

SMD ■ A

95-21SURC/S3385/TR9



Features

- Package in 12mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- EIA Std. package.
- Mono-color type.
- Pb-free.
- The product itself will remain within RoHS compliant version.

Description

- The 95-21 SMD LED is much smaller than leaded components .

Thus enable smaller board size. Higher packing density. Reduced storage space and finally smaller equipment to be obtained.

Applications

- Small indicator for indoor applications.
- Flat backlight for LCD, switches and symbols.
- Indicator and backlight in office equipment.
- Indicator and backlight for battery driven equipment.
- Indicator and backlight for audio and video equipment.
- Backlighting in dashboards and switches.
- Telecommunication : indicator and backlighting in telephone and fax.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear

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}	60	mA
Power Dissipation	P_d	60	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
Electrostatic Discharge	ESD_{HBM}	2000	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	715	-----	2850	mcd	$I_F=20mA$
Viewing Angle	$2\theta_{1/2}$	-----	25	-----	deg	$I_F=20mA$
Peak Wavelength	λ_p	-----	632	-----	nm	$I_F=20mA$
Dominant Wavelength	λ_d	618	-----	627	nm	$I_F=20mA$
Forward Voltage	V_F	1.7	2.0	2.4	V	$I_F=20mA$
Reverse Current	I_R	-----	-----	10	μA	$V_R=5V$

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
V	715	1120	mcd	$I_F = 20\text{mA}$
W	1120	1800		
X	1800	2850		

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

Bin RangeOf Dom. Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
SUR	00	618.00	621.00	nm	$I_F = 20\text{mA}$
	01	621.00	624.00		
	02	624.00	627.00		

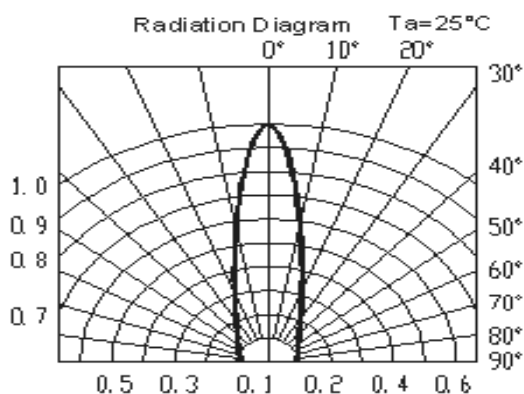
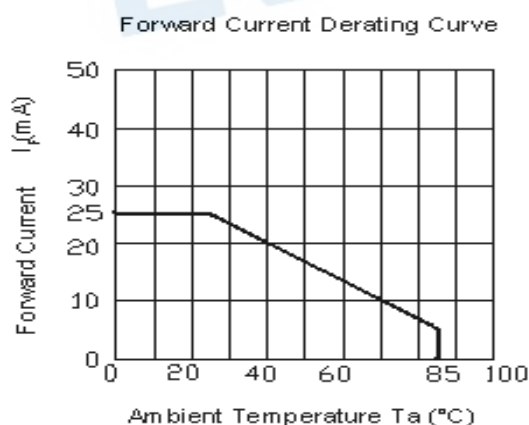
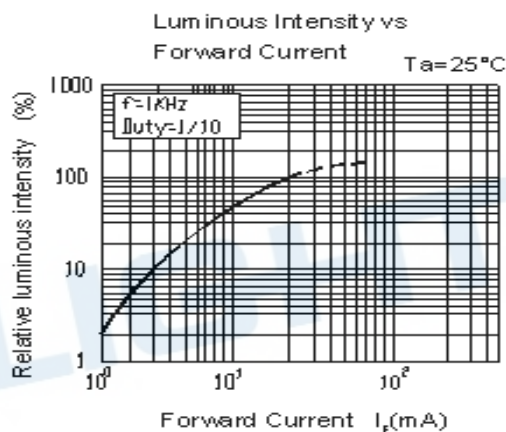
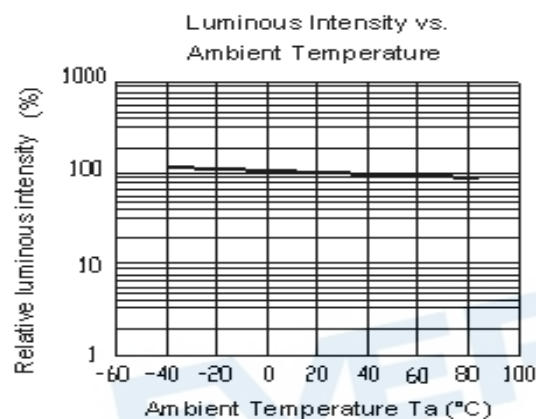
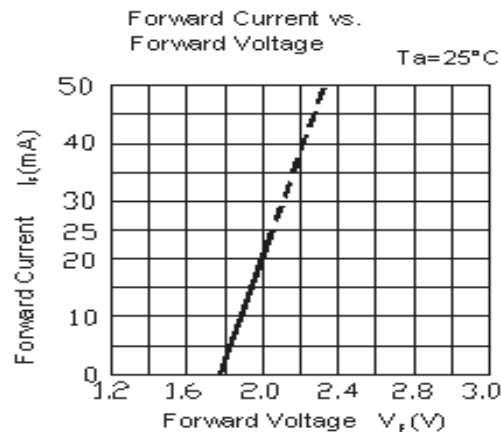
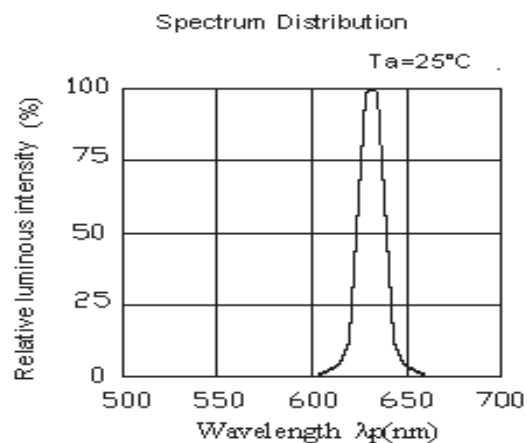
Note:
Tolerance of Dominant Wavelength: $\pm 1\text{nm}$

Bin Range of Luminous Voltage

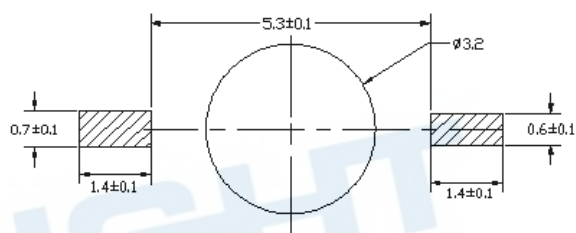
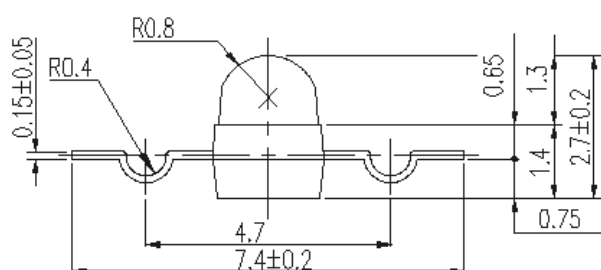
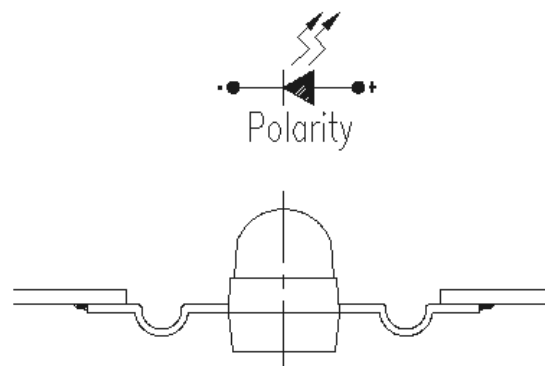
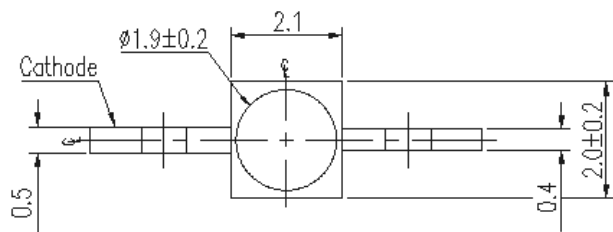
Bin Code	Min.	Max.	Unit	Condition
1	1.70	1.90	V	$I_F = 20\text{mA}$
2	1.90	2.20		
3	2.20	2.40		

Note:
Tolerance of Forward Voltage: $\pm 0.05\text{V}$.

Typical Electro-Optical Characteristics Curves



Package Outline Dimensions



Note: The tolerances unless mentioned are ± 0.1 , unit=mm.

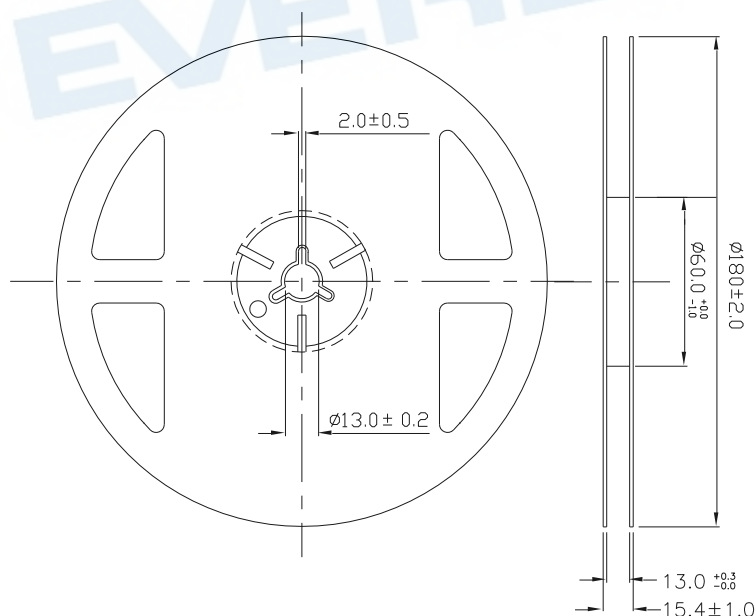
Moisture Resistant Packing Materials

Label Explanation



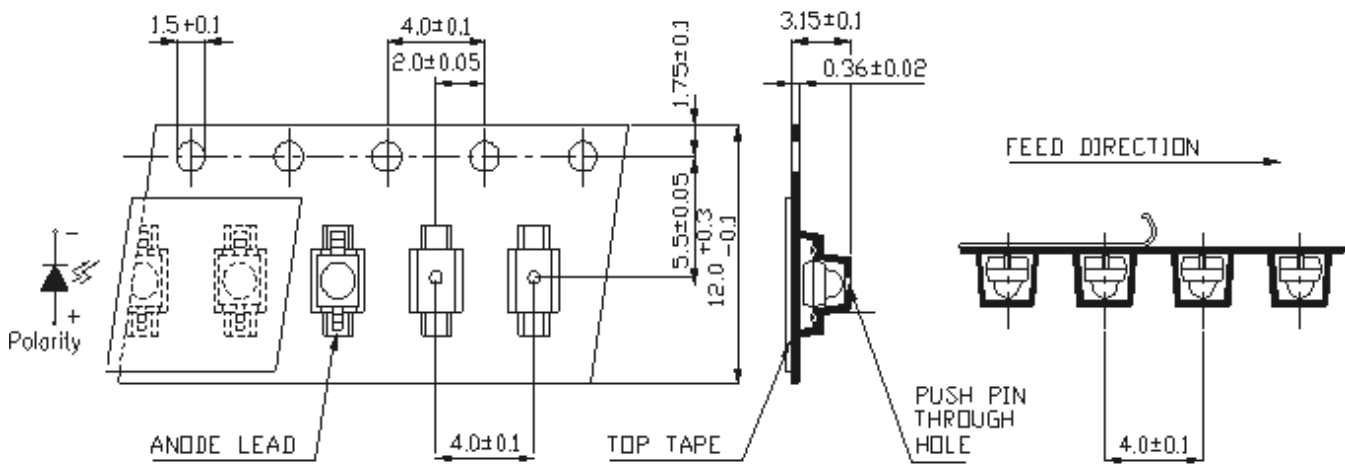
- CPN: Customer's Product Number
- P/N: Product Number
- LOT No: Lot Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank

Reel & Carrier Tape Dimensions



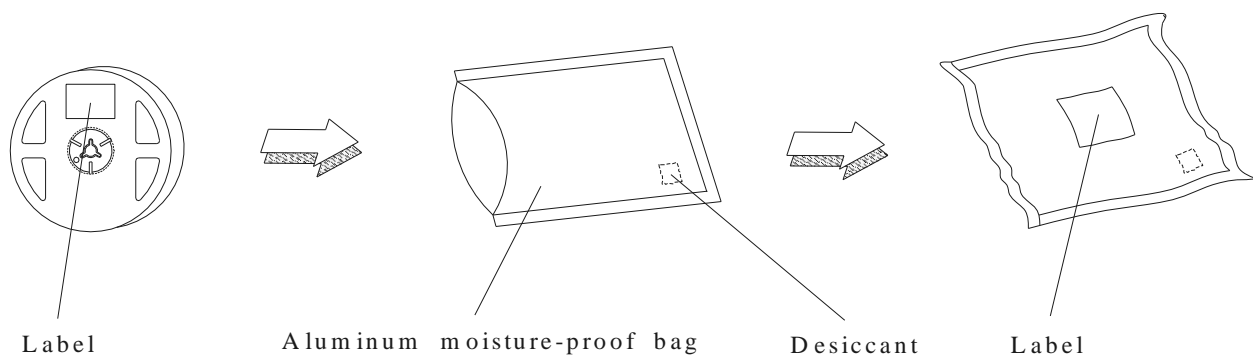
Note: The tolerances unless mentioned are ± 0.1 , unit=mm

Loaded quantity 1000 PCS/reel



Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

Moisture Resistant Packaging



Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C/10sec.	6 Min.	22 PCS.	0/1
2	Thermal Shock	H : +100°C 5min └ 10 sec L : -10°C 5min	300 Cycles	22 PCS.	0/1
3	Temperature Cycle	H : +100°C 15min └ 5 min L : -40°C 15min	300 Cycles	22 PCS.	0/1
4	High Temperature/High Humidity	Ta=85°C,85%RH,	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Ta=-40°C	1000 Hrs.	22 PCS.	0/1
6	High Temperature Storage	Ta=100°C	1000 Hrs.	22 PCS.	0/1
7	DC Operation Life	Ta=25°C, I _F = 25 mA	1000 Hrs.	22 PCS.	0/1

Precautions For Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 72 hours under 30°C or less and 60% RH or less.

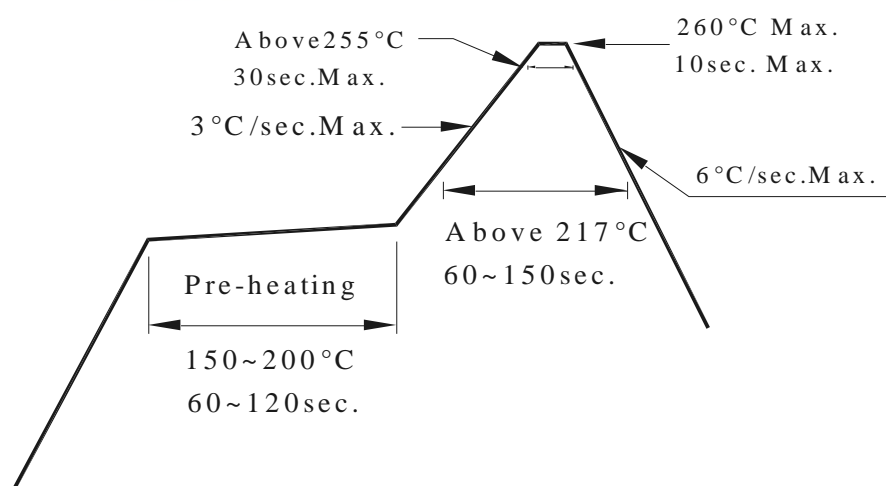
If unused LEDs remain, it should be stored in moisture proof packages.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5.Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

