

Technical Data Sheet

Top View LEDs

67-21-Y2SC-D7R1S1B0E-2T8-AM

Lead (Pb) Free Product - RoHS Compliant



Feature

- P-LCC-2 package.
- Colorless clear resin.
- Wide viewing angle 120°.
- Inner reflector and white package.
- Brightness: 112 to 224 mcd at 20mA.
- Precondition: Bases on JEDEC J-STD 020D Level 3.
- Qualification according to AEC-Q101 rev C.
- Automotive reflow profile (IR reflow or wave soldering)

Applications

- Automotive backlighting or indicator: Interior and exterior lighting, Dashboard, switch, reading lamp, 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		
AlGaInP	Brilliant Yellow	Water Clear

Technical Data Sheet**Top View LEDs****67-21-Y2SC-D7R1S1B0E-2T8-AM****Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	12	V
Forward Current	I_F	30	mA
Peak Forward Current ($T \leq 10 \mu s$, $D = 0.005$)	I_{FP}	250	mA
Power Dissipation	P_d	120	mW
Junction Temperature	T_j	125	°C
Operating Temperature	T_{opr}	-40 ~ +100	°C
Storage Temperature	T_{stg}	-40 ~ +110	°C
Thermal resistance	$R_{th\ J-A}$	500	K/W
	$R_{th\ J-S}$	300	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****67-21-Y2SC-D7R1S1B0E-2T8-AM****Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	112	-----	224	mcd	$I_F=20\text{mA}$
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	$I_F=20\text{mA}$
Peak Wavelength	λ_p	-----	591	-----	nm	$I_F=20\text{mA}$
Dominant Wavelength	λ_d	586	-----	594	nm	$I_F=20\text{mA}$
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	15	-----	nm	$I_F=20\text{mA}$
Forward Voltage	V_F	1.75	-----	2.35	V	$I_F=20\text{mA}$
Reverse Current	I_R	-----	-----	10	μA	$V_R=12\text{V}$
Temperature coefficient of λ_p	TC_{λ_p}	-----	0.06	-----	nm/K	$I_F=20\text{mA}$
Temperature coefficient of λ_d	TC_{λ_d}	-----	0.05	-----	nm/K	$I_F=20\text{mA}$
Temperature coefficient of V_F	TC_V	-----	-3.8	-----	mV/K	$I_F=20\text{mA}$

Note:

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

Technical Data Sheet**Top View LEDs****67-21-Y2SC-D7R1S1B0E-2T8-AM****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
R1	112	140	mcd	I _F =20mA
R2	140	180		
S1	180	224		

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

Bin Code	Min.	Max.	Unit	Condition
1	586	589	nm	I _F =20mA
2	589	591		
3	591	594		

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

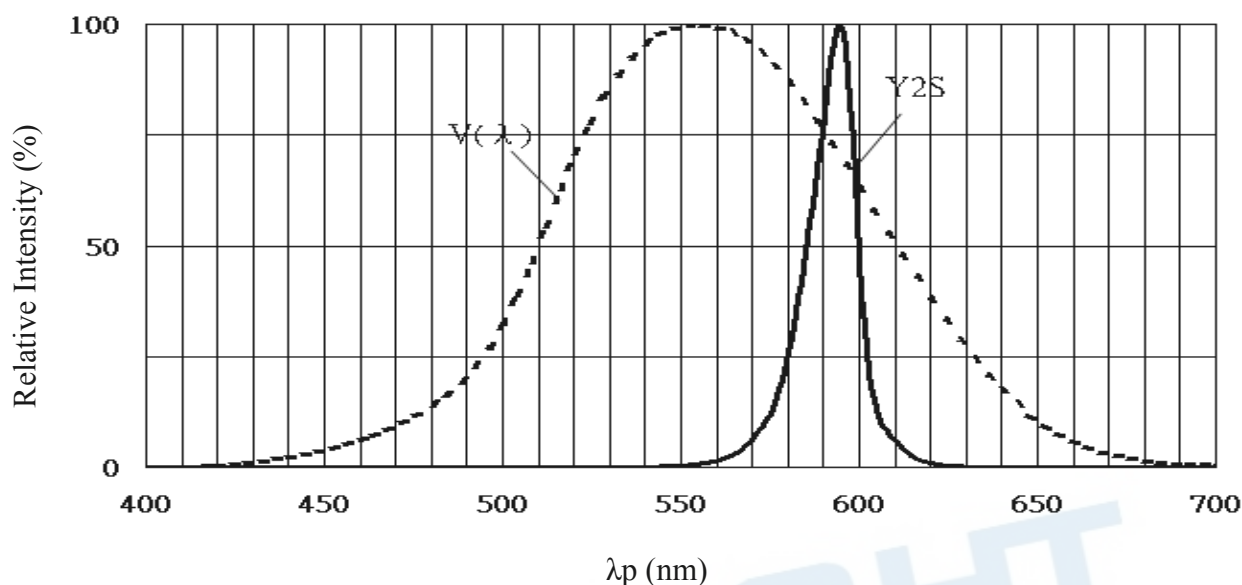
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Top View LEDs

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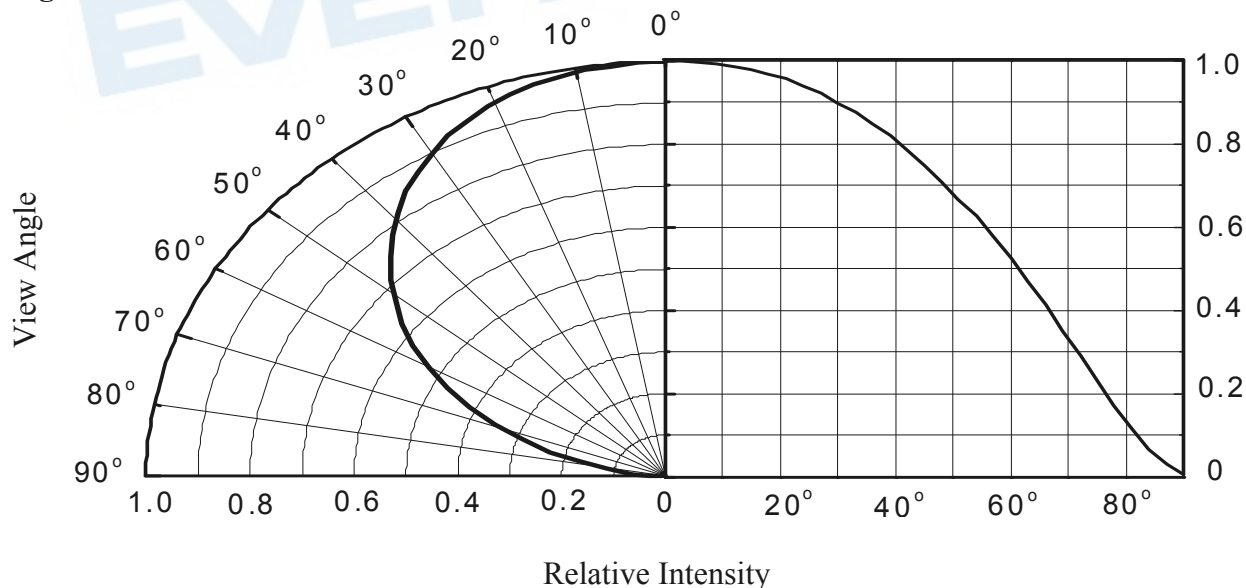
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



Note: $V(\lambda)$ =Standard eye response curve

Diagram Characteristics of Radiation

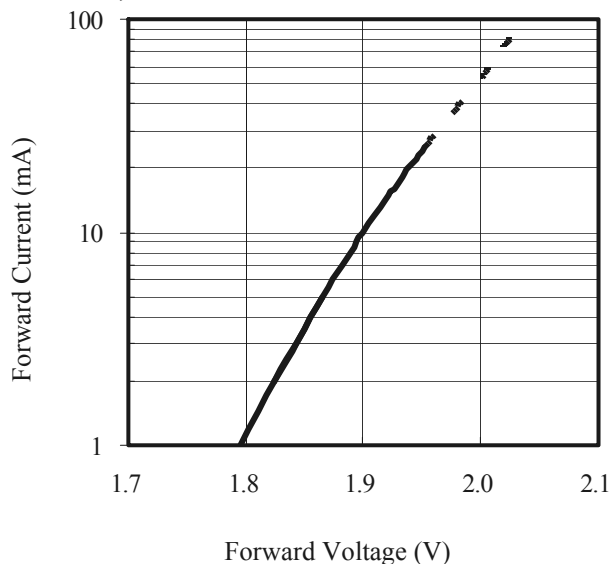


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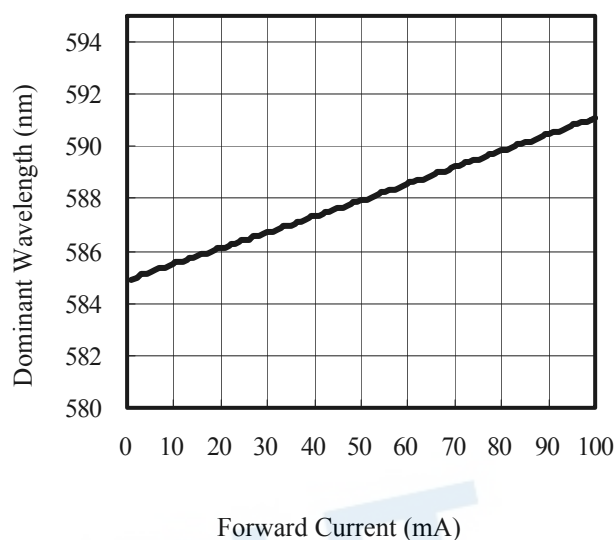
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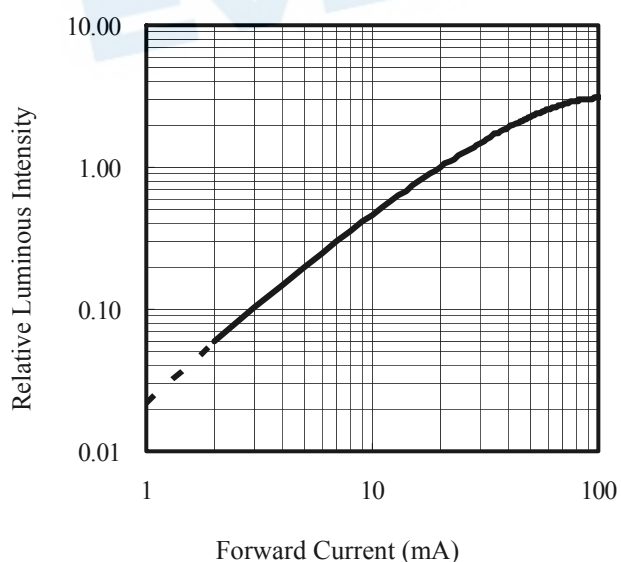
Forward Current vs. Forward Voltage
(Ta=25°C)



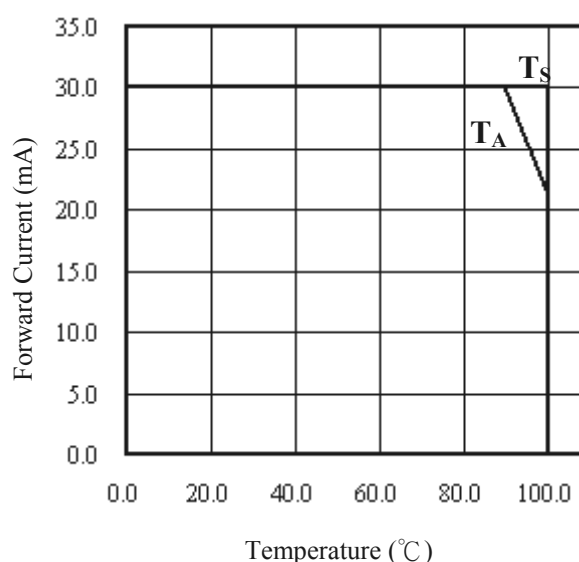
Dominant Wavelength vs. Forward Current
(Ta=25°C)



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



Forward current vs. Ambient and Solder Temperature

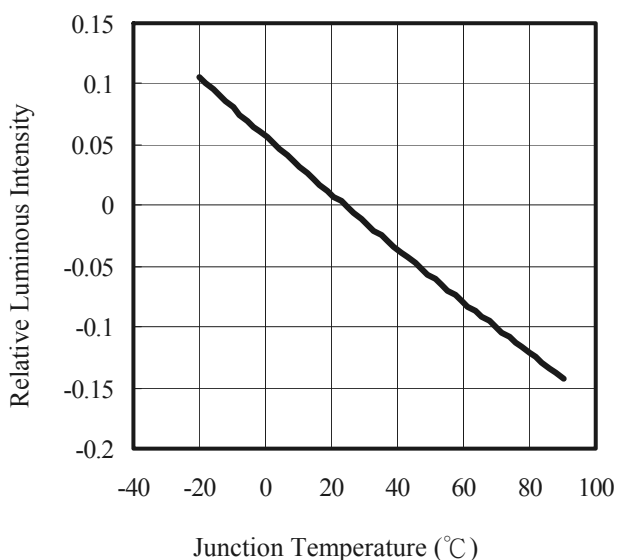


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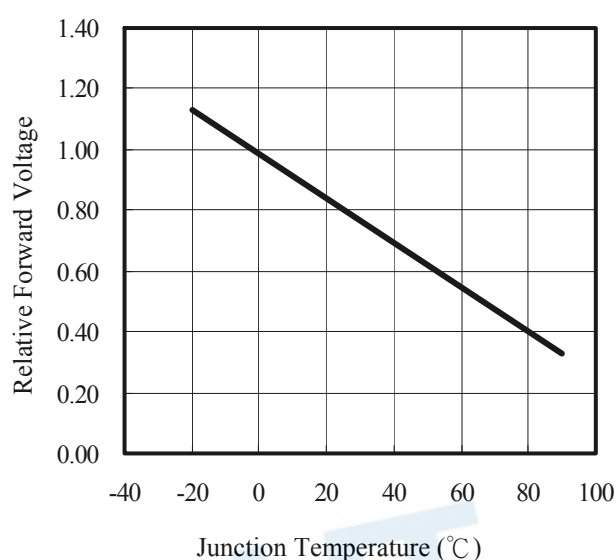
67-21-Y2SC-D7R1S1B0E-2T8-AM

**Relative Luminous Intensity vs.
Junction Temperature**



Note: $f(T_j) = I_v / I_v(25^\circ\text{C})$; $I_F = 20\text{mA}$

**Relative Forward Voltage vs.
Junction Temperature**



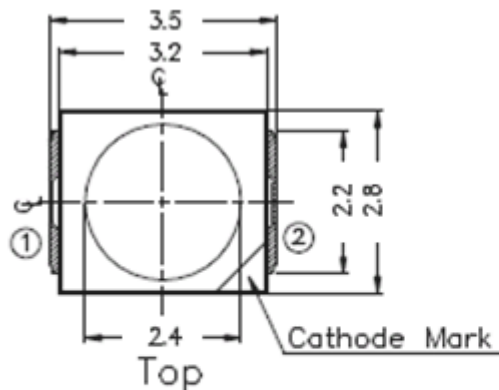
Note: $\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j)$; $I_F = 20\text{mA}$

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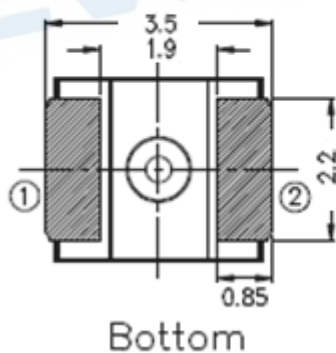
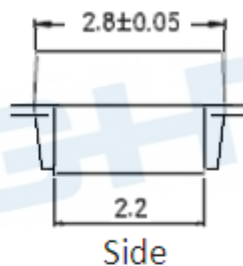
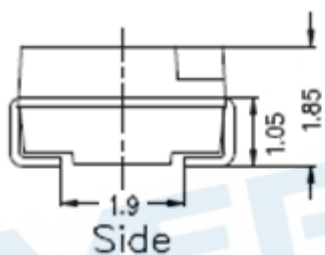
Top View LEDs

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Package Dimension



Polarity



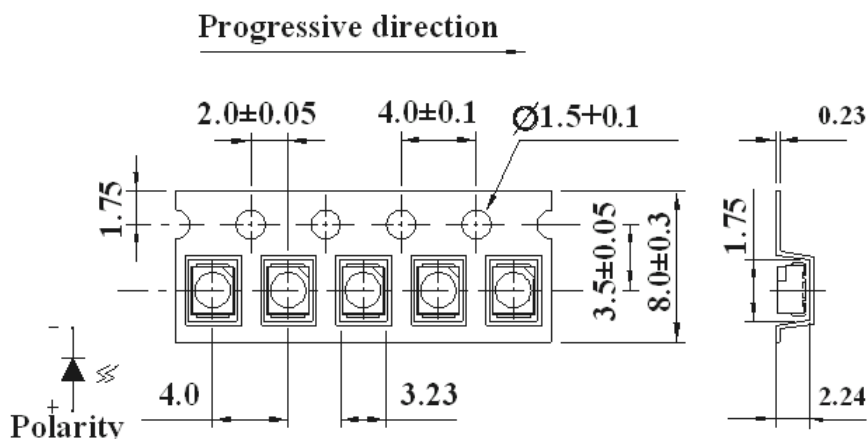
Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

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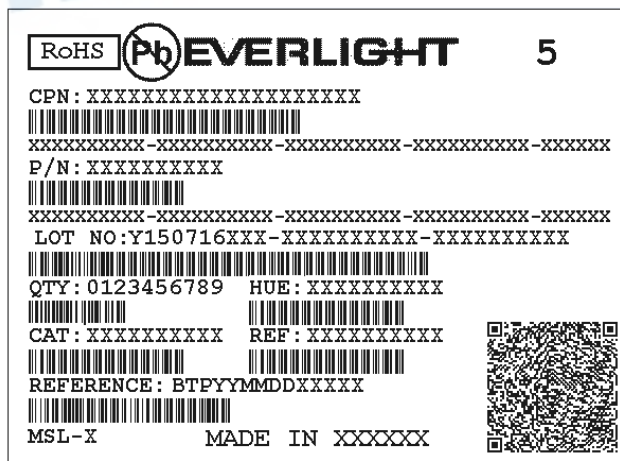
Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

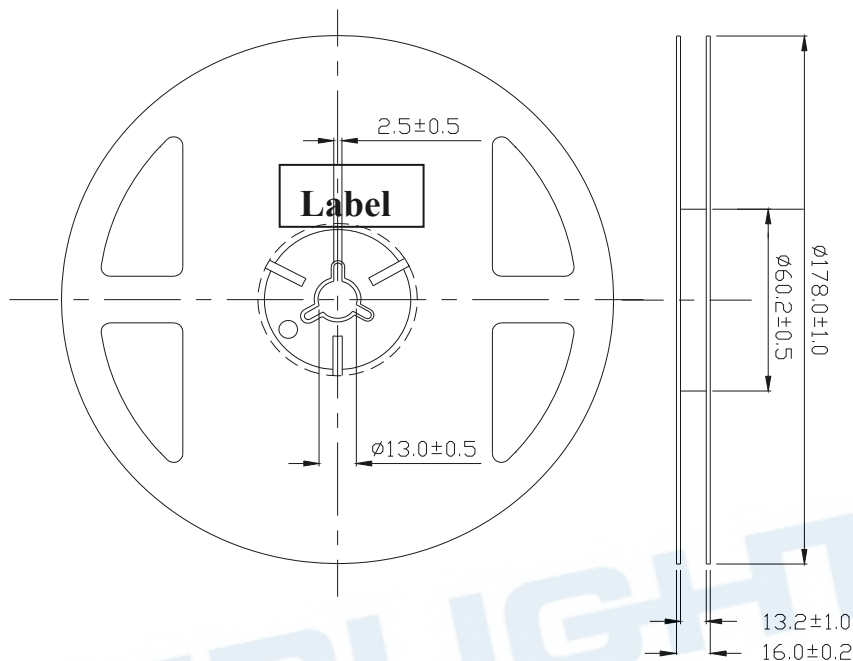


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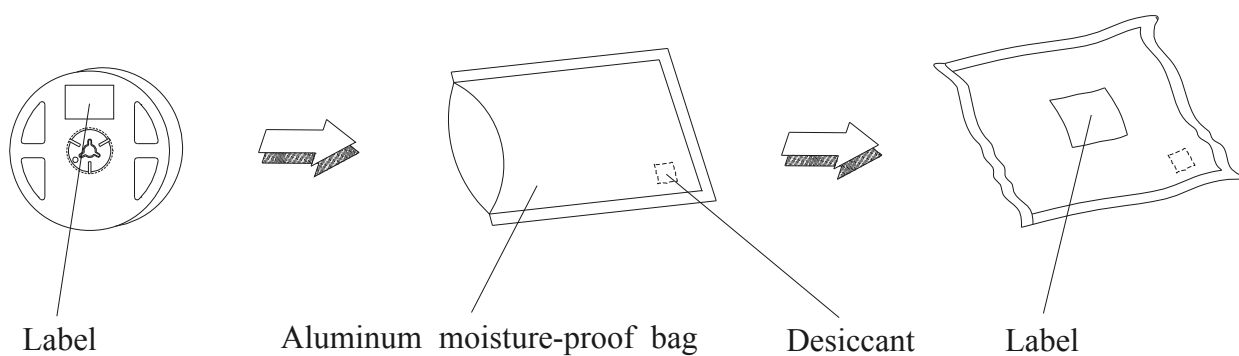
67-21-Y2SC-D7R1S1B0E-2T8-AM

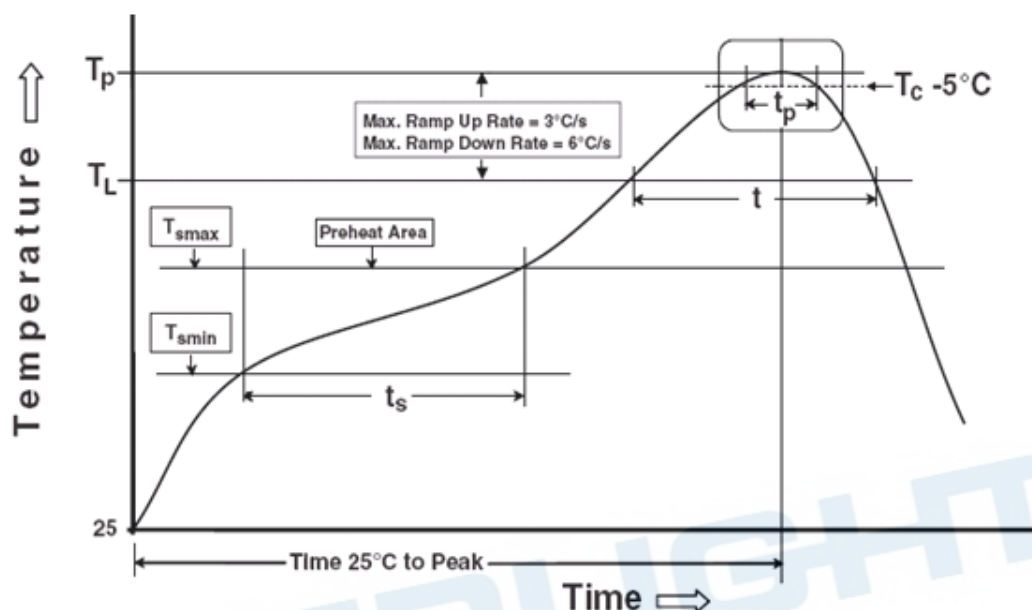
Reel Dimensions



Note: Unit = mm

Moisture Resistant Packing Process



Technical Data Sheet**Top View LEDs****67-21-Y2SC-D7R1S1B0E-2T8-AM****Precautions for Use****1. Soldering Condition****1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile**

Note:

PreheatTemperature min (T_{smin})Temperature max (T_{smax})Time (T_{smin} to T_{smax}) (t_s)Average ramp-up rate (T_{smax} to T_p)**Other**Liquidus Temperature (T_L)Time above Liquidus Temperature (t_L)Peak Temperature (T_p)Time within 5°C of Actual Peak Temperature: $T_p - 5^\circ\text{C}$

Ramp- Down Rate from Peak Temperature

Time 25°C to peak temperature

Reflow times

Reference: IPC/JEDEC J-STD-020D

150 °C

200°C

60-120 seconds

3 °C/second max

217 °C

60-150 sec

260°C

30 s

6°C /second max.

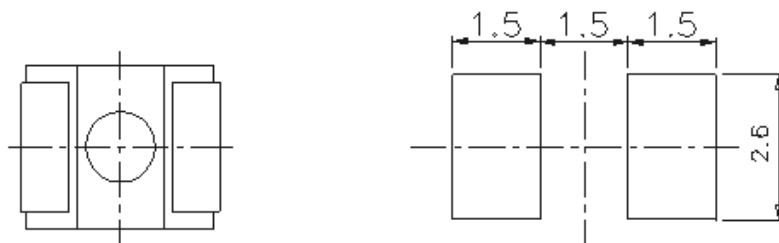
8 minutes max.

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.

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(B) Recommend soldering pad



Note: Tolerances unless mentioned ± 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.

Technical Data Sheet**Top View LEDs****67-21-Y2SC-D7R1S1B0E-2T8-AM****Revision History:**

Rev.	Modified date	File modified contents
1	2009/06/30	New Spec
2	2012/10/26	Junction Temperature
3	2015/09/23	To add the QR code
4	2017/03/07	Modify the text

EVERLIGHT