30	1.85	3.0
B6135	AlGaInp	Super Red	650	Red Diffused	200	30	2.10	3.0
B9135	GaAlAS	Super Red	650	Red Diffused	400	25	1.85	3.0
B8435	GaAlAS	Super Red	650	Water Clear	800	16	1.80	3.0
B6435	AlGaInp	Super Red	650	Water Clear	1200	16	2.10	3.0
B9435	GaAlAS	Super Red	650	Water Clear	2200	16	2.00	3.0
B9435B1L6	GaAlAS	Super Red	650	Water Clear	2000	22	2.00	3.0
B6235	AlGaInp	Super Red	650	Red Transparent	1000	20	2.10	3.0
B8235	GaAlAS	Super Red	650	Red Transparent	800	20	1.85	3.0
B9235	GaAlAS	Super Red	650	Red Transparent	2200	20	1.85	3.0
BSOLV435D	AlGaInp	Super Red	625	Water Clear	3000	15	2.10	3.0
BSOLV435F	AlGaInp	Super Red	625	Water Clear	4000	15	2.10	3.0
BSOLV435G	AlGaInp	Super Red	625	Water Clear	5400	15	2.10	3.0
BSOLV435H	AlGaInp	Super Red	625	Water Clear	6500	15	2.10	3.0
BSOLV435HP	AlGaInp	Super Red	625	Water Clear	5500	15	2.30	3.0
BSOLV435HGB	AlGaInp	Super Red	625	Water Clear	5500	15	2.10	3.0
BSOLV435JGB	AlGaInp	Super Red	625	Water Clear	7500	15	2.10	3.0
BB335E	InGaN	Blue	465	White Diffused	600	25	3.30	4.0
BB335F	InGaN	Blue	465	White Diffused	750	25	3.30	4.0
BB435E	InGaN	Blue	465	Water Clear	3500	18	3.30	4.0
BB435F	InGaN	Blue	465	Water Clear	5000	18	3.30	4.0
BB455E	InGaN	Blue	465	Water Clear	4000	17	3.30	4.0
BB455F	InGaN	Blue	465	Water Clear	5400	17	3.30	4.0

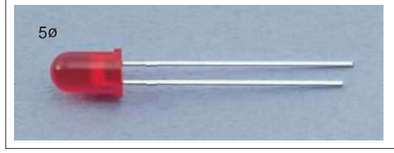
All Dimensions are in millimeters . Tolerance is ±0.15mm

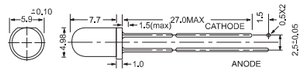
ROUND TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
BB455H	InGaN	Blue	465	Water Clear	6500	17	3.30	4.0
BB455I	InGaN	Blue	465	Water Clear	7500	17	3.30	4.0
BB455J	InGaN	Blue	465	Water Clear	8500	17	3.30	4.0
BB455K	InGaN	Blue	465	Water Clear	9500	17	3.30	4.0
BB455L	InGaN	Blue	465	Water Clear	10500	17	3.30	4.0
BB455M	InGaN	Blue	465	Water Clear	12000	17	3.30	4.0
BW455E	InGaN	White	X=0,26 Y=0,24	Water Clear	4500	17	3.30	4.0
BW455F	InGaN	White	X=0,26 Y=0,24	Water Clear	5600	17	3.30	4.0
BW455G	InGaN	White	X=0,26 Y=0,24	Water Clear	6800	17	3.30	4.0
BW455H	InGaN	White	X=0,26 Y=0,24	Water Clear	8500	17	3.30	4.0
BW455I	InGaN	White	X=0,26 Y=0,24	Water Clear	10500	17	3.30	4.0
BW455J	InGaN	White	X=0,26 Y=0,24	Water Clear	12500	17	3.30	4.0
BW455K	InGaN	White	X=0,26 Y=0,24	Water Clear	13500	17	3.30	4.0
BW455L	InGaN	White	X=0,26 Y=0,24	Water Clear	15000	17	3.30	4.0
BW455M	InGaN	White	X=0,26 Y=0,24	Water Clear	16000	17	3.30	4.0
BPM455	InGaN	UV	405	Water Clear	80	17	3.30	4.0
BP455	InGaN	UV	405	Water Clear	140	17	3.30	4.0
BK455E	InGaN	Pink	X=0,40 Y=0,15	Water Clear	1500	17	3.30	4.0



BSYS455B1C	AlGaInp	Super Yellow	590	Water Clear	1600	30	2.10	3.0
BSYS455B1D	AlGaInp	Super Yellow	590	Water Clear	2200	30	2.10	3.0
BSYS455B1F	AlGaInp	Super Yellow	590	Water Clear	3000	30	2.10	3.0
BSYS455B1G	AlGaInp	Super Yellow	590	Water Clear	3800	30	2.10	3.0
BSYS455B1H	AlGaInp	Super Yellow	590	Water Clear	4500	30	2.10	3.0
BSYM455B1FHP	AlGaInp	Super Yellow	590	Water Clear	4000	30	2.30	3.0
BSOLV455B1D	AlGaInp	Super Red	625	Water Clear	2000	30	2.10	3.0
BSOLV455B1F	AlGaInp	Super Red	625	Water Clear	2500	30	2.10	3.0
BSOLV455B1G	AlGaInp	Super Red	625	Water Clear	3200	30	2.10	3.0
BSOLV455B1H	AlGaInp	Super Red	625	Water Clear	4000	30	2.10	3.0
BSOLV455B1FHP	AlGaInp	Super Red	625	Water Clear	4000	30	2.30	3.0
BSOS455B1D	AlGaInp	Super Orange	605	Water Clear	2000	30	2.10	3.0
BSOS455B1F	AlGaInp	Super Orange	605	Water Clear	2500	30	2.10	3.0
BSOS455B1G	AlGaInp	Super Orange	605	Water Clear	3200	30	2.10	3.0
BSOS455B1H	AlGaInp	Super Orange	605	Water Clear	4000	30	2.10	3.0





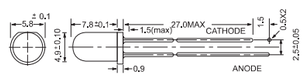
BB445-1E	InGaN	Blue	465	Water Clear	2000	32	3.30	4.0
BB445-1F	InGaN	Blue	465	Water Clear	2600	32	3.30	4.0
BB445-1G	InGaN	Blue	465	Water Clear	3200	32	3.30	4.0
BB445H	InGaN	Blue	465	Water Clear	3800	32	3.30	4.0
BB445I	InGaN	Blue	465	Water Clear	4600	32	3.30	4.0
BSYM445-1HGB	AlGaInp	Super Yellow	590	Water Clear	4500	32	2.10	3.0
BSYM445-1JGB	AlGaInp	Super Yellow	590	Water Clear	6000	32	2.10	3.0
BSOL445-1HGB	AlGaInp	Super Red	625	Water Clear	4500	32	2.10	3.0
BSOL445-1JGB	AlGaInp	Super Red	625	Water Clear	6000	32	2.10	3.0
BGC1445-1L4	GaN	Super Green	505	Water Clear	4000	32	3.30	4.0
BGD1445-1L4	GaN	Super Green	505	Water Clear	6000	32	3.30	4.0
BGE1445-1L4	GaN	Super Green	505	Water Clear	7000	32	3.30	4.0
BGC1445-1L5	GaN	Super Green	525	Water Clear	4000	32	3.30	4.0

All Dimensions are in millimeters . Tolerance is ±0.15mm

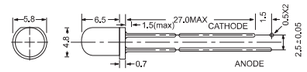
JIANN WA ROUND TYPE

ROUND TYPE

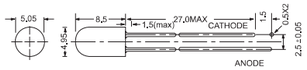
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
BGD1445-1L5	GaN	Super Green	505	Water Clear	6000	32	3.30	4.0
BGE1445-1L5	GaN	Super Green	505	Water Clear	7000	32	3.30	4.0
BW445-1F	InGaN	White	X=0,26 Y=0,24	Water Clear	3000	32	3.30	4.0
BW445-1G	InGaN	White	X=0,26 Y=0,24	Water Clear	4200	32	3.30	4.0
BW445-1H	InGaN	White	X=0,26 Y=0,24	Water Clear	5000	32	3.30	4.0
BW445-1I	InGaN	White	X=0,26 Y=0,24	Water Clear	6500	32	3.30	4.0



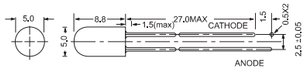
BB435-2E	InGaN	Blue	465	Water Clear	1000	45	3.30	4.0
BW435-2F	InGaN	White	X=0,26 Y=0,24	Water Clear	1400	32	3.30	4.0
BSOLV435-2D	AlGaInp	Super Red	625	Water Clear	600	45	2.10	3.0
BSYS435-2D	AlGaInp	Super Yellow	590	Water Clear	800	45	2.10	3.0



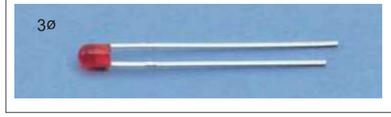
BB455CE	InGaN	Blue	465	Water Clear	5000	16	3.30	4.0
BW455CF	InGaN	White	X=0,26 Y=0,24	Water Clear	7500	16	3.30	4.0

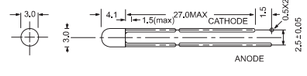


BW455DG	InGaN	White	X=0,26 Y=0,24	Water Clear	2200	45	3.30	4.0



B4237R	GaAsp/Gap	Orange	630	Red Transparent	80	65	2.05	3.0
B4437	GaAsp/Gap	Orange	630	Water Clear	80	65	2.05	3.0
B2137	GaAsp/Gap	Yellow	590	Yellow Diffused	30	60	2.20	3.0
B2237	GaAsp/Gap	Yellow	590	Yellow Transparent	50	65	2.20	3.0
BSYS437D	AlGaInp	Yellow	590	Water Clear	700	60	2.10	3.0
BSYS437F	AlGaInp	Yellow	590	Water Clear	1100	60	2.10	3.0
B3137	Gap	Green	571	Green Diffused	30	60	2.25	3.0
B3137u	Gap	Green	571	Green Diffused	50	60	2.25	3.0
B3237	Gap	Green	571	Green Transparent	60	65	2.25	3.0
B3437	Gap	Green	571	Water Clear	60	65	2.25	3.0
B3437u	Gap	Green	571	Water Clear	80	65	2.25	3.0
B5137	Gap	Bright Red	700	Red Diffused	8	60	2.25	3.0
B5237	Gap	Bright Red	700	Red Transparent	40	65	2.25	3.0
B8437	GaAlAS	Super Red	650	Water Clear	100	65	1.85	3.0
BSOLV437D	AlGaInp	Super Red	625	Water Clear	500	60	2.10	3.0
BSOLV437F	AlGaInp	Super Red	625	Water Clear	900	60	2.10	3.0
BB437E	InGaN	Blue	465	Water Clear	1000	60	3.30	4.0
BB437F	InGaN	Blue	465	Water Clear	1300	60	3.30	4.0
BW447E	InGaN	White	X=0,26 Y=0,24	Water Clear	1200	60	3.30	4.0
BW437F	InGaN	White	X=0,26 Y=0,24	Water Clear	1600	60	3.30	4.0

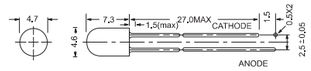




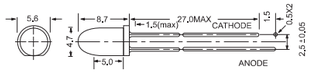
All Dimensions are in millimeters . Tolerance is ±0.15mm

ROUND TYPE

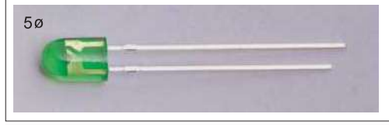
Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
B4138R	GaAsp/Gap	Orange	630	Red Diffused	70	60	2.05	3.0
B4438	GaAsp/Gap	Orange	630	Water Clear	300	40	2.05	3.0
B4238R	GaAsp/Gap	Orange	630	Red Transparent	300	40	2.05	3.0
B1138	GaAsp	Red	660	Red Diffused	9	60	1.70	3.0
B5138	Gap	Bright Red	700	Red Diffused	10	60	2.25	3.0
B8138	GaAlAS	Super Red	650	Red Diffused	100	60	1.85	3.0
B8438	GaAlAS	Super Red	650	Water Clear	600	40	1.85	3.0
B6438	AlGaInp	Super Red	650	Water Clear	800	40	2.10	3.0
B9438	GaAlAS	Super Red	650	Water Clear	1000	40	1.85	3.0
BSOLV438F	AlGaInp	Super Red	625	Water Clear	1200	40	2.10	3.0
B2138	GaAsp/Gap	Yellow	590	Yellow Diffused	30	60	2.20	3.0
B2238	GaAsp/Gap	Yellow	590	Yellow Transparent	200	40	2.20	3.0
BSYS438E	AlGaInp	Yellow	590	Water Clear	900	40	2.10	3.0
BSYS438F	AlGaInp	Yellow	590	Water Clear	1200	40	2.10	3.0
B3138	Gap	Green	571	Green Diffused	40	60	2.25	3.0
B3238	Gap	Green	571	Green Transparent	250	40	2.25	3.0
B3438	Gap	Green	571	Water Clear	250	40	2.25	3.0
B3438u	Gap	Green	571	Water Clear	400	40	2.25	3.0
BB438E	InGaN	Blue	465	Water Clear	1000	40	3.30	4.0
BW438F	InGaN	White	X=0.26 Y=0.24	Water Clear	1500	40	3.30	4.0

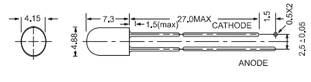


BB436AE	InGaN	Blue	465	Water Clear	3500	10	3.30	4.0
BW436AF	InGaN	White	X=0.26 Y=0.24	Water Clear	5000	10	3.30	4.0

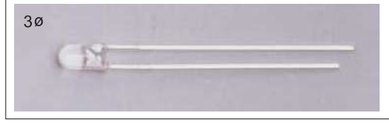


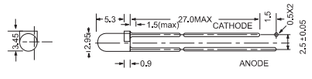
BSOLV438AF	AlGaInp	Super Red	625	Water Clear	1000	70	2.10	3.0
BSYS438AF	AlGaInp	Super Yellow	590	Water Clear	1000	70	2.10	3.0
BB438AE	InGaN	Blue	465	Water Clear	500	70	3.30	3.0
BB438AF	InGaN	Blue	465	Water Clear	800	70	3.30	3.0
BW438AF	InGaN	White	X=0.26 Y=0.24	Water Clear	1500	70	3.30	3.0





B6439A	AlGaInp	Super Red	650	Water Clear	800	12	2.10	3.0
B3439A	Gap	Green	571	Water Clear	600	12	2.25	3.0

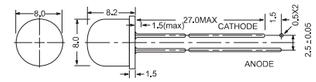




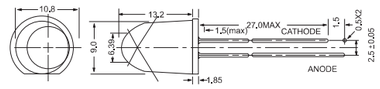
All Dimensions are in millimeters . Tolerance is ±0.15mm

ROUND TYPE

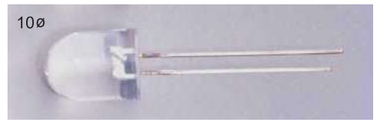
Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
BSOLV430A-1D	AlGaInp	Super Red	625	Water Clear	600	27	2.10	3.0
BSYS430A-1D	AlGaInp	Super Yellow	590	Water Clear	750	27	2.10	3.0

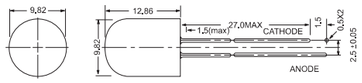


BB430B-1E	InGaN	Blue	465	Water Clear	5000	7	3.30	4.0

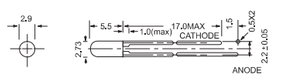


BW430B-2	InGaN	White	X=0.26 Y=0.24	Water Clear	3200	23	3.30	4.0

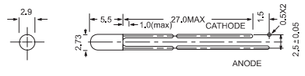




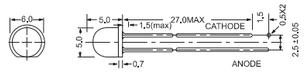
B1129	GaAsp/GaAs	Red	655	Red Diffused	8	42	1.68	4.0
B5129	Gap	Bright Red	700	Red Diffused	8.5	42	2.25	3.0
B4129R	GaAsp/GaAs	Orange	630	Red Diffused	70	42	2.05	3.0
B3129	Gap	Green	571	Green Diffused	10	42	2.25	3.0



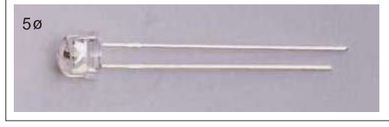
B5139	Gap	Bright Red	700	Red Diffused	9	30	2.25	3.0
B2139	GaAsp/GaAs	Yellow	590	Yellow Diffused	60	30	2.20	3.0
B2139O	GaAsp/GaAs	Yellow	590	Orange Diffused	60	30	2.20	3.0
BSYS439E	AlGaInp	Super Yellow	590	Water Clear	3000	12	2.10	3.0
B3439	Gap	Green	571	Water Clear	120	30	2.25	3.0

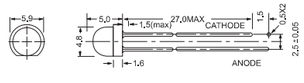


BSOLV434AD	AlGaInp	Super Red	625	Water Clear	400	100	2.10	3.0
BSOLV434AF	AlGaInp	Super Red	625	Water Clear	650	100	2.10	3.0
BSYS434AD	AlGaInp	Super Yellow	590	Water Clear	400	100	2.10	3.0
BB434AE	InGaN	Blue	465	Water Clear	400	100	3.30	4.0
BW434AF	InGaN	White	X=0,26 Y=0,24	Water Clear	500	100	3.30	4.0



BSOL434BHGB	AlGaInp	Super Red	625	Water Clear	800	90	2.10	3.0
BSYM434BHGB	AlGaInp	Super Yellow	590	Water Clear	1200	90	2.10	3.0

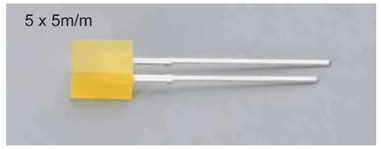


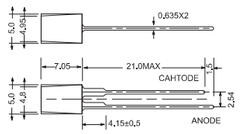


All Dimensions are in millimeters . Tolerance is ±0.15mm

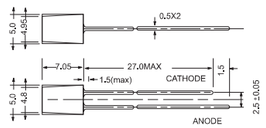
RECTANGULAR TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
R5110	Gap	Bright Red	700	Red Diffused	1.0	130	2.25	3.0
R2110	GaAsp/Gap	Yellow	590	Yellow Diffused	4.5	130	2.20	3.0
R3110	Gap	Green	571	Green Diffused	6.5	130	2.25	3.0

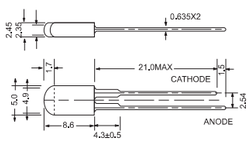




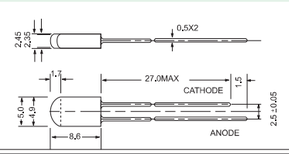
R5130	Gap	Bright Red	700	Red Diffused	1.2	120	2.25	3.0
R5230	Gap	Bright Red	700	Red Transparent	20	100	2.25	3.0
R5530	Gap	Bright Red	700	Red Diffused	2	120	2.25	3.0
R6130	AlGaInp	Super Red	650	Red Diffused	40	120	1.85	3.0
R2130	GaAsp/Gap	Yellow	590	Yellow Diffused	5.0	120	2.20	3.0
R2530	GaAsp/Gap	Yellow	590	Yellow Diffused	6.0	120	2.20	3.0
R3130	Gap	Green	571	Green Diffused	7.0	120	2.25	3.0
R3230	Gap	Green	571	Green Transparent	25	100	2.25	3.0
R3530	Gap	Green	571	Green Diffused	8	120	2.25	3.0
R4130R	GaAsp/Gap	Orange	630	Red Diffused	7.0	120	2.05	3.0
RW430C	InGaN	White	X=0,26 Y=0,24	Water Clear	500	100	3.3	4.0



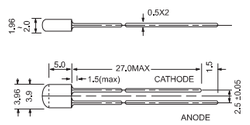
R1111	GaAsp/GaAs	Red	655	Red Diffused	1.0	120	1.68	3.0
R3111	Gap	Green	571	Green Diffused	6.5	120	2.25	3.0



R6431	GaAlAs	Super Red	650	Water Clear	300	30	1.85	3.0
R3131	Gap	Green	571	Green Diffused	7	100	2.25	3.0



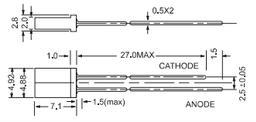
R6431A	GaAlAs	Super Red	650	Water Clear	180	80	1.85	3.0
R3431A	Gap	Green	571	Water Clear	60	80	2.25	3.0
R4431A	GaAsp/Gap	Orange	630	Water Clear	100	80	2.05	3.0
RB431AE	InGaN	Blue	465	Water Clear	250	85	3.30	4.0
RSYS431AD	AlGaInp	Super Yellow	590	Water Clear	300	85	2.10	3.0
RW431AF	InGaN	White	X=0.26/Y=0.24	Water Clear	400	85	3.30	4.0



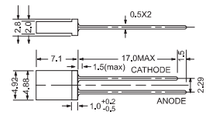
All Dimensions are in millimeters . Tolerance is ±0.15mm

RECTANGULAR TYPE

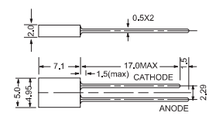
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
R5132	Gap	Bright Red	700	Red Diffused	1.2	120	2.25	3.0
R5432	Gap	Bright Red	700	Water Clear	40	100	2.25	3.0
R2132	GaAsp/Gap	Yellow	590	Yellow Diffused	4.0	120	2.20	3.0
R3132	Gap	Green	571	Green Diffused	6.0	120	2.25	3.0
R4132R	GaAsp/Gap	Orange	630	Red Diffused	6.0	120	2.05	3.0



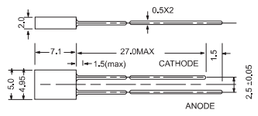
R2122	GaAsp/Gap	Yellow	590	Yellow Diffused	3.8	125	2.20	3.0
R3122	Gap	Green	571	Green Diffused	5.6	125	2.25	3.0
R4122	GaAsp/Gap	Orange	630	Orange Diffused	6.0	125	2.05	3.0
R4122R	GaAsp/Gap	Orange	630	Red Diffused	6.0	125	2.05	3.0



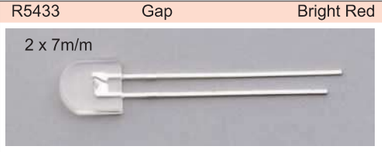
R5122N	Gap	Bright Red	700	Red Diffused	1.0	125	2.25	3.0
R2122N	GaAsp/Gap	Yellow	590	Yellow Diffused	3.8	125	2.20	3.0
R3122N	Gap	Green	571	Green Diffused	5.6	125	2.25	3.0
R4122N	GaAsp/Gap	Orange	630	Orange Diffused	6.0	125	2.05	3.0

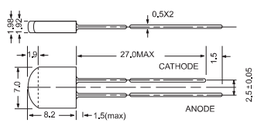


R5132N	Gap	Bright Red	700	Red Diffused	1.2	120	2.25	3.0
R5432N	Gap	Bright Red	700	Water Clear	40	100	2.25	3.0
R8132N	GaAlAS	Super Red	650	Red Diffused	150	150	1.85	3.0
R2132N	GaAsp/Gap	Yellow	590	Yellow Diffused	4.0	120	2.20	3.0
R3132N	Gap	Green	571	Green Diffused	6.0	120	2.25	3.0
R4132N	GaAsp/Gap	Orange	630	Orange Diffused	6.0	120	2.05	3.0
R4132NR	GaAsp/Gap	Orange	630	Red Diffused	6.0	120	2.05	3.0
R40132N	GaAsp/Gap	SOFT Orange	610	Orange Diffused	5.0	120	2.05	3.0

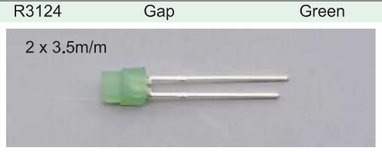


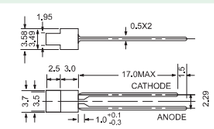
R5433	Gap	Bright Red	700	Water Clear	40	120	2.25	3.0





R3124	Gap	Green	571	Green Diffused	5.5	125	2.25	3.0



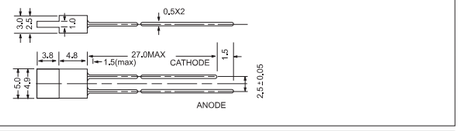


All Dimensions are in millimeters . Tolerance is ±0.15mm

RECTANGULAR TYPE

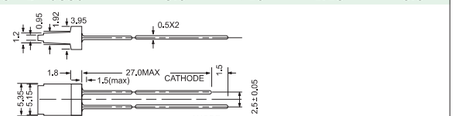
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
R5135	Gap	Bright Red	700	Red Diffused	1.2	120	2.25	3.0
R3135	Gap	Bright Red	571	Green Diffused	8.0	120	2.25	3.0

1 x 5m/m



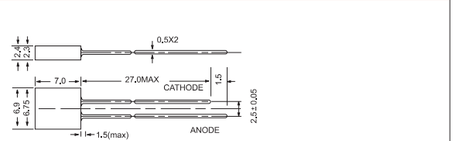
R1135A	GaAsp/GaAs	Red	655	Red Diffused	1.2	120	1.68	3.0
R3135A	Gap	Green	571	Green Diffused	8.0	120	2.25	3.0

1 x 5m/m



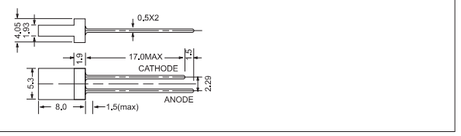
R3537	Gap	Green	571	Green Diffused	3.5	140	2.25	3.0
R3137	Gap	Green	571	Green Diffused	3.2	140	2.25	3.0
R4137R	GaAsp/Gap	Orange	630	Red Diffused	3.8	140	2.05	3.0
R4537	GaAsp/Gap	Orange	630	Orange Diffused	4.0	140	2.05	3.0
R4537R	GaAsp/Gap	Orange	630	Red Diffused	4.0	140	2.05	3.0
RSYS137D	AlGaInp	Super Yellow	590	Yellow Diffused	50	140	2.10	3.0
R2137	GaAsp/Gap	Yellow	590	Yellow Diffused	3.2	140	2.20	3.0
R5137	Gap	Bright Red	700	Red Diffused	2.0	140	2.25	3.0

2.5 x 7m/m



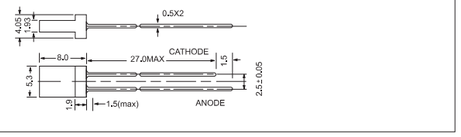
R5128	Gap	Bright Red	700	Red Diffused	1.0	125	2.25	3.0
R3128	Gap	Green	571	Green Diffused	5.6	125	2.25	3.0
R4128	GaAsp/Gap	Orange	630	Orange Diffused	6.0	125	2.05	3.0
R4128R	GaAsp/Gap	Orange	630	Red Diffused	6.0	125	2.05	3.0
R2128O	GaAsp/Gap	Amber	600	Orange Diffused	4.5	125	2.20	3.0

1.9 x 5.3m/m



R5138	Gap	Bright Red	700	Red Diffused	1.2	125	2.25	3.0
R5438	Gap	Bright Red	700	Water Clear	40	120	2.25	3.0
R8438	GaAlAS	Super Red	650	Water Clear	90	120	1.85	3.0
R6138	AlGaInp	Super Red	650	Red Diffused	20	125	2.1	3.0
R2138	GaAsp/Gap	Yellow	590	Yellow Diffused	4.2	125	2.20	3.0
R3138	Gap	Green	571	Green Diffused	6.0	125	2.25	3.0
R3438	Gap	Green	571	Water Clear	50	120	2.25	3.0
R4138	GaAsp/Gap	Orange	630	Orange Diffused	6.3	125	2.05	3.0
R4138R	GaAsp/Gap	Orange	630	Red Diffused	6.3	125	2.05	3.0

1.9 x 5.3m/m



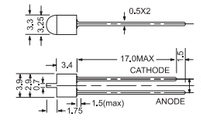
All Dimensions are in millimeters . Tolerance is ±0.15mm

JIANN WA RECTANGULAR TYPE

RECTANGULAR TYPE

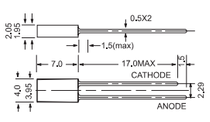
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
R3129A	Gap	Green	571	Green Diffused	5	120	2.25	3.0
R2129A	GaAsp/Gap	Yellow	590	Yellow Diffused	5	120	2.20	3.0
R2129AO	GaAsp/Gap	Amber	600	Orange Diffused	5	120	2.20	3.0

1 x 3m/m



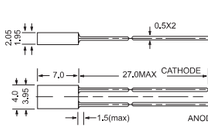
R212Z	GaAsp/Gap	Yellow	590	Yellow Diffused	3.8	125	2.20	3.0
R412Z	GaAsp/Gap	Orange	630	Orange Diffused	6.0	125	2.05	3.0

2 x 4m/m



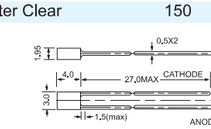
R213ZO	GaAsp/Gap	Amber	600	Orange Diffused	6.0	120	2.20	3.0
R313Z	Gap	Green	571	Green Diffused	6.0	120	2.25	3.0
R913Z	GaAlAS	Super Red	650	Red Diffused	40	120	1.85	3.0
R513Z	Gap	Bright Red	700	Red Diffused	6.0	120	2.25	3.0

2 x 4m/m



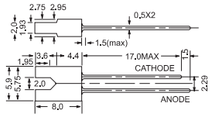
R513Y	Gap	Bright Red	700	Red Diffused	1.2	120	2.25	3.0
R523Y	Gap	Bright Red	700	Red Transparent	2.0	110	2.25	3.0
R643Y	AlGaInp	Super Red	650	Water Clear	40	110	2.1	3.0
R843Y	GaAlAS	Super Red	650	Water Clear	30	110	1.85	3.0
R323Y	Gap	Green	571	Green Transparent	5.0	110	2.25	3.0
R323YP	Gap	Pure Green	560	Green Transparent	4.5	110	2.25	3.0
R343Y	Gap	Green	571	Water Clear	5.0	110	2.25	3.0
R223YO	GaAsp/Gap	Amber	590	Orange Transparent	4.0	110	2.05	3.0
R4023Y	GaAsp/Gap	SOFT Orange	610	Orange Transparent	4.0	110	2.05	3.0
RB43YE	InGaN	Blue	465	Water Clear	150	110	3.30	4.0

2 x 3m/m



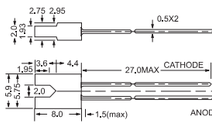
R512X	Gap	Bright Red	700	Red Diffused	0.8	110	2.25	3.0
R212X	GaAsp/Gap	Yellow	590	Yellow Diffused	3.0	110	2.20	3.0
R312X	Gap	Green	571	Green Diffused	3.5	110	2.25	3.0

2 x 6m/m



R513X	Gap	Bright Red	700	Red Diffused	1.0	110	2.25	3.0
R213X	GaAsp/Gap	Yellow	590	Yellow Diffused	3.5	110	2.20	3.0

2 x 6m/m

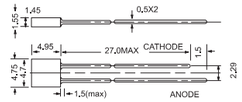


All Dimensions are in millimeters . Tolerance is ±0.15mm

RECTANGULAR TYPE

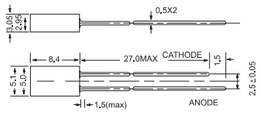
Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
R413MR	GaAsp/Gap	Orange	630	Red Diffused	6.0	130	2.05	3.0
R213M	GaAsp/Gap	Yellow	590	Yellow Diffused	4.0	130	2.20	3.0
R313M	Gap	Green	571	Green Diffused	5.0	130	2.25	3.0
R913M	GaAlAS	Super Red	650	Red Diffused	200	130	1.85	3.0
RW43MF	InGaN	White	X=0.26 Y=0.24	Water Clear	350	115	3.30	4.0

1.5 x 5m/m



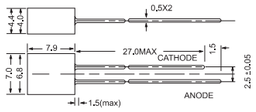
R313V	Gap	Green	571	Green Diffused	5.6	120	2.25	3.0
R213V	GaAsp/Gap	Yellow	590	Yellow Diffused	4.0	120	2.20	3.0

3 x 5m/m



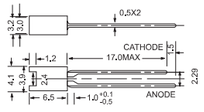
R453LR	GaAsp/Gap	Orange	630	Red Diffused	3.5	125	2.05	3.0
R253L	GaAsp/Gap	Yellow	590	Yellow Diffused	3.0	125	2.20	3.0
R353L	Gap	Green	571	Green Diffused	3.0	125	2.25	3.0

4 x 7m/m



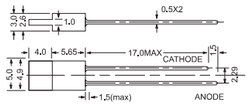
R512K	Gap	Bright Red	700	Red Diffused	0.8	105	2.25	3.0
R212K	GaAsp/Gap	Yellow	590	Yellow Diffused	6	105	2.20	3.0
R312K	Gap	Green	571	Green Diffused	6	105	2.25	3.0

3 x 4m/m



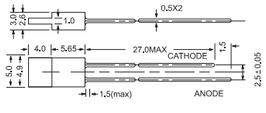
R512J	Gap	Bright Red	700	Red Diffused	1.0	125	2.25	3.0
R212J	GaAsp/Gap	Yellow	590	Yellow Diffused	6.5	125	2.20	3.0
R312J	Gap	Green	571	Green Diffused	7.0	125	2.25	3.0

1 x 5m/m



R513J	Gap	Bright Red	700	Red Diffused	1.2	100	2.25	3.0
R213J	GaAsp/Gap	Yellow	590	Yellow Diffused	7.0	120	2.20	3.0
R313J	Gap	Green	571	Green Diffused	8.0	120	2.25	3.0

1 x 5m/m



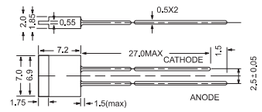
All Dimensions are in millimeters . Tolerance is ±0.15mm

JIANN WA RECTANGULAR TYPE

RECTANGULAR TYPE

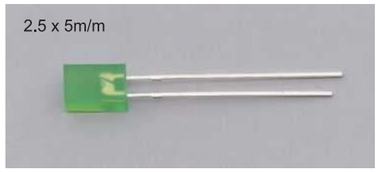
Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
R543H	Gap	Bright Red	700	Water Clear	5	100	2.25	3.0
R413H	GaAsp/Gap	Orange	630	Orange Diffused	11	120	2.05	3.0

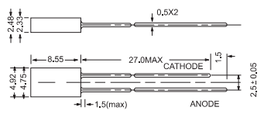
0.6 x 7m/m



R513F	Gap	Bright Red	700	Red Diffused	1.0	120	2.25	3.0
R913F	GaAlAS	Super Red	650	Red Diffused	20	120	1.85	3.0
R213F	GaAsp/Gap	Yellow	590	Yellow Diffused	3.8	120	2.20	3.0
R313F	Gap	Green	571	Green Diffused	5.6	120	2.25	3.0
R413F	GaAsp/Gap	Orange	630	Orange Diffused	6.0	120	2.05	3.0

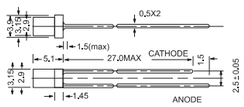
2.5 x 5m/m





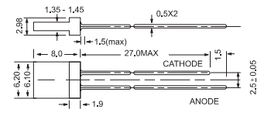
R513C	Gap	Bright Red	700	Red Diffused	0.8	120	2.25	3.0
R213C	GaAsp/Gap	Yellow	590	Yellow Diffused	3.5	120	2.20	3.0
R313C	Gap	Green	571	Green Diffused	5.5	120	2.25	3.0

3 x 3m/m



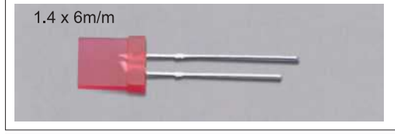
R513D	Gap	Bright Red	700	Red Diffused	1.0	120	2.25	3.0
R813D	GaAlAS	Super Red	650	Red Diffused	10	120	1.85	3.0
R313D	Gap	Green	571	Green Diffused	6.0	120	2.25	3.0
R313Du	Gap	Green	571	Green Diffused	8.0	120	2.25	3.0
RSYS13DC	AlGaInp	Super Yellow	590	Yellow Diffused	45	120	2.1	3.0
R213D	GaAsp/Gap	Yellow	590	Yellow Diffused	3.8	120	2.20	3.0

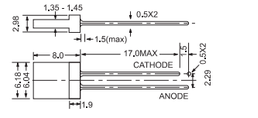
1.4 x 6m/m



R512D	Gap	Bright Red	700	Red Diffused	0.8	125	2.25	3.0
R212D	GaAsp/Gap	Yellow	590	Yellow Diffused	3.5	125	2.20	3.0
R312D	Gap	Green	571	Green Diffused	5.5	125	2.25	3.0
R412D	GaAsp/Gap	Orange	630	Orange Diffused	6.5	125	2.05	3.0

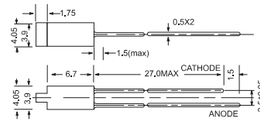
1.4 x 6m/m





R3139	Gap	Green	571	Green Diffused	5.5	125	2.25	3.0
R2139O	GaAsp/Gap	Amber	600	Orange Diffused	4	125	2.20	3.0

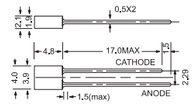
2 x 4m/m



All Dimensions are in millimeters . Tolerance is ±0.15mm

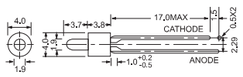
RECTANGULAR TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
R112ZA	GaAsp/Gap	Red	655	Red Diffused	1.0	120	1.68	3.0
R312ZA	Gap	Green	571	Green Diffused	5.6	120	2.25	3.0

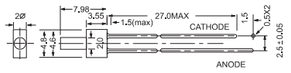


STEP TYPE

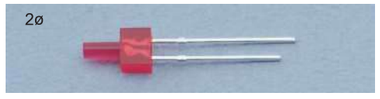
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λp (nm)		TYP	(deg)	TYP	MAX
S2123	GaAsp/Gap	Yellow	590	Yellow Diffused	5.0	70	2.20	3.0
S3123	Gap	Green	571	Green Diffused	7.0	70	2.25	3.0
S5123	Gap	Bright Red	700	Red Diffused	2.0	70	2.25	3.0

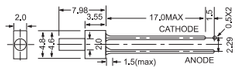


S5134	Gap	Bright Red	700	Red Diffused	1.8	75	2.25	3.0
S4134R	GaAsp/Gap	Orange	630	Red Diffused	8.0	75	2.05	3.0
S4134	GaAsp/Gap	Orange	630	Orange Diffused	8.0	75	2.05	3.0
S2134	GaAsp/Gap	Yellow	590	Yellow Diffused	4.5	75	2.20	3.0
S3134	Gap	Green	571	Green Diffused	6.5	75	2.25	3.0
SB434E	InGaN	Blue	465	Water Clear	250	65	3.3	4.0

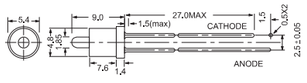


S3124	Gap	Green	571	Green Diffused	6.0	75	2.25	3.0

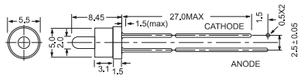




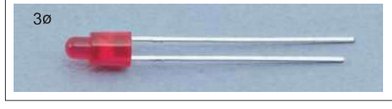
S5135	Gap	Bright Red	700	Red Diffused	1.8	70	2.25	3.0

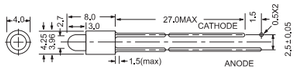


S3136	Gap	Green	571	Green Diffused	7.0	70	2.25	3.0



S4137R	GaAsp/Gap	Orange	630	Red Diffused	40	30	2.05	3.0
S4137	GaAsp/Gap	Orange	630	Orange Diffused	40	30	2.05	3.0
S3137	Gap	Green	571	Green Diffused	30	30	2.25	3.0
S2137O	GaAsp/Gap	Amber	600	Orange Diffused	30	30	2.20	3.0

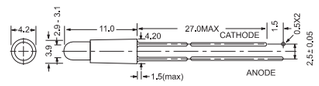




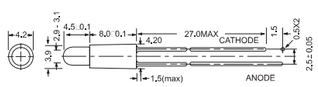
All Dimensions are in millimeters . Tolerance is ±0.15mm

STEP TYPE

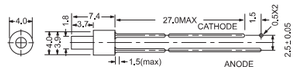
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
S4137AR	GaAsp/Gap	Orange	630	Red Diffused	30	110	2.05	3.0
S3137Au	Gap	Green	571	Green Diffused	20	110	2.25	3.0



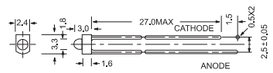
S8137B	GaAlAS	Super Red	650	Red Diffused	100	110	1.85	3.0



S5139	Gap	Bright Red	700	Red Diffused	1.80	75	2.25	3.0
S8439	GaAlAS	Super Red	650	Water Clear	250	60	1.85	3.0



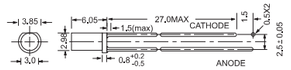
SSY436AF	AlGaInp	Yellow	594	Water Clear	1500	20	2.10	3.0
SB446AE	InGaN	Blue	465	Water Clear	1000	20	3.30	4.0
SW446AF	InGaN	White	X=0.26 Y=0.24	Water Clear	1600	20	3.30	4.0



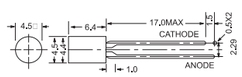
All Dimensions are in millimeters . Tolerance is ±0.15mm

CYLINDRIC TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
C5133	Gap	Bright Red	700	Red Diffused	3.0	130	2.25	3.0
C8433	GaAlAS	Super Red	650	Water Clear	40	125	1.85	3.0
C2133	GaAsp/Gap	Yellow	590	Yellow Diffused	8.0	130	2.20	3.0
C2233	GaAsp/Gap	Yellow	590	Yellow Transparent	12	125	2.20	3.0
C3133	Gap	Green	571	Green Diffused	10	130	2.25	3.0
C3233	Gap	Green	571	Green Transparent	15	125	2.25	3.0
C40233	GaAsp/Gap	SOFT Orange	610	Orange Transparent	20	125	2.05	3.0

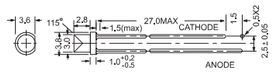


C1124	GaAsp/GaAS	Red	655	Red Diffused	1.0	170	1.68	3.0
C5124	Gap	Bright Red	700	Red Diffused	1.2	170	2.25	3.0
C3124	Gap	Green	571	Green Diffused	7.0	170	2.25	3.0

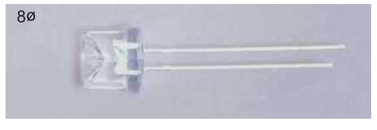


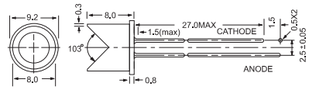
C8134	GaAlAS	Super Red	650	Red Diffused	35	170	1.85	3.0

C5235	Gap	Bright Red	700	Red Transparent	5	125	2.25	3.0
C5435	Gap	Bright Red	700	Water Clear	5	125	2.25	3.0
C8235	GaAlAS	Super Red	650	Red Transparent	30	125	1.85	3.0
CSOLV435D	AlGaInp	Super Red	625	Water Clear	100	125	2.10	3.0
C2235	GaAsp/Gap	Yellow	590	Yellow Transparent	10	125	2.20	3.0
CSYS435C	AlGaInp	Super Yellow	590	Water Clear	80	125	2.10	3.0
CSYS435D	AlGaInp	Super Yellow	590	Water Clear	100	125	2.10	3.0
C3235	Gap	Green	571	Green Transparent	10	125	2.25	3.0
C3235u	Gap	Green	571	Green Transparent	20	125	2.25	3.0
C3435	Gap	Green	571	Water Clear	10	125	2.25	3.0
C3435u	Gap	Green	571	Water Clear	20	125	2.25	3.0
C4235R	GaAsp/Gap	Orange	630	Red Transparent	20	125	2.05	3.0
C4435	GaAsp/Gap	Orange	630	Water Clear	20	125	2.05	3.0
CB435E	InGaN	Blue	465	Water Clear	125	125	3.30	4.0
CW445F	InGaN	White	X=0.26 Y=0.24	Water Clear	300	125	3.30	4.0



CSOLV436AD	AlGaInp	Super Red	625	Water Clear	60	170	2.10	3.0
CSOLV436AF	AlGaInp	Super Red	625	Water Clear	90	170	2.10	3.0
CSYS436AD	AlGaInp	Super Yellow	590	Water Clear	60	170	2.10	3.0
CSYS436AF	AlGaInp	Super Yellow	590	Water Clear	90	170	2.10	3.0
CGC1436AL5	GaN	Super Green	525	Water Clear	260	170	3.30	4.0
CB436AE	InGaN	Blue	465	Water Clear	80	170	3.30	4.0
CW463AF	InGaN	White	X=0.26 Y=0.24	Water Clear	140	170	3.30	4.0

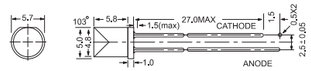




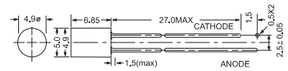
All Dimensions are in millimeters . Tolerance is ±0.15mm

CYLINDRIC TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
C5136	Gap	Bright Red	700	Red Diffused	3	140	2.25	3.0
C8436	GaAlAS	Super Red	650	Water Clear	50	130	1.85	3.0
C6136	AlGaInp	Super Red	650	Red Diffused	40	140	2.1	3.0
C6436	AlGaInp	Super Red	650	Water Clear	60	130	2.10	3.0
CSOLV436D	AlGaInp	Super Red	625	Water Clear	180	130	2.10	3.0
CSOLV436F	AlGaInp	Super Red	625	Water Clear	250	130	2.10	3.0
CSOLV436G	AlGaInp	Super Red	625	Water Clear	300	130	2.10	3.0
CSOLV436HGB	AlGaInp	Super Red	625	Water Clear	450	130	2.10	3.0
C2136	GaAsP/Gap	Yellow	590	Yellow Diffused	5	140	2.20	3.0
CSYS436C	AlGaInp	Super Yellow	590	Water Clear	150	130	2.10	3.0
CSYS436D	AlGaInp	Super Yellow	590	Water Clear	180	130	2.10	3.0
CSYS436F	AlGaInp	Super Yellow	590	Water Clear	220	130	2.10	3.0
CSY436F	AlGaInp	Super Yellow	594	Water Clear	220	130	2.10	3.0
C3136	Gap	Green	571	Green Diffused	5	140	2.25	3.0
C3436	Gap	Green	571	Water Clear	15	130	2.25	3.0
C3436u	Gap	Green	571	Water Clear	20	130	2.25	3.0
CGC1436L5	GaN	Super Green	525	Water Clear	300	130	3.30	4.0
CB436E	InGaN	Blue	465	Water Clear	100	130	3.30	4.0
CW436F	IInGaN	White	X=0.26 Y=0.24	Water Clear	350	130	3.30	4.0

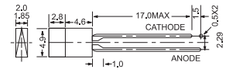


CSYM439HGB	AlGaInp	Super Yellow	590	Water Clear	450	90	2.10	3.0

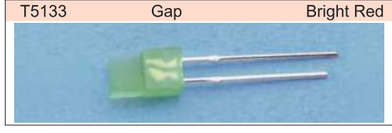


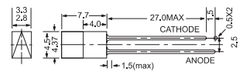
TRIANGULAR TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA TYP	Angle 2q 1/2 (deg)	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)				TYP	MAX
T5122	Gap	Bright Red	700	Red Diffused	3	100	2.25	3.0



T5133	Gap	Bright Red	700	Red Diffused	3	100	2.25	3.0

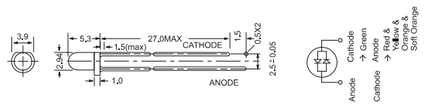




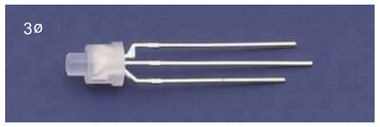
All Dimensions are in millimeters . Tolerance is ±0.15mm

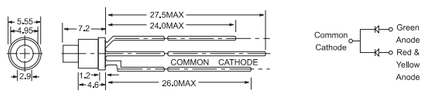
BI-COLOR TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
BYG333b	Y→GaAsp/Gap	Yellow	590	White Diffused	Y→45	45	Y→2.20	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0
BSG333b	S→GaAlAS	Super Red	650	White Diffused	S→140	45	S→1.85	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0
BOG333b	O→GaAsp/Gap	Orange	630	White Diffused	O→55	45	O→2.05	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0
BOG433b	O→GaAsp/Gap	Orange	630	Water Clear	O→220	40	O→2.05	3.0
	G→Gap	Green	571		G→150		G→2.25	3.0
BRG333b	R→Gap	Bright Red	700	White Diffused	R→7	45	R→2.25	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0
BGY333b	G→Gap	Green	571	White Diffused	G→60	45	G→2.25	3.0
	YC→AlGaInp	Super Yellow	590		YC→300		YC→2.20	3.0
BOCG333b	OC→AlGaInp	Super Orange	605	White Diffused	OC→300	45	OC→2.10	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0
BRDBE333b	RD→AlGaInp	Super Red	625	White Diffused	RD→400	45	RD→2.10	3.0
	BE→InGaN	Blue	465		BE→600		RE→3.30	4.0

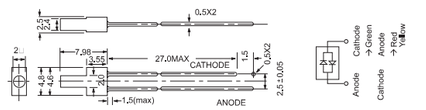


SRG301	R→Gap	Bright Red	700	White Diffused	R→6	100	R→2.25	3.0
(CC)	G→Gap	Green	571		G→8		G→2.25	3.0
SYG301	Y→GaAsp/Gap	Yellow	590	White Diffused	Y→7	100	Y→2.20	3.0
(CC)	G→Gap	Green	571		G→8		G→2.25	3.0





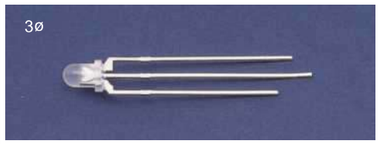
SRG334	R→Gap	Bright Red	700	White Diffused	R→1.8	75	R→2.25	3.0
	G→Gap	Green	571		G→6.5		G→2.25	3.0

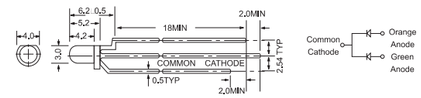


All Dimensions are in millimeters . Tolerance is ±0.15mm

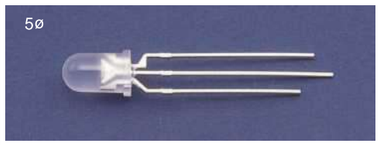
BI-COLOR TYPE

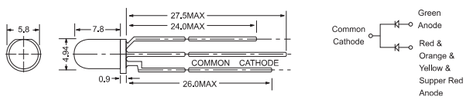
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
BOG303b	O→GaAsp/Gap	Orange	630	White Diffused	O→70	40	O→2.05	3.0
(CC)	G→Gap	Green	571		G→60		G→2.25	3.0



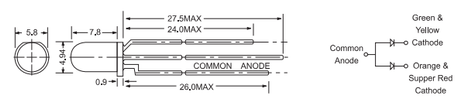


BOG305	O→GaAsp/Gap	Orange	630	White Diffused	O→80	30	O→2.05	3.0
(CC)	G→Gap	Green	571		G→70		G→2.25	3.0
BRG305	R→Gap	Bright Red	700	White Diffused	R→10	30	R→2.25	3.0
(CC)	G→Gap	Green	571		G→70		G→2.25	3.0
BYG305	Y→GaAsp/Gap	Yellow	590	White Diffused	Y→70	30	Y→2.20	3.0
(CC)	G→Gap	Green	571		G→70		G→2.25	3.0
BSY305	S→GaAlAs	Super Red	650	White Diffused	S→160	30	S→1.85	3.0
(CC)	Y→GaAsp/Gap	Yellow	590		Y→70		Y→2.20	3.0
BSG305	S→GaAlAs	Super Red	650	White Diffused	S→160	30	S→1.85	3.0
(CC)	G→Gap	Green	571		G→70		G→2.25	3.0
BSG405	S→GaAlAs	Super Red	650	Water Clear	S→800	25	S→1.85	3.0
(CC)	G→Gap	Green	571		G→250		G→2.25	3.0
BOCBC405	OC→AlGaInp	Super Orange	605	Water Clear	OC→2000	25	OC→2.10	3.0
(CC)	BC→InGaN	Blue	465		BC→3000		BC→3.30	4.0
BRDBE405	RD→AlGaInp	Super Red	625	Water Clear	RD→2500	25	RD→2.10	3.0
(CC)	BE→InGaN	Blue	465		BE→3500		BE→3.30	4.0
BGC1BE405	GC1→GaN	Super Green	525	Water Clear	GC1→1200	25	GC1→3.30	4.0
(CC)	BE→InGaN	Blue	465		BE→3500		BE→3.30	4.0





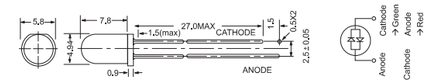
BOG305	O→GaAsp/Gap	Orange	630	White Diffused	O→60	30	O→2.05	3.0
(CA)	G→Gap	Green	571		G→50		G→2.25	3.0
BOY305	O→GaAsp/Gap	Orange	630	White Diffused	O→60	30	O→2.05	3.0
(CA)	Y→GaAsp/Gap	Yellow	590		Y→50		Y→2.20	3.0
BSG405	S→GaAlAs	Super Red	650	Water Clear	S→800	25	S→1.85	3.0
(CA)	G→Gap	Green	571		G→200		G→2.25	3.0
BSG305	S→GaAlAs	Super Red	650	White Diffused	S→160	30	S→1.85	3.0
(CA)	G→Gap	Green	571		G→70		G→2.25	3.0
BYG305	S→GaAsp/Gap	Yellow	590	White Diffused	Y→70	30	Y→2.20	3.0
(CA)	G→Gap	Green	571		G→70		G→2.25	3.0
BOG405	O→GaAsp/Gap	Orange	630	Water Clear	O→80	25	O→2.05	3.0
(CA)	G→Gap	Green	571		G→70		G→2.25	3.0



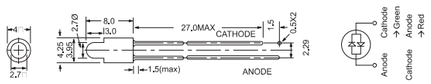
All Dimensions are in millimeters . Tolerance is ±0.15mm

BI-COLOR TYPE

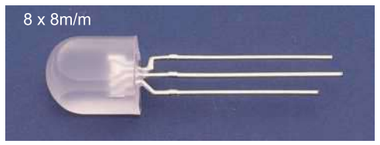
Part No	CHIP Material	CHIP Emitted Color	CHIP λd (nm)	LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA TYP	Forward Voltage VF (V)@20MA MAX
BRG335	R→Gap	Bright Red	700	White Diffused	R→10	35	R→2.25	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0
BOG335	O→GaAsp/Gap	Orange	630	White Diffused	O→80	35	O→2.05	3.0
	G→Gap	Green	571		G→70		G→2.25	3.0
BSG335	S→GaAlAs	Super Red	650	White Diffused	S→160	35	S→1.85	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0

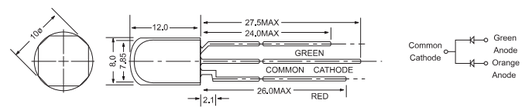


SRG337	R→Gap	Bright Red	700	White Diffused	R→6	110	R→2.25	3.0
	G→Gap	Green	571		G→8		G→2.25	3.0

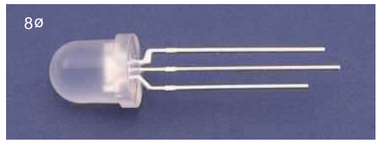


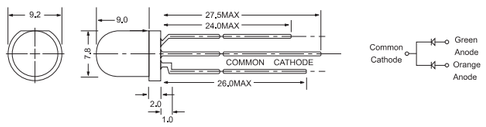
BOG300	O→GaAsp/Gap	Orange	630	White Diffused	O→80	35	O→2.05	3.0
(CC)	G→Gap	Green	571		G→70		G→2.25	3.0



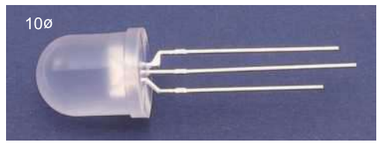


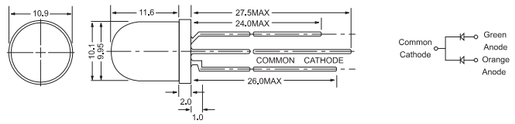
BOG300A	O→GaAsp/Gap	Orange	630	White Diffused	O→60	45	O→2.05	3.0
(CC)	G→Gap	Green	571		G→70		G→2.25	3.0



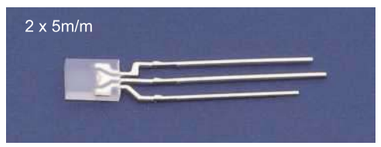


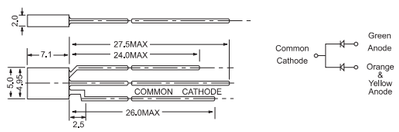
BOG300B	O→GaAsp/Gap	Orange	630	White Diffused	O→50	35	O→2.05	3.0
(CC)	G→Gap	Green	571		G→35		G→2.25	3.0





RYG302N	Y→GaAsp/Gap	Yellow	590	White Diffused	Y→4.0	120	Y→2.25	3.0
(CC)	G→Gap	Green	571		G→6.0		G→2.25	3.0

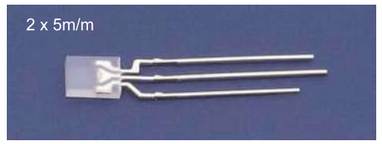


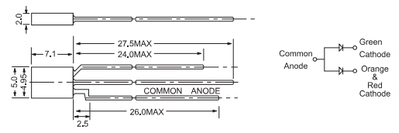


All Dimensions are in millimeters . Tolerance is ±0.15mm

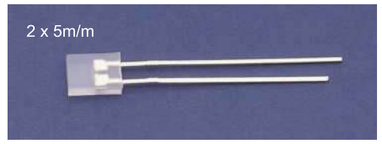
BI-COLOR TYPE

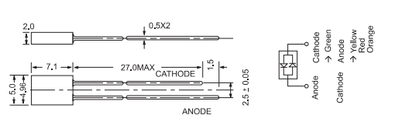
Part No	CHIP Material	CHIP Emitted Color	CHIP λd (nm)	LENS COLOR	IV (mcd) @20MA TYP	Angle 2θ 1/2 (deg)	Forward Voltage VF (V)@20MA TYP	Forward Voltage VF (V)@20MA MAX
ROG302N	O→GaAsp/Gap	Orange	630	White Diffused	O→5.5	125	O→2.05	3.0
(CA)	G→Gap	Green	571		G→5.0		G→2.25	3.0
RSG302N	S→GaAsp/Gap	Super Red	650	White Diffused	S→20.0	125	S→1.85	3.0
(CA)	G→Gap	Green	571		G→5.0		G→2.25	3.0



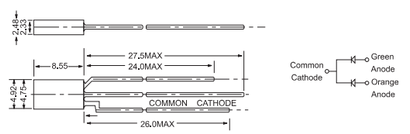


RRG332N	R→Gap	Bright Red	700	White Diffused	R→1.2	125	R→2.25	3.0
	G→Gap	Green	571		G→5.6		G→2.25	3.0

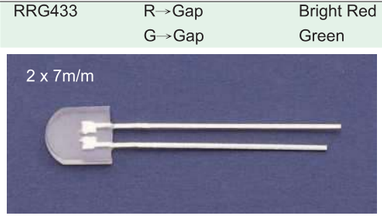


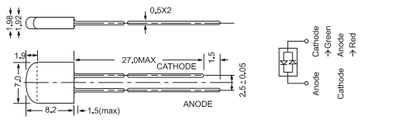


ROG30F	O→GaAsp/Gap	Orange	630	White Diffused	O→5.6	120	O→2.05	3.0
(CC)	G→Gap	Green	571		G→5.6		G→2.25	3.0

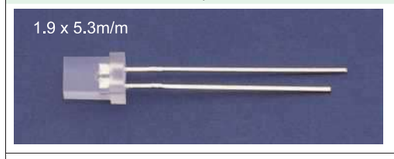


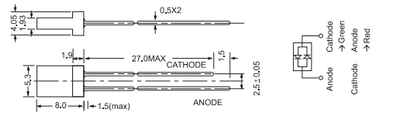
RRG433	R→Gap	Bright Red	700	White Diffused	R→0.8	120	R→2.25	3.0
	G→Gap	Green	571		G→4.5		G→2.25	3.0





RRG338	R→Gap	Bright Red	700	White Diffused	R→9.5	45	R→2.25	3.0
	G→Gap	Green	571		G→6.5		G→2.25	3.0

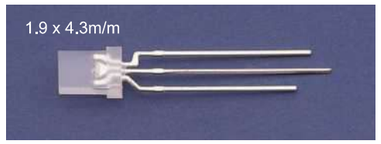


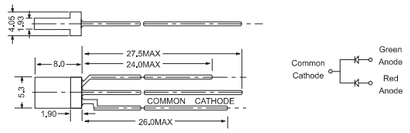


All Dimensions are in millimeters . Tolerance is ±0.15mm

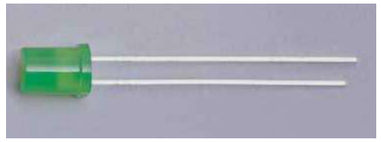
BI-COLOR TYPE

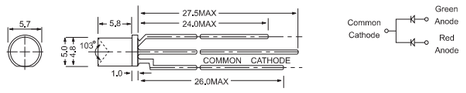
Part No	CHIP			LENS COLOR	IV (mcd) @20MA	Angle 2θ 1/2	Forward Voltage VF (V)@20MA	
	Material	Emitted Color	λd (nm)		TYP	(deg)	TYP	MAX
RRG308	R→Gap	Bright Red	700	White Diffused	R→1.2	125	R→2.25	3.0
(CC)	G→Gap	Green	571		G→6.0		G→2.25	3.0



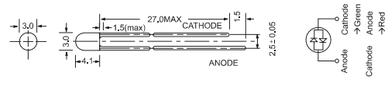


CSG306	S→GaAlAS	Super Red	650	White Diffused	S→20	120	S→1.85	3.0
(CC)	G→Gap	Green	571		G→5.0		G→2.25	3.0

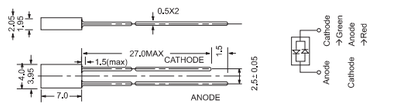




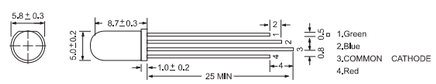
BRG437	R→Gap	Bright Red	700	Water Clear	R→45	45	R→2.25	3.0
	G→Gap	Green	571		G→60		G→2.25	3.0



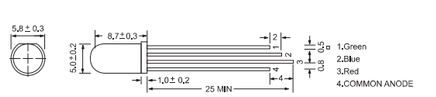
RRG33Z	R→Gap	Bright Red	700	White Diffused	R→1.2	120	R→2.25	3.0
	G→Gap	Green	571		G→6.0		G→2.25	3.0



BRCBCGB1305	RC→AlGaInp	Super Red	625	White Diffused	RC→600	30	RC→2.1	3.0
(CC)	BC→InGaN	Blue	465		BC→200		BC→3.3	4.0
	GB1→GaN	Super Green	525		GB1→1000		GB1→3.3	4.0
BRCBCGB1405	RC→AlGaInp	Super Red	625	Water Clear	RC→1200	15	RC→2.1	3.0
(CC)	BC→InGaN	Blue	465		BC→700		BC→3.3	4.0
	GB1→GaN	Super Green	525		GB1→3700		GB1→3.3	4.0



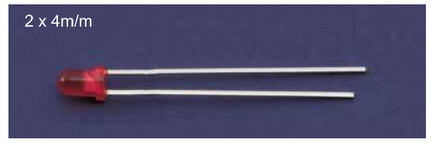
BRCBCGB1305	RC→AlGaInp	Super Red	625	White Diffused	RC→600	30	RC→2.1	3.0
(CA)	BC→InGaN	Blue	465		BC→200		BC→3.3	4.0
	GB1→GaN	Super Green	525		GB1→1000		GB1→3.3	4.0
BRCBCGB1405	RC→AlGaInp	Super Red	625	Water Clear	RC→1200	15	RC→2.1	3.0
(CA)	BC→InGaN	Blue	465		BC→700		BC→3.3	4.0
	GB1→GaN	Super Green	525		GB1→3700		GB1→3.3	4.0

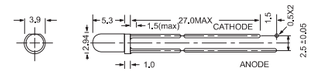


All Dimensions are in millimeters . Tolerance is ±0.15mm

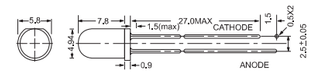
RESISTOR LED TYPE

Part No	CHIP			LENS COLOR	IV (mcd) @20MA	OPERATING VOLTAGE(V)	
	Material	Emitted Color	λd (nm)		TYP	TYP	MAX
B5133b-5V	Gap	Bright Red	700	Red Diffused	9	5	9
B5133b-12V	Gap	Bright Red	700	Red Diffused	9	12	15
B4133bR-5V	GaAsp/Gap	Orange	630	Red Diffused	70	5	9
B4133bR-12V	GaAsp/Gap	Orange	630	Red Diffused	70	12	15
B2133b-5V	GaAsp/Gap	Yellow	590	Yellow Diffused	60	5	9
B2133b-12V	GaAsp/Gap	Yellow	590	Yellow Diffused	60	12	15
B3133b-5V	Gap	Green	571	Green Diffused	60	5	9
B3133b-12V	Gap	Green	571	Green Diffused	60	12	15



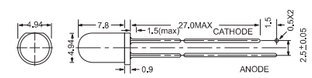


B5135-5V	Gap	Bright Red	700	Red Diffused	10	5	9
B5135-12V	Gap	Bright Red	700	Red Diffused	10	12	15
B4135R-5V	GaAsp/Gap	Orange	630	Red Diffused	80	5	9
B4135R-12V	GaAsp/Gap	Orange	630	Red Diffused	80	12	15
B2135-5V	GaAsp/Gap	Yellow	590	Yellow Diffused	70	5	9
B2135-12V	GaAsp/Gap	Yellow	590	Yellow Diffused	70	12	15
B3135-5V	Gap	Green	571	Green Diffused	70	5	9
B3135-12V	Gap	Green	571	Green Diffused	70	12	15



FLASH LED TYPE

Part No	LENS COLOR	EMITTING COLOR	OPERATING VOLTAGE(TYP)	LUMINOUS INTENSITY VF=8V(TYP)
FB5135	Red Diffused	Red Gap	8.0V	10mcd
FB3135	Green Diffused	Green	2.4HZ	70mcd



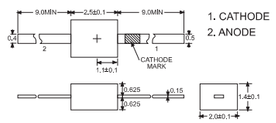
All Dimensions are in millimeters . Tolerance is ±0.15mm

AXIAL TYPE

PART NUMBER	EMITTED COLOR	RESIN COLOR	PEAK WAVELENGHT	CHARACTERISTICS		LUMINOUS INTENSITY	
			λd(nm)TYP IF=20mA	VF (V) TYP. IF=20mA	IR (UA) MAX. VR=5V	IV(mcd) IF=20mA MIN	TYP.
JL-L21ST	Red	Water Clear	660	1.8	10	1.5	3.0
JL-L31HT	Orange	Water Clear	635	2.0	10	1.0	2.0
JL-L41AT	Yellow	Water Clear	585	2.0	10	0.3	0.5
JL-L51PT	Yellow/Green	Water Clear	565	2.1	10	0.8	1.5

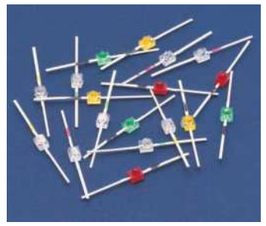
AXIAL TYPE (Non Lens)

(unit:mm)

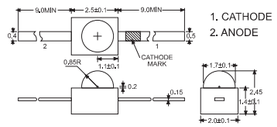


PART NUMBER	EMITTED COLOR	RESIN COLOR	PEAK WAVELENGHT	CHARACTERISTICS		LUMINOUS INTENSITY	
			λd(nm)TYP IF=20mA	VF (V) TYP. IF=20mA	IR (UA) MAX. VR=5V	IV(mcd) IF=20mA MIN	TYP.
JL-L20PT	Red	Water Clear	700	2.1	10	0.8	1.6
L20HT		Water Clear	660	2.0	10	1.8	3.5
L20ST		Water Clear	660	1.8	10	4.0	8.0
L204UT		Water Clear	660	2.0	10	2.0	2.7
JL-L30HT	Orange	Water Clear	635	2.0	10	1.8	3.5
JL-L40AT	Yellow	Water Clear	585	2.0	10	1.0	2.0
JL-L50PT	Yellow Green	Water Clear	565	2.1	10	2.0	4.0
JL-L50GT	Pure Green	Water Clear	555	2.1	10	2.0	3.8
JL-60UIT	Blue	Water Clear	463	3.3	10	3.0	4.5

AXIAL TYPE (ø1.7mm LAMP)



(unit:mm)



All Dimensions are in millimeters . Tolerance is ±0.15mm

INFRARED EMITTING DIODES

ABSOLUTE MAXIMUM RATINGS AT TA=25℃

.Peak Forward Current (Pluse Width = 10us.1% Duty Cycle)

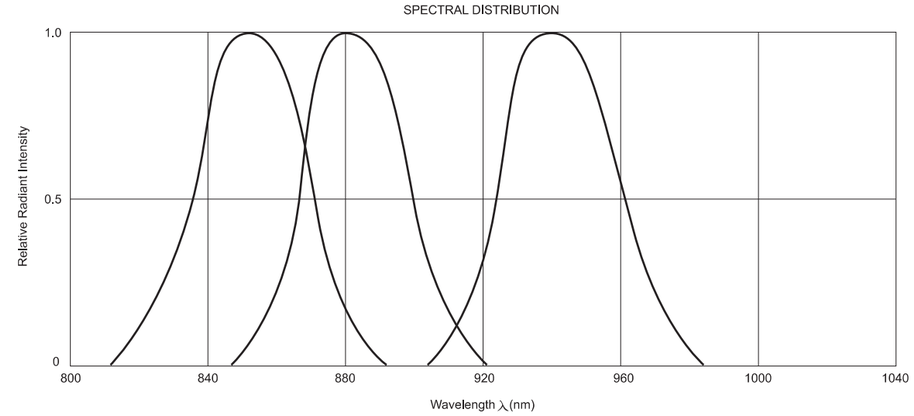
.Operating Temperature Range (-45℃ to +85℃)

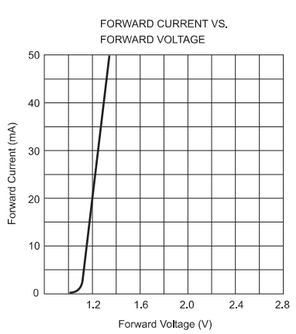
.Storage Temperature Range (-45℃ to +85℃)

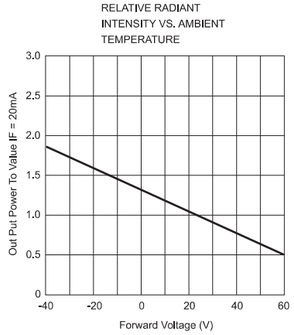
.Lead Soldering Temperature (1/16 inch from case 5sec 260℃)

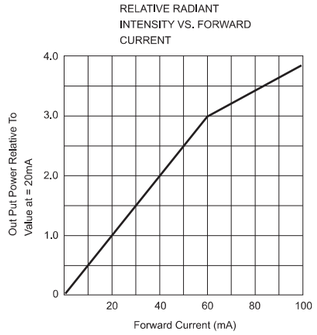
TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

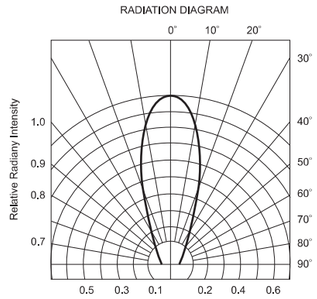
(25℃ Ambient Temperature Unless Otherwise Noted)









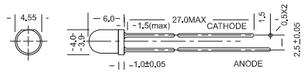


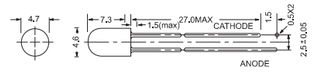
All Dimensions are in millimeters . Tolerance is ±0.15mm

INFRARED TYPE

PartT No	LENS Color	CHIP		Viewing Angle 2θ 1/ 2 (deg)	Absolute Maximum Ratings				Electro-optical Data(At 100mA)					Ifp=20mA PW=10uS DC=10%		PACKAGE DRAWING
		Material	Park Wave Length λd(nm)		PD (mw)	Continous If(mA)	Park If(A)	Vr (V)	Vf(V) Typ.	Vf(V) Max.	Ir (uA)	Radiant Power Min.	Radiant Power Typ.	Tr (ns)	Tf (ns)	
IB433	Water Clear	GaAIAS/GaAS	940	16	200	50	1.0	5	1.4	2.0	100	15	20	500	200	F-A
IBM433	Water Clear	GaAIAS/GaAS	940	16	170	50	1.0	5	1.6	2.1	100	10	16	500	200	
IB233	BLUE Trans	GaAIAS/GaAS	940	16	200	50	1.0	5	1.4	2.0	100	15	20	500	200	
IBP433	Water Clear	GaAIAS/GaAS	850	16	300	50	1.0	5	1.7	2.1	100	22	35	500	200	
IB435	Water Clear	GaAIAS/GaAS	940	30	280	50	1.0	5	14	2.0	100	18	25	500	200	F-B
IB235	BLUE Trans	GaAIAS/GaAS	940	30	280	50	1.0	5	1.4	2.0	100	18	25	500	200	
IBM435	Water Clear	GaAIAS/GaAS	940	30	220	50	1.0	5	1.6	2.1	100	12	18	500	200	
IBP435	Water Clear	GaAIAS/GaAS	850	30	450	50	1.0	5	1.7	2.1	100	25	40	500	200	

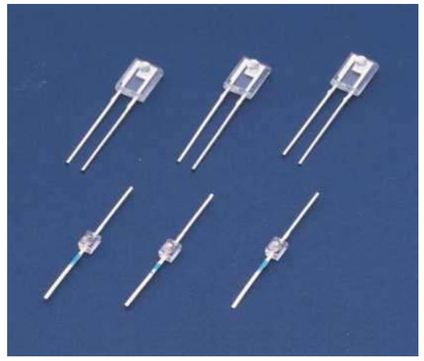
PartT No	LENS Color	CHIP		Viewing Angle 2θ 1/ 2 (deg)	Absolute Maximum Ratings				Electro-optical Data(At 100mA)					Ifp=20mA PW=10uS DC=10%		PACKAGE DRAWING
		Material	Park Wave Length λd(nm)		PD (mw)	Continous If(mA)	Park If(A)	Vr (V)	Vf(V) Typ.	Vf(V) Max.	Ir (uA)	Radiant Power Min.	Radiant Power Typ.	Tr (ns)	Tf (ns)	
IB431	Water Clear	GaAIAS/GaAS	940	40	200	50	1.0	5	1.4	2.0	100	18	25	500	200	F-C
IBP438	Water Clear	GaAIAS/GaAS	850	40	350	50	1.0	5	1.4	2.0	100	18	25	500	200	F-D

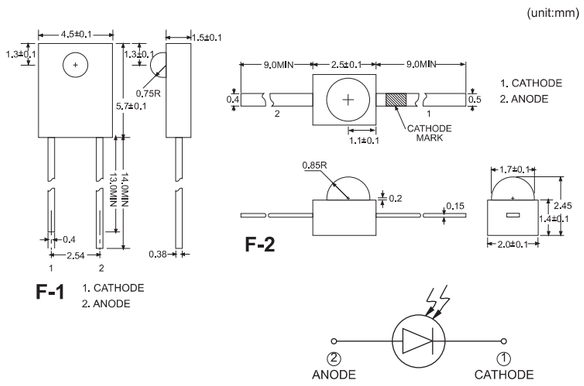




All Dimensions are in millimeters . Tolerance is ±0.15mm

INFRARED EMITTING DIODE



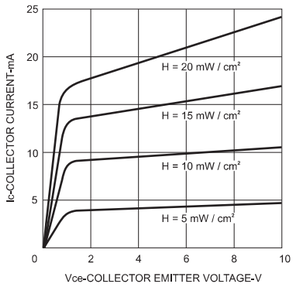


PART NUMBER	POWER OUTPUT		CHARACTERISTICS			PEAK WAVELENGTH	1/2 θ	PACKAGE DRAWING
	TYP. (mw)	IF (mA)	VF(V)=100mA TYP.	VF(V)=100mA MAX.	IR(uA)VT=5V MAX.	λd(nm)TYP. IF=100mA	(deg)TYP.	
JL-N261T-A1	4.0	100	1.5	1.7	10	940	30	F-1
JL-N101T	5.0	100	1.5	2.0	10	880	30	F-2
JL-N102T	7.0	100	1.7	2.0	10	880	30	F-2
JL-N201T	3.5	100	1.5	1.7	10	940	30	F-2
JL-N202T	4.0	100	1.3	1.7	10	940	30	F-2
JL-N203T	4.5	100	1.3	1.7	10	940	30	F-2

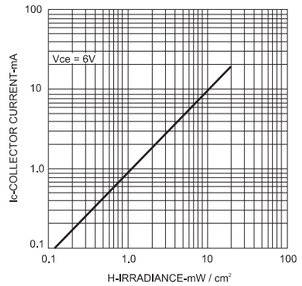
All Dimensions are in millimeters . Tolerance is ±0.15mm

TYPICAL CHARACTERISTICS (PHOTO TRANSISTORS SERIES)

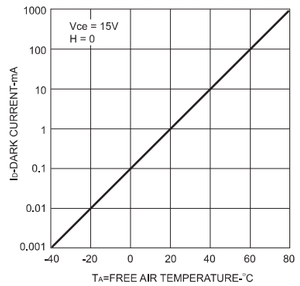
COLLECTOR CURRENT VS COLLECTOR EMITTER VOLTAGE



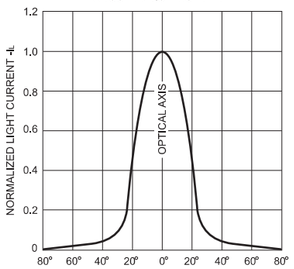
COLLECTOR CURRENT VS IRRADIANCE



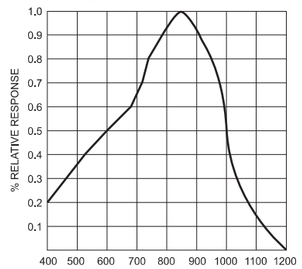
DARK CURRENT VS FREE-AIR TEMPERATURE



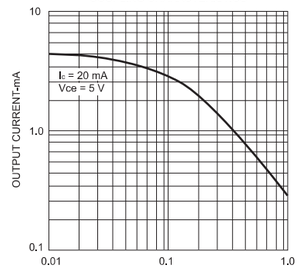
NORMALIZED LIGHT CURRENT VS ANGULAR DISPLACEMENT



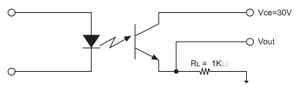
RELATIVE SPECTRAL RESPONSE



COUPLING CHARACTERISTICS



SWITCHING TIME TEST CIRCUIT



NOTE: 1. INPUT IRRADIANCE IS SUPPLIED BY A PULSED GALLIUM ARSENIDE TIGHT EMITTING DIODE WITH A RISE TIME OF LESS THAN 500ns. INCIDENT IRRADIATION IS ADJUSTED FOR SPECIFIED IL.

PHOTO TRANSISTORS

APPLICATIONS

□Remote Control .Smoke Detector □Automatic System □PC Mouse □Optical Encoder

ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

□Collector-to-Emitter Saturation Voltage Vec (SAT)(Max.)..... 0.5V

□Emitter-to-Collector Breakdown Voltage (VBR)(Min.)..... 5V

□Operating Temperature Range..... -45℃ - +85℃

□Storage Temperature Range..... -45℃ - +85℃

□Lead Soldering Temperature (1/16 inch from case)..... 5sec 250℃

□Relative Humidity at 85℃..... 85%

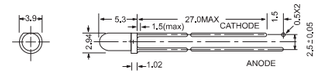
□Power Disspation..... 100mW

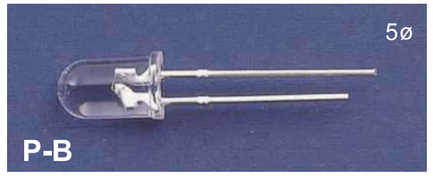
□Rise Time/Fall Time Tr/Tf (Vcc=30V.Ic=800uA.RL=1kΩ)..... 10/15uS

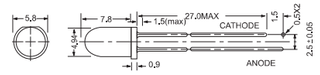
All Dimensions are in millimeters . Tolerance is ±0.15mm

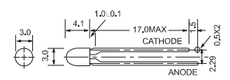
ELECTRICAL AND RADIANT CHARACTERISTICS (Ta=25˚C)

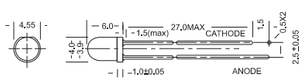
Part No.	Absolute Maximum Rating			Collector Light Current (IC (ON))				Collector Dark Current (ICEO)		Viewing Angle 2 1/ 2 (deg)	Peak Wave Lenght P(nm)	Lens Color	PACKAGE DRAWING
	Vceo (V)	Pd (mW)	Topr (℃)	Min. (mA)	Typ. (mA)	Vce (V)	H (mW/cm2)	Max. (nA)	Vce (V)				
PB433	30	100	-45℃ - +85℃	0.5	2.0	5	1.0	100	10	30	940	Water Clear	P-A
PB233	30	100	-45℃ - +85℃	0.5	2.0	5	1.0	100	10	30	940	Blue Trans	P-A
PB435	30	100	-45℃ - +85℃	1.0	4.0	5	1.0	100	10	35	940	Water Clear	P-B
PB227	30	100	-45℃ - +85℃	0.8	3.0	5	1.0	100	10	35	940	Blue Trans	P-C
PB231	30	100	-45℃ - +85℃	0.8	3.0	5	1.0	100	10	35	940	Blue Trans	P-D









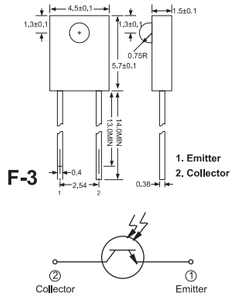


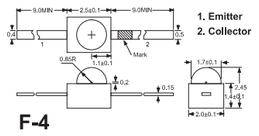
All Dimensions are in millimeters . Tolerance is ±0.15mm

JIANN WA PHOTO TRANSISTORS TYPE

PHOTO TRANSISTORS

(Unit: mm)

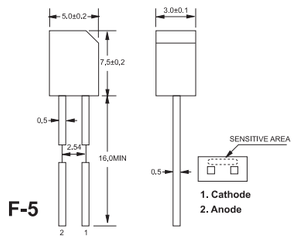


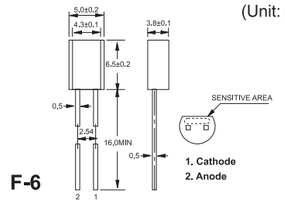


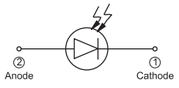
PART NUMBER	LIGHT CURRENT				DARK CURRENT		VCE (SAT)	1/ 2 θ	λd	TR	TF	PACKAGE DRAWING
	MIN. (mA)	MAX. (mA)	VCE (V)	EV (Lux)	MAX. (nA)	VCE (V)	IC=0.5mA H=20mw/cm TYP.(V)	TYP. (deg)	TYP. (nm)	VCC=30V IL=800uA TYP. RL=1Kohm(us)		
JL-T161T-A	0.6	12	5	1000	100	10	0.4	25	880	5	5	F-3
JL-T101T	0.5	10	5	1000	100	10	0.4	25	880	5	5	F-4
JL-T102T	0.5	15	5	1000	100	10	0.4	25	880	5	5	F-4

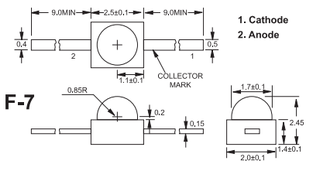
PHOTO DIODE

(Unit: mm)





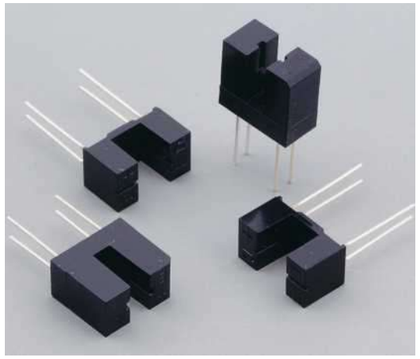


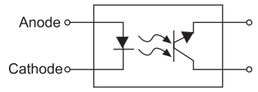


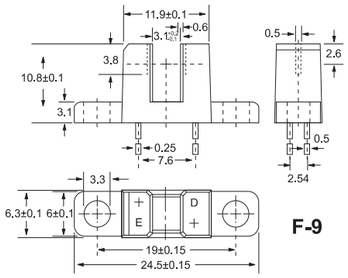
PART NUMBER	OPEN CIRCUIT VOLTAGE	SHORT CIRCUIT CURRENT		DARK CURRENT		λd	1/2 θ	OPERATING TEMPERATURE	PACKAGE DRAWING
	Vop TYP.(V)	Ish Typ.(uA)	EV (Lux)	ID TYP.(nA)	VR (V)	TYP. (nm)	TYP. (deg)	Topr(°C)	
JL-D183D	0.4	60	1000	100	10	900	70	-20-+70	F-6
JL-D185D	0.4	60	1000	100	10	900	25	-20-+70	F-5
JL-D101T	0.4	18	1000	100	10	900	25	-20-+70	F-7

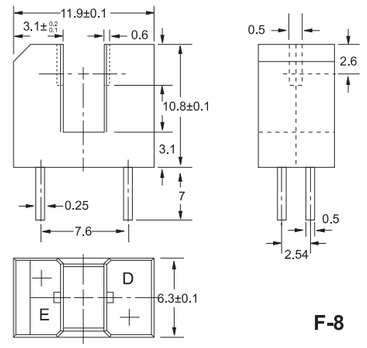
All Dimensions are in millimeters . Tolerance is ±0.15mm

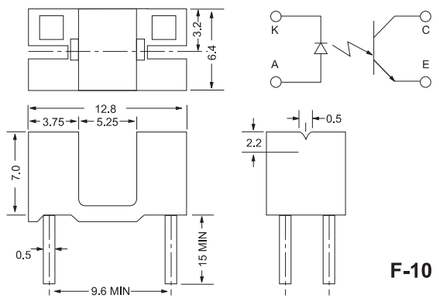
PHOTO INTERRUPTER

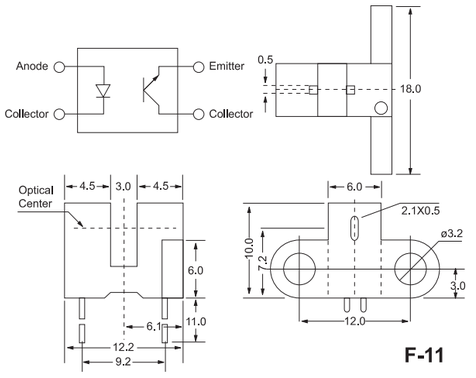










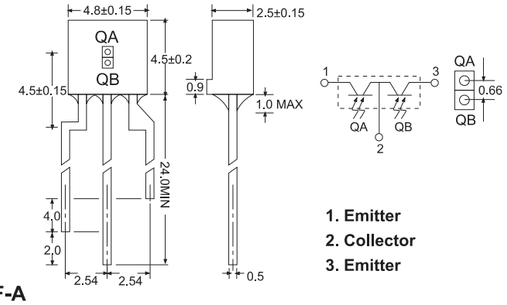


PART NUMBER	PACKAGE DRAWING	ELECTRIC CHARACTERISTICS					
		VCE(SAT)MAX. (V)	IC MIN. (mA)	IF (mA)	ICEO MAX. (nA)	Tr TYP. (uS)	Tf TYP. (uS)
JL-NT901	F-8	0.5	1	20	100	5	5
JL-NT902	F-9	0.5	1	20	100	5	5
JL-NT905	F-10	0.5	1	20	100	5	5
JL-NT906	F-11	0.5	1	20	100	5	5

All Dimensions are in millimeters . Tolerance is ±0.15mm

PHOTO TRANSESTORS
(DOUBLE CHIPS)

PART NUMBER	LIGHT CURRENT				DARK CURRENT		VCE (SAT)	1/ 2 θ	λd	TR	TF	PACKGE DRAWING
	MIN. (mA)	MAX. (mA)	VCE (V)	EV (Lux)	MAX. (nA)	VCE (V)	IC=0.5mA H=20mw/cm TYP.(V)	TYP. (deg)	TYP. (nm)	VCC=30V IL=800uA TYP. RL=1Kohm(us)		
JL-T391D	0.6	12	5	1000	100	10	0.4	60	880	5	5	F-A



1. Emitter
2. Collector
3. Emitter

F-A

LIGHT DMITTING DIODE
MODEL:JL-L56PT-A

ABSOLUTE MAXIMUM RAINGS

Ta=25℃

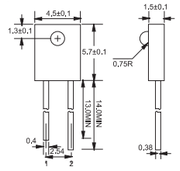
CHARACTERISTIC	SYMBLE	RATING	UNIT
Forward direct current	IFm	30	mA
Reverse voltage	VRm	4	V
Operating temperature	Topr	-25 to +75	℃
Storage temperature	Tstg	-25 to +80	℃
Power dissipation	Pm	68	mW
Lead soldeering temperature (5mm from bldy) 260℃ for 5 sec.			

ELECTRO-OPTICAL CHARACTERISTIC

Ta=25℃

CHARACTERISTIC	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Luminous intensity	I_V	IF=20mA	8	22		mcd
Forward voltage	V_F	IF=20mA		2.1	2.8	V
Reverse current	I_R	VR=4V			10	uA
Peak emission wavelength	λd	IF=20mA		565		nm
Spectral line half width	Δλ	IF=20mA		30		nm
Viewing helf angle	2 θ 1/ 2	IF=20mA		60		deg

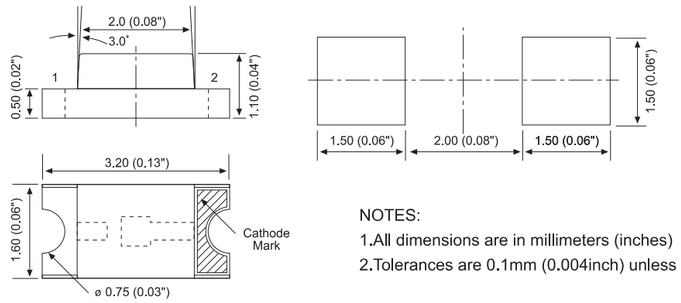
(Unit: mm)



Emitted color:Green
Lens color:Water clear

SURFACE MOUNT LED LAMPS(SMD chip)

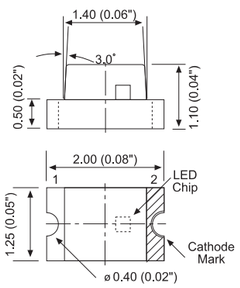
Part No	CHIP			LENS COLOR	VF (V)		Iv (mcd)		View Angle
	Material	Emitted Color	λp (nm)		TYP	MAX	At If=mA	TYP	2 θ 1/ 2
JLBQS150TS-JPH	INGaN	Blue	465	Water Transparent	3.4	4.0	20	40	140
JLBJS150TS-JPH	INGaN	Blue	460	Water Transparent	3.4	4.0	20	36	140
JLBLS150TS-JPH	INGaN	Blue	460	Water Transparent	3.4	4.0	20	40	140
JLBSS150TS-IPK	INGaN	Blue	470	Water Transparent	3.0	4.0	20	40	140
JLBSS150TS-JPH	INGaN	Blue	460	Water Transparent	3.4	4.0	20	70	140
JLWKS150TS-IPK	INGaN	White	X=0.27 Y=0.28	Yellow	3.5	4.0	20	150	140
JLOHS150TS-EPE	GaAsP	Orange	635	Water Transparent	2.0	2.5	20	10	140
JLOVS150TS-DPE	A1GaInP	Orange	624	Water Transparent	2.2	2.7	20	80	140
JLRSS150TS-DSE	GaAlAS	Red	660	Water Transparent	1.8	2.3	20	4	140

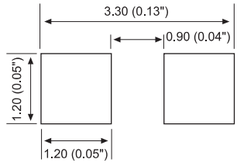


NOTES:
1.All dimensions are in millimeters (inches)
2.Tolerances are 0.1mm (0.004inch) unless otherwise noted.

Part No	CHIP			LENS COLOR	VF (V)		Iv (mcd)		View Angle
	Material	Emitted Color	λd (nm)		TYP	MAX	At If=mA	TYP	2 θ 1/ 2
JLYHS170TS-EPE	GaAsP	Yellow	585	Water Transparent	2.1	2.6	20	7	140
JLYUS170TS-DPE	A1GaInP	Yellow	595	Water Transparent	2.0	2.5	20	80	140
JLOJS170JS-EPE	A1GaInP	Orange	635	Water Transparent	2.0	2.5	20	200	140
JLAIS170TS-DPE	A1GaInP	Amber	610	Water Transparent	2.0	2.5	20	180	140
JLBLS170TS-JPH	InGaN	Blue	460	Water Transparent	3.4	4.0	20	40	140
JLBRS170TS-IPK	InGaN	Blue	470	Water Transparent	3.0	4.0	20	30	140
JLBSS170TS-IPK	InGaN	Blue	470	Water Transparent	3.0	4.0	20	40	140
JLGDS170TS-DPE	AlGaInP	Green	572	Water Transparent	2.0	2.5	20	30	140
JLGBS170TS-DPT	AlGaInP	Green	575	Water Transparent	2.1	2.6	20	30	140
JLGBS170TS-DPG	AlGaInP	Green	575	Water Transparent	2.1	2.6	20	37	140
JLGES170TS-IPK	InGaN	Green	525	Water Transparent	3.21	3.8	20	70	140
JLGPS170WS-DPE	GaP	Green	565	White Diffused	2.25	2.7	20	18	140
JLGPS170TS-DPE	GaP	Green	565	White Diffused	2.25	2.7	20	18	140
JLRSS170TS-DSE	GaAlAS	Red	660	Water Transparent	1.8	2.3	20	8	140
JLRES170TS-HPE	GaAlAS	Red	625	Water Transparent	1.8	2.3	20	20	140
JLRRS170TS-DPE	AlGaInP	Red	645	Water Transparent	2.0	2.5	20	50	140
JLRQS170TS-DPE	AlGaInP	Red	640	Water Transparent	2.0	2.5	20	100	140
JLWIS170TS-JPH	InGaN	White	X=0.27 Y=0.24	Yellow	3.2	4.0	20	70	140
JLWJS170TS-JPH	InGaN	White	X=0.27 Y=0.24	Yellow	3.2	4.0	20	90	140
JLWSS170TS-JPH	InGaN	White	X=0.27 Y=0.24	Yellow	3.4	4.0	20	160	140

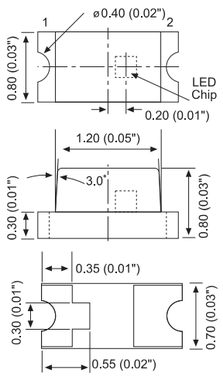
SURFACE MOUNT LED LAMPS(SMD chip)

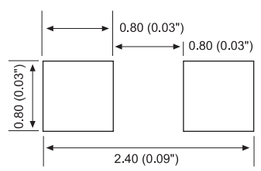




NOTES:
1.All dimensions are in millimeters (inches)
2.Tolerances are ±0.1mm (0.004inch) unless otherwise noted.

Part No	CHIP			LENS COLOR	VF (V)		Iv (mcd)		View Angle
	Material	Emitted Color	λd (nm)		TYP	MAX	At If=mA	TYP	2θ1/2
JLYHS190TS-EPE	GaAsP	Yellow	585	Water Transparent	2.1	2.6	20	3	140
JLBIS190TS-JPH	InGaN	Blue	460	Water Transpaarent	3.6	4.0	20	30	140
JLBOS190TS-JPH	InGaN	Blue	465	Water Transparent	3.3	4.0	20	38	140
JLBQS190TS-JPH	InGaN	Blue	465	Water Transparent	3.2	4.0	20	40	140
JLBRS190TS-IPK	InGaN	Blue	470	Water Transparent	3.0	4.0	20	35	140
JLBSS190TS-IPK	InGaN	Blue	470	Water Transparent	3.0	4.0	20	40	140
JLBSS190TS-JPH	InGaN	Blue	460	Water Transparent	3.4	4.0	20	50	140
JLBTS190TS-IPK	InGaN	Blue	470	Water Transparent	3.0	4.0	20	45	140
JLGBS190TS-DPG	AlGaInP	Green	575	Water Transparent	2.1	2.6	20	20	140
JLGES190TS-IPG	InGaN	Green	524	Water Transparent	3.3	4.0	20	120	140
JLGP190TS-DPE	AlGaInP	Orange	565	Water Transparent	2.25	2.7	20	17	140
JLOJS190TS-EPE	AlGaInP	Orange	635	Water Transparent	2.0	2.3	20	170	140
JLOVS190TS-DPE	AlGaInP	Orange	635	Water Transparent	2.2	2.7	20	80	140
JLRRS190TS-DPE	AlGaInP	Red	645	Water Transparent	2.0	2.5	20	76	140
JLRSS190TS-DSE	GaAlAS	Red	655	Water Transparent	1.8	2.3	20	18	140
JLWIS190TS-JPH	InGaN	White	X=0.26 Y=0.22	Yellow	3.4	4.0	20	62	140
JLWKS190TS-IPK	InGaN	White	X=0.26 Y=0.22	Yellow	3.5	4.0	20	120	140
JLWLS190TS-JPH	InGaN	White	X=0.26 Y=0.22	Yellow	3.4	4.0	20	110	140
JLWSS190TS-JPH	InGaN	White	X=0.26 Y=0.22	Yellow	3.2	4.0	20	150	140
JLWVS190TS-JPH	InGaN	White	X=0.26 Y=0.22	Yellow	3.5	4.0	20	170	140
JLWIS190TS-JPH	InGaN	White	X=0.26 Y=0.22	Yellow	3.5	4.0	20	62	140





NOTES:
1.All dimensions are in millimeters (inches)
2.Tolerances are ±0.1mm (0.004inch) unless otherwise noted.

All Dimensions are in millimeters . Tolerance is ±0.15mm

Features

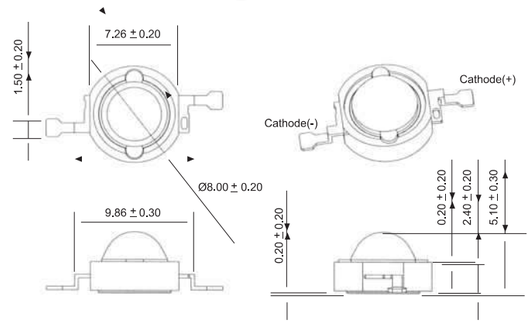
APPLICATIONS
- Long operating life (up to 100,000 hours)
- More Energy Efficient than incandescent and most halogen lamps
- Low forward voltage operated
- Instant light (less than 100 ns)
- No UV

Typical Applications
- Reading lights
- Portable fleshlight
- Uplighters and Downlighters
- Bollards / Security / Garden lighting
- Indoor and Outdoor Commercial lighting
- LCD Backlights / Light guides
- General lighting

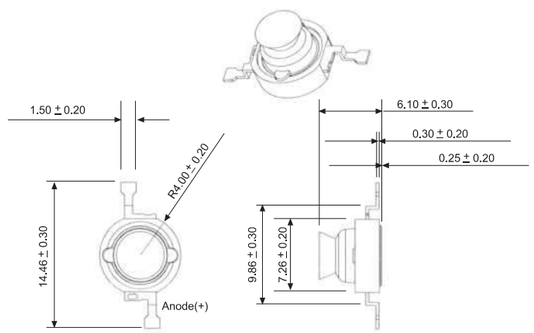
Edixeon Emitter group(1W)

White Housing	Emitter	White	Warm White	Red	Green
	Lambertian	JWEW-1LA1	JWEX-1LA1	JWER-1LA3	JWET-1LA2
	Batwing	JWEW-1BA1	JWEX-1BA1	JWER-1BA3	JWET-1BA2
	Side Emitting	JWEW-1SA1	JWEX-1SA1	JWER-1SA3	JWET-1SA2
	Focusing	JWEW-1FA1	JWEX-1FA1	JWER-1FA3	JWET-1FA2
	Emitter	**Blue**	**Red Orange**	**Amber**	
	Lambertian	JWEB-1LA1	JWEO-1LA3	JWEA-1LA3	
	Batwing	JWEB-1BA1	JWEO-1BA3	JWEA-1BA3	
	Side Emitting	JWEB-1SA1	JWEO-1SA3	JWEA-1SA3	
	Focusing	JWEB-1FA1	JWEO-1FA3	JWEA-1FA3	

Lambertian Package Outlines

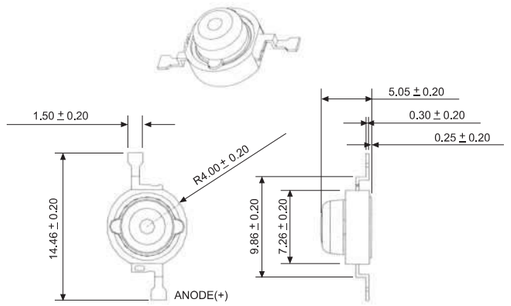


Side Emitting Package Outlines

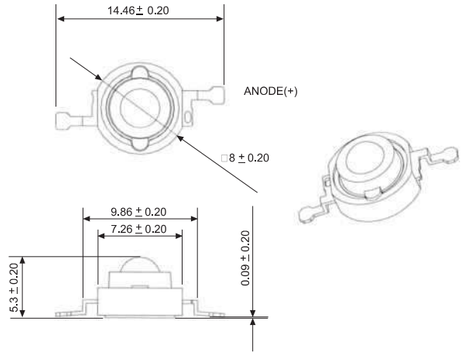


All Dimensions are in millimeters . Tolerance is ±0.15mm

Batwing Package Outlines



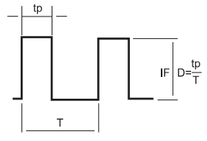
Focusing Package Outlines



Absolute Maximum Ratings(1W)

Parameter	Symbol	Rating	Units
DC Forward Current	I_F	350	mA
Peak pulse current ; (tp≦ 100 μs, Duty =0.005)*1	I_{pulse}	1000	mA
Reverse Voltage	V_R	5	V
LED junction Temperature (at 350 mA)	T_j	125	℃
Operating Temperature	T_{opr}	-30~+110	℃
Storage Temperature	T_{stg}	-40~+120	℃
Manual Soldering Time at 260℃ (Max.)	T_{sol}	5	seconds

1. Duty cycle:



Luminous Flux(1W)

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	Flux TYP	MAX	UNITS
Lambertian Side Emitting Batwing Focusing	JWEW-1xx1	White	23.3	30.0	–	lm
	JWEX-1xx1	Warm White	17.9	22.0	–	lm
	JWEB-1xx1	Blue	4.80	9.00	–	lm
	JWET-1xx2	True Green	23.3	30.0	–	lm
	JWER-1xx3	Red	17.9	26.0	–	lm
	JWEO-1xx3	Red Orange	23.3	30.0	–	lm
	JWEA-1xx3	Amber	23.3	30.0	–	lm

All Dimensions are in millimeters . Tolerance is ±0.15mm

Forward Voltage(1W)

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	V_F TYP	MAX	UNITS
Lambertian Side Emitting Batwing Focusing	JWEW-1xx1	White	2.80	3.50	4.00	V
	JWEX-1xx1	Warm White	2.80	3.50	4.00	V
	JWEB-1xx1	Blue	2.80	3.50	4.00	V
	JWET-1xx2	True Green	2.80	3.20	4.00	V
	JWER-1xx3	Red	2.00	2.20	2.75	V
	JWEO-1xx3	Red Orange	2.00	2.20	2.75	V
	JWEA-1xx3	Amber	2.00	2.20	2.75	V

Wavelength or Color Temperature(1W)

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	λD/CCT TYP	MAX	UNITS
Lambertian Side Emitting Batwing Focusing	JWEW-1xx1	White	5000	–	8000	K
	JWEX-1xx1	Warm White	2850	–	3800	K
	JWEB-1xx1	Blue	460	–	475	nm
	JWET-1xx2	True Green	515	–	535	nm
	JWER-1xx3	Red	620	–	630	nm
	JWEO-1xx3	Red Orange	610	–	620	nm
	JWEA-1xx3	Amber	585	–	595	nm

Thermal Resistance Junction to Board

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	$R\theta_{J-B}$ TYP	MAX	UNITS
Lambertian Side Emitting Batwing Focusing	JWEW-1xx1	White	–	15	–	℃/W
	JWEX-1xx1	Warm White	–	15	–	℃/W
	JWEB-1xx1	Blue	–	15	–	℃/W
	JWET-1xx2	True Green	–	15	–	℃/W
	JWER-1xx3	Red	–	15	–	℃/W
	JWEO-1xx3	Red Orange	–	15	–	℃/W
	JWEA-1xx3	Amber	–	15	–	℃/W

Temperature Coefficient of Forward Voltage

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	$\triangle V_F/\triangle T$ TYP	MAX	UNITS
Lambertian Side Emitting Batwing Focusing	JWEW-1xx1	White	–	-2	–	mV/℃
	JWEX-1xx1	Warm White	–	-2	–	mV/℃
	JWEB-1xx1	Blue	–	-2	–	mV/℃
	JWET-1xx2	True Green	–	-2	–	mV/℃
	JWER-1xx3	Red	–	-2	–	mV/℃
	JWEO-1xx3	Red Orange	–	-2	–	mV/℃
	JWEA-1xx3	Amber	–	-2	–	mV/℃

All Dimensions are in millimeters . Tolerance is ±0.15mm

JIANN WA 1W High Power LED

Reverse Current

Characteristics at V_R=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	$I_{R(VR=5V)}$ TYP	MAX	UNITS
Lambertian Side Emitting Batwing Focusing	JWEW-1xx1	White	–	–	50	μA
	JWEX-1xx1	Warm White	–	–	50	μA
	JWEB-1xx1	Blue	–	–	50	μA
	JWET-1xx2	True Green	–	–	50	μA
	JWER-1xx3	Red	–	–	50	μA
	JWEO-1xx3	Red Orange	–	–	50	μA
	JWEA-1xx3	Amber	–	–	50	μA

Emission Angle(1W)

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	2θ1/2 TYP	MAX	UNITS
Lambertian	JWEW-1Lx1	White	–	140	–	Degress
	JWEX-1Lx1	Warm White	–	140	–	Degress
	JWEB-1Lx1	Blue	–	140	–	Degress
	JWET-1Lx2	True Green	–	140	–	Degress
	JWER-1Lx3	Red	–	120	–	Degress
	JWEO-1Lx3	Red Orange	–	120	–	Degress
	JWEA-1Lx3	Amber	–	120	–	Degress
Lens Item	**Part Name**	**Color**	**MIN**	**θPEAK TYP**	**MAX**	**UNITS**
Side Emitting	JWEW-1Sx1	White	–	80	–	Degress
	JWEX-1Sx1	Warm White	–	80	–	Degress
	JWEB-1Sx1	Blue	–	80	–	Degress
	JWET-1Sx2	True Green	–	80	–	Degress
	JWER-1Sx3	Red	–	75	–	Degress
	JWEO-1Sx3	Red Orange	–	75	–	Degress
	JWEA-1Sx3	Amber	–	75	–	Degress

Emission Angle(1W)

Characteristics at I_F=350mA(Ta=25℃)

Lens Item	Part Name	Color	MIN	2θ1/2 TYP	MAX	UNITS
Lambertian	JWEW-1Fx1	White	–	140	–	Degress
	JWEX-1Fx1	Warm White	–	140	–	Degress
	JWEB-1Fx1	Blue	–	140	–	Degress
	JWET-1Fx2	True Green	–	140	–	Degress
	JWER-1Fx3	Red	–	120	–	Degress
	JWEO-1Fx3	Red Orange	–	120	–	Degress
	JWEA-1Fx3	Amber	–	120	–	Degress
Lens Item	**Part Name**	**Color**	**2θ1/2 TYP**	**θPEAK TYP**		**UNITS**
Side Emitting	JWEW-1Bx1	White	110	40		Degress
	JWEX-1Bx1	Warm White	110	40		Degress
	JWEB-1Bx1	Blue	110	40		Degress
	JWET-1Bx2	True Green	110	40		Degress
	JWER-1Bx3	Red	110	35		Degress
	JWEO-1Bx3	Red Orange	110	35		Degress
	JWEA-1Bx3	Amber	110	35		Degress

All Dimensions are in millimeters . Tolerance is ±0.15mm

Electrical & Optical Bin Group(1W)

Flux Ranks

Part Name	Flux Group	Flusx(lm)@I_F=350mA
JWEB-1xx1	**Full**	**4.80 —— 13.8**
	H	4.80 —— 6.30
	J	6.30 —— 8.20
	K	8.20 —— 10.6
	L	10.6 —— 13.8

Part Name	Flux Group	Flusx(lm)@I_F=350mA
JWER-1xx3 JWEX-1xx1	**Full**	**17.9 —— 39.4**
	N	17.9 —— 23.3
	P	23.3 —— 30.3
	Q	30.3 —— 39.4

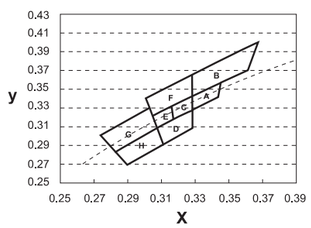
Part Name	Flux Group	Flusx(lm)@I_F=350mA
JWEW-1xx1 JWET-1xx2 JWEO-1xx3 JWEA-1xx3	**Full**	**23.3 —— 51.2**
	P	23.3 —— 30.3
	Q	30.3 —— 39.4
	R	39.4 —— 51.2

CCT Ranks

Part Name	CCT(K)@I_F=350mA
Warm White	**2,850 —— 3,800**
● T	2,850 —— 3,325
● U	3,325 —— 3,800
White	**5,000 —— 8,000**
● W	5,000 —— 6,000
● X	6,000 —— 7,000
● Y	7,000 —— 8,000

White

	X	Y	CCT(Typ.)		X	Y	CCT(Typ.)
A	0.346	0.359	5,350	E	0.316	0.333	6,700
	0.344	0.344			0.317	0.320	
	0.329	0.331			0.308	0.311	
	0.329	0.345			0.305	0.322	
B	0.367	0.400	5,500	F	0.329	0.369	6,300
	0.362	0.372			0.329	0.345	
	0.329	0.345			0.305	0.322	
	0.329	0.369			0.301	0.342	
C	0.329	0.345	6,050	G	0.308	0.311	8,000
	0.329	0.331			0.311	0.293	
	0.317	0.320			0.290	0.270	
	0.316	0.333			0.283	0.284	
D	0.329	0.331	6,300	H	0.303	0.333	8,000
	0.330	0.310			0.308	0.311	
	0.311	0.329			0.283	0.284	
	0.308	0.311			0.274	0.301	

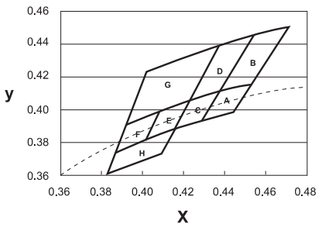


All Dimensions are in millimeters . Tolerance is ±0.15mm

JIANN WA 1W High Power LED

Warm White

	X	Y	CCT(Typ.)		X	Y	CCT(Typ.)
A	0.438	0.412	2,950	E	0.409	0.400	3,370
	0.429	0.394			0.402	0.382	
	0.444	0.399			0.416	0.389	
	0.453	0.416			0.424	0.406	
B	0.454	0.446	2,950	F	0.392	0.391	3,640
	0.438	0.412			0.387	0.374	
	0.453	0.416			0.402	0.382	
	0.471	0.451			0.409	0.400	
C	0.424	0.406	3,150	G	0.402	0.423	3,500
	0.416	0.389			0.392	0.391	
	0.429	0.394			0.424	0.406	
	0.438	0.412			0.438	0.440	
D	0.438	0.440	3,150	H	0.387	0.374	3,500
	0.424	0.406			0.383	0.360	
	0.438	0.412			0.410	0.374	
	0.454	0.446			0.416	0.389	



Wavelength Ranks

Part Name	λd(nm)@I_F=350mA
Blue	**460 — 475**
● W	460 — 465
● X	465 — 470
● Y	470 — 475
True Green	**515 — 535**
● V	515 — 520
● W	520 — 525
● X	525 — 530
● Y	530 — 535
Amber	**585 — 595**
● X	585 — 595
Red Orange	**610 — 620**
● X	610 — 620
Red	**620 — 630**
● X	620 — 630

Forward Voltage Ranks For White & True Green & Blue

Part Name	V_F(V) @I_F=350mA
Full	**2.80 — 4.00**
● **V01**	2.80 — 3.10
● **V02**	3.10 — 3.40
● **V03**	3.40 — 3.70
● **V04**	3.70 — 4.00

All Dimensions are in millimeters . Tolerance is ±0.15mm

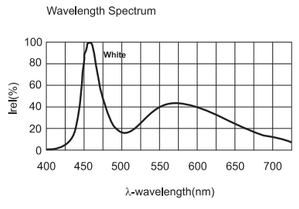
Forward Voltage Ranks For Red & Red Orange & Amber

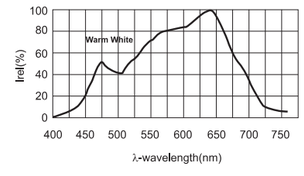
Part Name	V_F(V) @I_F=350mA
Full	**2.00 — 2.75**
● **V01**	2.00 — 2.25
● **V02**	2.25 — 2.50
● **V03**	2.50 — 2.75

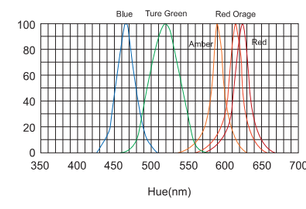
Note

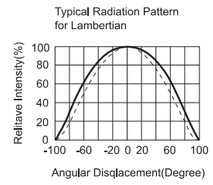
- Flux is measured with an accuracy of ±15%.
- CCT selection acc. to CCT groups and an accuracy of ±400K
- Forward Voltage is measured with an accuracy of ±0.2V.
- Wavelength is measured with an accuracy of ±3nm
- Angle is measured with an accuracy of ±15 degree

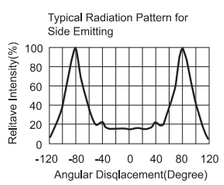
Electrical & Optical Curves

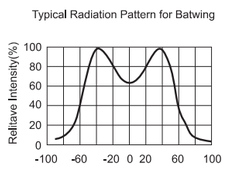


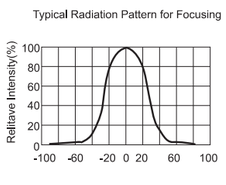


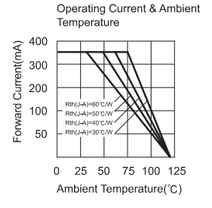


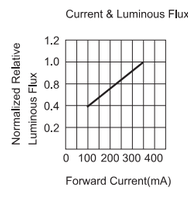


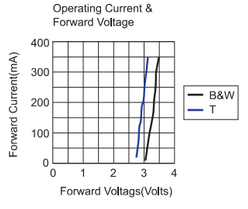


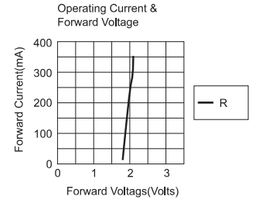








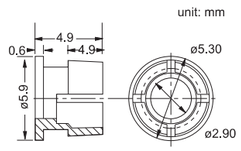


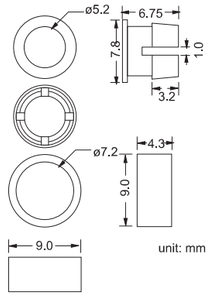


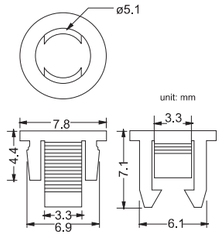
All Dimensions are in millimeters . Tolerance is ±0.15mm

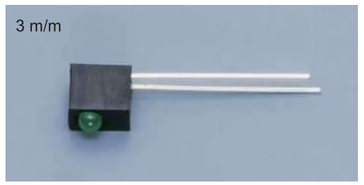
JIAN WA 1W High Power LED

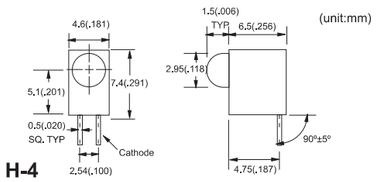
HOLDER TYPE

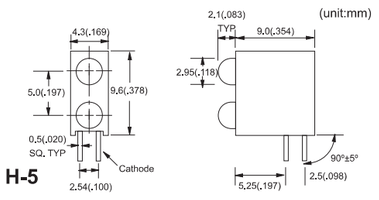


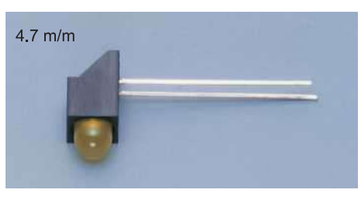


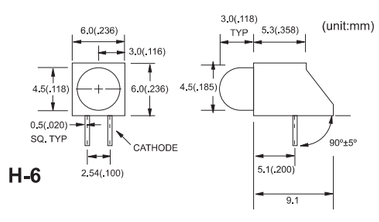




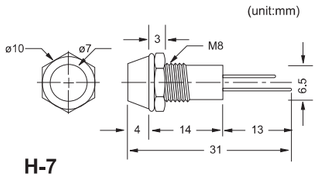


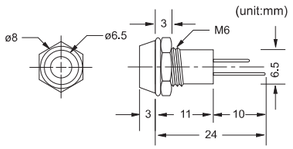


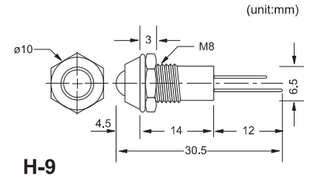


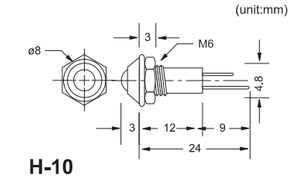


HOLDER TYPE





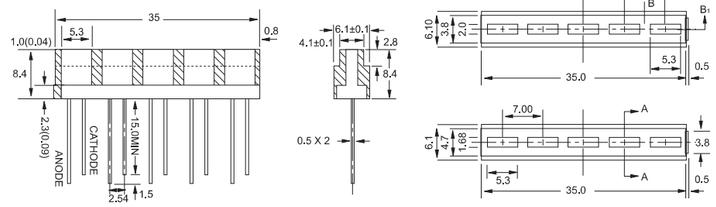




unit: mm

H-11

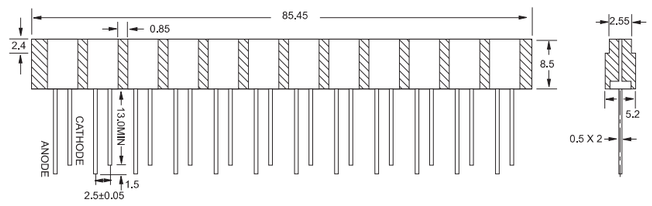
1.8 x 5.3m/m
BAR GRAPHIC ARRAY



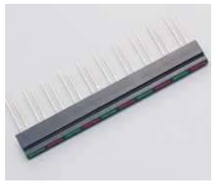
unit: mm

H-12

1.5 x 6m/m
BAR GRAPHIC ARRAY

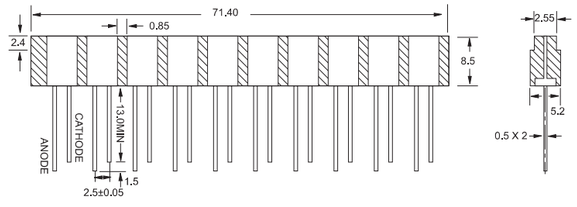


unit: mm



H-13

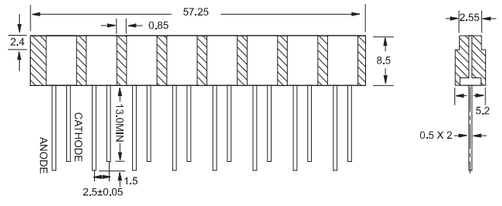
1.5 x 6m/m
BAR GRAPHIC ARRAY



unit: mm

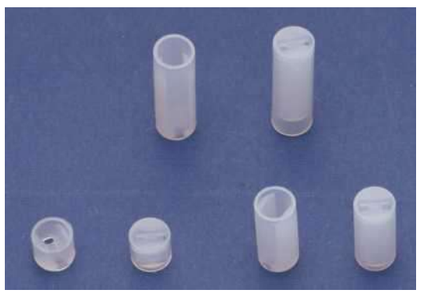
H-16

1.5 x 6m/m
BAR GRAPHIC ARRAY

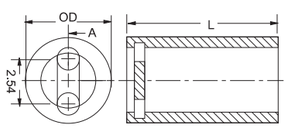


HOLDER TYPE

LED 間隔柱（凹槽）
L. E. D. HOLDER



・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL

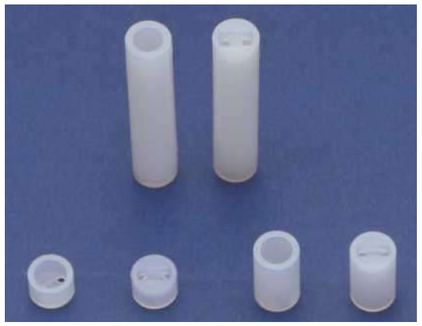


UNIT: mm

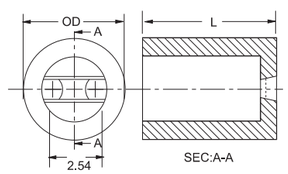
	ITEM NO.	OD	L	ITEM NO.	OD	L
正	LED4*3.0A	4.0	3.0	LED4*10.5	4.0	10.5
正	LED4*3.5A	4.0	3.5	LED4*11.0	4.0	11.0
正	LED4*4.0A	4.0	4.0	LED4*11.5	4.0	11.5
正	LED4*4.5A	4.0	4.5	LED4*12.0	4.0	12.0
正	LED4*5.0	4.0	5.0	LED4*12.5	4.0	12.5
正	LED4*5.5	4.0	5.5	LED4*13.0	4.0	13.0
正	LED4*6.0	4.0	6.0	LED4*13.5	4.0	13.5
正	LED4*6.5	4.0	6.5	LED4*14.0	4.0	14.0
正	LED4*7.0	4.0	7.0	LED4*14.5	4.0	14.5
正	LED4*7.5	4.0	7.5	LED4*15.0	4.0	15.0
正	LED4*8.0	4.0	8.0	LED4*15.5	4.0	15.5
正	LED4*8.5	4.0	8.5	LED4*16.0	4.0	16.0
正	LED4*9.0	4.0	9.0	LED4*16.5	4.0	16.5
正	LED4*9.5	4.0	9.5	LED4*17.0	4.0	17.0
正	LED4*10.0	4.0	10.0	LED4*17.5	4.0	17.5
正				LED4*18.0	4.0	18.0
正				LED4*18.5	4.0	18.5
正				LED4*19.0	4.0	19.0
正				LED4*19.5	4.0	19.5
正				LED4*20.0	4.0	20.0
正				LED4*21.0	4.0	21.0
正				LED4*22.0	4.0	22.0

JIANN WA HOLDER TYPE

LED 間隔柱（凹槽）
L. E. D. HOLDER



・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL



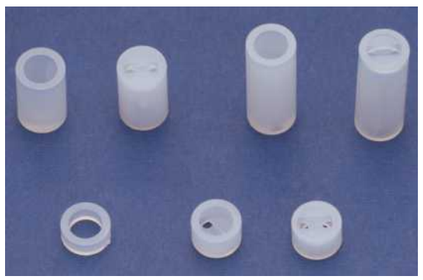
UNIT: mm

	ITEM NO.	OD	L	ITEM NO.	OD	L
正	LED4.8*1.5A	4.8	1.5	LED4.8*14.0A	4.8	14.0
正	LED4.8*2.0A	4.8	2.0	LED4.8*14.5A	4.8	14.5
正	LED4.8*2.5A	4.8	2.5	LED4.8*15.0A	4.8	15.0
正	LED4.8*3.0A	4.8	3.0	LED4.8*15.5A	4.8	15.5
正	LED4.8*3.5A	4.8	3.5	LED4.8*16.0A	4.8	16.0
正	LED4.8*4.0A	4.8	4.0	LED4.8*16.5A	4.8	16.5
正	LED4.8*4.5A	4.8	4.5	LED4.8*17.0A	4.8	17.0
正	LED4.8*5.0A	4.8	5.0	LED4.8*17.5A	4.8	17.5
正	LED4.8*5.5A	4.8	5.5	LED4.8*18.0A	4.8	18.0
正	LED4.8*6.0A	4.8	6.0	LED4.8*18.5A	4.8	18.5
正	LED4.8*6.5A	4.8	6.5	LED4.8*19.0A	4.8	19.0
正	LED4.8*7.0A	4.8	7.0	LED4.8*19.5A	4.8	19.5
正	LED4.8*7.5A	4.8	7.5	LED4.8*20.0A	4.8	20.0
正	LED4.8*8.0A	4.8	8.0	LED4.8*20.5A	4.8	20.5
正	LED4.8*8.5A	4.8	8.5	LED4.8*21.0A	4.8	21.0
正	LED4.8*9.0A	4.8	9.0	LED4.8*21.5A	4.8	21.5
正	LED4.8*9.5A	4.8	9.5	LED4.8*22.0A	4.8	22.0
正	LED4.8*10.0A	4.8	10.0	LED4.8*22.5A	4.8	22.5
正	LED4.8*10.5A	4.8	10.5	LED4.8*23.0A	4.8	23.0
正	LED4.8*11.0A	4.8	11.0	LED4.8*23.5A	4.8	23.5
正	LED4.8*11.5A	4.8	11.5	LED4.8*24.0A	4.8	24.0
正	LED4.8*12.0A	4.8	12.0	LED4.8*24.5A	4.8	24.5
正	LED4.8*12.5A	4.8	12.5	LED4.8*25.0A	4.8	25.0
正	LED4.8*13.0A	4.8	13.0	LED4.8*25.5A	4.8	25.5
正	LED4.8*13.5A	4.8	13.5	LED4.8*26.0A	4.8	26.0

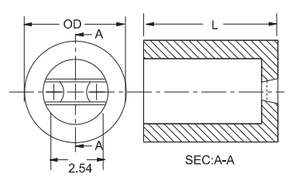
All Dimensions are in millimeters . Tolerance is ±0.15mm

HOLDER TYPE

LED 間隔柱（凹槽）
L. E. D. HOLDER



・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL

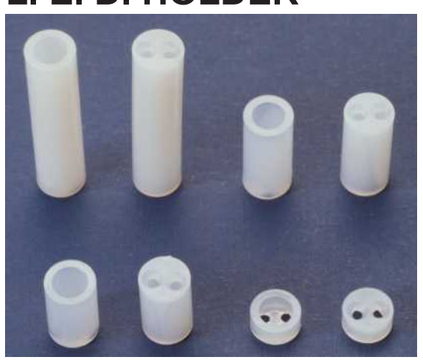


UNIT: mm

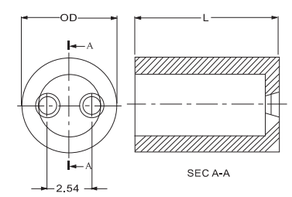
ITEM NO.	OD	L	ITEM NO.	OD	L
LED5.0*3.0A	5.0	3.0	LED5.0*12.0A	5.0	12.0
LED5.0*3.5A	5.0	3.5	LED5.0*12.5A	5.0	12.5
LED5.0*4.0A	5.0	4.0	LED5.0*13.0A	5.0	13.0
LED5.0*4.5A	5.0	4.5	LED5.0*13.5A	5.0	13.5
LED5.0*5.0A	5.0	5.0	LED5.0*14.0A	5.0	14.0
LED5.0*5.5A	5.0	5.5	LED5.0*14.5A	5.0	14.5
LED5.0*6.0A	5.0	6.0	LED5.0*15.0A	5.0	15.0
LED5.0*6.5A	5.0	6.5	LED5.0*15.5A	5.0	15.5
LED5.0*7.0A	5.0	7.0	LED5.0*16.0A	5.0	16.0
LED5.0*7.5A	5.0	7.5	LED5.0*16.5A	5.0	16.5
LED5.0*8.0A	5.0	8.0	LED5.0*17.0A	5.0	17.0
LED5.0*8.5A	5.0	8.5	LED5.0*17.5A	5.0	17.5
LED5.0*9.0A	5.0	9.0	LED5.0*18.0A	5.0	18.0
LED5.0*9.5A	5.0	9.5	LED5.0*18.5A	5.0	18.5
LED5.0*10.0A	5.0	10.0	LED5.0*19.0A	5.0	19.0
LED5.0*10.5A	5.0	10.5	LED5.0*19.5A	5.0	19.5
LED5.0*11.0A	5.0	11.0	LED5.0*20.0A	5.0	20.0
LED5.0*11.5A	5.0	11.5	LED5.0*20.5A	5.0	20.5

JIANN WA HOLDER TYPE

LED 間隔柱（凹槽）
L. E. D. HOLDER



・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL



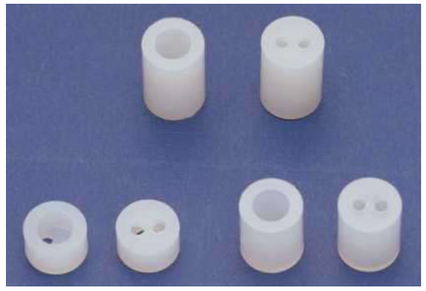
UNIT: mm

	ITEM NO.	OD	L	ITEM NO.	OD	L
正	LED5.6*3.0	5.6	3.0	LED5.6*12.0	5.6	12.0
正	LED5.6*3.5	5.6	3.5	LED5.6*12.5	5.6	12.5
正	LED5.6*4.0	5.6	4.0	LED5.6*13.0	5.6	13.0
正	LED5.6*4.5	5.6	4.5	LED5.6*13.5	5.6	13.5
正	LED5.6*5.0	5.6	5.0	LED5.6*14.0	5.6	14.0
正	LED5.6*5.5	5.6	5.5	LED5.6*14.5	5.6	14.5
正	LED5.6*6.0	5.6	6.0	LED5.6*15.0	5.6	15.0
正	LED5.6*6.5	5.6	6.5	LED5.6*15.5	5.6	15.5
正	LED5.6*7.0	5.6	7.0	LED5.6*16.0	5.6	16.0
正	LED5.6*7.5	5.6	7.5	LED5.6*16.5	5.6	16.5
正	LED5.6*8.0	5.6	8.0	LED5.6*17.0	5.6	17.0
正	LED5.6*8.5	5.6	8.5	LED5.6*17.5	5.6	17.5
正	LED5.6*9.0	5.6	9.0	LED5.6*18.0	5.6	18.0
正	LED5.6*9.5	5.6	9.5	LED5.6*18.5	5.6	18.5
正	LED5.6*10.0	5.6	10.0	LED5.6*19.0	5.6	19.0
正	LED5.6*10.5	5.6	10.5	LED5.6*19.5	5.6	19.5
正	LED5.6*11.0	5.6	11.0	LED5.6*20.0	5.6	20.0
正	LED5.6*11.5	5.6	11.5	LED5.6*25.0	5.6	25.0

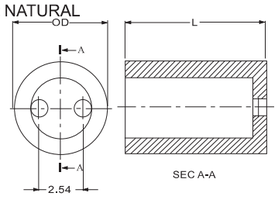
All Dimensions are in millimeters . Tolerance is ±0.15mm

HOLDER TYPE

LED 間隔柱（凹槽）
L. E. D. HOLDER



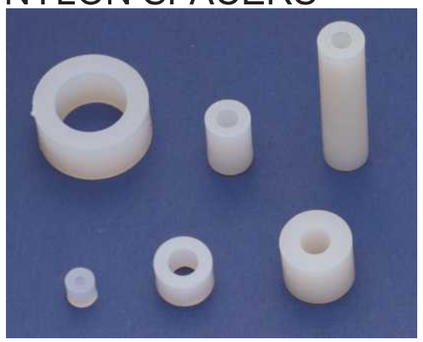
・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL



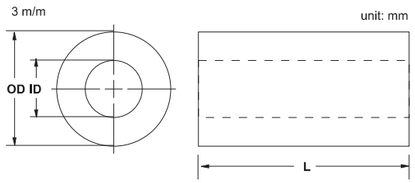
UNIT: mm

ITEM NO.	OD	L	ITEM NO.	OD	L
LED6.3*3.0	6.3	3.0	LED6.3*15.9	6.3	15.9
LED6.3*3.2	6.3	3.2	LED6.3*16.0	6.3	16.0
LED6.3*3.5	6.3	3.5	LED6.3*16.5	6.3	16.5
LED6.3*4.2	6.3	4.2	LED6.3*17.0	6.3	17.0
LED6.3*4.0	6.3	4.0	LED6.3*17.5	6.3	17.5
LED6.3*4.5	6.3	4.5	LED6.3*18.0	6.3	18.0
LED6.3*5.0	6.3	5.0	LED6.3*18.3	6.3	18.3
LED6.3*5.5	6.3	5.5	LED6.3*18.5	6.3	18.5
LED6.3*6.4	6.3	6.4	LED6.3*19.0	6.3	19.0
LED6.3*6.0	6.3	6.0	LED6.3*19.5	6.3	19.5
LED6.3*6.5	6.3	6.5	LED6.3*20.0	6.3	20.0
LED6.3*6.8	6.3	6.8	LED6.3*20.5	6.3	20.5
LED6.3*7.0	6.3	7.0	LED6.3*21.0	6.3	21.0
LED6.3*7.5	6.3	7.5	LED6.3*21.5	6.3	21.5
LED6.3*8.0	6.3	8.0	LED6.3*22.0	6.3	22.0
LED6.3*8.8	6.3	8.8	LED6.3*22.5	6.3	22.5
LED6.3*9.0	6.3	9.0	LED6.3*23.0	6.3	23.0
LED6.3*9.5	6.3	9.5	LED6.3*23.5	6.3	23.5
LED6.3*10.0	6.3	10.0	LED6.3*24.0	6.3	24.0
LED6.3*10.5	6.3	10.5	LED6.3*24.5	6.3	24.5
LED6.3*11.0	6.3	11.0	LED6.3*25.0	6.3	25.0
LED6.3*11.5	6.3	11.5	LED6.3*25.5	6.3	25.5
LED6.3*12.0	6.3	12.0	LED6.3*26.0	6.3	26.0
LED6.3*12.5	6.3	12.5	LED6.3*26.5	6.3	26.5
LED6.3*12.7	6.3	12.7	LED6.3*27.0	6.3	27.0
LED6.3*13.0	6.3	13.0	LED6.3*27.5	6.3	27.5
LED6.3*13.5	6.3	13.5	LED6.3*28.0	6.3	28.0
LED6.3*14.0	6.3	14.0	LED6.3*28.5	6.3	28.5
LED6.3*14.5	6.3	14.5	LED6.3*29.0	6.3	29.0
LED6.3*15.0	6.3	15.0	LED6.3*29.5	6.3	29.5
LED6.3*15.2	6.3	15.2	LED6.3*30.0	6.3	30.0
LED6.3*15.5	6.3	15.5			

尼龍套管
NYLON SPACERS



・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL
上述產品，可配合客戶所需要生產供應
The special lengths can be made-to-order.



UNIT: mm

OD	ID	L
4.0	1.3	3.0 - 20.0
4.0	2.8	3.0 - 20.0
4.8	1.9	3.0 - 21.5
4.8	2.6	3.0 - 21.5
4.8	2.8	3.0 - 21.5
4.8	3.1	3.0 - 21.5
5.0	3.4	3.0 - 25.0
5.0	3.5	3.0 - 20.0
5.0	4.2	3.0 - 25.0
6.0	3.1	3.0 - 20.0

OD	ID	L
6.0	3.4	3.0 - 20.0
6.3	2.6	3.0 - 25.0
6.3	2.8	3.0 - 25.0
6.3	3.1	3.0 - 25.0
6.3	3.6	3.0 - 25.0
6.3	4.1	3.0 - 25.0
8.0	3.1	3.0 - 20.0
8.0	3.8	3.0 - 20.0
8.0	4.1	3.0 - 20.0
8.0	4.3	3.0 - 20.0

OD	ID	L
8.0	5.1	3.0 - 20.0
8.0	5.6	3.0 - 20.0
9.0	4.7	3.0 - 20.0
10.0	2.8	3.0 - 20.0
10.0	4.2	3.0 - 20.0
10.0	5.2	3.0 - 20.0
10.0	5.6	3.0 - 20.0
10.0	5.9	3.0 - 20.0
10.0	6.2	3.0 - 20.0
11.6	9.1	3.0 - 20.0

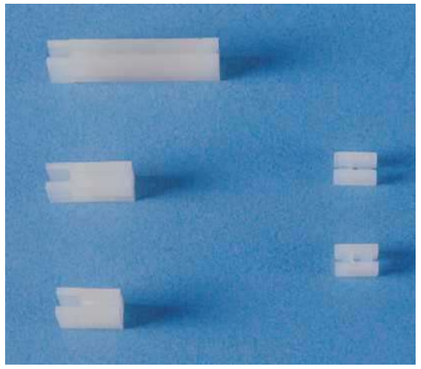
OD	ID	L
12.7	5.0	3.0 - 20.0
12.7	5.7	3.0 - 20.0
12.7	6.3	3.0 - 20.0
12.7	10.0	3.0 - 20.0
13.0	5.3	3.0 - 25.4
13.0	6.4	3.0 - 25.4
15.0	6.2	3.0 - 25.4
15.0	10.0	3.0 - 20.0
16.0	6.5	3.0 - 20.0
16.3	6.5	3.0 - 25.4

OD	ID	L
16.0	10.0	3.0 - 25.4
18.0	4.2	3.0 - 9.0
18.0	6.2	3.0 - 9.0
18.0	8.2	3.0 - 9.0
18.0	8.7	3.0 - 9.0
18.0	10.6	3.0 - 9.0
18.0	12.6	3.0 - 9.0
21.0	4.1	3.0 - 9.0
21.0	10.2	3.0 - 9.0
21.0	12.6	3.0 - 9.0

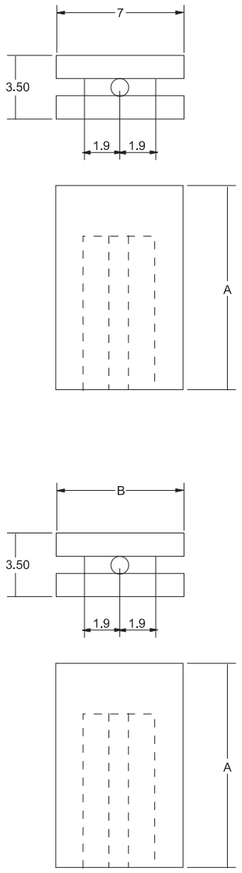
All Dimensions are in millimeters . Tolerance is ±0.15mm

HOLDER TYPE

LED 間隔柱（3PIN）
L. E. D. HOLDER



・材質（MATERIAL）: NYLON 66 UL94-V2
・顏色（COLOR）: NATURAL



UNIT: mm

	ITEM NO.	A
正	LED3X5	5
正	LED3X6	6
正	LED3X7	7
正	LED3X8	8
正	LED3X9	9
正	LED3X10	10
正	LED3X11	11
正	LED3X12	12
正	LED3X13	13
正	LED3X14	14
正	LED3X15	15
正	LED3X17.5	17.5
正	LED3X22.5	22.5

UNIT: mm

	ITEM NO.	A	B
背	LED3X3A	3	5.6
背	LED3X4A	4	5.6
背	LED3X5A	5	6.0
背	LED3X6A	6	6.0
背	LED3X7A	7	6.0
背	LED3X8A	8	6.0
背	LED3X9A	9	6.0
背	LED3X10A	10	6.0
背	LED3X11A	11	6.0
背	LED3X12A	12	6.0
背	LED3X13A	13	6.0
背	LED3X14A	14	6.0
背	LED3X15A	15	6.0
背	LED3X16A	16	6.0

All Dimensions are in millimeters . Tolerance is ±0.15mm