DATASHEET

SMD- Full Color Top View LEDs

61-036/GBRSB7W-B06/ET

Features

- White package with black surface.
- Optical indicator.
- Colorless clear window.
- Ideal for backlight and light pipe application.
- Interior reflector.
- Wide viewing angle.
- Suitable for vapor-phase reflow, infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm).
- Precondition: Bases on JEDEC J-STD 020D Level 3

Descriptions

- Due to the package design, 61-036 has wide viewing angle , low power consumption and adjusting each color is possible thanks to serial connection by 6 terminal connection (Individual driving by each terminal) in case of using several number of LED. And makes it ideal for light pipe application.

Applications

- Amusement equipment.
- Information boards.
- Flashlight for digital camera of cellular phone.

Device Selection Guide

Type	Chip Materials	Emitted Color	Resin Color
RS	AlGaInP	Brilliant Red	White Diffuse
GB	InGaN	Brilliant Green	White Diffuse
B7	InGaN	Blue	White Diffuse

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Type	Rating	Unit
Reverse Voltage	V_R		5	V
Forward Current	I_F	RS	50	mA
		GB	30	
		B7	30	
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	RS	100	mA
		GB	100	
		B7	100	
Power Dissipation	Pd	RS	120	mW
		GB	110	
		B7	110	
Operating Temperature	T_{opr}		-40 ~ +85	℃
Storage Temperature	Tstg		-40 ~ +90	℃
ESD	ESD	RS	2000	V
		GB / B7	1000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.		

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Type	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	RS	525	---	756	mcd	I_F=20mA
		GB	1000	---	1600		
		B7	200	---	395		
Viewing Angle	$2\theta_{1/2}$		---	120	---	deg	I_F=20mA
Peak Wavelength	λp	RS	---	632	---	nm	I_F=20mA
		GB	---	518	---		
		B7	---	468	---		
Dominant Wavelength	λd	RS	618	---	627	nm	I_F=20mA
		GB	524	---	533.5		
		B7	464	---	474		
Spectrum Radiation Bandwidth	△λ	RS	---	20	---	nm	I_F=20mA
		GB	---	35	---		
		B7	---	35	---		
Forward Voltage	V_F	RS	1.70	---	2.35	V	I_F=20mA
		GB	2.9	---	3.5		
		B7	2.75	---	3.35		
Reverse Current	I_R	RS	---	---	10	μA	V_R=5V
		GB	---	---	50	μA	
		B7	---	---	50	μA	

Notes:
1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

Type	Bin Group		Bin Code	Min.	Max.	Unit	Condition
RS	10A		10a	525	575	mcd	I_F=20mA
		10B	10b	575	630		
	11A		11a	630	690		
			11b	690	756		
GB	14A		13b	1000	1100		
			14a	1100	1200		
		14B	14b	1200	1320		
	15A		15a	1320	1450		
			15b	1450	1600		
B7	6A	6B	6a	200	275		
			6b	275	300		
	7A		7a	300	330		
		7B	7b	330	360		
	8A		8a	360	395		

Note:
Tolerance of Luminous Intensity: ±10%

Bin Range of Dominant Wavelength

Chip	Bin Code	Min.	Max.	Unit	Condition
RS	R1	618	621	nm	I_F=20mA
	R2	621	624		
	R3	624	627		
GB	G1	524	526.5		
	G2	526.5	529		
	G3	529	531.5		
	G4	531.5	533.5		
B7	B0	464	466.5		
	B1	466.5	469		
	B2	469	471.5		
	B3	471.5	474		

Note:
Tolerance of Dominant Wavelength: ±1nm

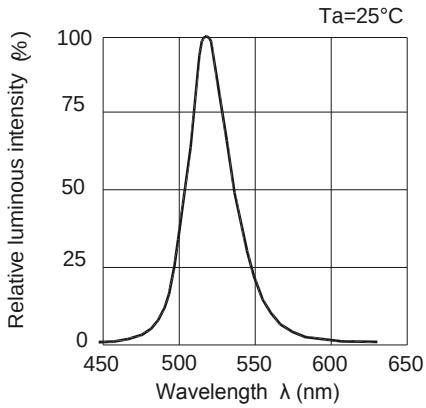
Bin Range of Forward Voltage

Chip	Bin Code	Min.	Max.	Unit	Condition
RS	0	1.75	1.95	V	I_F=20mA
	1	1.95	2.15		
	2	2.15	2.35		
GB	11	2.90	3.10		
	12	3.10	3.30		
	13	3.30	3.50		
B7	A	2.75	2.95		
	B	2.95	3.15		
	C	3.15	3.35		

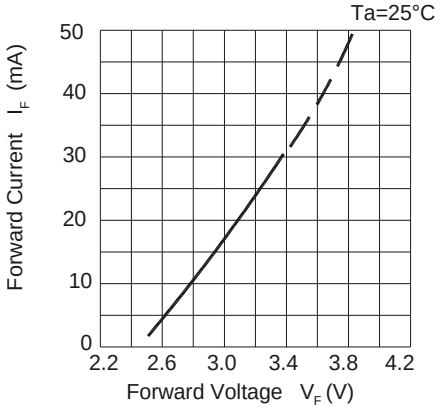
Note:
Tolerance of Forward Voltage: ±0.1V

Typical Electro-Optical Characteristics Curves (GB)

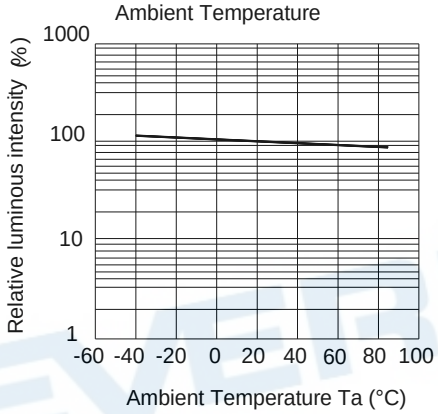
Spectrum Distribution



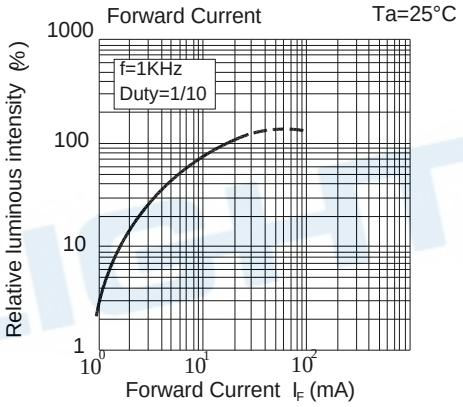
Forward Current vs.
Forward Voltage



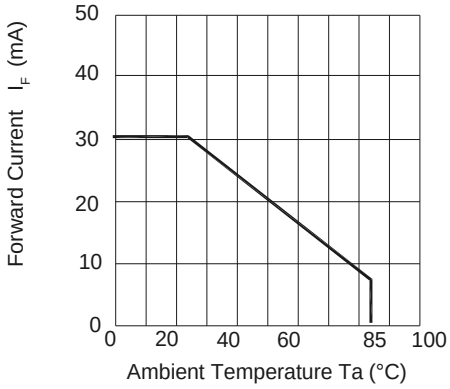
Relative Luminous Intensity vs.
Ambient Temperature



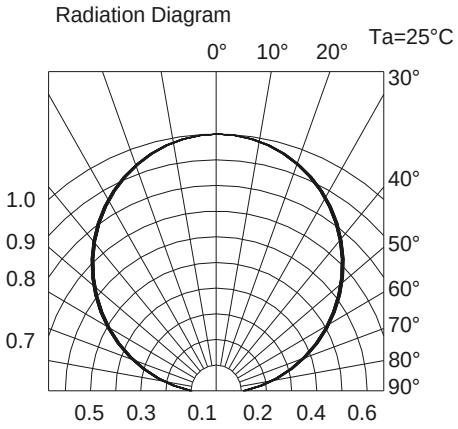
Relative Luminous Intensity vs.
Forward Current



Forward Current Derating Curve

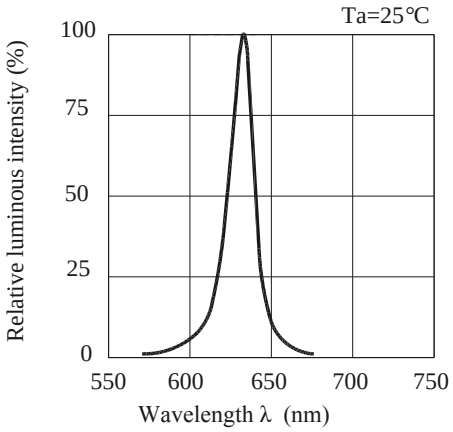


Radiation Diagram

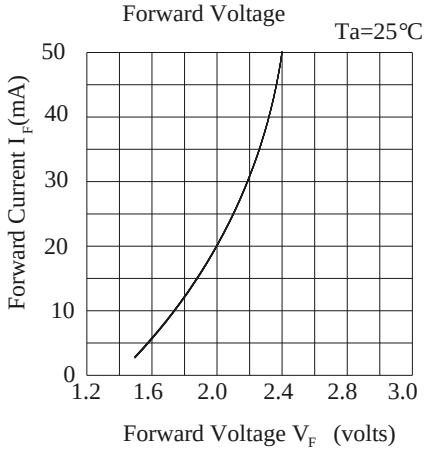


Typical Electro-Optical Characteristics Curves (RS)

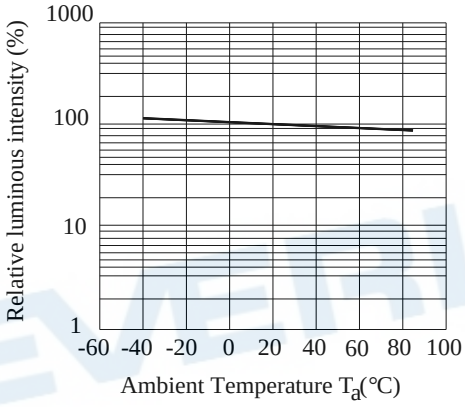
Spectrum Distribution



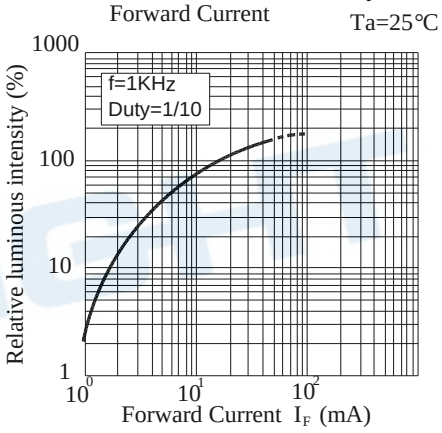
Forward Current vs. Forward Voltage



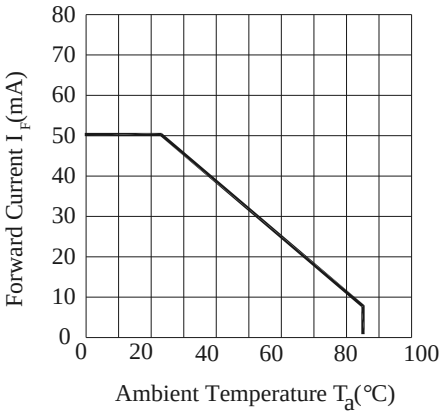
Relative Luminous Intensity vs. Ambient Temperature



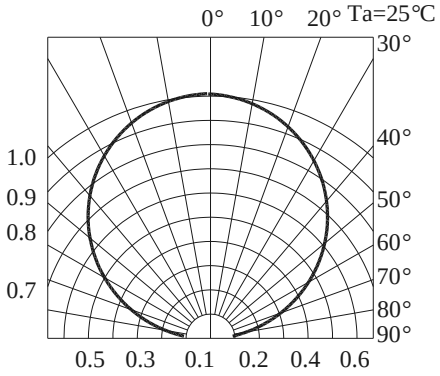
Relative Luminous Intensity vs. Forward Current



Forward Current Derating Curve

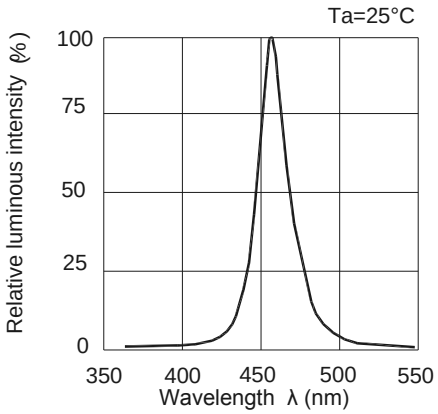


Radiation Diagram

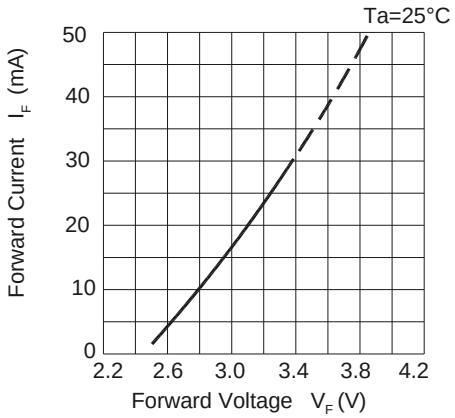


Typical Electro-Optical Characteristics Curves (B7)

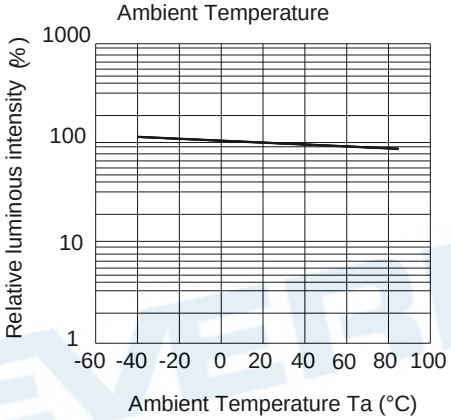
Spectrum Distribution



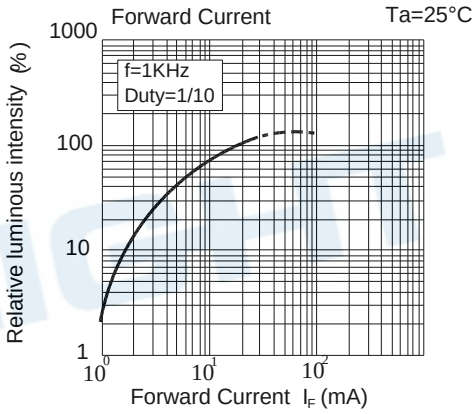
Forward Current vs.
Forward Voltage



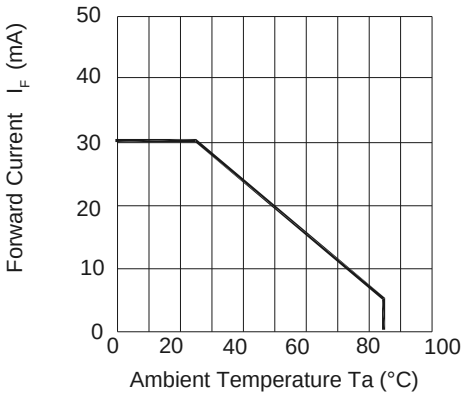
Relative Luminous Intensity vs.
Ambient Temperature



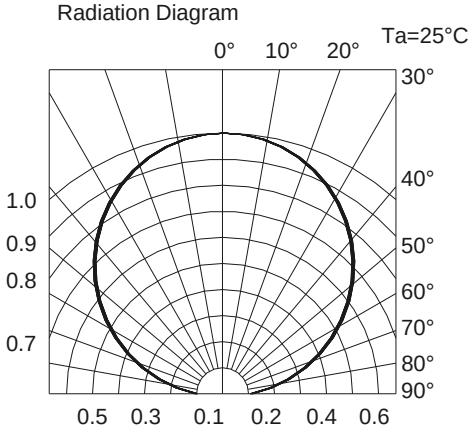
Relative Luminous Intensity vs.
Forward Current



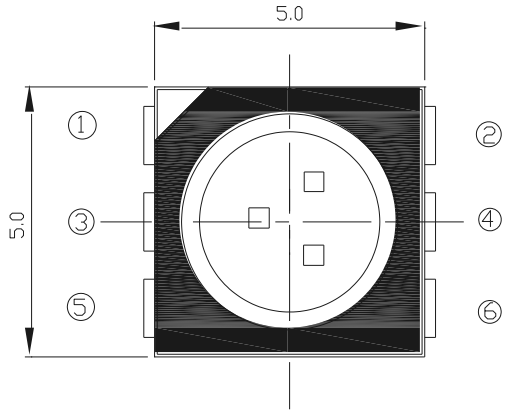
Forward Current Derating Curve

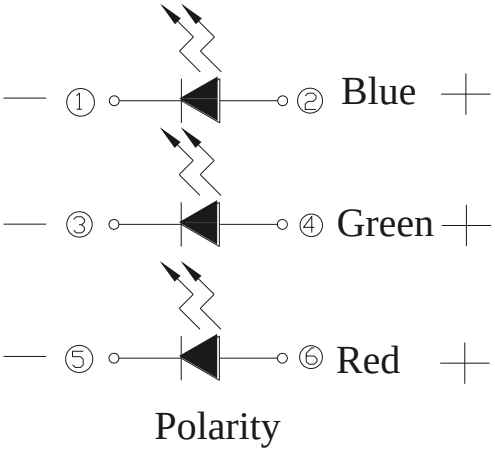


Radiation Diagram

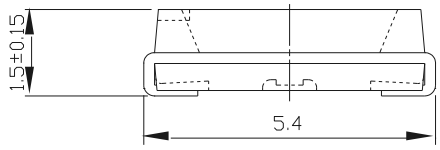


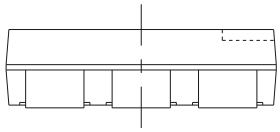
Package Dimension

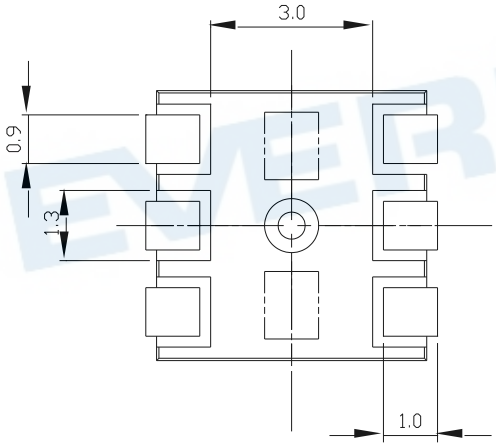




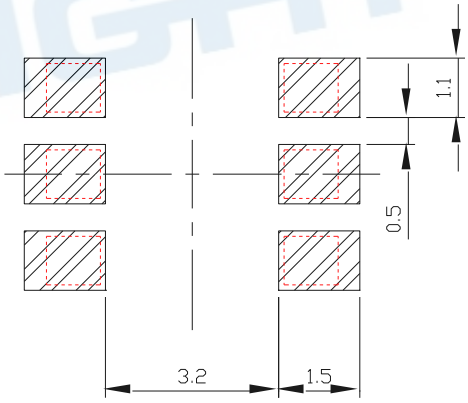
Polarity







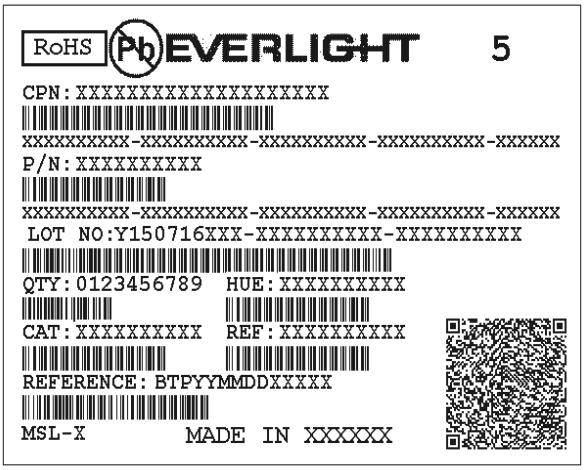
Recommended solder pad



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

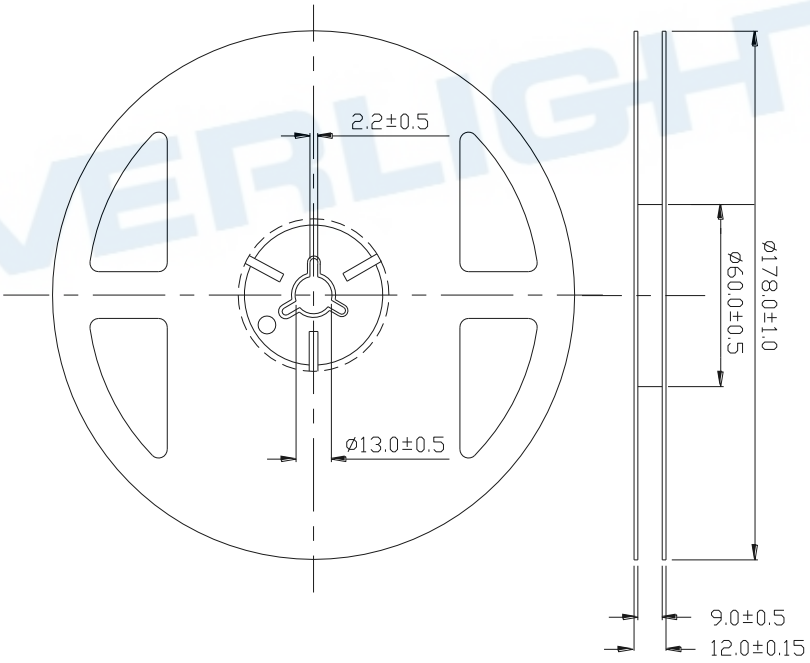
Moisture Resistant Packing Materials

Label Explanation



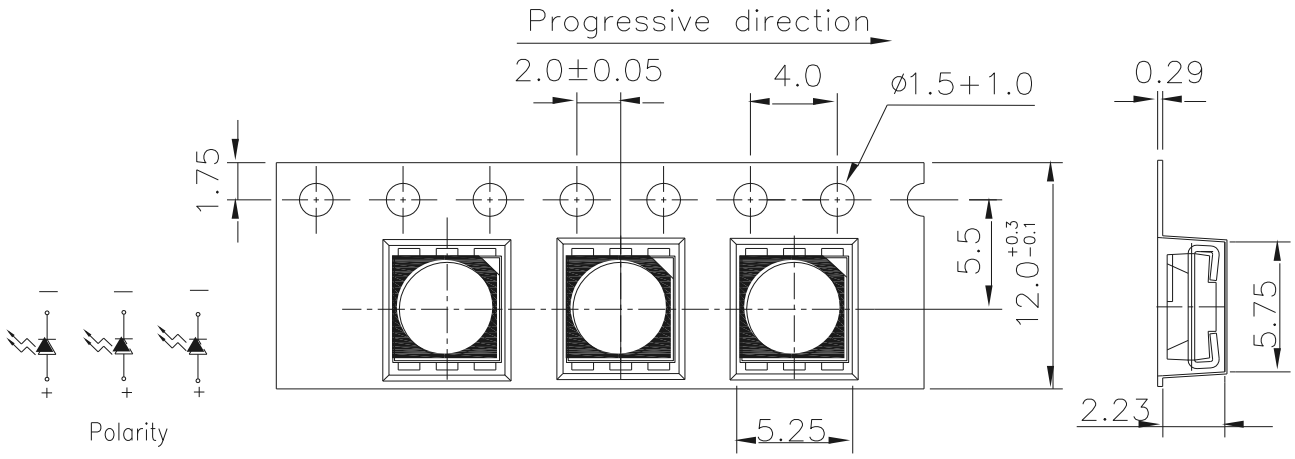
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



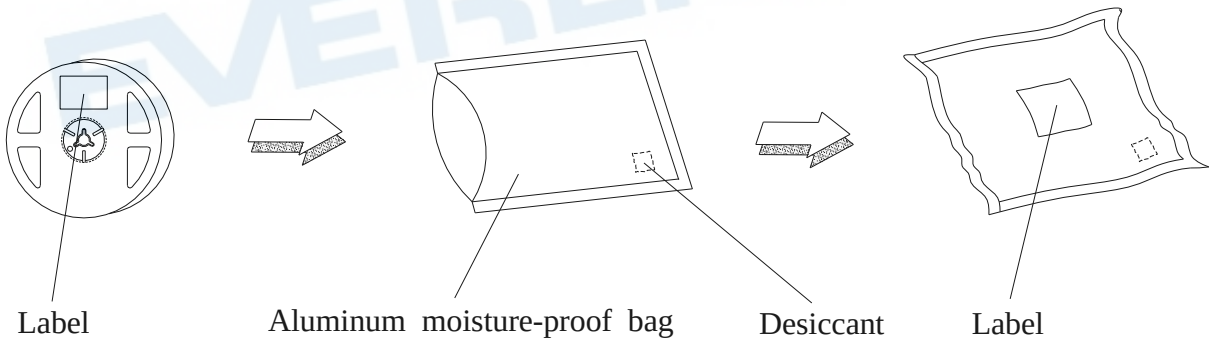
Note:
Tolerances unless mentioned ±0.1mm. Unit = mm

Carrier Tape Dimensions: Loaded Quantity 800 pcs Per Reel



Notes:
1. Minimum packing amount is 100/200/400/800 pcs per reel
2. Tolerances unless mentioned ±0.1mm. Unit = mm

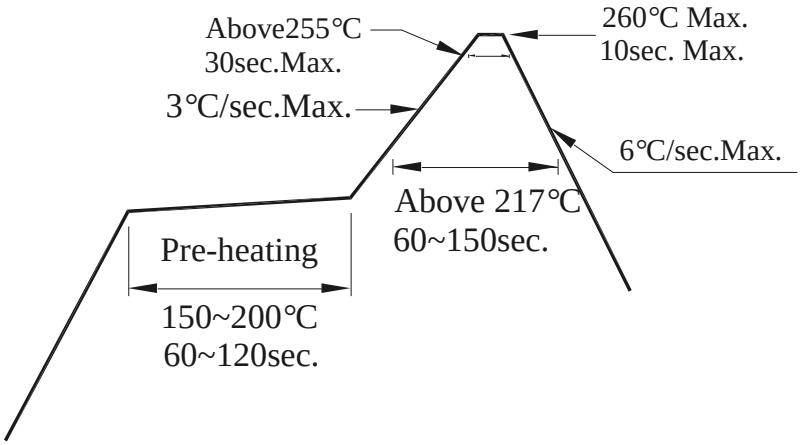
Moisture Resistant Packing Process



Precautions for Use

1. Over-current-proof

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



2. Storage

2.1 Moisture proof bag should only be opened immediately prior to usage.

2.2 Environment should be less than 30℃ and 60% RH when moisture proof bag is opened.

2.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

2.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg 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.

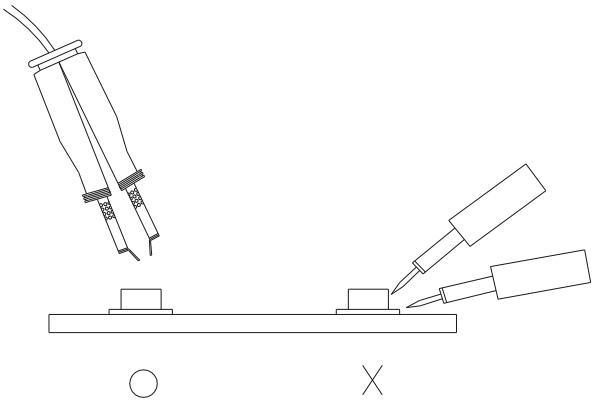
3.4 After soldering, do not warp the circuit board.

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.



Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.