

**Technical Data Sheet****Full Color Top View LEDs****67-23SDRSYGUBC/TR8****Features**

- P-LCC-4 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Ideal for backlight and light pipe application.
- Inter reflector.
- Low (2mA) current operation.
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- Pb-free.
- The product itself will remain within RoHS compliant version.

**Descriptions**

- The 67-23 series is available in soft orange, green, blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

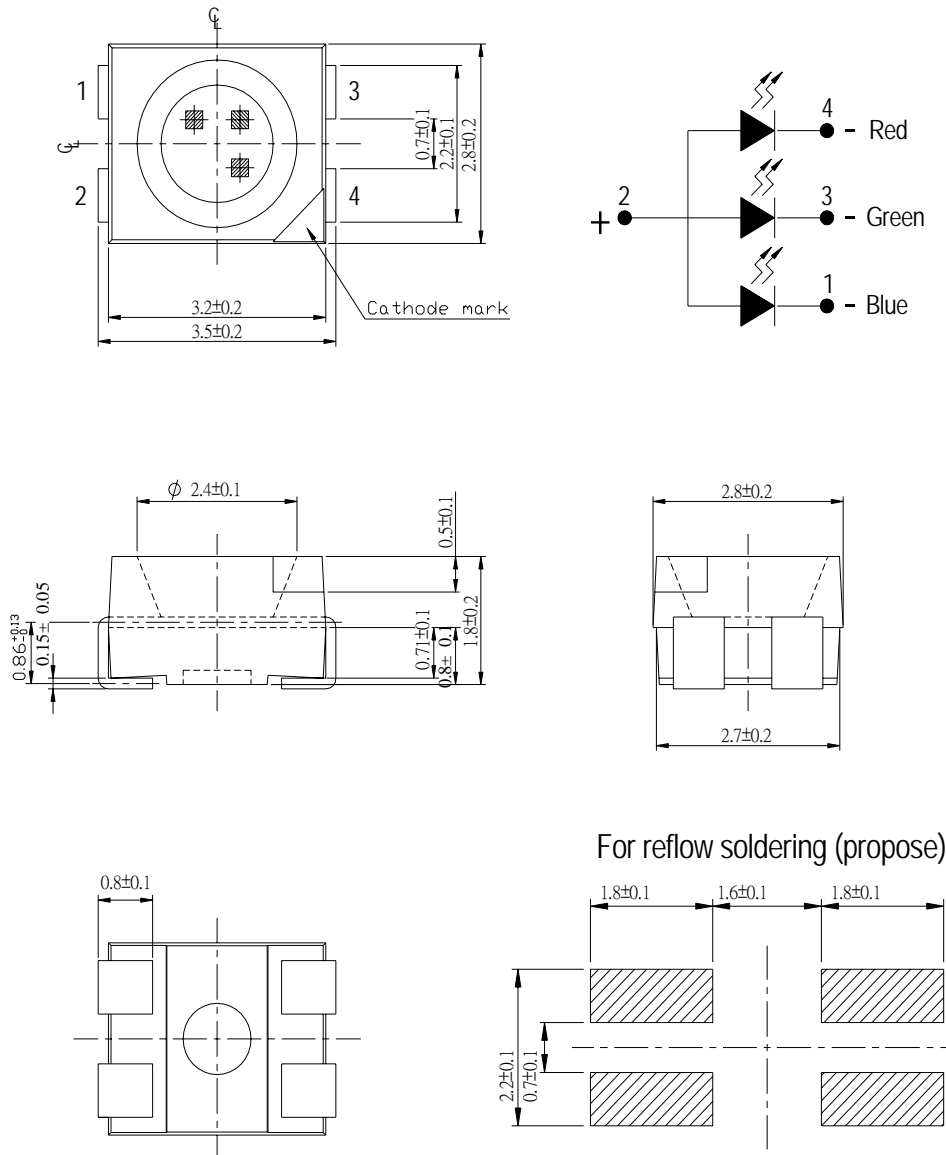
**Applications**

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD's, switches and symbols.
- Light pipe application.
- General use.

**Device Selection Guide**

Chip			Lens Color
Type	Material	Emitted Color	
SDR	AlGaInP	Deep-Red	Water Clear
SYG	AlGaInP	Brilliant Yellow Green	
UB	InGaN/SiC	Blue	

**Package Dimensions**



**Note: The tolerances unless mentioned is  $\pm 0.1$ mm ;Unit = mm.**

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	VR	5	V
Forward Current	I <sub>F</sub>	SDR	25
		SYG	25
		UB	30
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40~ +100	°C
Electrostatic Discharge(HBM)	ESD	SDR	2000
		SYG	2000
		UB	1000
Power Dissipation	Pd	SDR	60
		SYG	60
		UB	130
Peak Forward Current (Duty 1/10 @ 1KHZ)	I <sub>FP</sub>	SDR	60
		SYG	60
		UB	100
Soldering Temperature	Tsol	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

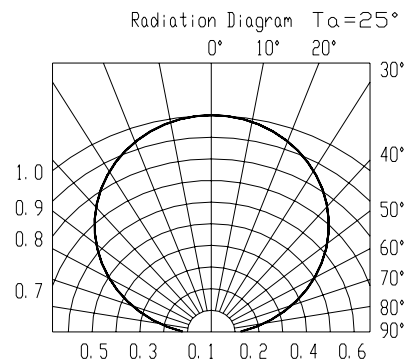
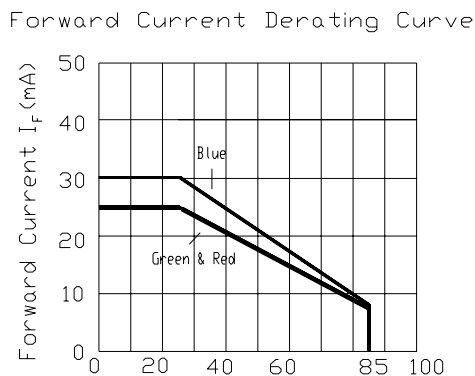
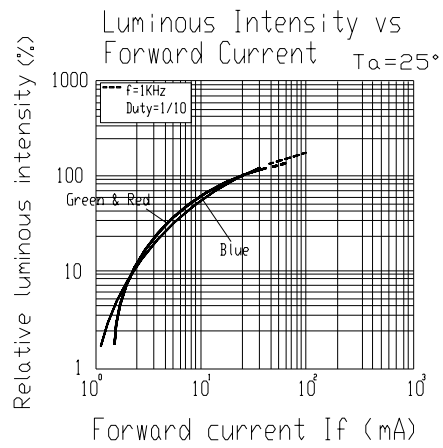
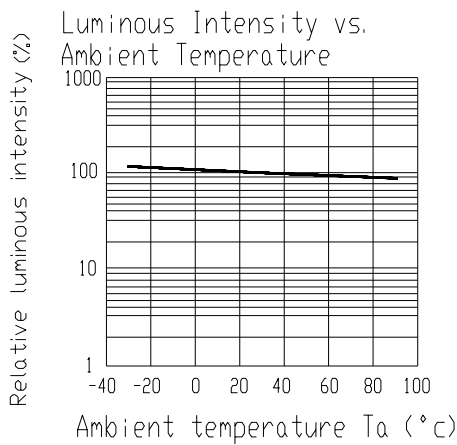
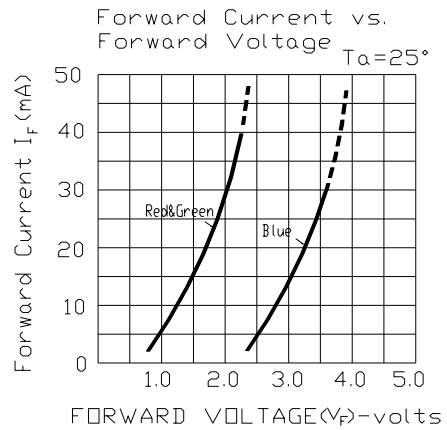
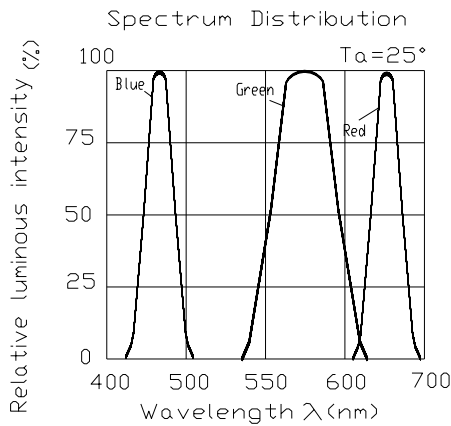
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**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
Luminous Intensity	I <sub>v</sub>	SDR	63	112	-----	mcd	I <sub>F</sub> =20mA
		SYG	13	20	-----		
		UB	11	18	-----		
Peak Wavelength	λ <sub>p</sub>	SDR	-----	650	-----	nm	I <sub>F</sub> =20mA
		SYG	-----	575	-----		
		UB	-----	468	-----		
Dominant Wavelength	λ <sub>d</sub>	SDR	-----	639	-----	nm	I <sub>F</sub> =20mA
		SYG	-----	573	-----		
		UB	-----	470	-----		
Spectrum Radiation Bandwidth	Δλ	SDR	-----	20	-----	nm	I <sub>F</sub> =20mA
		SYG	-----	20	-----		
		UB	-----	26	-----		
Forward Voltage	V <sub>F</sub>	SDR	-----	2.0	2.4	V	I <sub>F</sub> =20mA
		SYG	-----	2.0	2.4		
		UB	-----	3.5	4.0		
Viewing Angle	2θ 1/2	-----	120	-----	deg	I <sub>F</sub> =20mA	
Reverse Current	I <sub>R</sub>	-----	-----	10	μA	V <sub>R</sub> =5V	

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**Typical Electro-Optical Characteristics Curves**



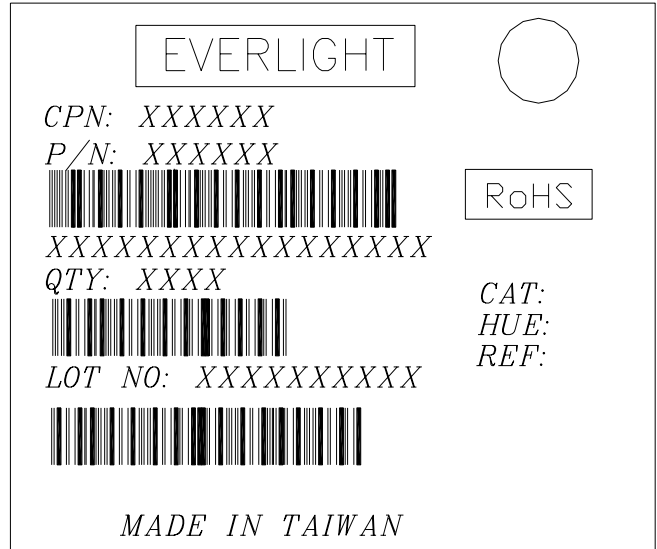
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**Label explanation**

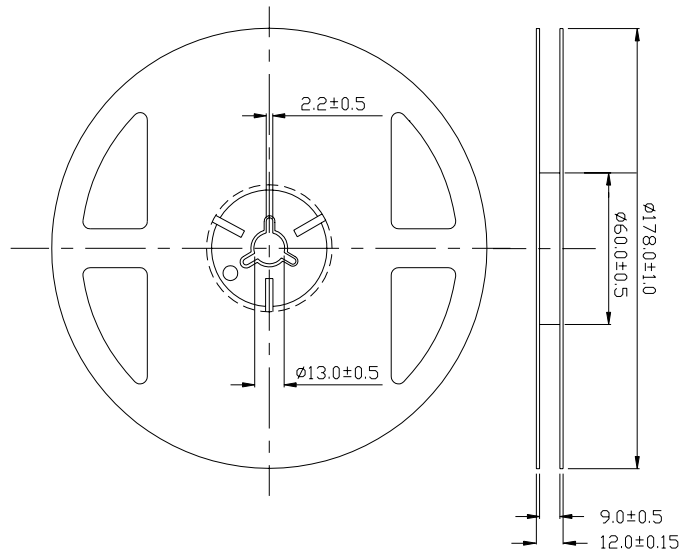
**CAT: Luminous Intensity Rank**

**HUE: Dom. Wavelength Rank**

**REF: Forward Voltage Rank**

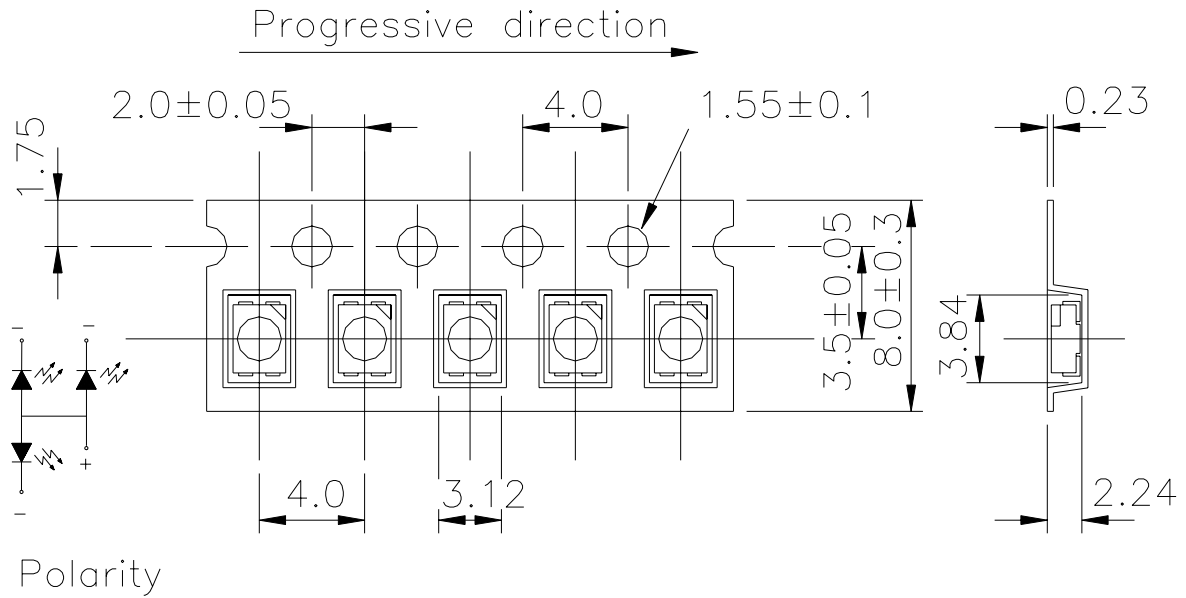


**Reel Dimensions**



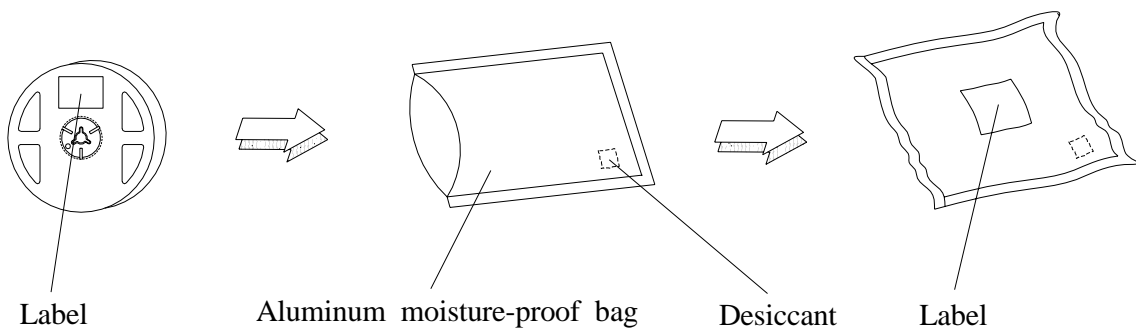
**Note:** Tolerances Unless Dimension  $\pm 0.1$ mm, Unit = mm

**Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel**



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

**Moisture Resistant Packaging**



**67-23SDRSYGUBC/TR8**

**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 ±5°C Min. 5sec.	6 min	22 PCS.	0/1
2	Temperature Cycle	H : +100°C 15min § 5 min L : -40°C 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100°C 5min § 10 sec L : -10°C 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	IF = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C/ 85%RH	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.

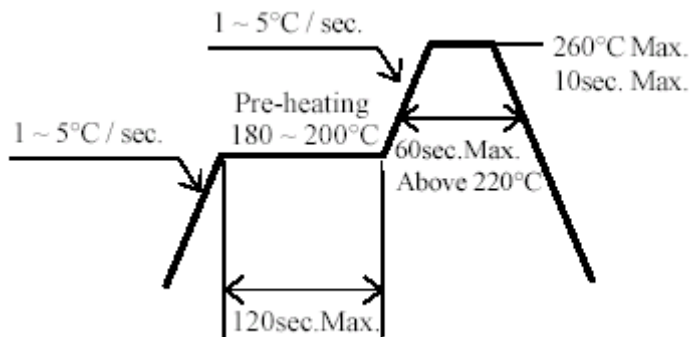
2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 1 year under 30 deg 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 :  $60\pm 5^{\circ}\text{C}$  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.

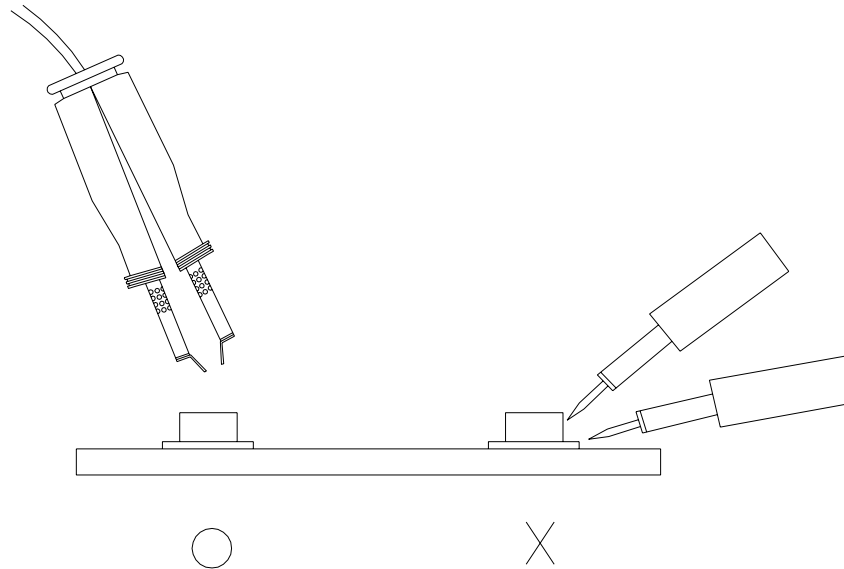
3.4 After soldering, do not warp the circuit board.

**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.

**67-23SDRSYGUBC/TR8****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.



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