

**Technical Data Sheet**

**Top View LEDs**

**65-21-B3P-U6R2S2A7C-2T8-AM**

**Lead (Pb) Free Product - RoHS Compliant**



**Feature**

- P-LCC-2 package.
- Colored diffused resin.
- Wide viewing angle 120°.
- Inner reflector and white package.
- Brightness: 140 to 280 mcd at 10mA.
- Qualification according to AEC-Q101.
- Precondition: Bases on JEDEC J-STD 020 Level 3.
- Automotive reflow profile (IR reflow or wave soldering)

**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	Emitted Color	Resin Color
Material		
InGaN/SiC	Ice Blue	Slightly green dotted

**Technical Data Sheet**

**Top View LEDs**

**65-21-B3P-U6R2S2A7C-2T8-AM**

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

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	5	V
Forward Current	$I_F$	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	95	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 (Classification acc. AEC Q101)	$ESD_{HBM}$	2000	V
	$ESD_{MM}$	200	V
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 30 sec. Hand Soldering : 350 °C for 3 sec.	

## Technical Data Sheet

### Top View LEDs

#### **65-21-B3P-U6R2S2A7C-2T8-AM**

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	$I_v$	140	-----	280	mcd	$I_F = 10\text{mA}$
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	$I_F = 10\text{mA}$
Forward Voltage	$V_F$	2.70	-----	3.80	V	$I_F = 10\text{mA}$
Reverse Current	$I_R$	-----	-----	50	$\mu\text{A}$	$V_R = 5\text{V}$
Temperature coefficient of $\lambda_p$	$TC_{\lambda_p}$	---	0.06	---	nm/K	$I_F = 10\text{mA}$
Temperature coefficient of $\lambda_d$	$TC_{\lambda_d}$	---	0.4	---	nm/K	$I_F = 10\text{mA}$
Temperature coefficient of $V_F$	$TC_V$	---	-2.3	---	mV/K	$I_F = 10\text{mA}$

Note:

1. Tolerance of Luminous Intensity:  $\pm 11\%$
2. Tolerance of Forward Voltage:  $\pm 0.1\text{V}$



Technical Data Sheet

Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
R2	140	180	mcd	I <sub>F</sub> =10mA
S1	180	224		
S2	224	280		

Note:

Tolerance of Luminous Intensity:  $\pm 11\%$

**Technical Data Sheet**

**Top View LEDs**

**65-21-B3P-U6R2S2A7C-2T8-AM**

**Bin Range of Chromaticity Coordinates**

Bin Code	CIE_x	CIE_y	Condition
U6	0.169	0.34	I <sub>F</sub> =10mA
	0.159	0.30	
	0.17	0.30	
	0.18	0.34	

Note:

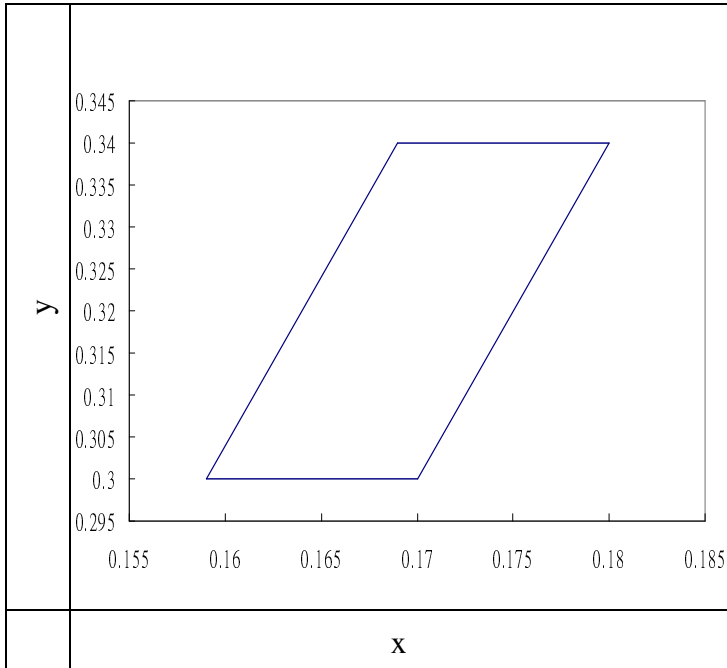
Tolerance of Chromaticity Coordinates : ±0.01.

**Technical Data Sheet**

**Top View LEDs**

**65-21-B3P-U6R2S2A7C-2T8-AM**

**The C.I.E. 1931 Chromaticity Diagram**



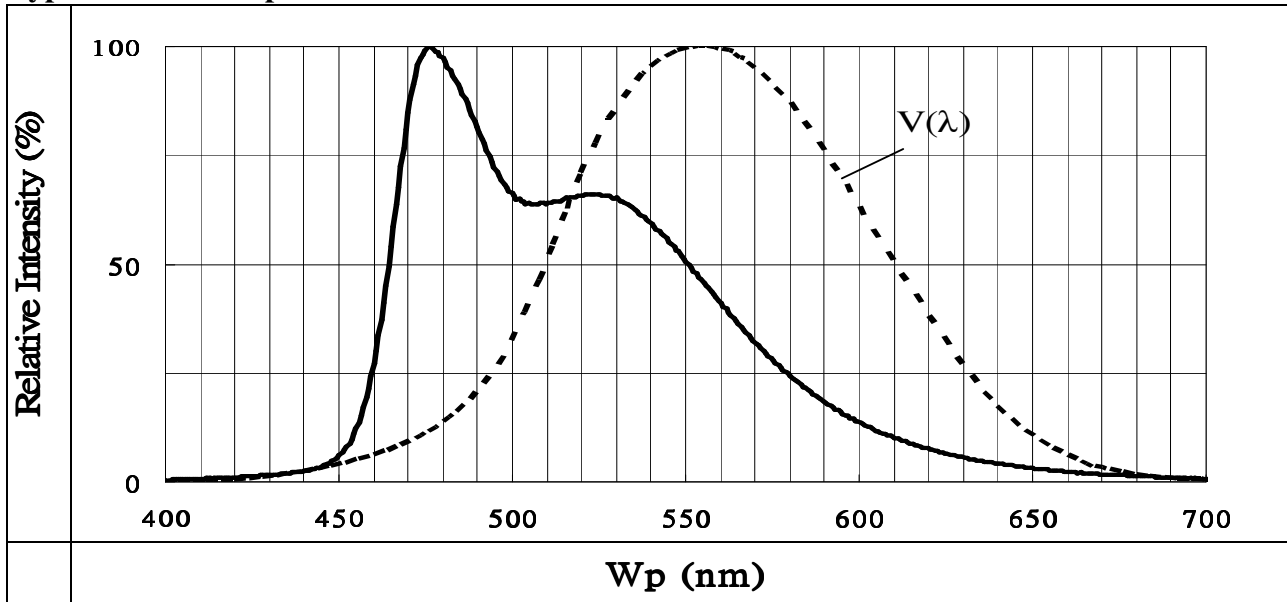
Technical Data Sheet

Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**

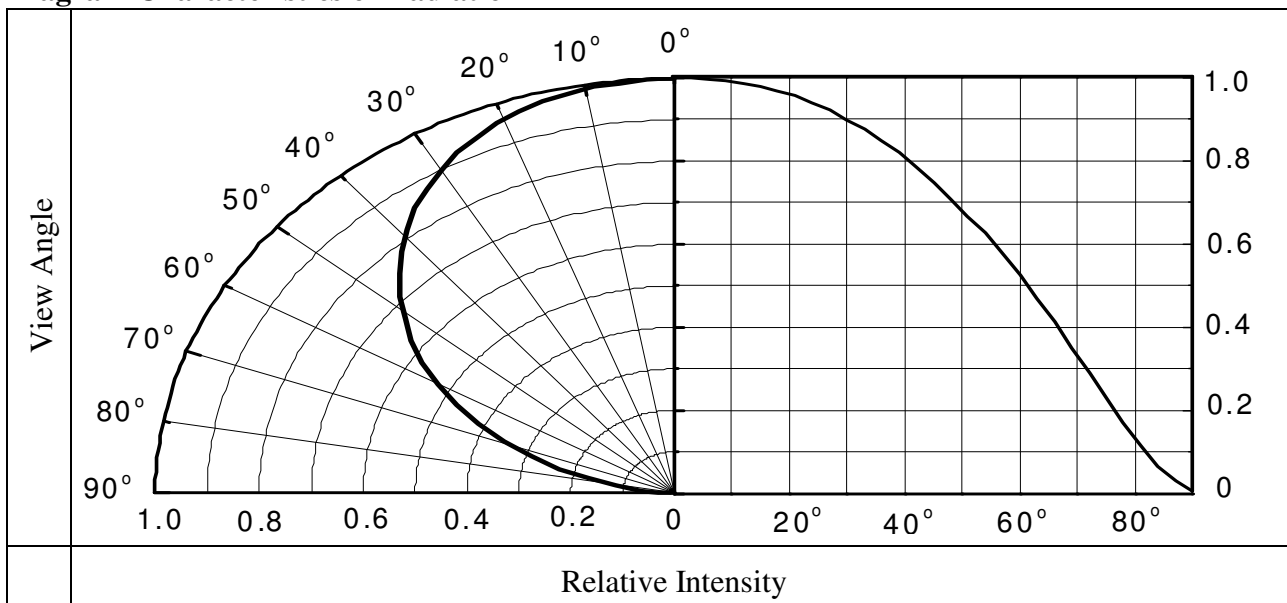
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



Note:  $V(\lambda)$ =Standard eye response curve;  $I_F=10\text{mA}$

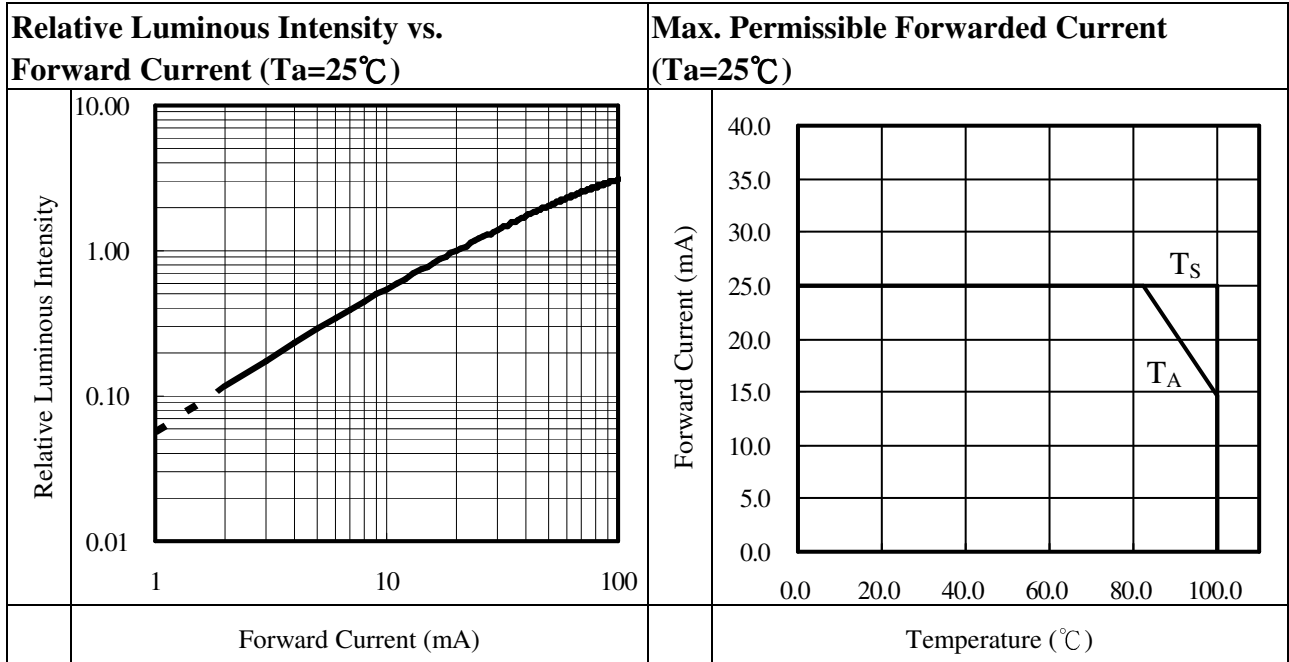
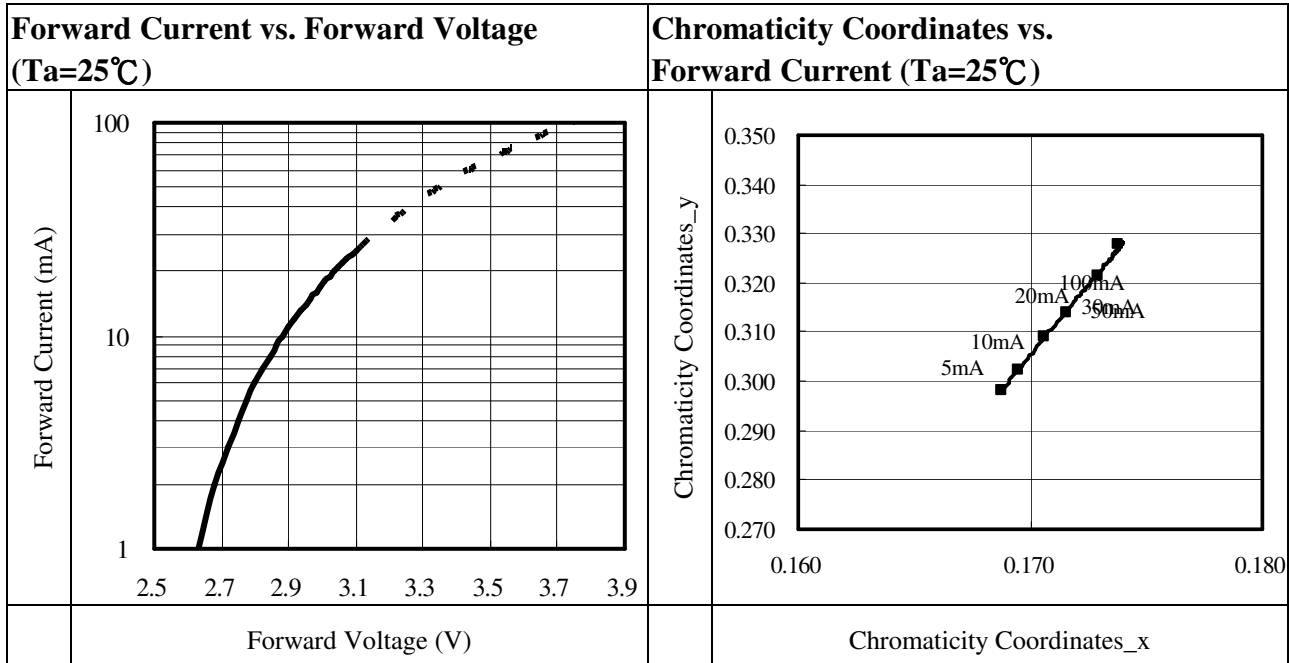
Diagram Characteristics of Radiation



Technical Data Sheet

Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**





Technical Data Sheet

Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**

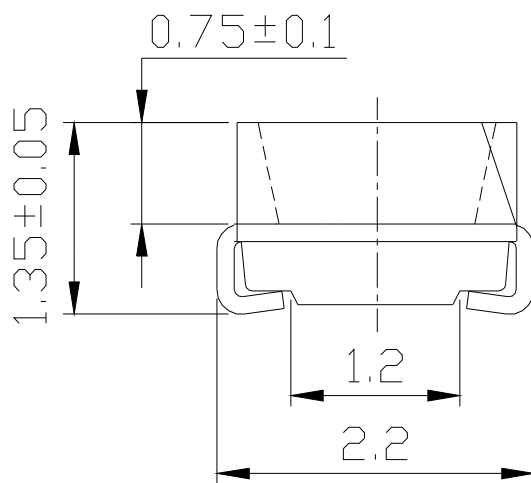
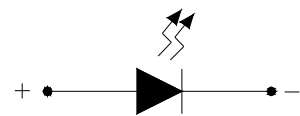
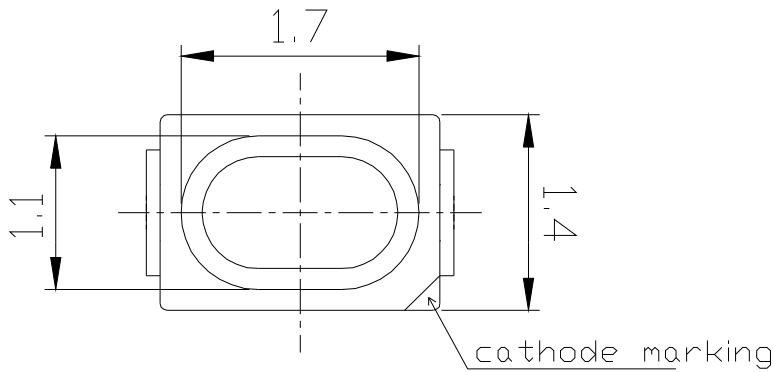
Relative Luminous Intensity vs. Junction Temperature		Relative Forward Voltage vs. Junction Temperature	
Relative Luminous Intensity		Relative Forward Voltage	
	Junction Temperature (°C)		Junction Temperature (°C)
Note: $f(T_j) = I_v / I_v(25^\circ\text{C}); I_F = 10\text{mA}$		Note: $\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 10\text{mA}$	

Technical Data Sheet

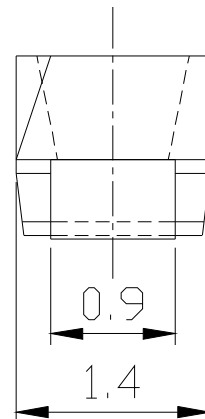
Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**

Package Dimension



Polarity



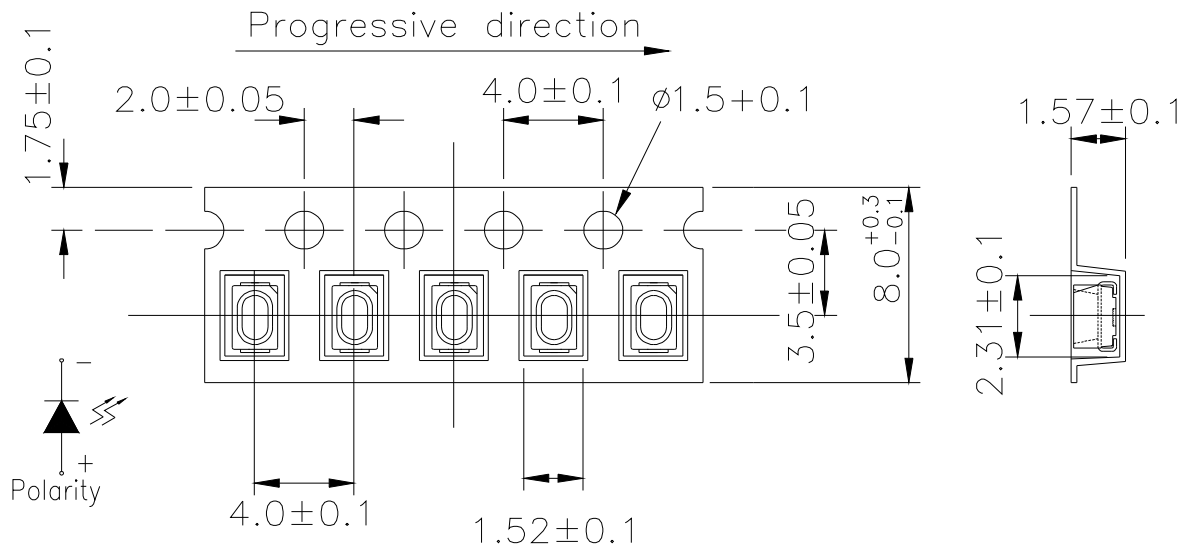
Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

Technical Data Sheet

Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

**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

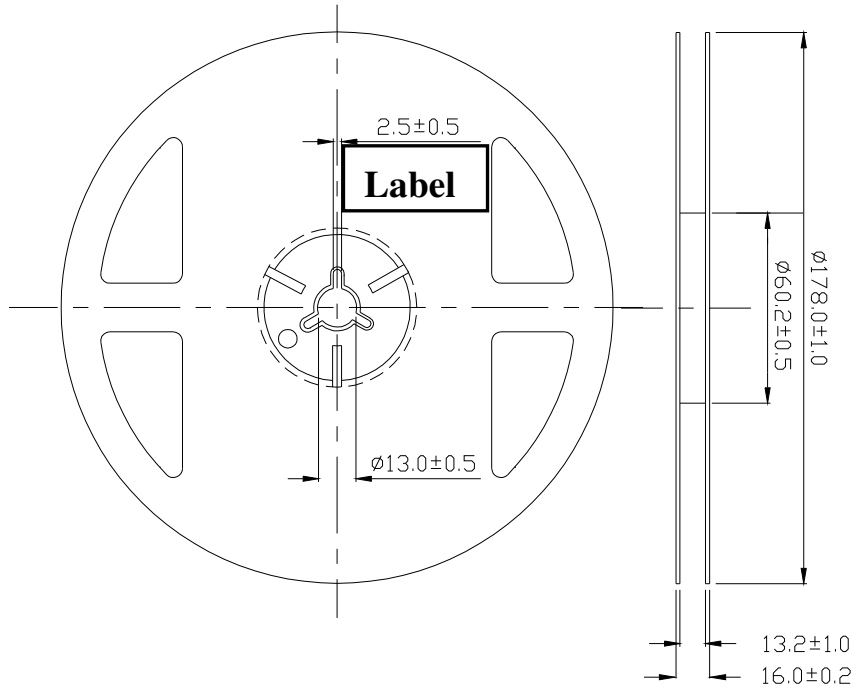
(Pb)	EVERLIGHT	(X)
CPN : P/N : XXXXXXXXXXXX XXXXXXXXXX		RoHS
QTY : XXX	CAT : XX	HUE : XX
LOT NO : XXXXXXXXXXXX	REF : XX	
Reference : XXXXXXXXXXXX		
MADE IN TAIWAN		

Technical Data Sheet

Top View LEDs

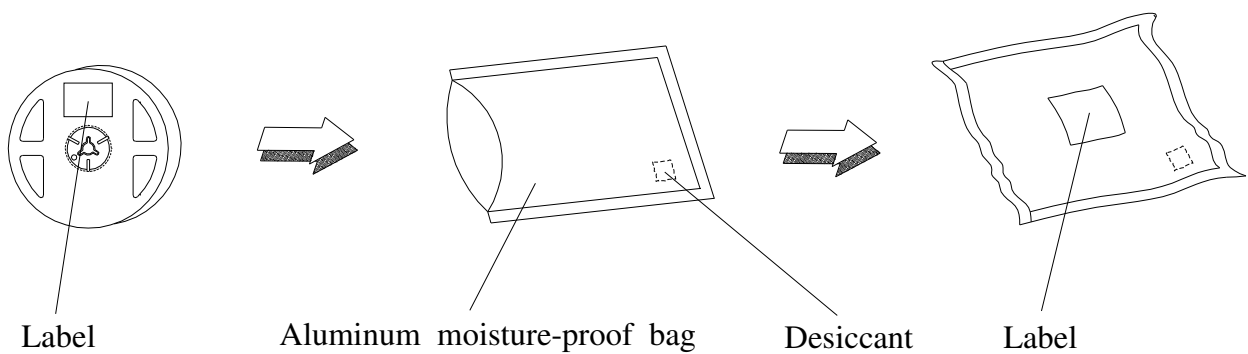
**65-21-B3P-U6R2S2A7C-2T8-AM**

Reel Dimensions



Note: Unit = mm

Moisture Resistant Packing Process



Technical Data Sheet

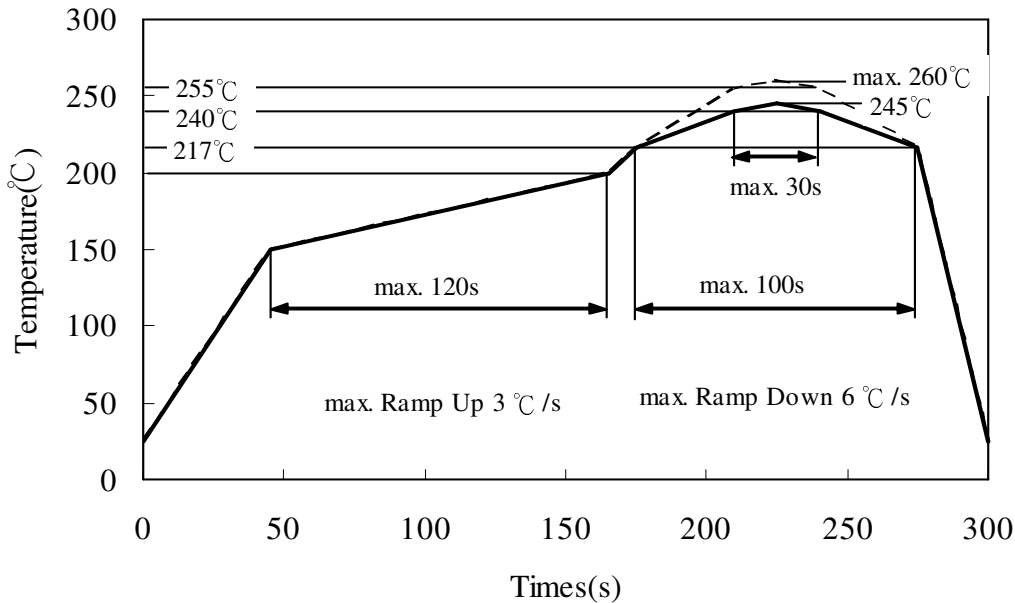
Top View LEDs

**65-21-B3P-U6R2S2A7C-2T8-AM**

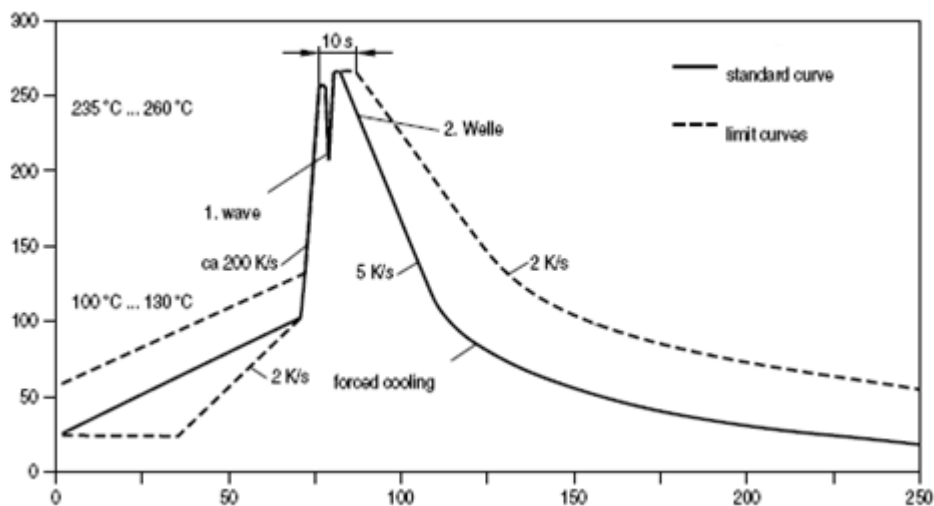
Precautions for Use

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

a. IR reflow



b. Wave soldering reflow

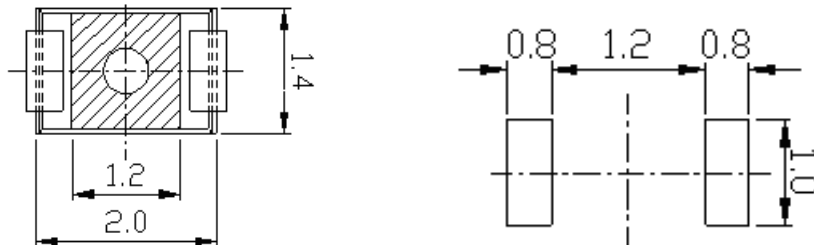


## Technical Data Sheet

### Top View LEDs

#### **65-21-B3P-U6R2S2A7C-2T8-AM**

(B) Recommend soldering pad



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

#### 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

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.



Technical Data Sheet

Top View LEDs

---

**65-21-B3P-U6R2S2A7C-2T8-AM**

Revision History:

Rev.	Modified date	File modified contents
1	2009/6/29	New Spec