

SMD ▪ Top View LEDs 67-21-R7C-F3K1L1B6A-2T8-AM



Features

- RoHS compliant.
- P-LCC-2 package.
- Wide viewing angle 120°.
- Colorless clear resin.
- Brightness: 7.1 to 14mcd at 2mA
- Inner reflector and white package.
- Precondition: Bases on JEDEC J-STD 020D Level 3.
- Qualification according to AEC-Q101 rev C.
- Useable in severe lead free processes with 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 Materials	Emitted Color	Resin Color
AlGaInP	Dark Red	Water Clear

Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	12	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Power Dissipation	P_d	60	mW
Junction Temperature	T_j	125	
Operating Temperature	T_{opr}	-40 ~ +100	
Storage Temperature	T_{stg}	-40 ~ +110	
Thermal resistance	$R_{th\ J-A}$	420	K/W
	$R_{th\ J-S}$	260	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.

Electro-Optical Characteristics (Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	7.1	---	14	mcd	$I_F = 2\text{mA}$
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F = 2\text{mA}$
Peak Wavelength	λ_p	---	639	---	nm	$I_F = 2\text{mA}$
Dominant Wavelength	λ_d	625	---	638	nm	$I_F = 2\text{mA}$
Spectrum Radiation Bandwidth	$\Delta\lambda$	---	20	---	nm	$I_F = 2\text{mA}$
Forward Voltage	V_F	1.7	---	2.4	V	$I_F = 2\text{mA}$
Reverse Current	I_R	---	---	10	μA	$V_R = 12\text{V}$

Note:

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

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
K1	7.1	9	mcd	$I_F = 2\text{mA}$
K2	9	11.2		
L1	11.2	14		

Note:

Tolerance of Luminous Intensity: $\pm 11\%$ **Bin Range of Dominant Wavelength**

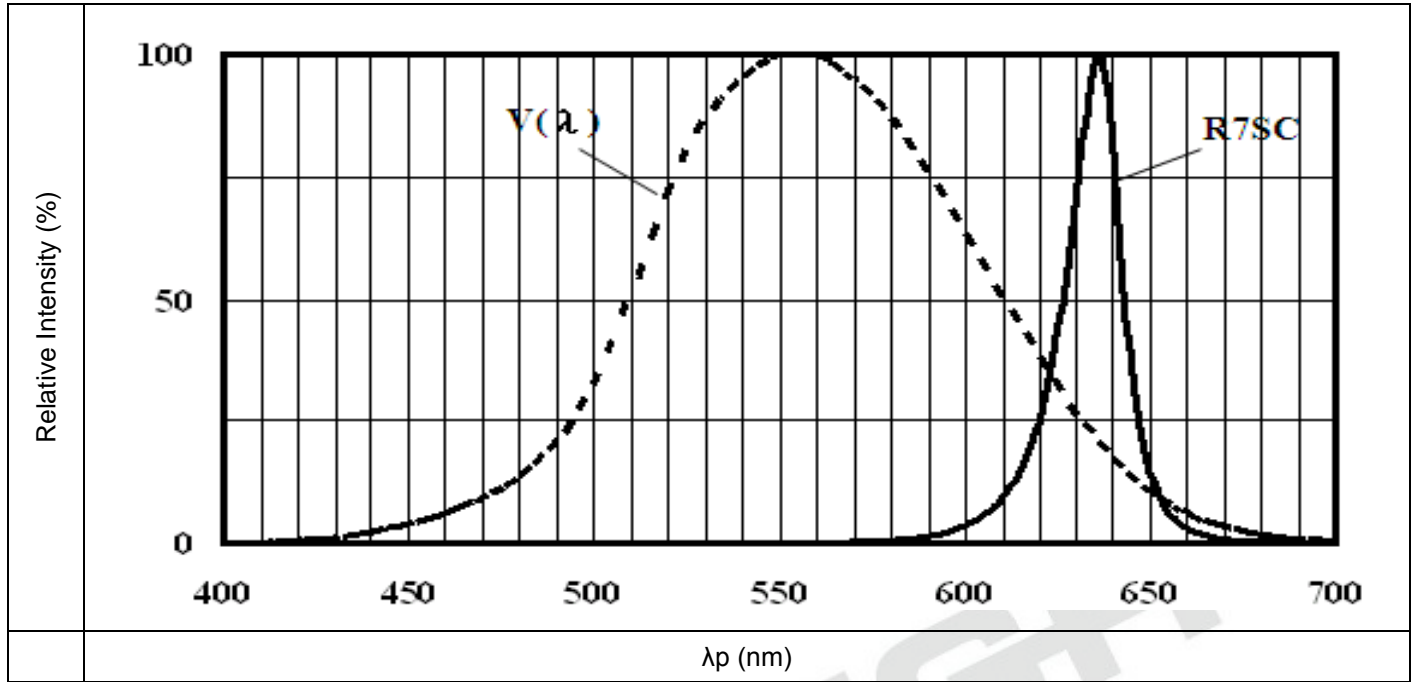
Bin Code	Min.	Max.	Unit	Condition
1	625	629	nm	$I_F = 2\text{mA}$
2	629	633		
3	633	638		

Note:

Tolerance of Dominant Wavelength: $\pm 1\text{nm}$

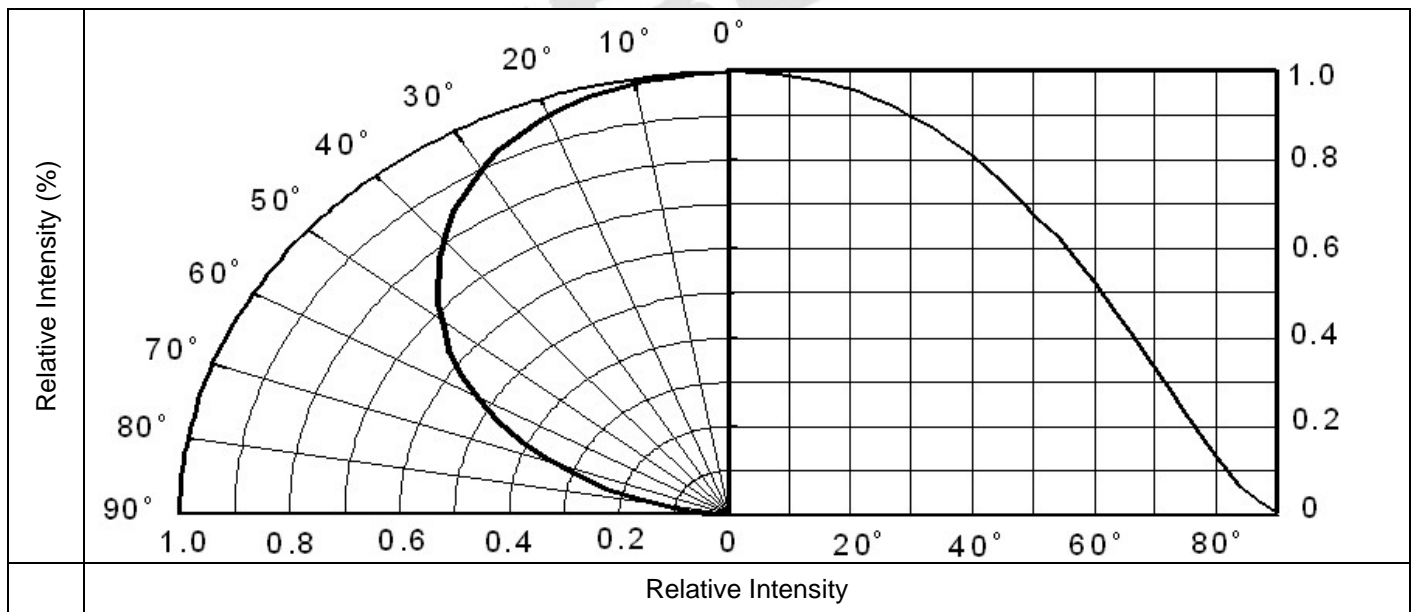
Typical Electro-Optical Characteristics Curves

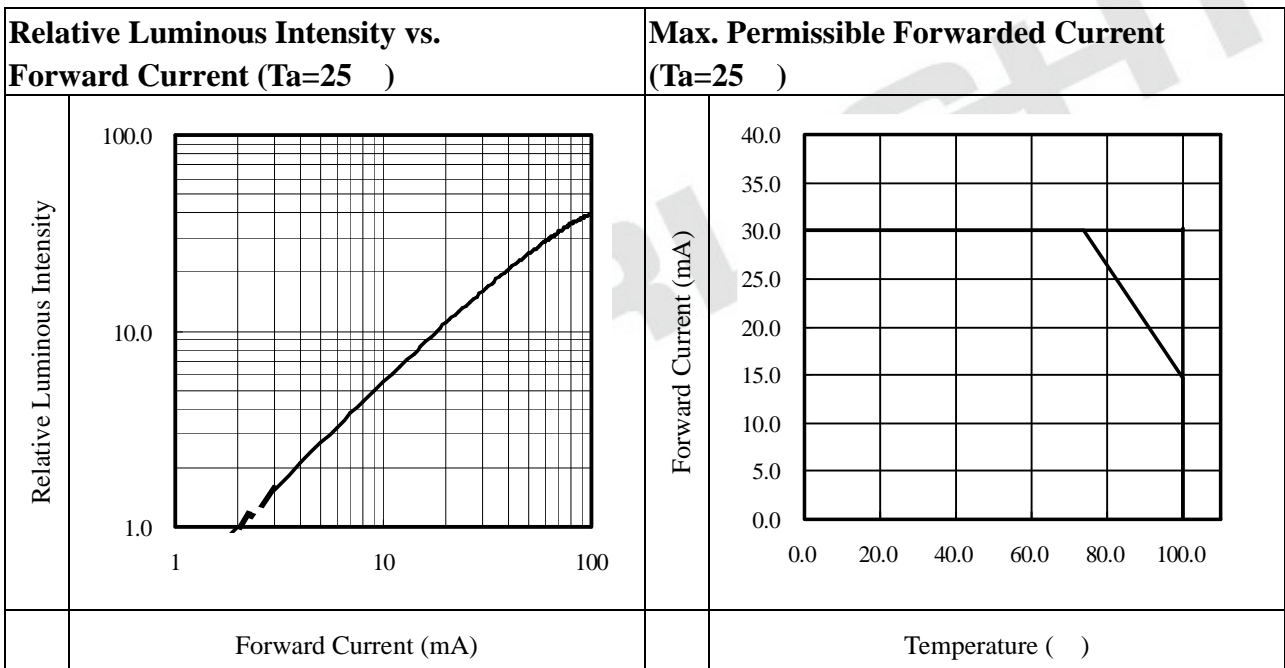
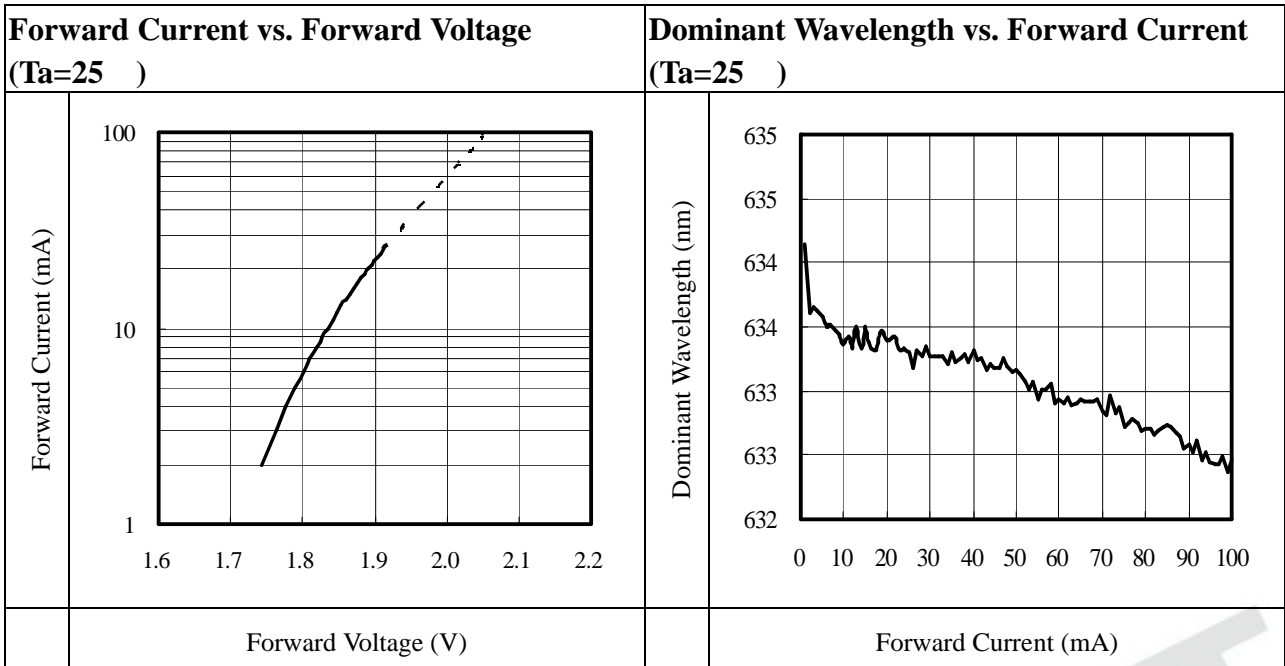
Typical Curve of Spectral Distribution



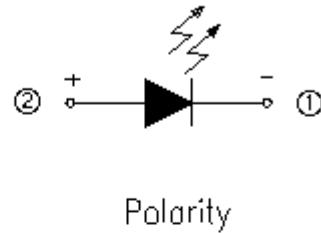
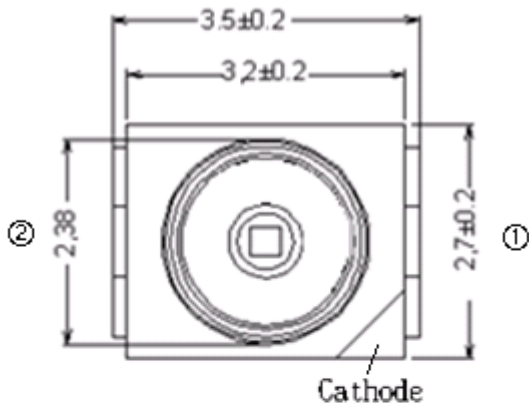
Note: V(λ)=Standard eye response curve; I_F =20mA

Diagram Characteristics of Radiation

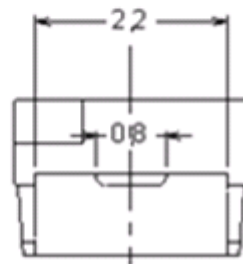
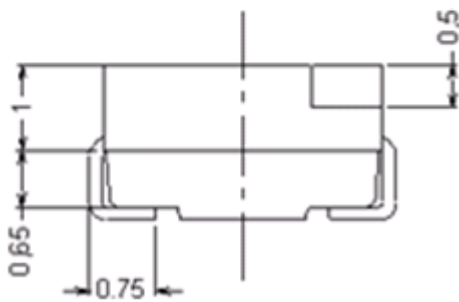




Package Dimension



Chip position



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

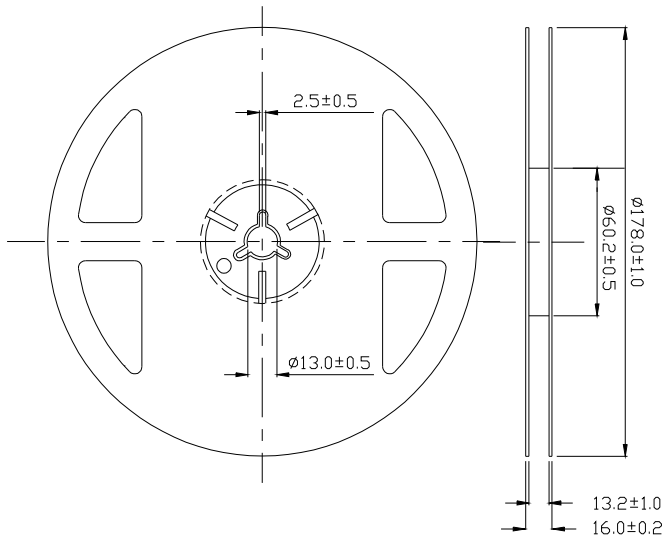
Moisture Resistant Packing Materials

Label Explanation

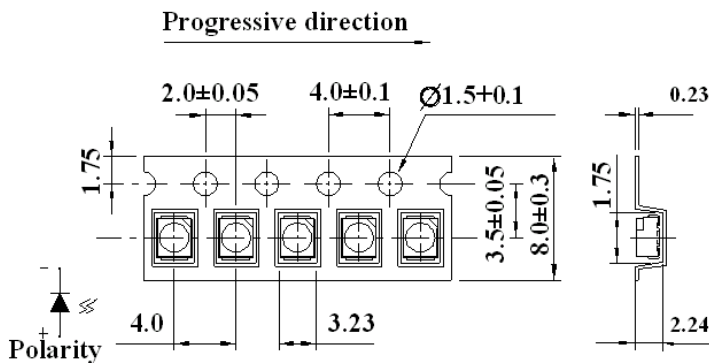


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

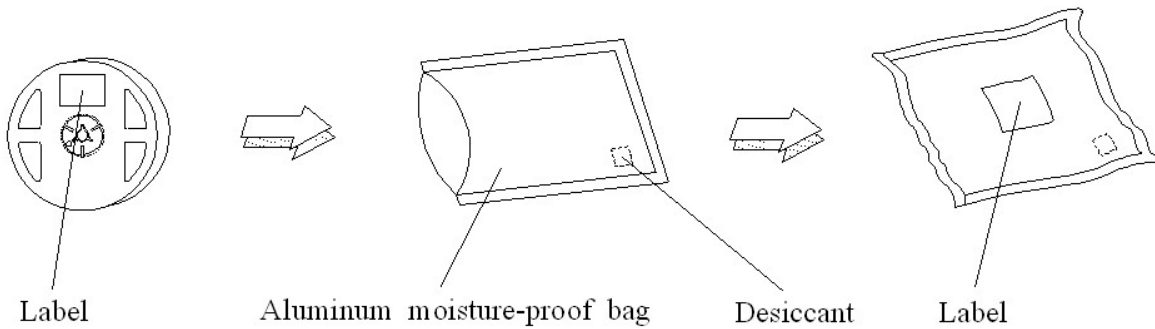


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

Moisture Resistant Packing Process

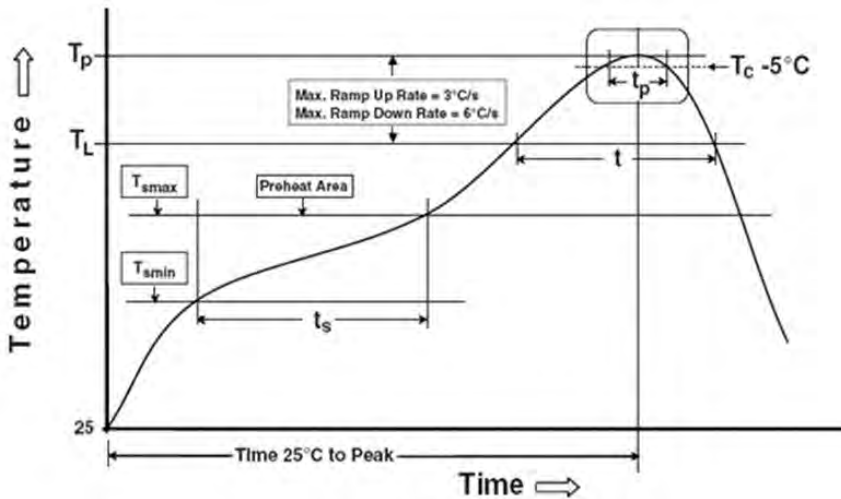


Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

Precautions for Use

1. Soldering Condition

1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



Note:

Reference: IPC/JEDEC J-STD-020D

Preheat

Temperature min (T_{smin})	150 °C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max

Other

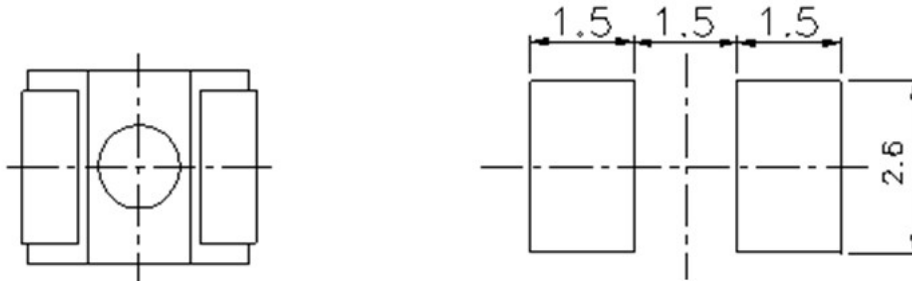
Liquidus Temperature (T_L)	217 °C
Time above Liquidus Temperature (t_L)	60-150 sec
Peak Temperature (T_p)	260°C
Time within 5 °C of Actual Peak Temperature: $T_p - 5^\circ\text{C}$	30 s
Ramp- Down Rate from Peak Temperature	6°C /second max.

Time 25°C to peak temperature
Reflow times

8 minutes max.
3 times

All parameters are maximum body case temperature values and cannot be considered as a soldering profile. The body case temperature was measured by soldering a thermal couple to the soldering point of LEDs.

1.2 (B) Recommend soldering pad



Note: Reference: IPC/JEDEC J-STD-020D

2. Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.

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.