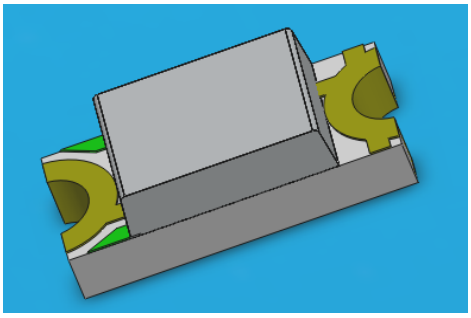
DATASHEET

SMD ▪ B
15-21-R7C-A0P2R1L0E-2T-AM



Features

•RoHS compliant
•Chip LED package.
•Colorless clear resin.
•Wide viewing angle 130°
•Brightness:56 to 140 mcd at 20mA.
•Qualification according to AEC-Q101.
•Precondition: Bases on JEDEC J-STD 020 Level 3.
•Automotive reflow profile (IR reflow or wave soldering)
•Compliance with EU REACH
•Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Applications

•Automotive backlighting or indicator: Dashboard, switch, audio and video equipments…etc.
•Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
•Display for indoor and outdoor application.
•Ideal for coupling into light guides.
•Substitution of traditional light.
•Optical indicator.
•General applications.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Super Red	Water Clear

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	12	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Power Dissipation	Pd	60	mW
Junction Temperature	T_j	125	℃
Operating Temperature	T_{opr}	-40 ~ +100	℃
Storage Temperature	Tstg	-40 ~ +110	℃
Thermal Resistance	Rth $_{J-A}$	800	K/W
	Rth $_{J-S}$	450	K/W
ESD (Classification acc. AEC Q101)	ESD_{HBM}	2000	V
	ESD_{MM}	200	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 30 sec. Hand Soldering : 350 ℃ for 3 sec.	

Note:
1.Reverse Voltage(VR) Condition is applied to IR test only The device is not designed for reverse operation

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	56	-----	140	mcd	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	-----	130	-----	deg	
Peak Wavelength	λp	-----	639	-----	nm	
Dominant Wavelength	λd	625.5	----	637.5	nm	
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	
Forward Voltage	V_F	1.70	----	2.30	V	
Reverse Current	I_R	-----	-----	10	μA	V_R=12V
Temperature coefficient of λp	$TC_{\lambda p}$	-----	0.06	-----	nm/K	I_F=20mA
Temperature coefficient of λd	$TC_{\lambda d}$	-----	0.4	-----	nm/K	
Temperature coefficient of V_F	TC_V	-----	-2.3	-----	mV/K	

Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V
4. Reverse Voltage(VR) Condition is applied to IR test only The device is not designed for reverse operation

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
P2	56.0	71.0	mcd	I_F =20mA
Q1	71.0	90.0		
Q2	90.0	112.0		
R1	112.0	140.0		

Note:
Tolerance of Luminous Intensity: ±11%

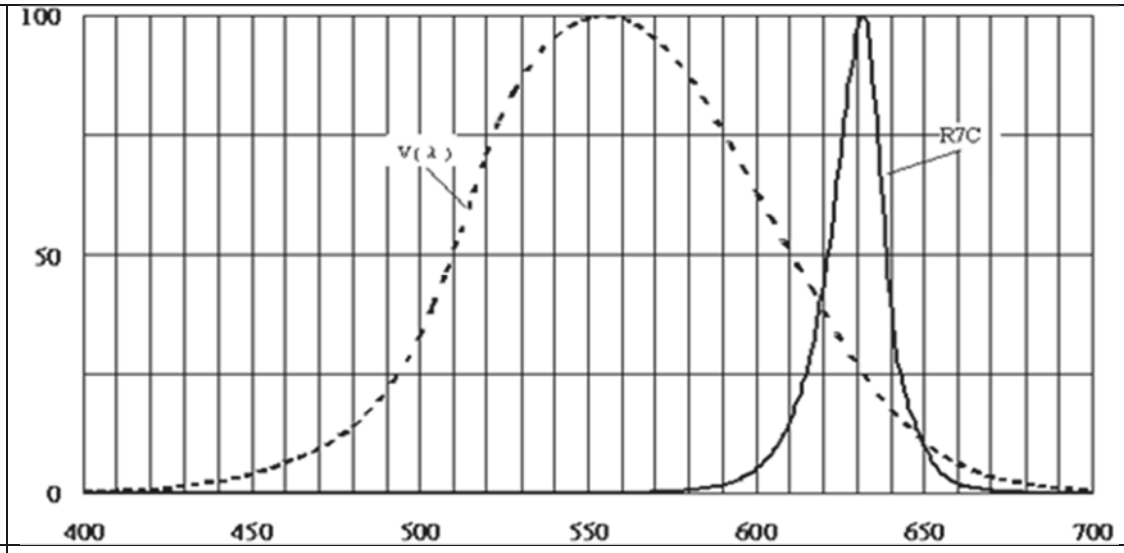
Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
E6	625.5	629.5	nm	I_F =20mA
E7	629.5	633.5		
E8	633.5	637.5		

Note:
Tolerance of Dominant Wavelength: ±1nm

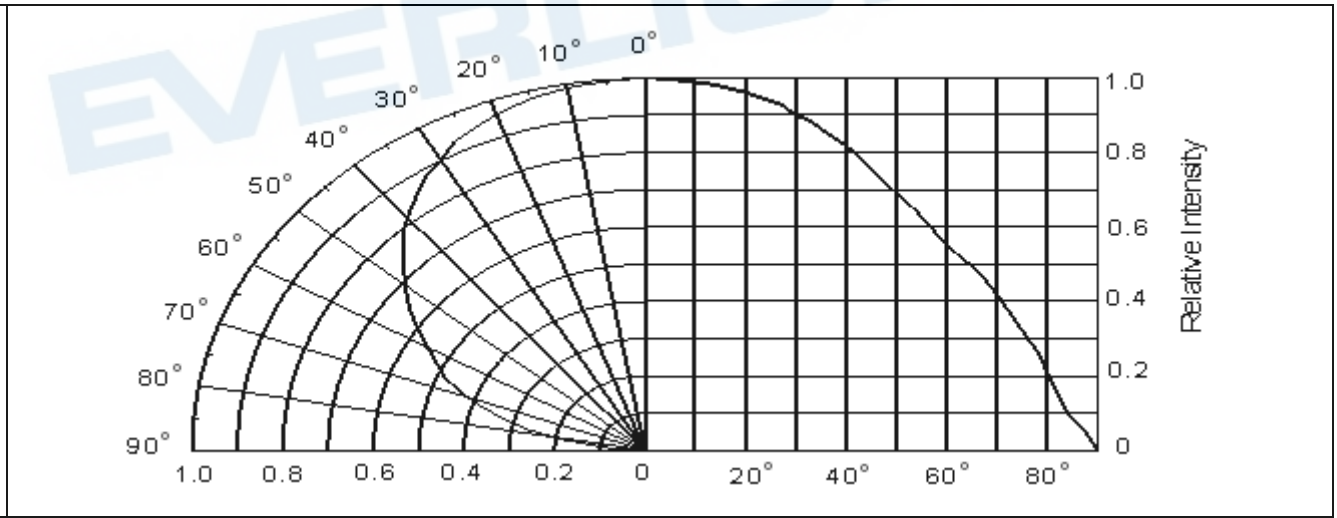
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution

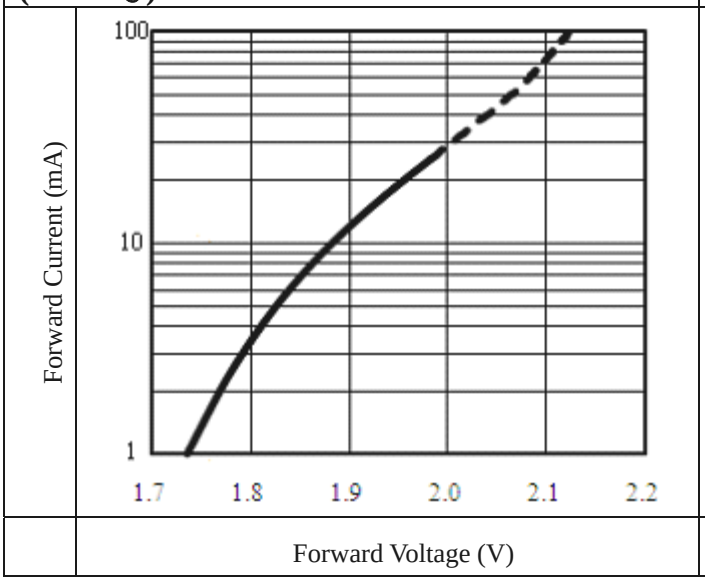


Note: V(λ)=Standard eye response curve; I_F =20mA

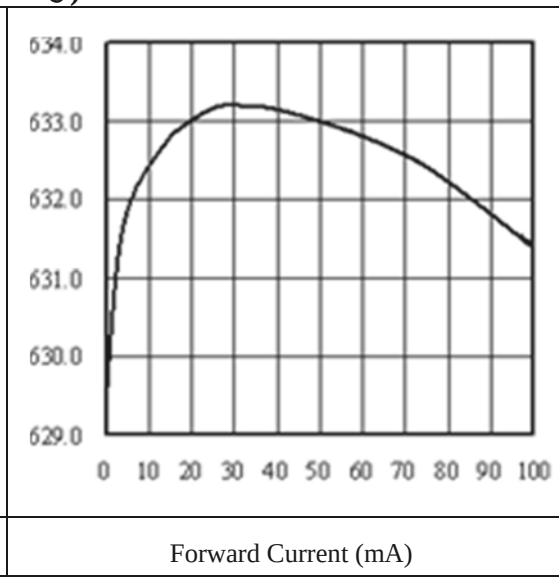
Diagram Characteristics of Radiation



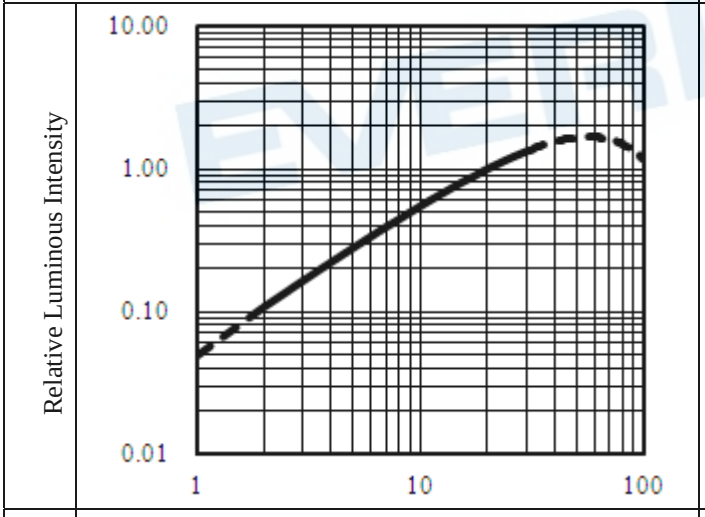
Forward Current vs. Forward Voltage (Ta=25℃)



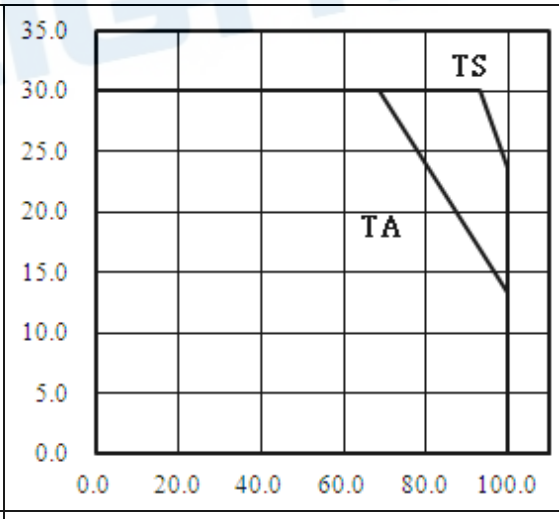
Dominant Wavelength vs. Forward Current (Ta=25℃)

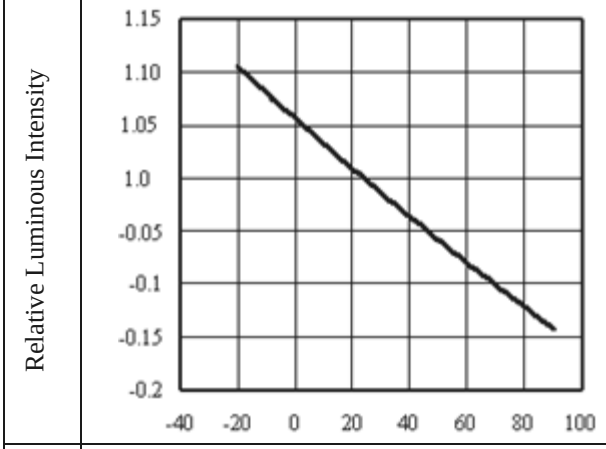
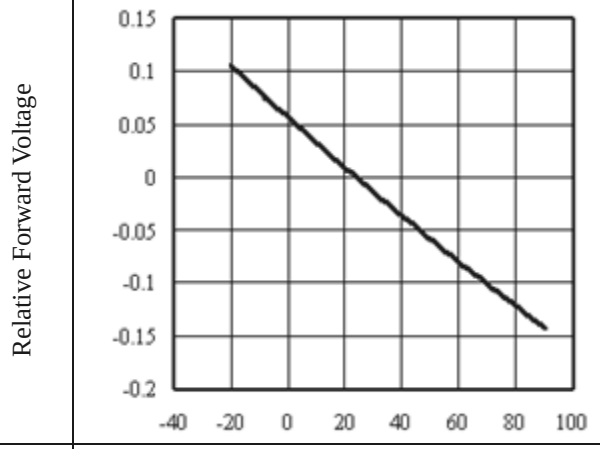


Relative Luminous Intensity vs. Forward Current (Ta=25℃)



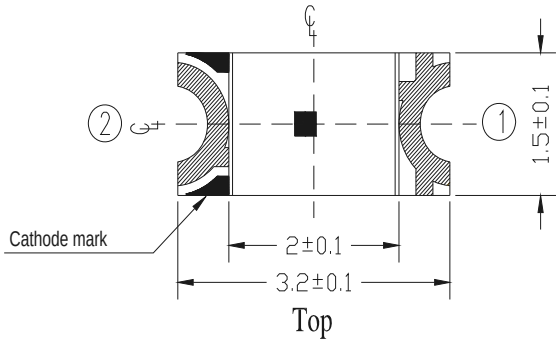
Max. Permissible Forward Current (Ta=25℃)

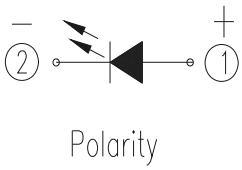


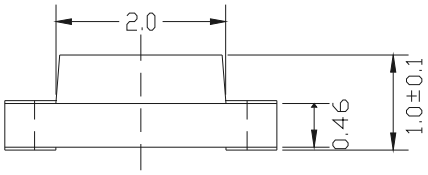
Relative Luminous Intensity vs. Junction Temperature	Relative Forward Voltage vs. Junction Temperature
	
Note: f(Tj) = Iv / Iv(25℃); I_F =20mA	Note: $\Delta V_F = V_F - V_F(25\ ℃) = f(Tj)$; I_F =20mA

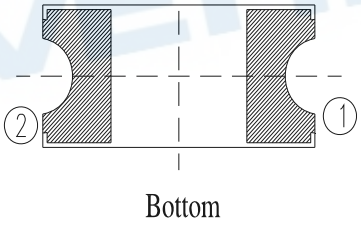
Note：The graphs shown in this datasheet are representing typical data only and do not show guaranteed values

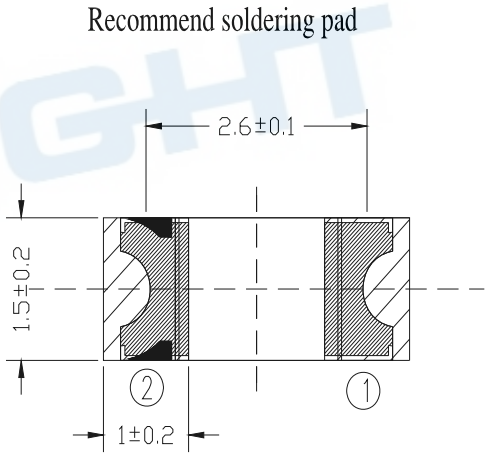
Package Dimension







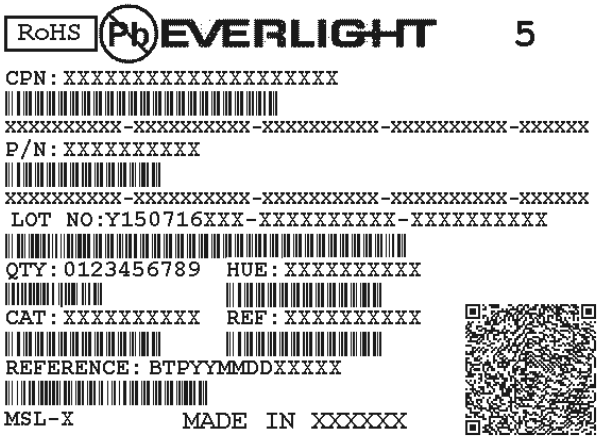




Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

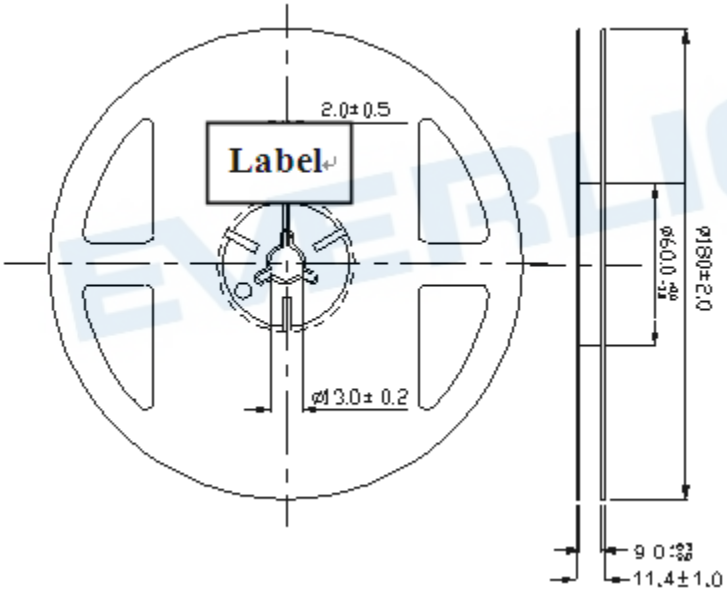
Note: Tolerances unless mentioned ±0.1mm. Unit = mm

Moisture Resistant Packing Materials
Label Explanation



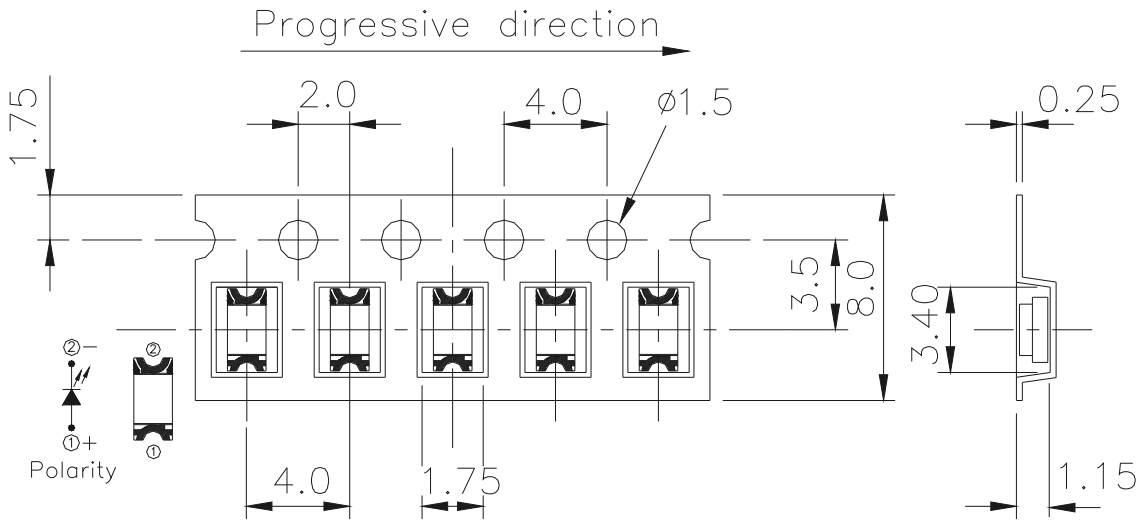
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Chromaticity Coordinates & Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



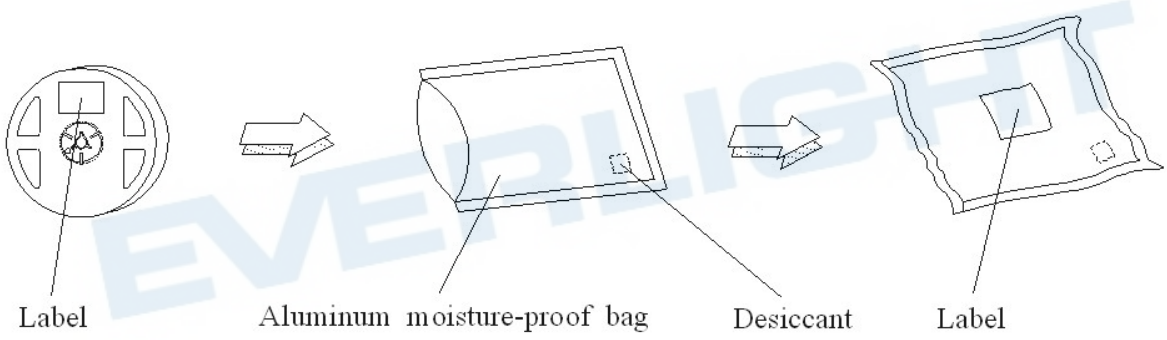
Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

Moisture Resistant Packing Process

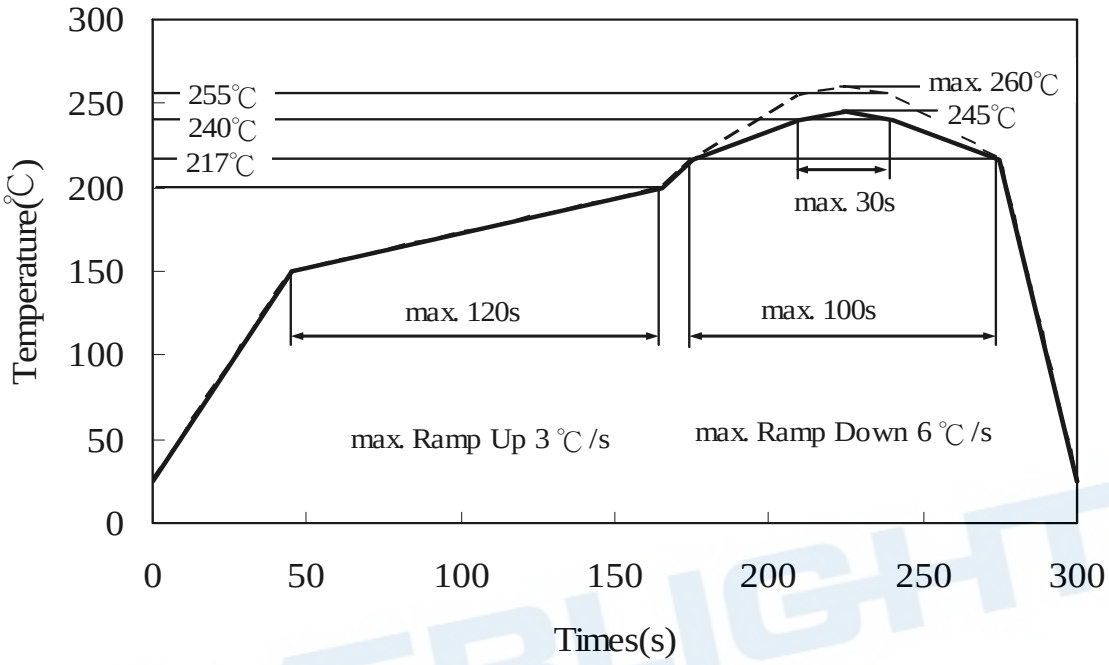


Note: Tolerances unless mentioned ±0.1mm. Unit = mm

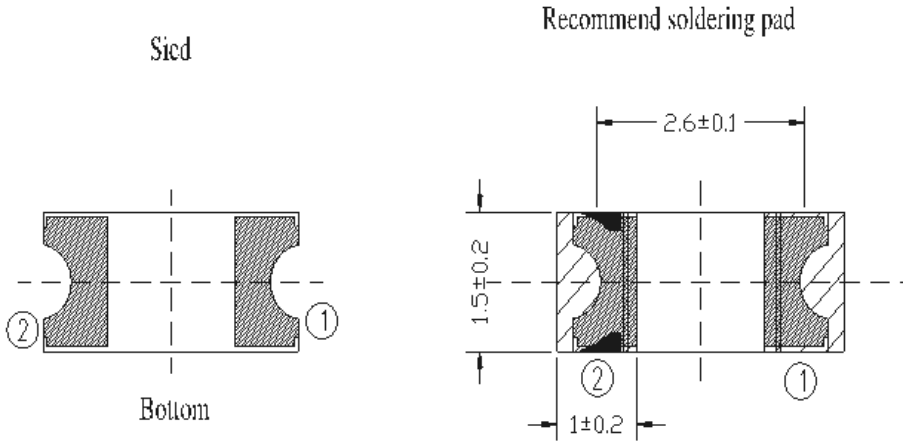
Precautions for Use

1. **Soldering Condition (Reference: IPC/JEDEC J-STD-020D)**

a. IR reflow



(B) Recommend soldering pad



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

Application Restrictions

1. 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.

2. Current limiting
   A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.
3. Storage
   3.1 Moisture proof bag should only be opened immediately prior to usage.
   3.2 Environment should be less than 30℃ and 60% RH when moisture proof bag is opened.
   3.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.
   3.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.
4. Iron Soldering
   Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds. 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. Usage
   Do not exceed the values given in this specification.

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, 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.

Revision History:

Rev.	Modified date	File modified contents
1	2016/4/30	New Spec
2	2017/4/5	Revised in order to issue formally by temporary issue
3	2024/5/2	Add six disclaimers