

SMD ■ A

28-21SUBC/S400-XX/XXX



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.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Description

- The 28-21 SMD LED taping is much smaller than leaded components .Thus enable smaller board size. Higher packing density. Reduced storage space and finally smaller equipment to be obtained.

- Besides, light weight makes them ideal for miniature applications.
- Furthermore by automation assembly machines the accuracy is anticipated.

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.
- Automotive : backlighting in dashboards and switches
- Telecommunication : indicator and backlighting in telephone and fax.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Blue	Water Clear

Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	20	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	P_d	110	mW
Operating Temperature	T_{opr}	-40 ~ +85	
Storage Temperature	T_{stg}	-40 ~ +90	
Electrostatic Discharge	ESD_{HBM}	150	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 Hand Soldering : 350	for 10 sec. for 3 sec.

Electro-Optical Characteristics (Ta=25℃)

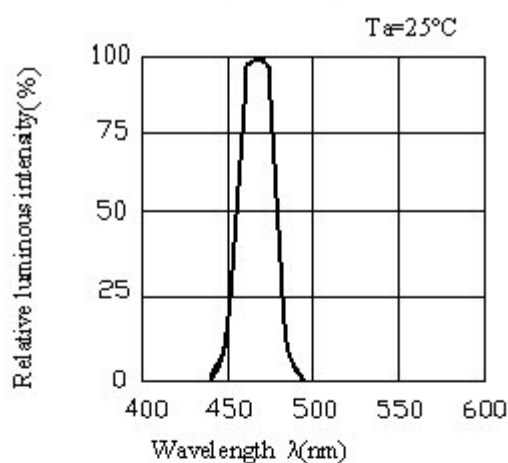
Parameter	Symbol	Rank	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	A4	20	26	-----	mcd	I _F =20mA
		A5	25	29	-----		
		A6	30	36	-----		
Viewing Angle	2θ _{1/2}	-----	-----	150	-----	deg	I _F =20mA
Peak Wavelength	λ _p	-----	-----	468	-----	nm	I _F =20mA
Dominant Wavelength	λ _d	-----	-----	470	-----	nm	I _F =20mA
Spectrum Radiation Bandwidth		-----	-----	35	-----	nm	I _F =20mA
Forward Voltage	V _F	-----	-----	3.5	4.3	V	I _F =20mA
Reverse Current	I _R	-----	-----	-----	50	μA	V _R =5V

Notes:

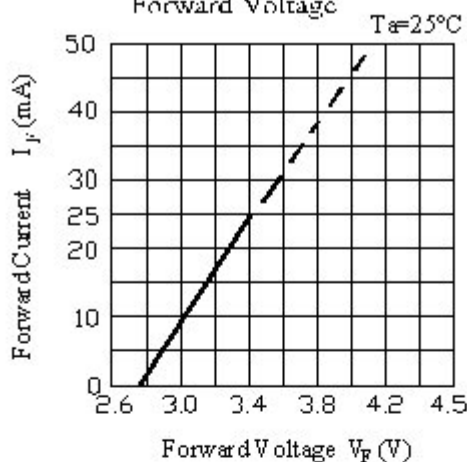
1. Tolerance of Luminous Intensity: ±11%.
2. Tolerance of Forward Voltage : ±0.05V.
3. Tolerance Color Rendering Index : ± 2

Typical Electro-Optical Characteristics Curves

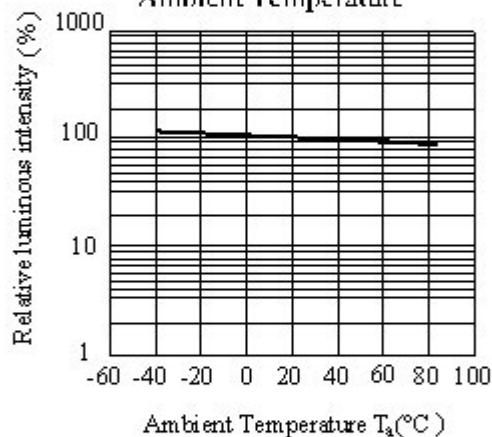
Spectrum Distribution



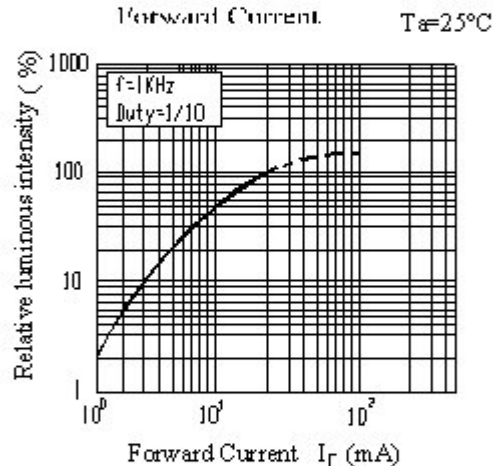
Forward Current vs.
Forward Voltage



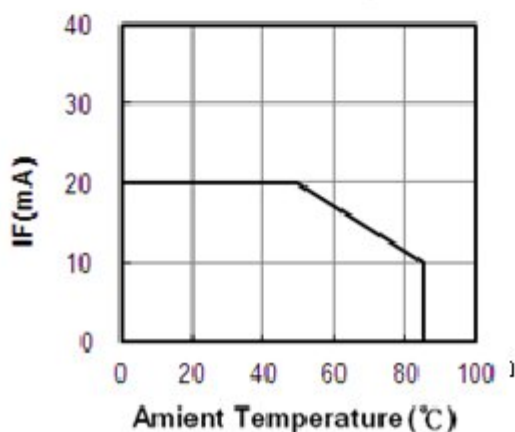
Luminous Intensity vs.
Ambient Temperature



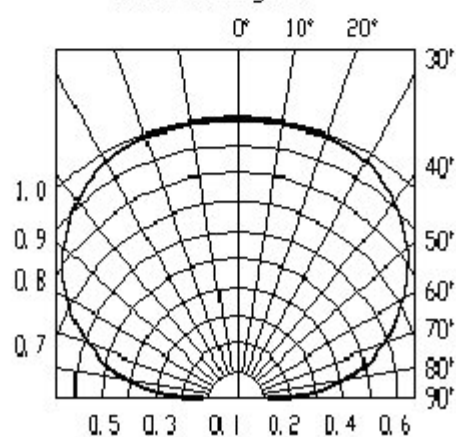
Luminous Intensity vs
Forward Current



Forward Current Derating Curve

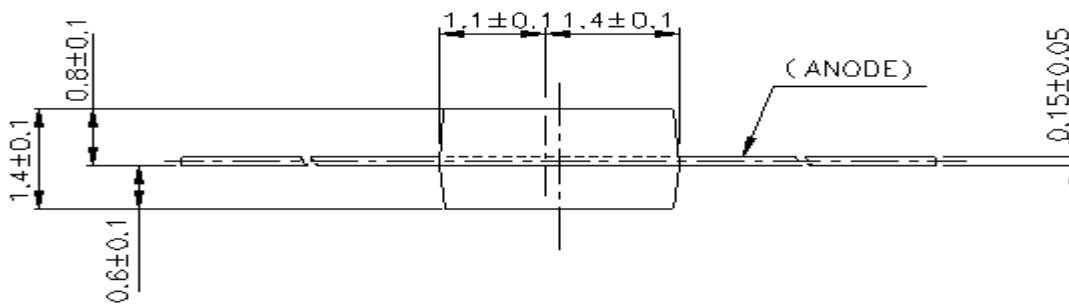
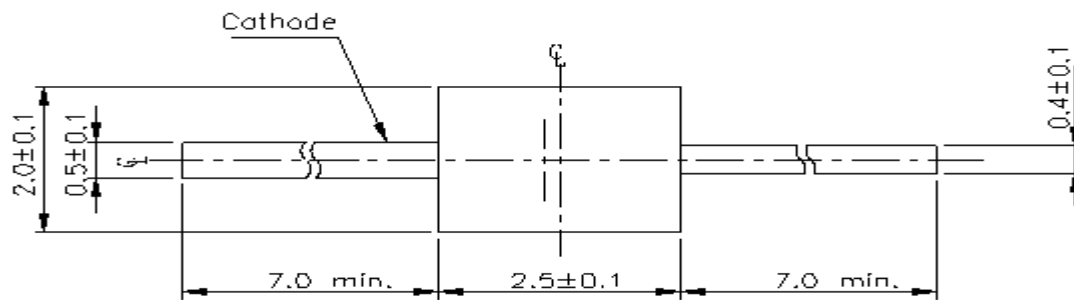


Radiation Diagram

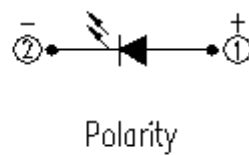
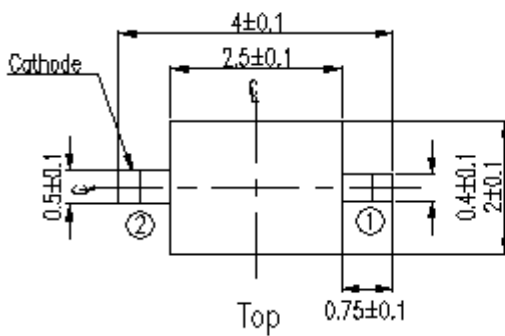


Package Outline Dimensions

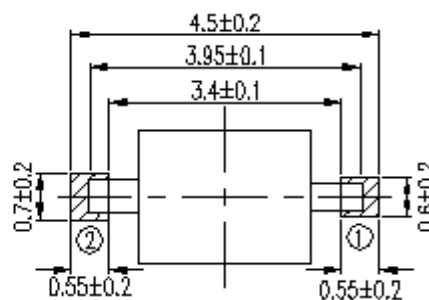
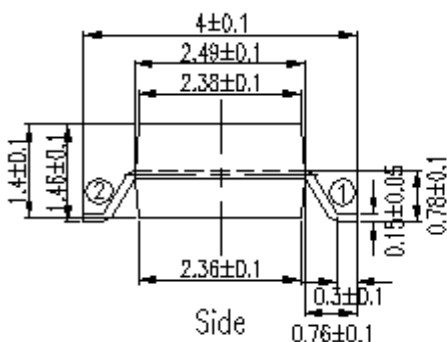
28-21



TR8



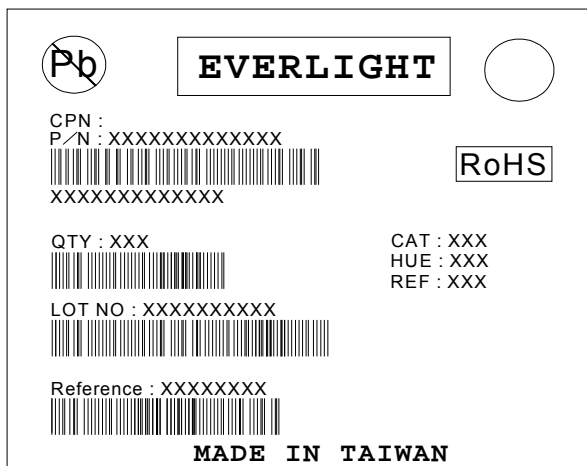
Recommend Sodering Pad



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

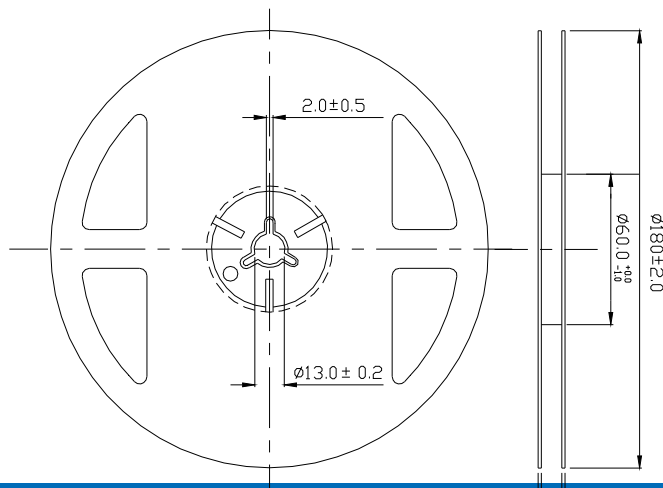
Moisture Resistant Packing Materials

Label Explanation



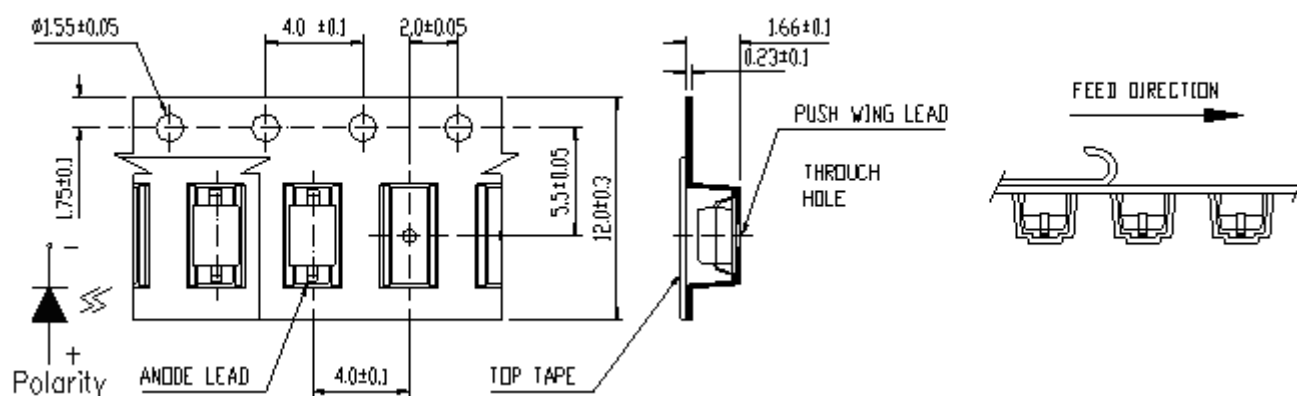
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank

Reel & Carrier Tape Dimensions

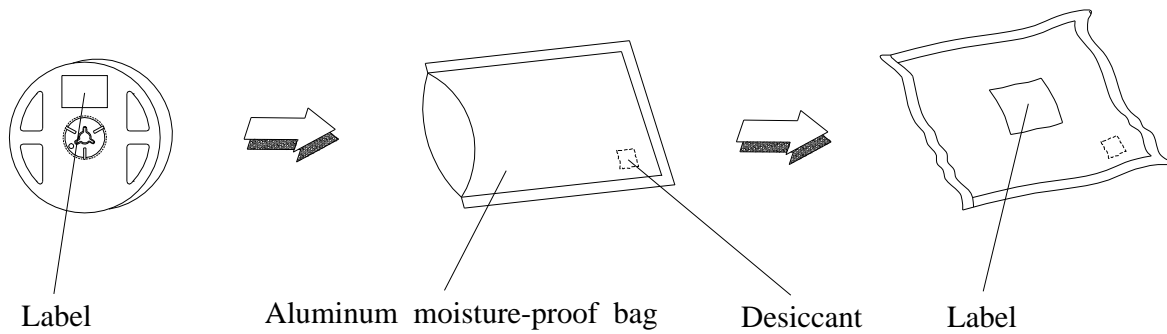


Note: The tolerances unless mentioned are ± 0.1 , unit=mm.

Loaded quantity 2000 PCS/reel



Moisture Resistant Packaging



Note: Tolerances Unless Dimension is $\pm 0.1\text{mm}$, Unit = mm

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 168 hours under 30% RH or less and 60% RH or less.

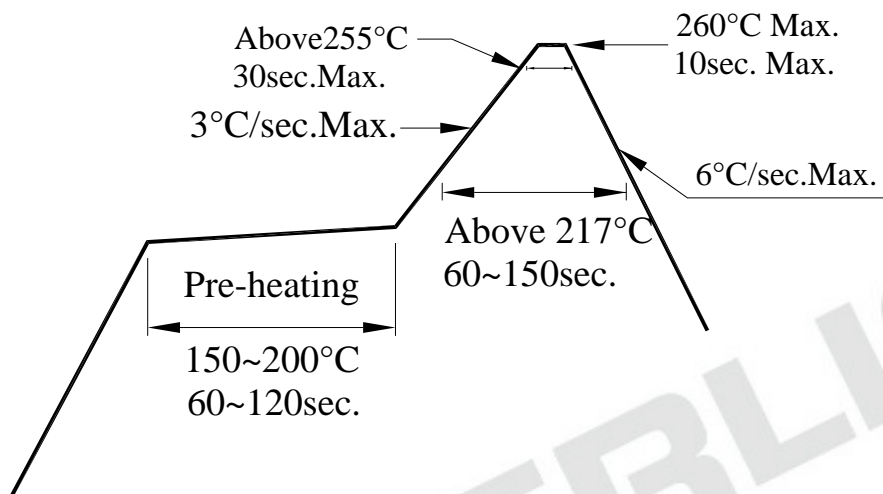
If unused LEDs remain, it should be stored in moisture proof packages.

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 : $60 \pm 5^\circ\text{C}$ 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.

