Device Selection Guide

Chip Materials		Emitted Color	Resin Color
RS	AlGaInP	Brilliant Red	Water Clear
GH	InGaN	Brilliant Green	
B7	InGaN	Blue	

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol		Rating	Unit
Reverse Voltage	VR		5	V
Forward Current	IF	RS	50	mA
		GH	30	
		B7	30	
Peak Forward Current(Duty 1/10@ 1KHZ)	I_{FP}	RS	100	mA
		GH	100	
		B7	100	
Power Dissipation	Pd	RS	130	mW
		GH	110	
		B7	110	
Electrostatic Discharge(HBM)	ESD	RS	2000	V
		GH	1000	
		B7	1000	
Operating Temperature	Topr		-40 ~ +85	℃
Storage Temperature	Tstg		-40~ +90	℃
Soldering Temperature	Tsol		Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	IV		900	-----	2240	mcd	IF=11mA(R) IF=16mA(G) IF=10mA(B)
Viewing Angle	2θ1/2		-----	120	-----	deg	
Peak Wavelength	λp	RS	-----	632	-----	nm	
		GH	-----	518	-----		
		B7	-----	468	-----		
Dominant Wavelength	λd	RS	618	-----	629	nm	
		GH	515	-----	535		
		B7	460	-----	475		
Spectrum Radiation Bandwidth	△λ	RS	-----	20	-----	nm	
		GH	-----	36	-----		
		B7	-----	26	-----		
Forward Voltage	VF	RS	1.6	--	2.4	V	
		GH	2.5	--	3.5		
		B7	2.5	--	3.5		
Reverse Current	IR	RS	-----	-----	10	μA	VR=5V
		GH	-----	-----	50		
		B7	-----	-----	50		

Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
V2	900	1120	mcd	IF=11mA(R) IF=16mA(G) IF=10mA(B)
W1	1120	1420		
W2	1420	1800		
X1	1800	2240		

Note:
Tolerance of Luminous Intensity: ±11%

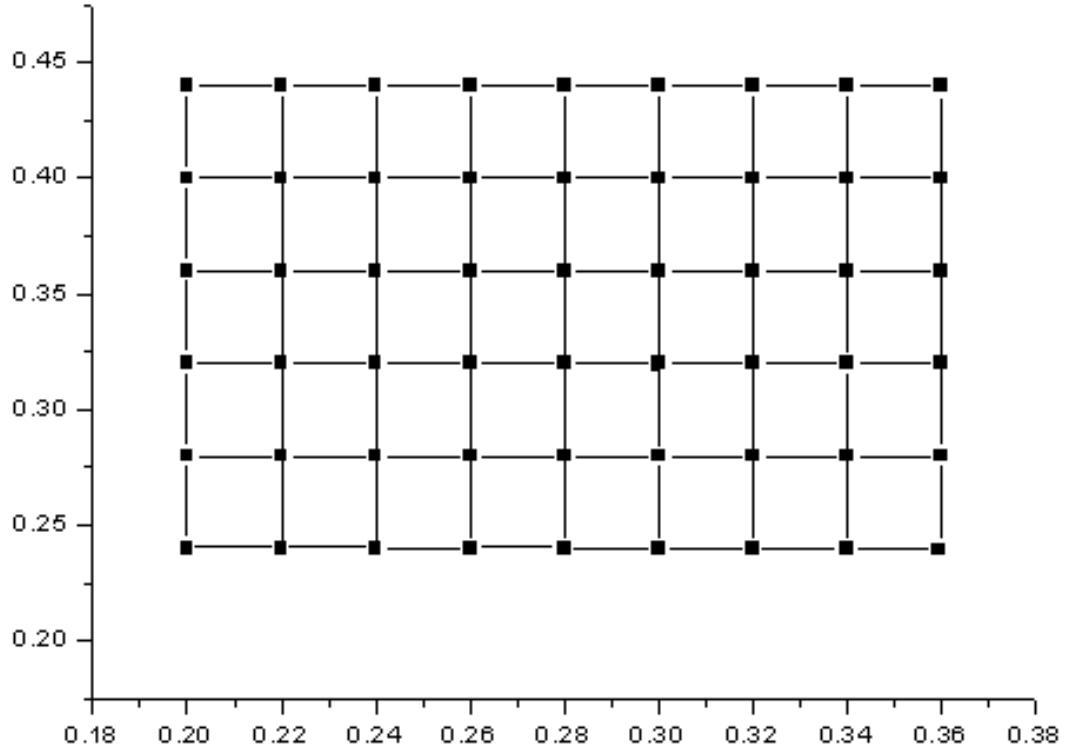
Bin Code of Chromaticity Coordinates
R/G/B=11/16/10mA

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
S01	0.20	0.24	S02	0.22	0.24
	0.20	0.28		0.22	0.28
	0.22	0.28		0.24	0.28
	0.22	0.24		0.24	0.24
S03	0.24	0.24	S04	0.26	0.24
	0.24	0.28		0.26	0.28
	0.26	0.28		0.28	0.28
	0.26	0.24		0.28	0.24
S05	0.28	0.24	S06	0.30	0.24
	0.28	0.28		0.30	0.28
	0.30	0.28		0.32	0.28
	0.30	0.24		0.32	0.24
S07	0.32	0.24	S08	0.34	0.24
	0.32	0.28		0.34	0.28
	0.34	0.28		0.36	0.28
	0.34	0.24		0.36	0.24
S09	0.20	0.28	S10	0.22	0.28
	0.20	0.32		0.22	0.32
	0.22	0.32		0.24	0.32
	0.22	0.28		0.24	0.28
S11	0.24	0.28	S12	0.26	0.28
	0.24	0.32		0.26	0.32
	0.26	0.32		0.28	0.32
	0.26	0.24		0.28	0.28
S13	0.28	0.28	S14	0.30	0.28
	0.28	0.32		0.30	0.32
	0.30	0.32		0.32	0.32
	0.30	0.28		0.32	0.28
S15	0.32	0.28	S16	0.34	0.28
	0.32	0.32		0.34	0.32
	0.34	0.32		0.36	0.32
	0.34	0.28		0.36	0.28

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
S17	0.20	0.32	S18	0.22	0.32
	0.20	0.36		0.22	0.36
	0.22	0.36		0.24	0.36
	0.22	0.32		0.24	0.32
S19	0.24	0.32	S20	0.26	0.32
	0.24	0.36		0.26	0.36
	0.26	0.36		0.28	0.36
	0.26	0.32		0.28	0.32
S21	0.28	0.32	S22	0.30	0.32
	0.28	0.36		0.30	0.36
	0.30	0.36		0.32	0.36
	0.30	0.32		0.32	0.32
S23	0.32	0.32	S24	0.34	0.32
	0.32	0.36		0.34	0.36
	0.34	0.36		0.36	0.36
	0.34	0.32		0.36	0.32
S25	0.20	0.36	S26	0.22	0.36
	0.20	0.40		0.22	0.40
	0.22	0.40		0.24	0.40
	0.22	0.36		0.24	0.36
S27	0.24	0.36	S28	0.26	0.36
	0.24	0.40		0.26	0.40
	0.26	0.40		0.28	0.40
	0.26	0.36		0.28	0.36
S29	0.28	0.36	S30	0.30	0.36
	0.28	0.40		0.30	0.40
	0.30	0.40		0.32	0.40
	0.30	0.36		0.32	0.36
S31	0.32	0.36	S32	0.34	0.36
	0.32	0.40		0.34	0.40
	0.34	0.40		0.36	0.40
	0.34	0.36		0.36	0.36

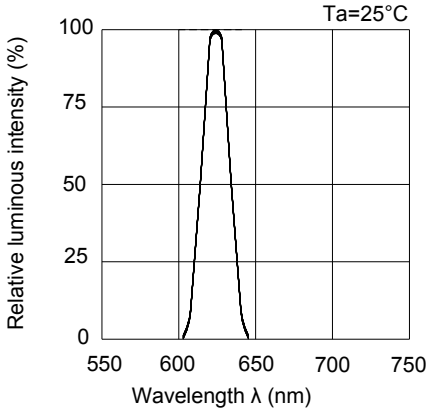
Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
S33	0.20	0.40	S34	0.22	0.40
	0.20	0.44		0.22	0.44
	0.22	0.44		0.24	0.44
	0.22	0.40		0.24	0.40
S35	0.24	0.40	S36	0.26	0.40
	0.24	0.44		0.26	0.44
	0.26	0.44		0.28	0.44
	0.26	0.40		0.28	0.40
S37	0.28	0.40	S38	0.30	0.40
	0.28	0.44		0.30	0.44
	0.30	0.44		0.32	0.44
	0.30	0.40		0.32	0.40
S39	0.32	0.40	S40	0.34	0.40
	0.32	0.44		0.34	0.44
	0.34	0.44		0.36	0.44
	0.34	0.40		0.36	0.40

CIE diagram

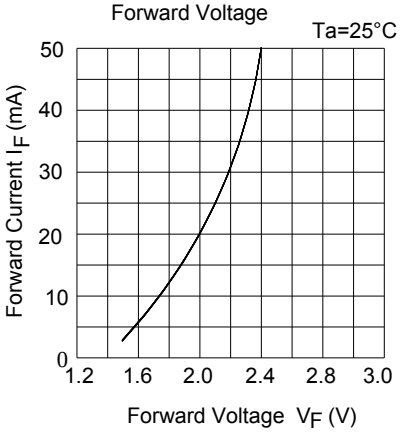


Typical Electro-Optical Characteristics Curves(RS)

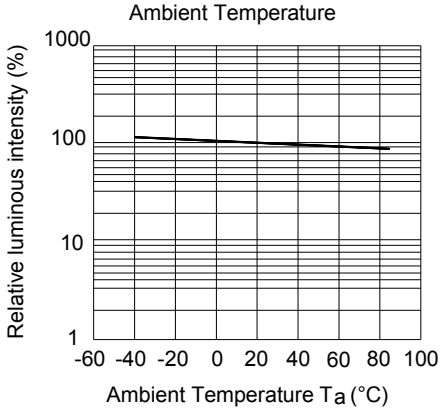
Spectrum Distribution



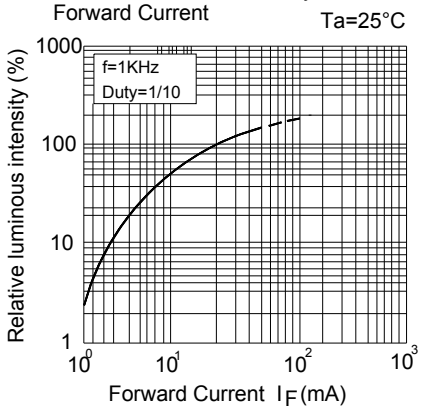
Forward Current vs. Forward Voltage



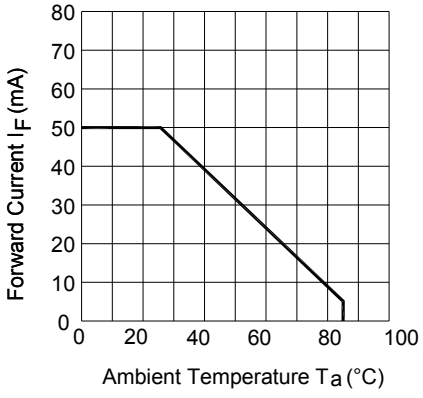
Relative Luminous Intensity vs. Ambient Temperature



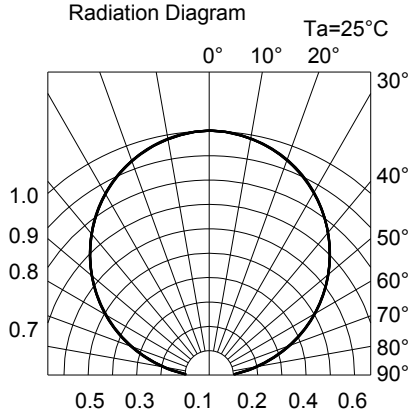
Relative Luminous Intensity vs. Forward Current



Forward Current Derating Curve

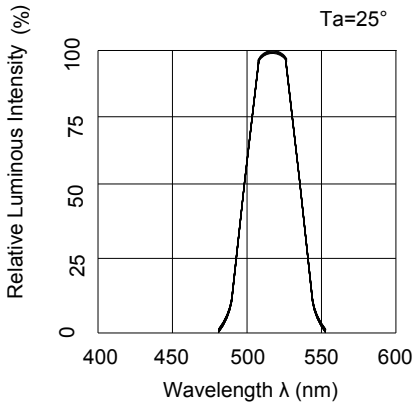


Radiation Diagram

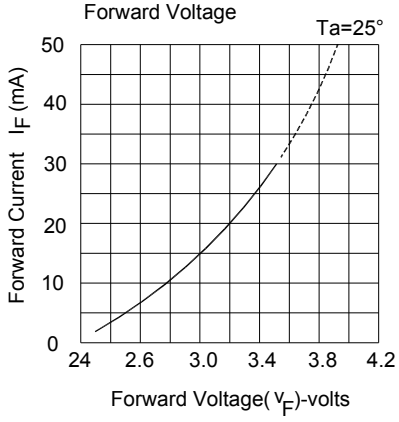


Typical Electro-Optical Characteristics Curves(GH)

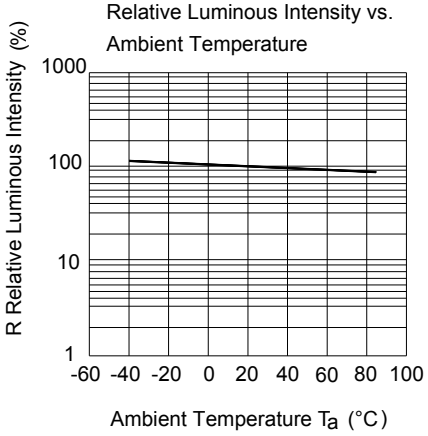
Spectrum Distribution



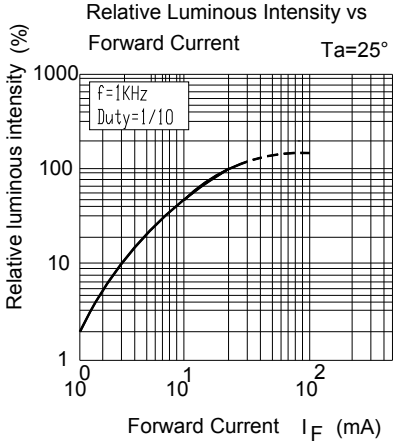
Forward Voltage



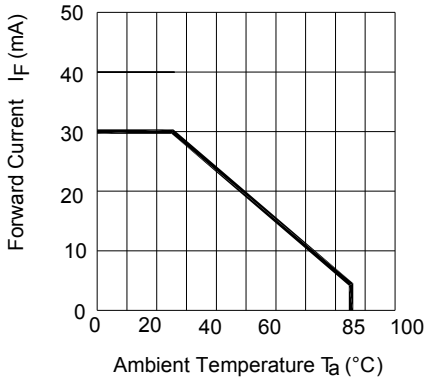
Relative Luminous Intensity vs. Ambient Temperature



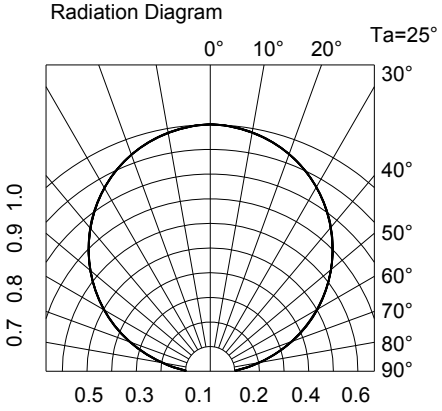
Relative Luminous Intensity vs Forward Current



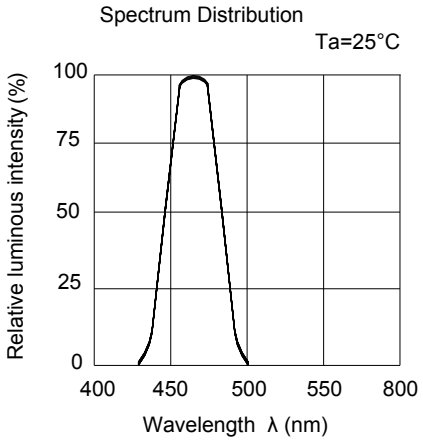
Forward Current Derating Curve

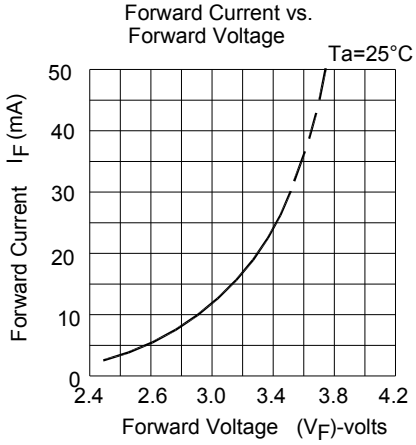


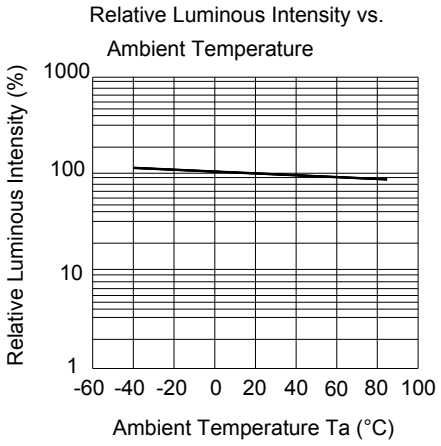
Radiation Diagram

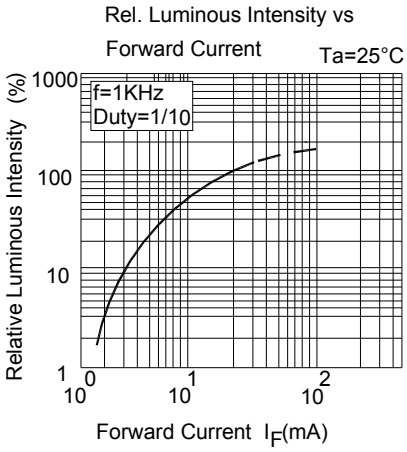


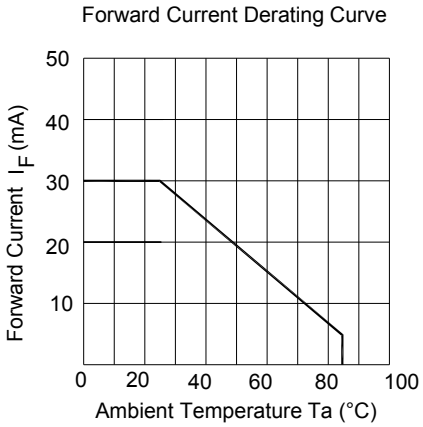
Typical Electro-Optical Characteristics Curves(B7)

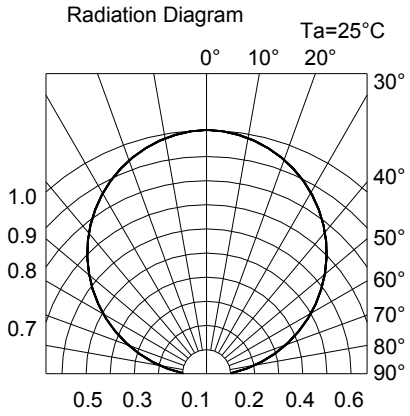




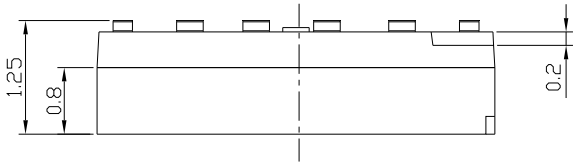


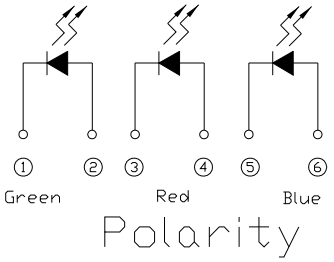


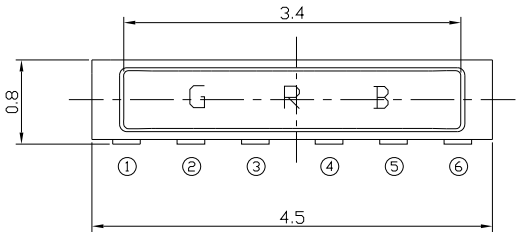


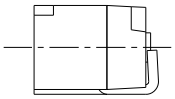


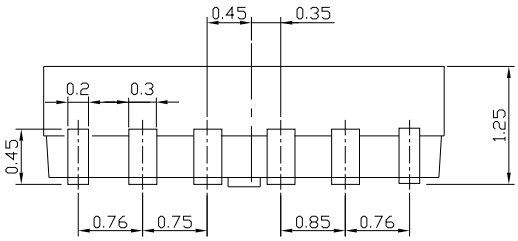
Package Dimension

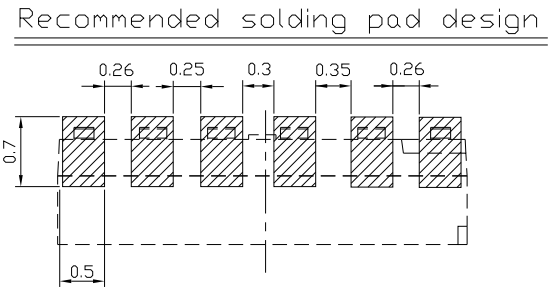












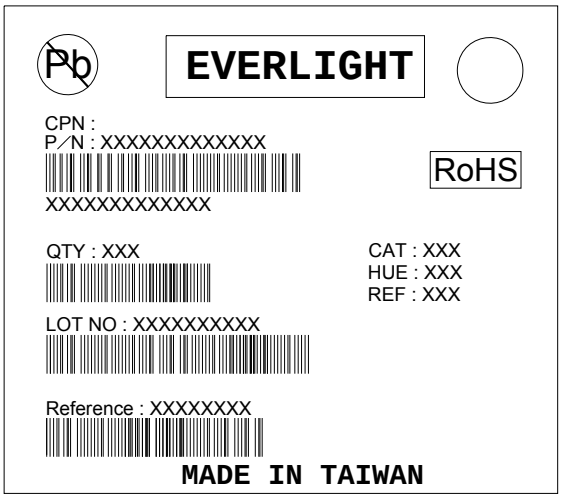
Note: Tolerances unless mentioned ±0.1mm. Unit = mm

Label Explanation

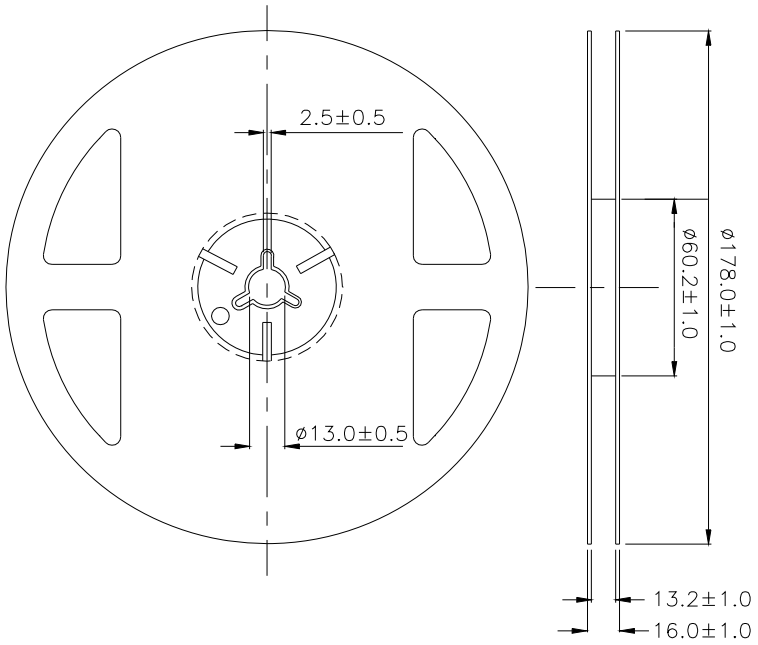
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

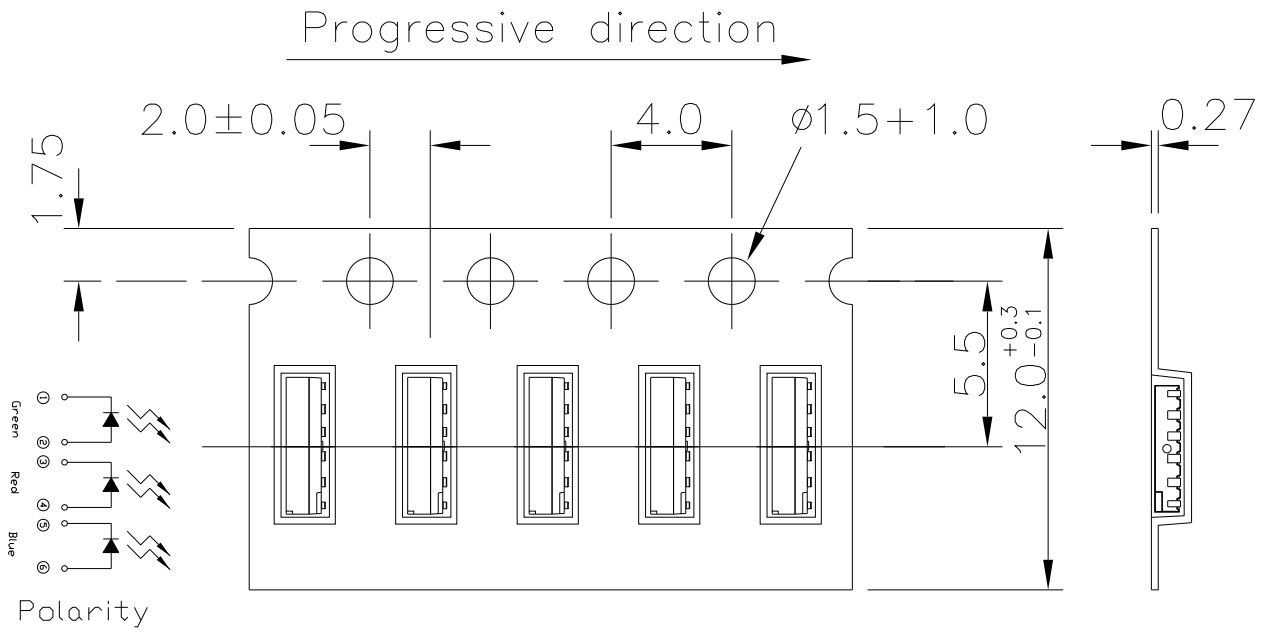


Reel Dimensions



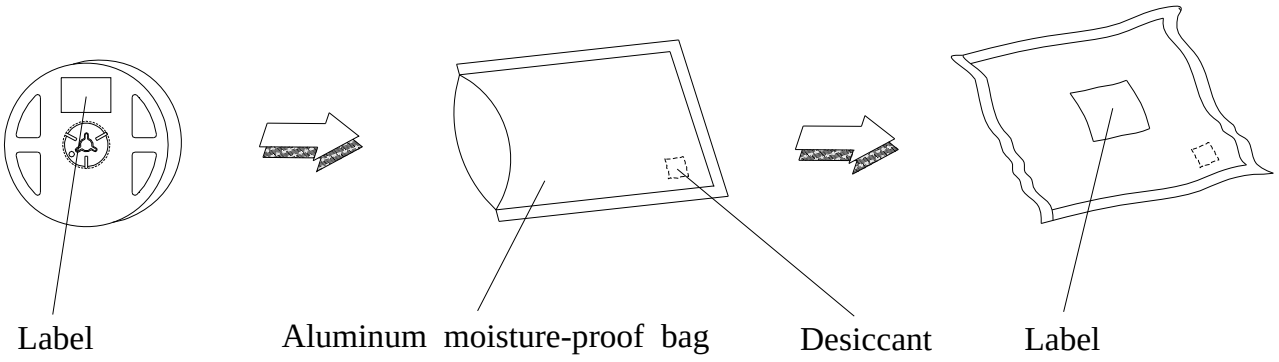
Note: Tolerances Unless Dimension ±0.1mm, Unit = mm

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.



Note: Tolerances Unless Dimension ±0.1mm, Unit = mm

Moisture Resistant Packaging



Precautions for Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

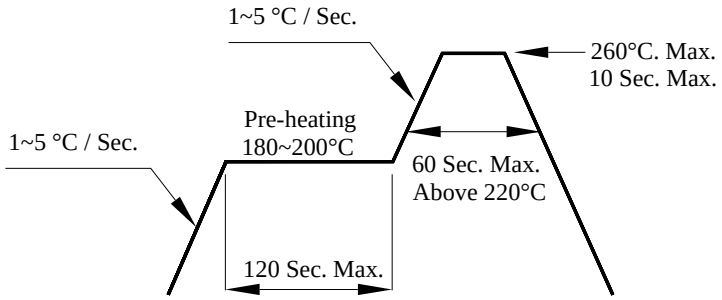
2.3 After opening the package: The LED's floor life are 168 hours under 30℃ or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5℃ for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.