

Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-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: 180 to 355 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 Orange	Water Clear

Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

Absolute Maximum Ratings (Ta=25)

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}	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 Hand Soldering : 350	for 30 sec. for 3 sec.

Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

Electro-Optical Characteristics (Ta=25)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	180	---	355	mcd	$I_F = 20\text{mA}$
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F = 20\text{mA}$
Peak Wavelength	λ_p	---	611	---	nm	$I_F = 20\text{mA}$
Dominant Wavelength	λ_d	599	---	608	nm	$I_F = 20\text{mA}$
Spectrum Radiation Bandwidth	$\Delta\lambda$	---	17	---	nm	$I_F = 20\text{mA}$
Forward Voltage	V_F	1.7	---	2.4	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}	---	0.12	---	nm/K	$I_F = 20\text{mA}$
Temperature coefficient of λ_d	TC_{λ_d}	---	0.11	---	nm/K	$I_F = 20\text{mA}$
Temperature coefficient of V_F	TC_V	---	-2.8	---	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-S2C-U7S1T1B7E-2T8-AM

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
S1	180	224	mcd	I _F =20mA
S2	224	280		
T1	280	355		

Notes : Tolerance of Luminous Intensity : ±11%

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
1	599	602	nm	I _F =20mA
2	602	605		
3	605	608		

Notes : Tolerance of Dominant Wavelength : ±1nm

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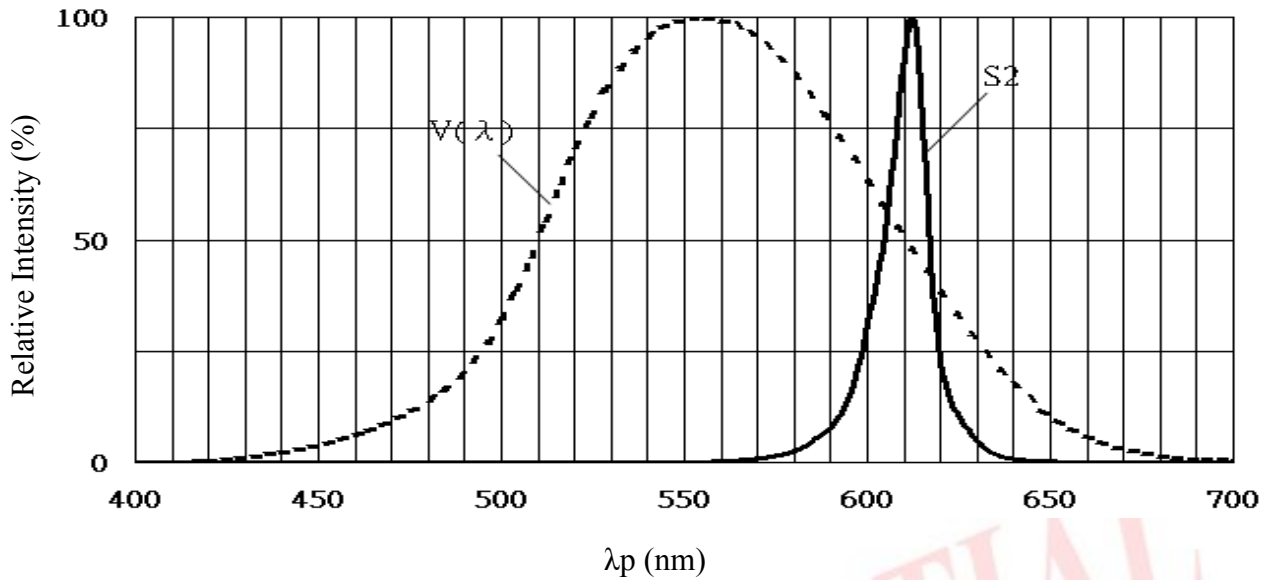
Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

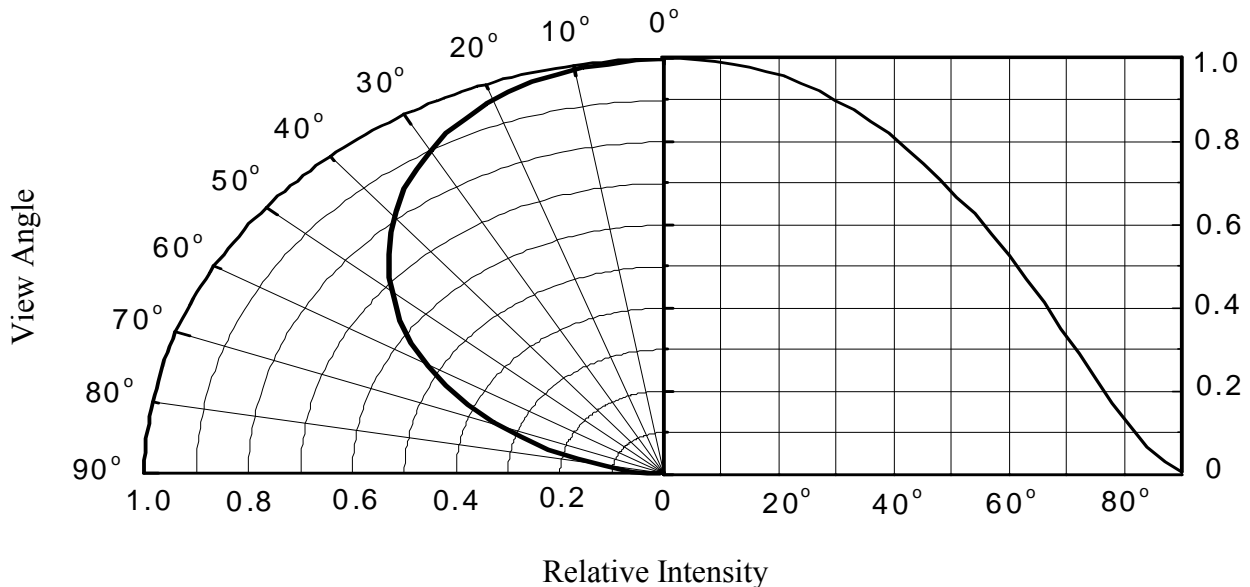
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



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

Diagram Characteristics of Radiation

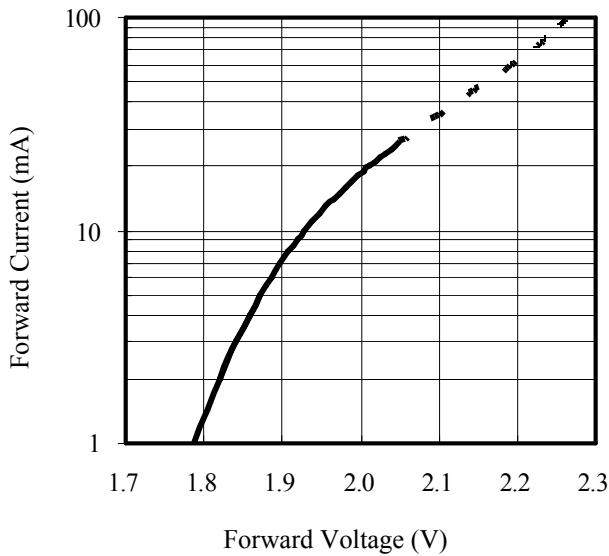


Technical Data Sheet

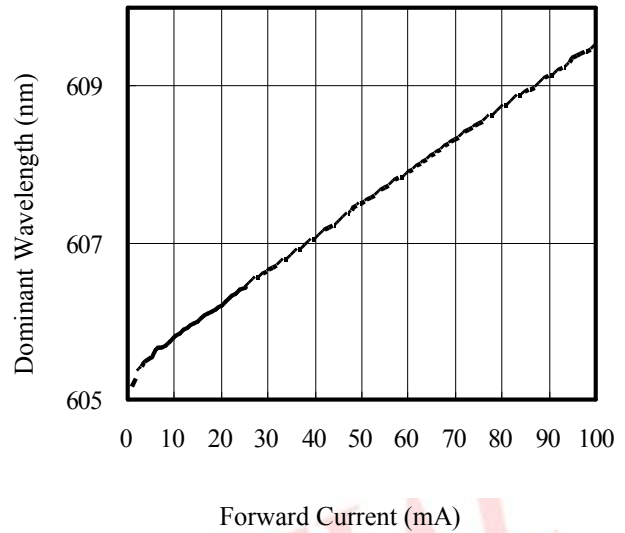
Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

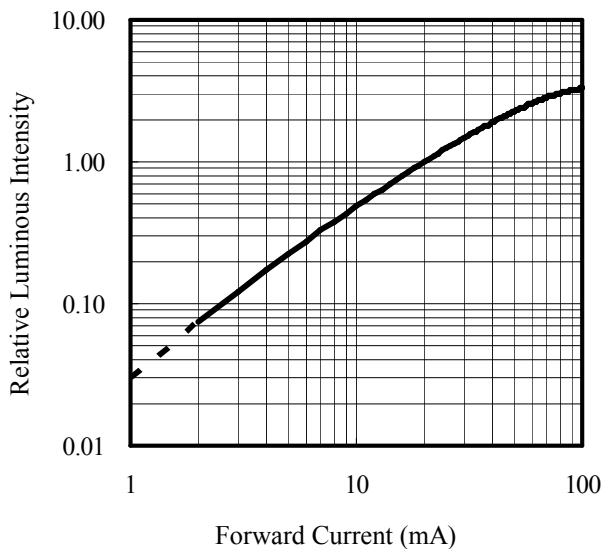
Forward Current vs. Forward Voltage
($T_a=25^\circ\text{C}$)



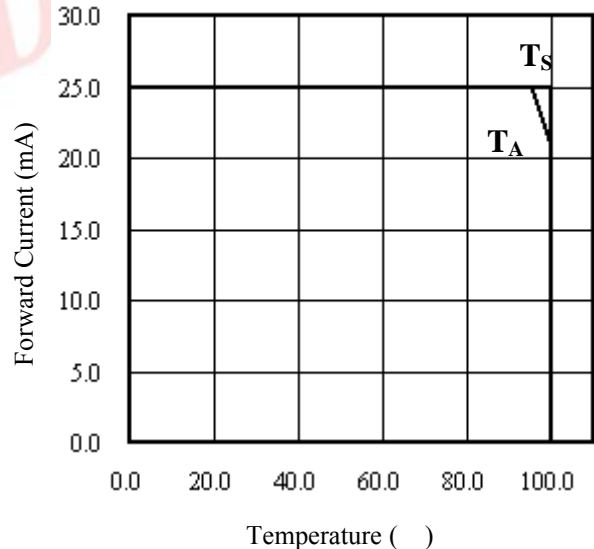
Dominant Wavelength vs. Forward Current
($T_a=25^\circ\text{C}$)



Relative Luminous Intensity vs.
Forward Current ($T_a=25^\circ\text{C}$)



Forward current vs. Ambient and Solder
Temperature

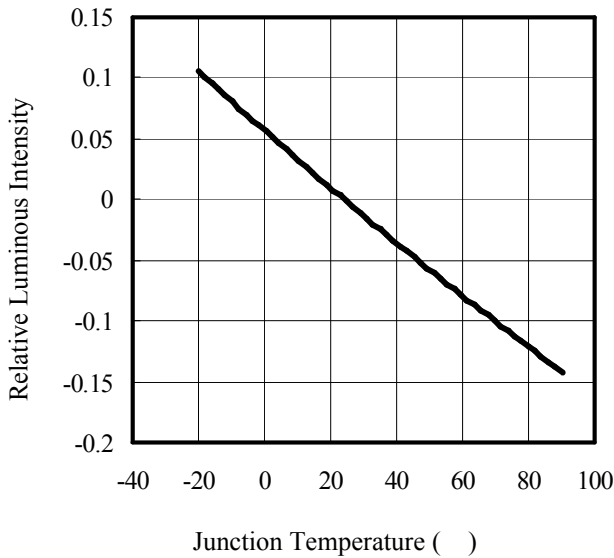


Technical Data Sheet

Top View LEDs

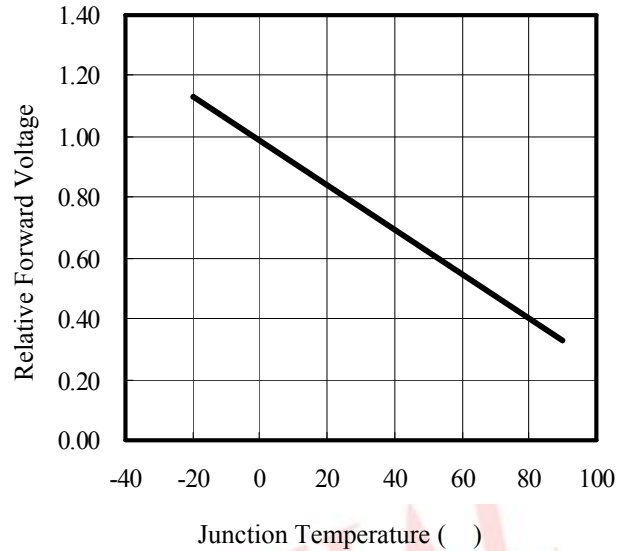
67-21-S2C-U7S1T1B7E-2T8-AM

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

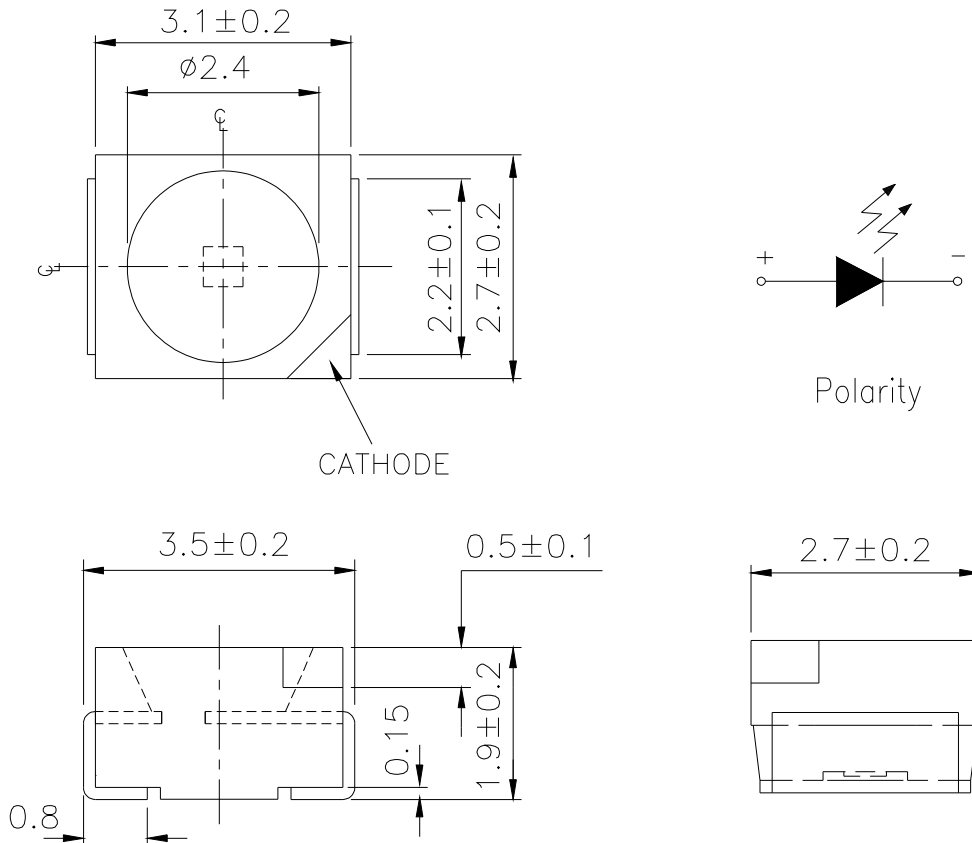
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Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

Package Dimension



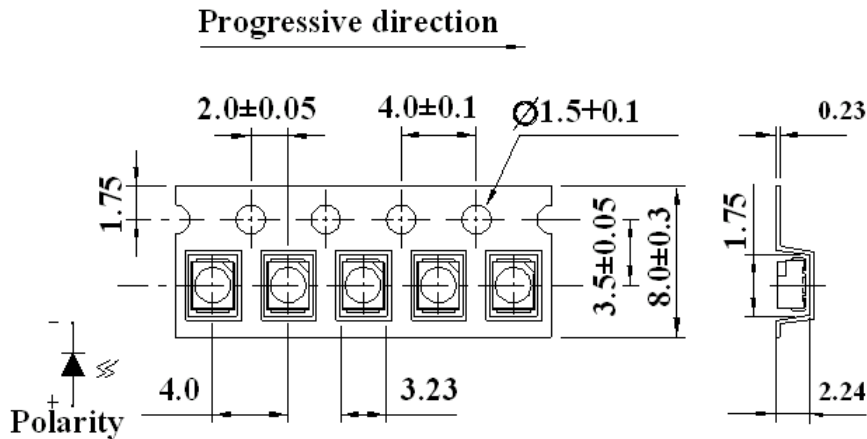
Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-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

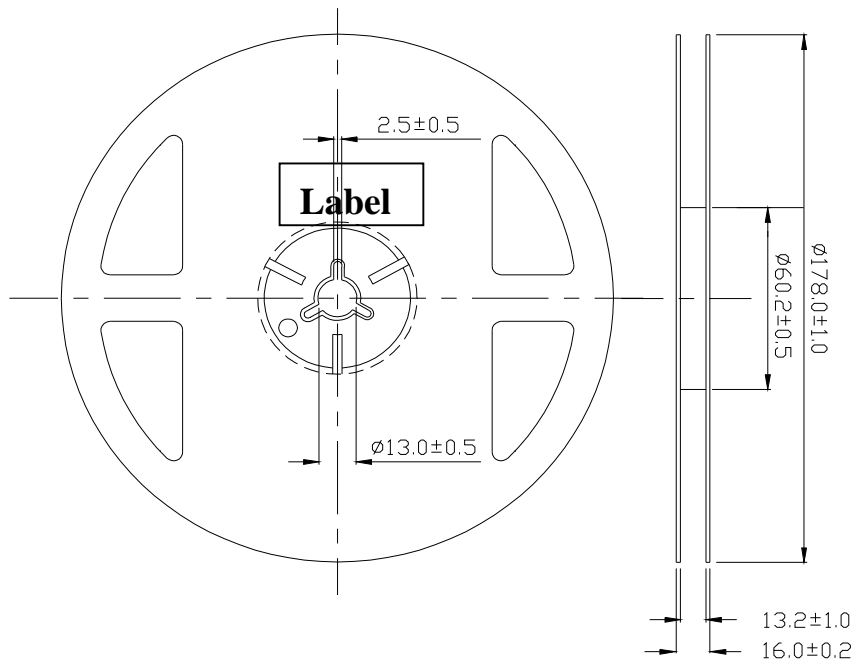


Technical Data Sheet

Top View LEDs

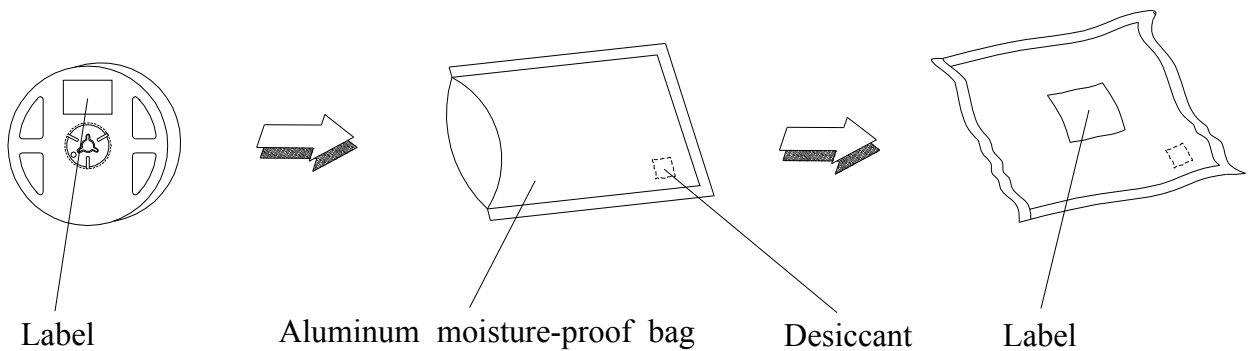
67-21-S2C-U7S1T1B7E-2T8-AM

Reel Dimensions



Note: Unit = mm

Moisture Resistant Packing Process



Technical Data Sheet

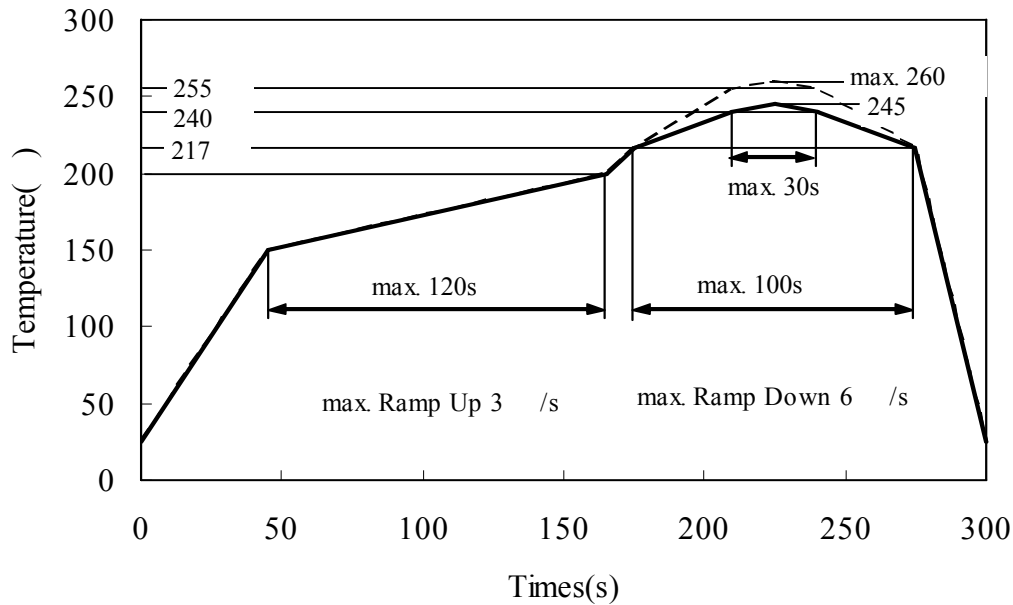
Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

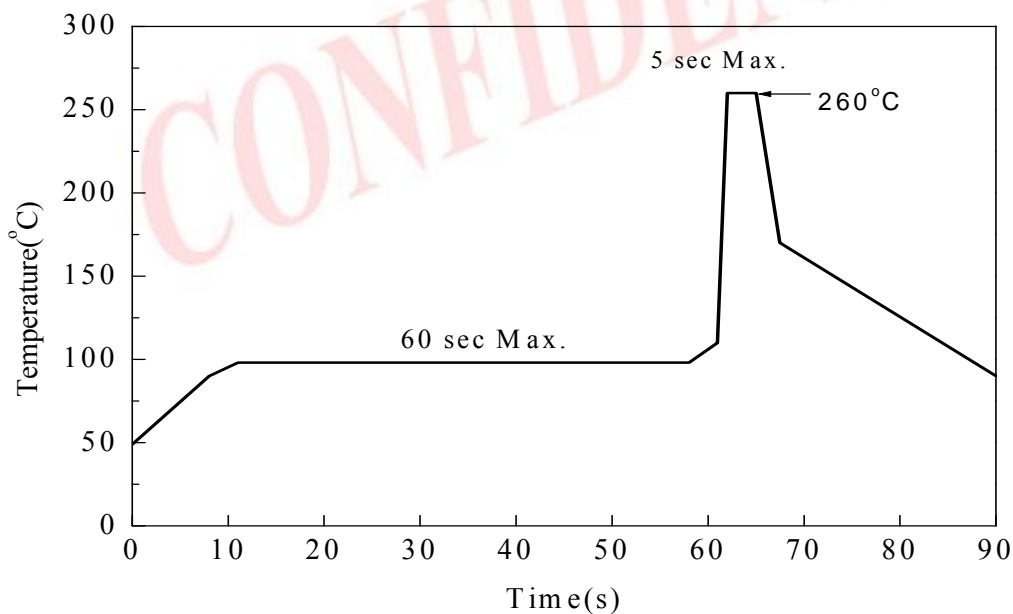
Precautions for Use

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

a. IR reflow



b. Wave soldering reflow

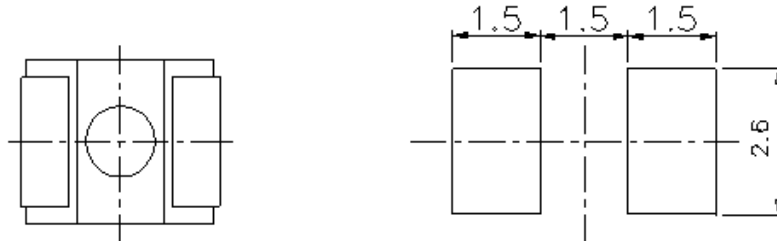


Technical Data Sheet

Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

(B) Recommend soldering pad



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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.



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Top View LEDs

67-21-S2C-U7S1T1B7E-2T8-AM

Revision History:

Rev.	Modified date	File modified contents
1	2009/6/17	New Spec

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