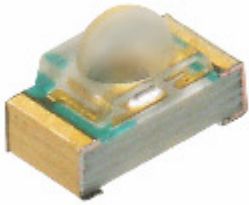


SMD ■ B

G42-51-S2C-E0S2T2B0E-3T-AM(EE)

Preliminary



### Features

- RoHS compliant
- Chip LED package.
- Colorless clear resin.
- Wide viewing angle X90° Y70°
- Precondition: Bases on JEDEC J-STD 020D 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	Brilliant Orange	Water Clear

### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	12	V
Forward Current	$I_{F(MAX)}$	30	mA
Power Dissipation	$P_d$	71.0	mW
Junction Temperature	$T_j$	125	°C
Operating Temperature	$T_{opr}$	-40 ~ +100	°C
Storage Temperature	$T_{stg}$	-40 ~ +110	°C
Thermal Resistance	$R_{th\ J-A}$	600	K/W
	$R_{th\ J-S}$	400	K/W
ESD	$ESD_{HBM}$	2000	V
Soldering Temperature	$T_{sol}$	Max : 260 °C	

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	224	-----	450	mcd	
Viewing Angle	2θ <sub>1/2</sub>	-----	90/70	-----	deg	
Peak Wavelength	λp	-----	613	-----	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λd	600.5	-----	609.5	nm	
Spectrum Radiation Bandwidth	Δλ	-----	30	-----	nm	
Forward Voltage	V <sub>F</sub>	1.75	-----	2.35	V	
Reverse Current	I <sub>R</sub>	-----	-----	10	μA	V <sub>R</sub> =12V

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
S2	224	280	mcd	I <sub>F</sub> =20mA
T1	280	355		
T2	355	450		

**Bin Range Of Dom. Wavelength**

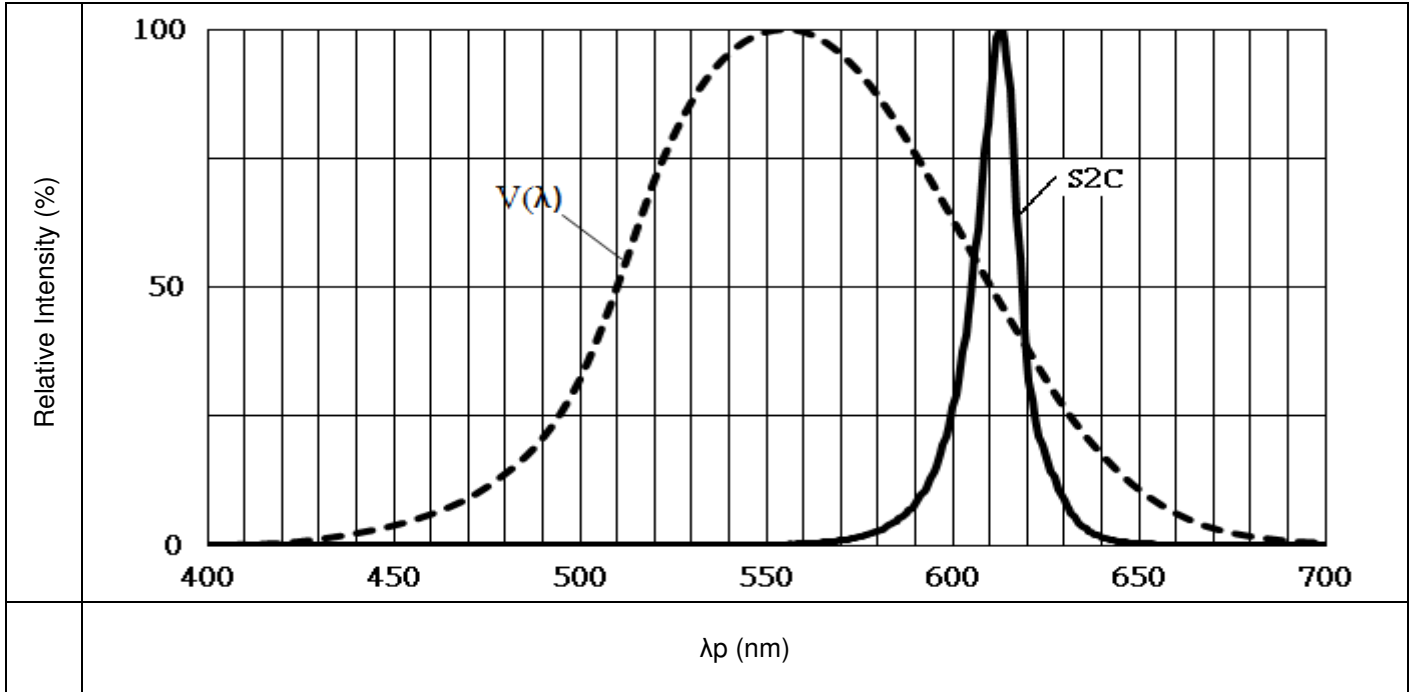
Bin Code	Min.	Max.	Unit	Condition
D8	600.5	603.5	nm	I <sub>F</sub> =20mA
D9	603.5	606.5		
D10	606.5	609.5		

Note:

- 1.Tolerance of Luminous Intensity: ±11%
- 2.Tolerance of Dominant Wavelength ±1nm

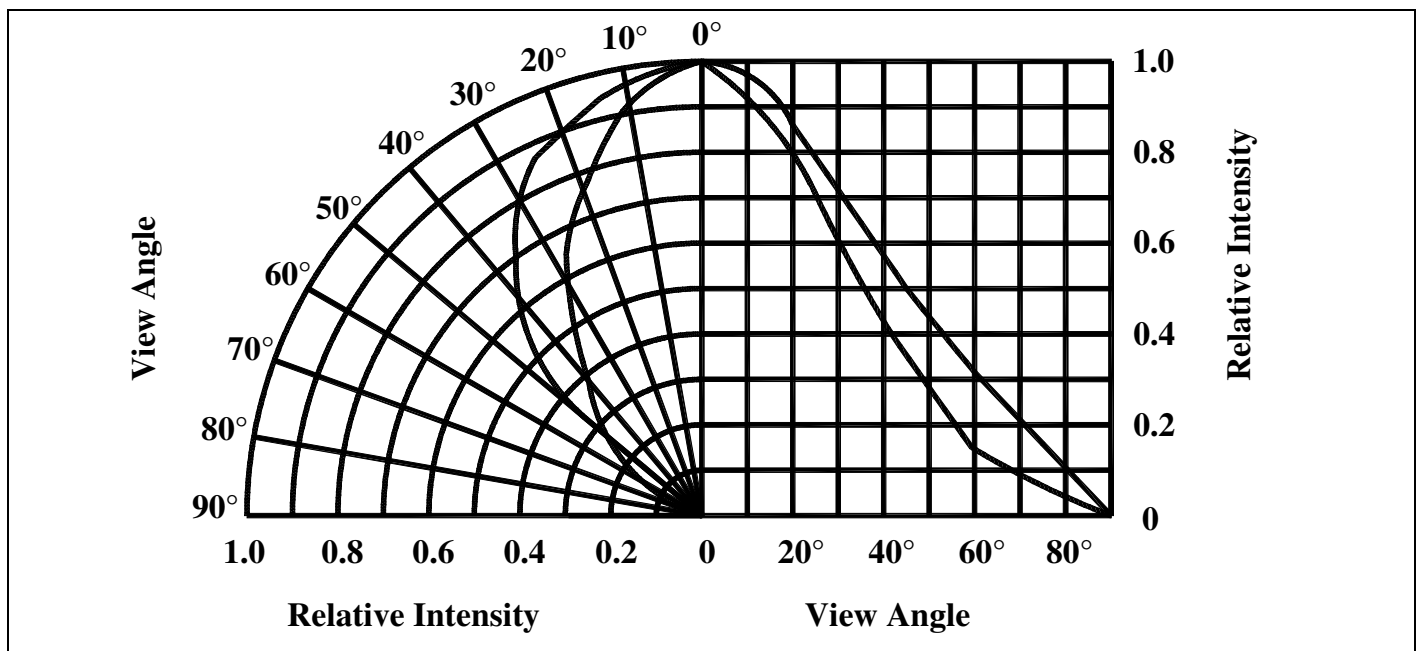
**Typical Electro-Optical Characteristics Curves**

Typical Curve of Spectral Distribution

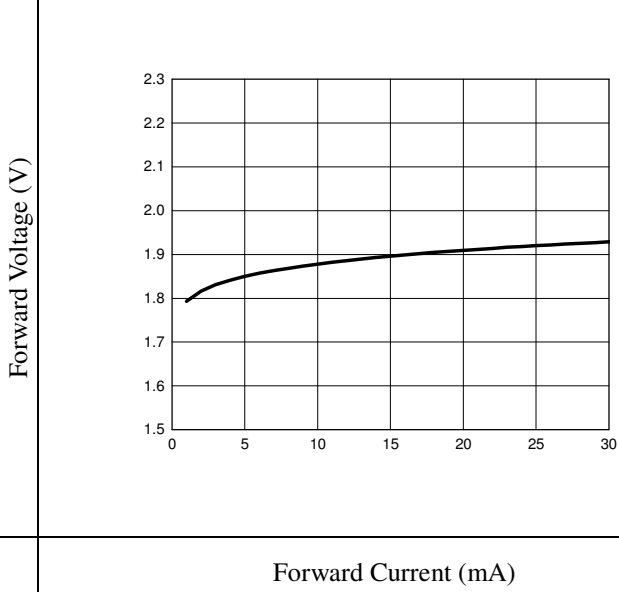


Note:  $V(\lambda)$ =Standard eye response curve;  $I_F = 20\text{mA}$

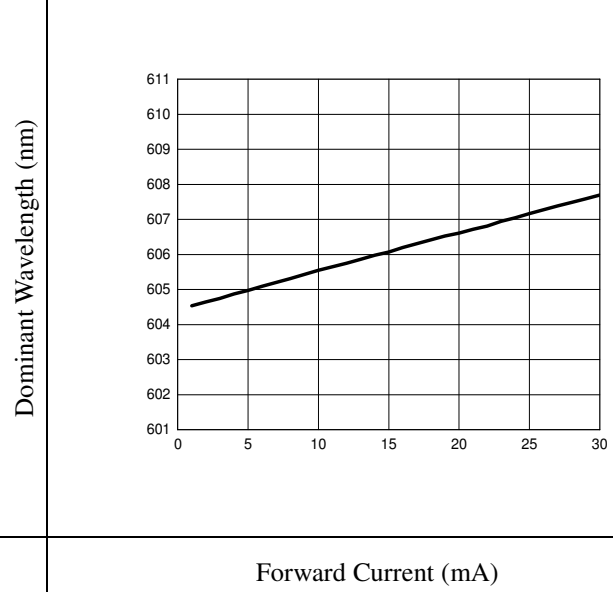
Diagram Characteristics of Radiation



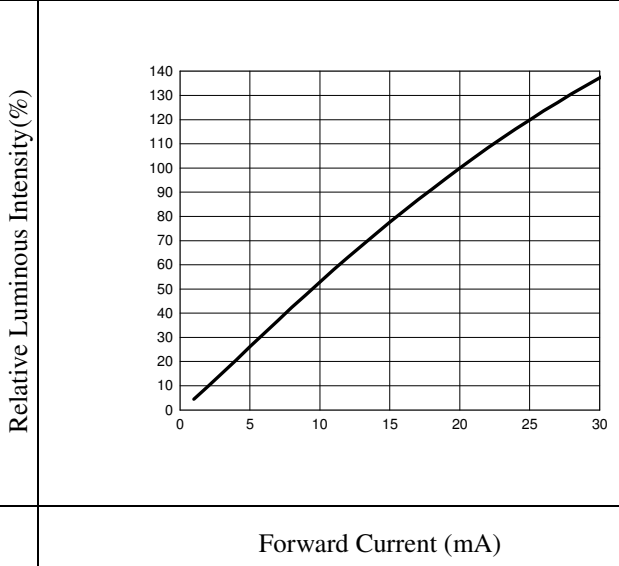
**Forward Current vs. Forward Voltage**  
 (Ta=25°C)



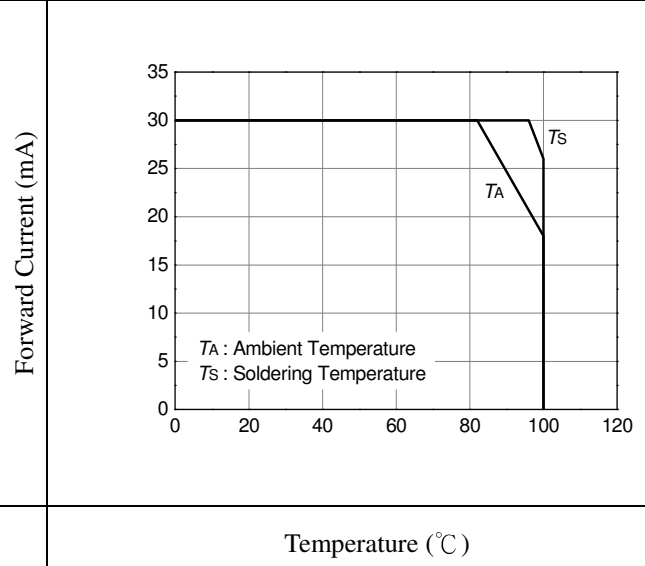
**Dominant Wavelength vs. Forward Current**  
 (Ta=25°C)



**Relative Luminous Intensity vs. Forward Current**  
 (Ta=25°C)

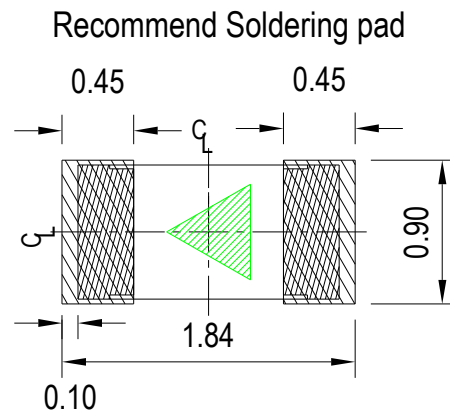
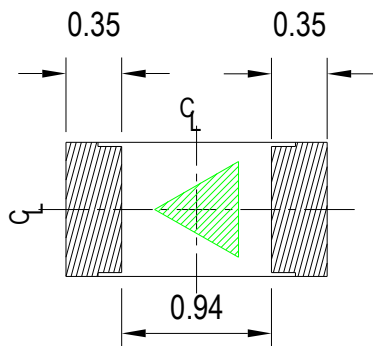
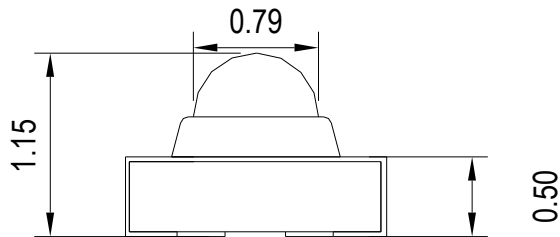
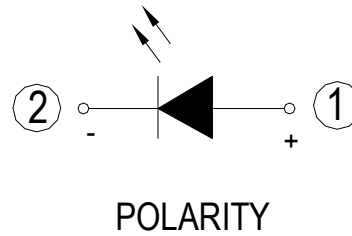
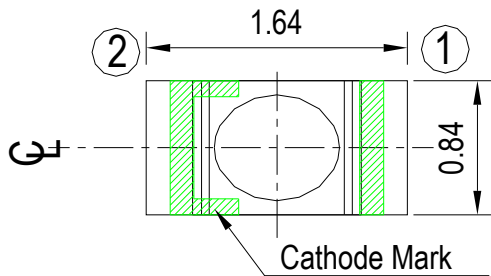


**Max. Permissible Forward Current**  
 (Ta=25°C)



Relative Luminous Intensity vs. Junction Temperature		Relative Forward Voltage vs. Junction Temperature																																									
Relative Luminous Intensity (%)	<table border="1"> <caption>Data for Relative Luminous Intensity vs. Junction Temperature</caption> <thead> <tr> <th>Junction Temperature (°C)</th> <th>Relative Luminous Intensity (%)</th> </tr> </thead> <tbody> <tr><td>25</td><td>100</td></tr> <tr><td>30</td><td>85</td></tr> <tr><td>40</td><td>70</td></tr> <tr><td>50</td><td>55</td></tr> <tr><td>60</td><td>45</td></tr> <tr><td>70</td><td>38</td></tr> <tr><td>80</td><td>33</td></tr> <tr><td>90</td><td>31</td></tr> <tr><td>100</td><td>28</td></tr> </tbody> </table>	Junction Temperature (°C)	Relative Luminous Intensity (%)	25	100	30	85	40	70	50	55	60	45	70	38	80	33	90	31	100	28	Relative Forward Voltage (%)	<table border="1"> <caption>Data for Relative Forward Voltage vs. Junction Temperature</caption> <thead> <tr> <th>Junction Temperature (°C)</th> <th>Relative Forward Voltage (%)</th> </tr> </thead> <tbody> <tr><td>25</td><td>0.00</td></tr> <tr><td>30</td><td>-0.02</td></tr> <tr><td>40</td><td>-0.04</td></tr> <tr><td>50</td><td>-0.06</td></tr> <tr><td>60</td><td>-0.08</td></tr> <tr><td>70</td><td>-0.10</td></tr> <tr><td>80</td><td>-0.12</td></tr> <tr><td>90</td><td>-0.14</td></tr> <tr><td>100</td><td>-0.15</td></tr> </tbody> </table>	Junction Temperature (°C)	Relative Forward Voltage (%)	25	0.00	30	-0.02	40	-0.04	50	-0.06	60	-0.08	70	-0.10	80	-0.12	90	-0.14	100	-0.15
Junction Temperature (°C)	Relative Luminous Intensity (%)																																										
25	100																																										
30	85																																										
40	70																																										
50	55																																										
60	45																																										
70	38																																										
80	33																																										
90	31																																										
100	28																																										
Junction Temperature (°C)	Relative Forward Voltage (%)																																										
25	0.00																																										
30	-0.02																																										
40	-0.04																																										
50	-0.06																																										
60	-0.08																																										
70	-0.10																																										
80	-0.12																																										
90	-0.14																																										
100	-0.15																																										
	Junction Temperature (°C)		Junction Temperature (°C)																																								
Note: $f(T_j) = (I_v / I_v(25^\circ\text{C})) * 100$ ; $I_F = 20\text{mA}$		Note: $\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j)$ ; $I_F = 20\text{mA}$																																									

### Package Dimension

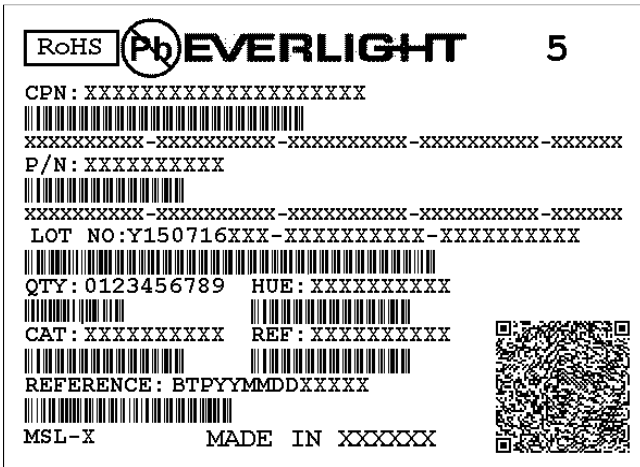


Suggested pad dimension is just for reference only.  
Please modify the pad dimension based on individual need.

Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

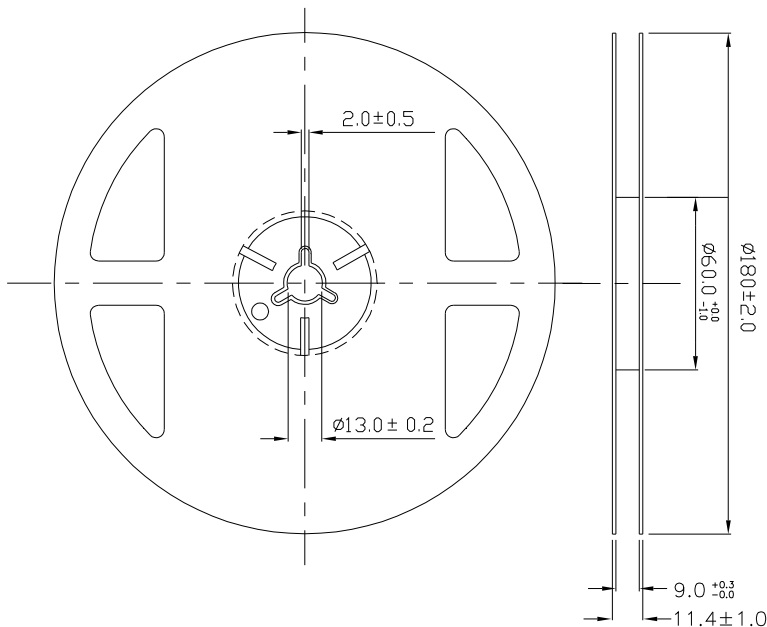


**Label Explanation**



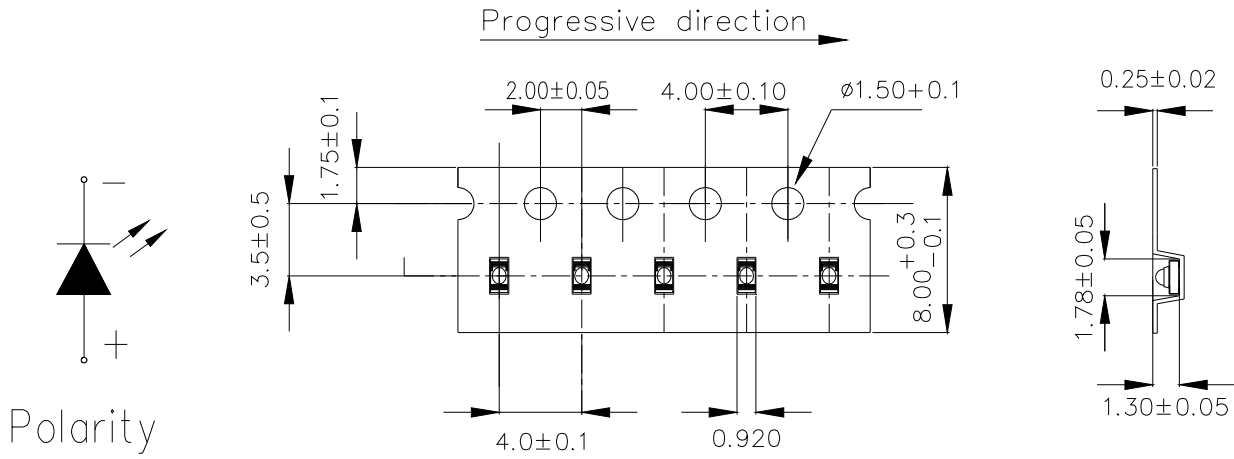
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Chromaticity Coordinates & Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

**Reel Dimensions**

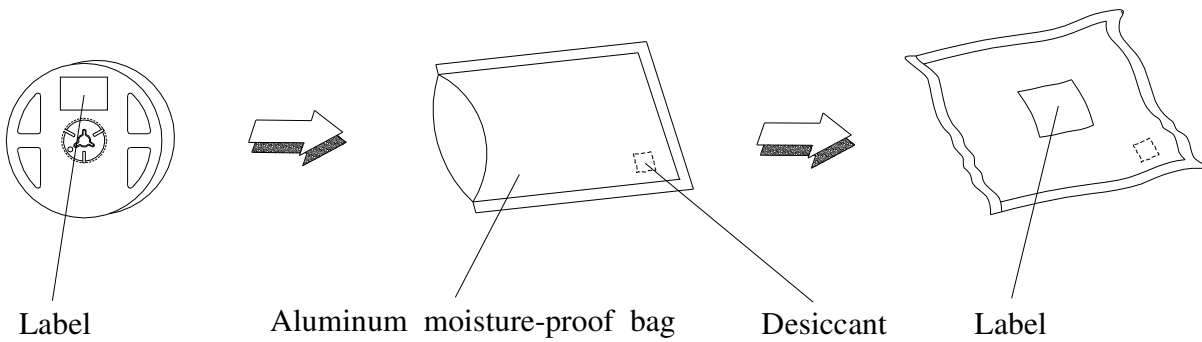


Note: The tolerances unless mentioned is  $\pm 0.1\text{mm}$  ,Unit = mm

**Carrier Tape Dimensions: Loaded quantity 3000 PCS per reel**



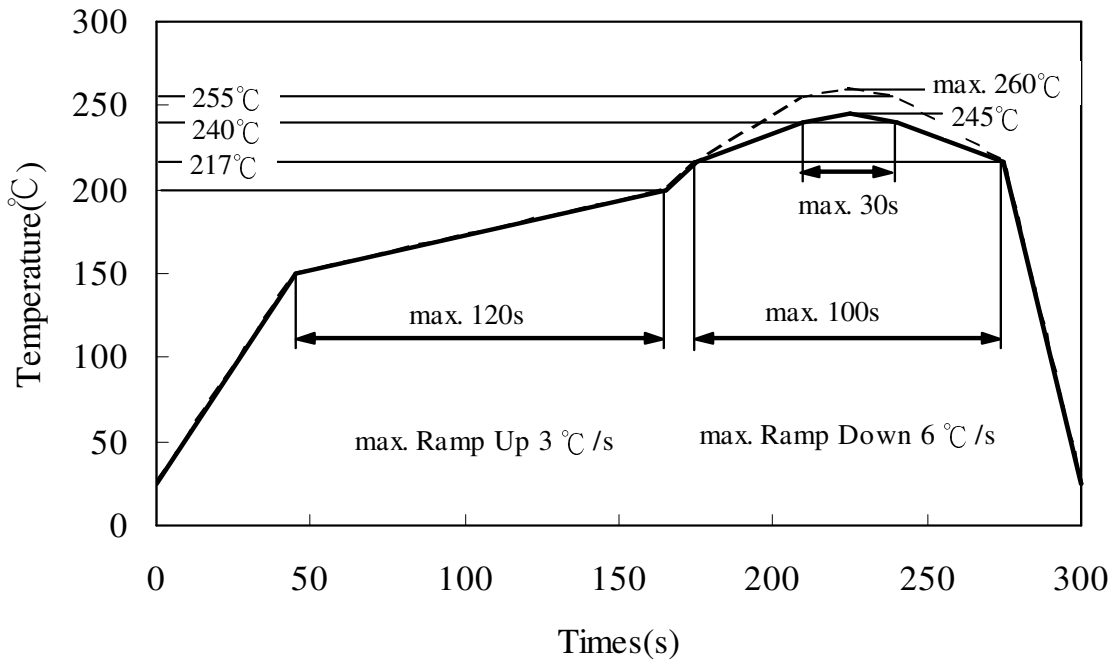
**Moisture Resistant Packaging**



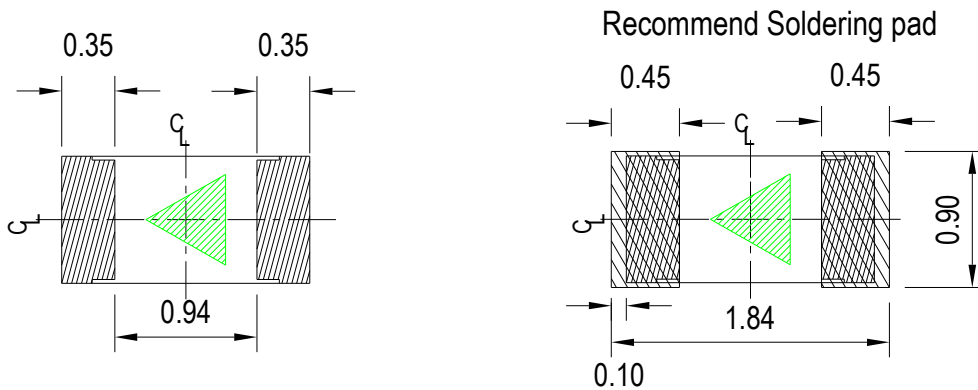
**Precautions for Use**

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

**a. IR reflow**



**(B) Recommend soldering pad**



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°C 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

Hand soldering is not recommended for regular production. These guidelines are for rework only. Soldering iron tip should contact each terminal no more than 3 sec at 350°C, using soldering iron with nominal power less than 25W. Allow min. 2 sec. between soldering intervals.

5. Usage

Do not exceed the values given in this specification.

**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.

**Revision History:**

Rev.	Modified date	File modified contents
1	2016/07/07	New Spec
2	2016/08/05	Change the curve of Iv vs. IF from value to percentage (%)