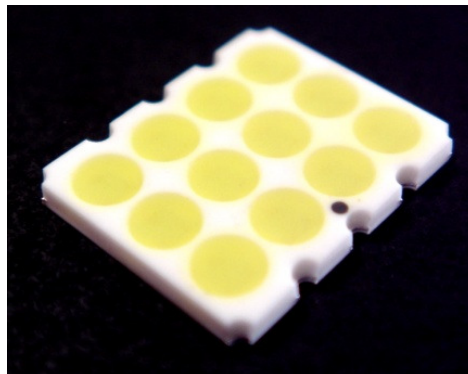


C1109SW-12008-001

White LED

SPECIFICATION

CHIP-ON-CERAMIC TYPE SMD LED



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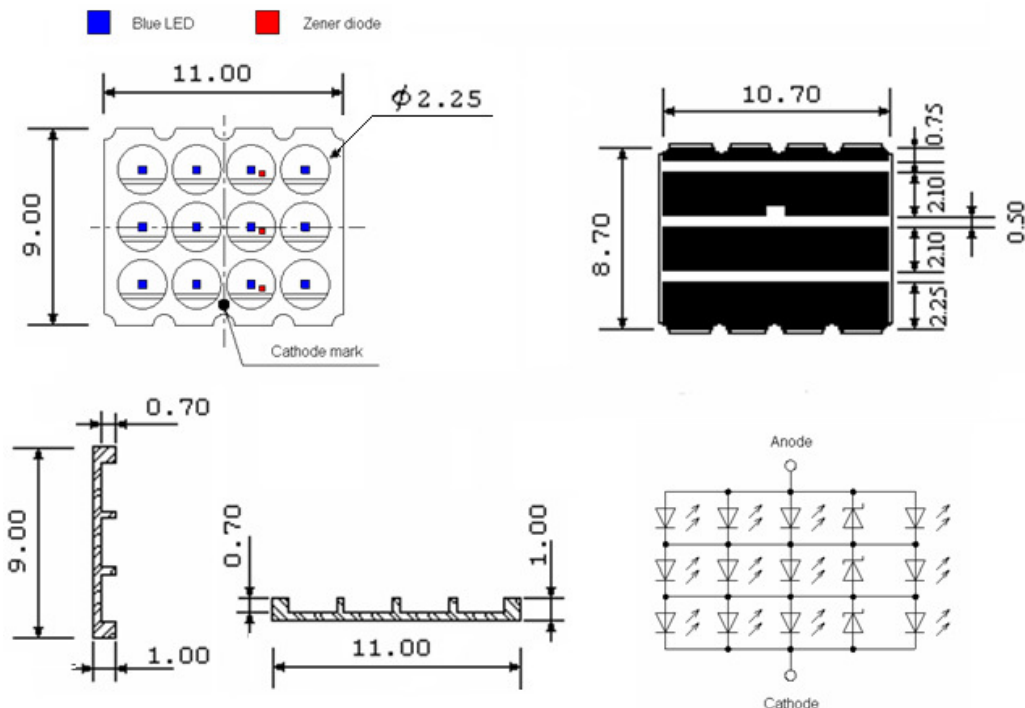
1. Features

- Dimensions: 11.0 × 9.0 × 1.0mm (L×W×H)
- Package: Ceramic 12 chips Array with low thermal resistance
- High power: 0.8W(80mA)
- High efficacy
- Viewing angle: 110°
- Compliant with RoHS directive
- Central CIE Rank (CCT): EZ Rank (4750K) (E7/E8/N3/N4)

2. Applications

- Indoor/Outdoor General Lighting
- Signage
- Automotive
- Portable Lighting
- Electronic Equipment
- Back Lighting for TN/HTN/STN/Color STN/TFT-LCD

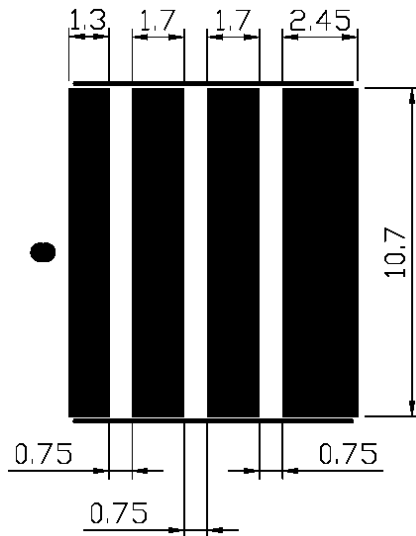
3. Mechanical Dimensions and Polarity



Notes :

1. All dimensions are in millimeters.
2. Tolerance is ± 0.2 mm unless otherwise noted.
3. Total Weight of one component: 0.270g(typical)

4. Recommended Soldering pad layout



5. Absolute Maximum Ratings (@ Ta=25°C)

ITEM	SYMBOL	ABSOLUTE MAXIMUM RATING	UNIT
Power Dissipation	Pd	800	mW
D.C. Forward Current	If	80(20mA*4 chips parallel)	mA
Pulse Forward Current (*1)	IfP	320	mA
Operating Temperature	To	-25 ~ +65	°C
Storage Temperature	Ts	-40 ~ +100	°C
Junction Temperature	Tjmax	100	°C
Soldering Temperature(Reflow)	Tsld	260	°C
Soldering Temperature(Hand)	Tsld	350	°C

*1: Ifp conditions: 1/10 Duty Cycle & 0.1ms for pulse width.

6. Electrical & Optical Characteristics (Ta=25°C)

ITEM	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Forward Voltage	Vf	If=80mA	V	9.0	9.6	10.4
Viewing Angle	$2\theta_{1/2}$		deg		110	
Luminous Flux	Φ	If=80mA	lm	45		

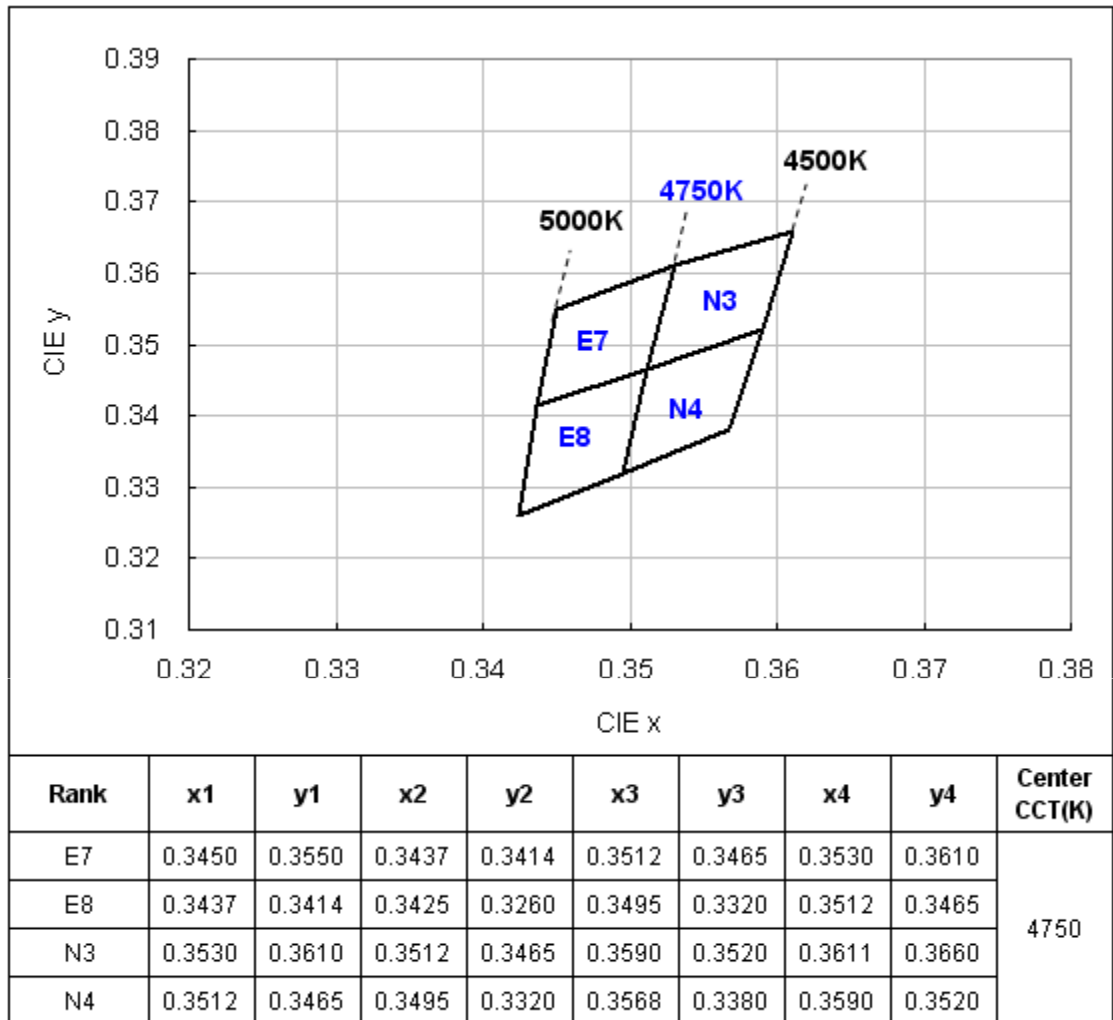
*Measurement Uncertainty of the Luminous Intensity: $\pm 10\%$

* Binning Vf1: 9.0V ~ 9.8V

* Binning Vf2: 9.6V ~ 10.4V

7. Chromaticity Coordinates & Bin Grade Diagram

7-1. C.I.E Color Rank:



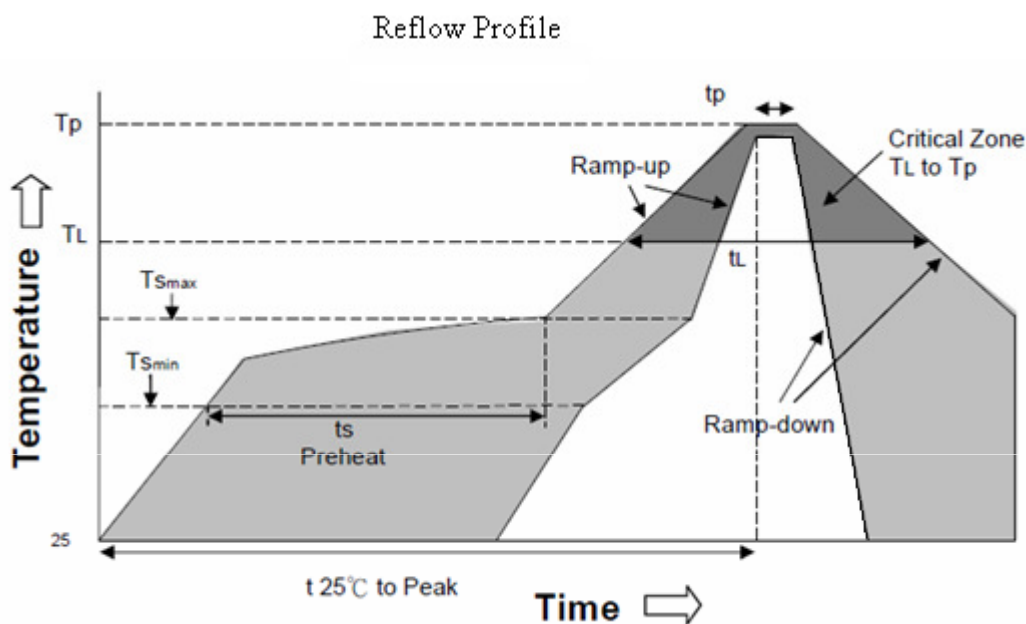
*Measurement Uncertainty of the Color Coordinates : ± 0.01

8. Soldering Characteristics

8-1. Reflow soldering: Follow JEDEC-J-STD-020C

As a general guideline, ITC recommends that users follow the recommended soldering profile provided by the manufacturer of solder paste used.

Note that this general guideline may not apply to all PCB designs and configurations of reflow Soldering equipment.



Profile Feature	Lead-Base Solder	Lead-Free Solder
Average Ramp-up rate (Tsmmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
- Temperature min (Tsmmin)	100°C	150°C
- Temperature min (Tsmmax)	150°C	200°C
- Time (Tsmmin to Tsmmax) (ts)	60-120 seconds	60-180 seconds
Time maintained above:		
- Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature (Tp)	225°C	260°C
Time within 5°C of actual Peak Temperature (tp)	10 seconds Max.	10 seconds Max.
Ramp-down Rate	6°C/second max.	6°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

8-2. Manual Iron Soldering (NOT RECOMMENDED)

Use SN60 solder of solder with silver content.

Use 25W soldering iron at 350°C Max for 3 seconds or less.

The soldering time and temperature will be different according with different LED thermal dissipation base. Must not touch top resin portion of SMD LED by heated soldering iron.

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

9. Cautions

9-1. Moisture Proof Package

When moisture is absorbed into the SMT package it may vaporize and expand during soldering. There is a possibility that this can cause exfoliation of the contacts and damage to the optical characteristics of the LEDs.

For this reason, the moisture proof package is used to keep moisture to a minimum in the package.

9-2. Storage

Recommended The LEDs storage environment

Temperature: 5°C ~ 30°C (41°F ~ 86°F)

Humidity: 60% RH Max.

Use within 7 days after opening of sealed vapor/ESD barrier bags.

If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material. It is recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

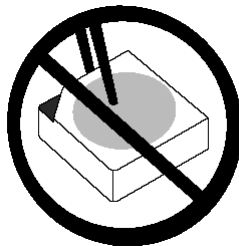
9-3. Heat Generation

Thermal design of the end product is of paramount importance. Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of LED placement on the board, as well as components. It is necessary to avoid intense heat generation and operate within the maximum rating given in this specification.

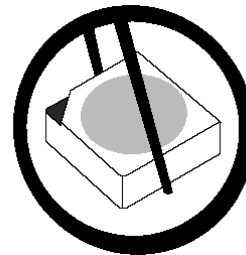
The operating current should be decided after considering the ambient maximum temperature of LEDs.

9-4. Handling Instructions of Silicone Resin LEDs

During processing mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound.



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9-5. Cleaning

Surface condition of this device may change when organic solvents such as trichloroethylene or acetone were applied.

Avoid using organic solvent, it is recommended that isopropyl be used as a solvent for cleaning the LEDs. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.

Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence as ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power, baking time and assembled condition. Before cleaning, a pre-test should be done to confirm whether any damage to the LEDs will occur.

9-6. Other

Can not take any responsibility for any trouble that are caused by using the LEDs at conditions exceeding our specifications. These LEDs are designed and manufactured for standard applications such as electric home appliances, communication equipment, office equipment, electronic equipment and so on.

It is recommended to consult us in advance if user's application requires any particular quality or reliability which concerns human life. Examples would be medical equipment, aerospace applications, traffic signals, safety system equipment and so on.

Care must be taken to ensure that the reverse voltage will not exceed the absolute maximum rating when using the LEDs with matrix drive.

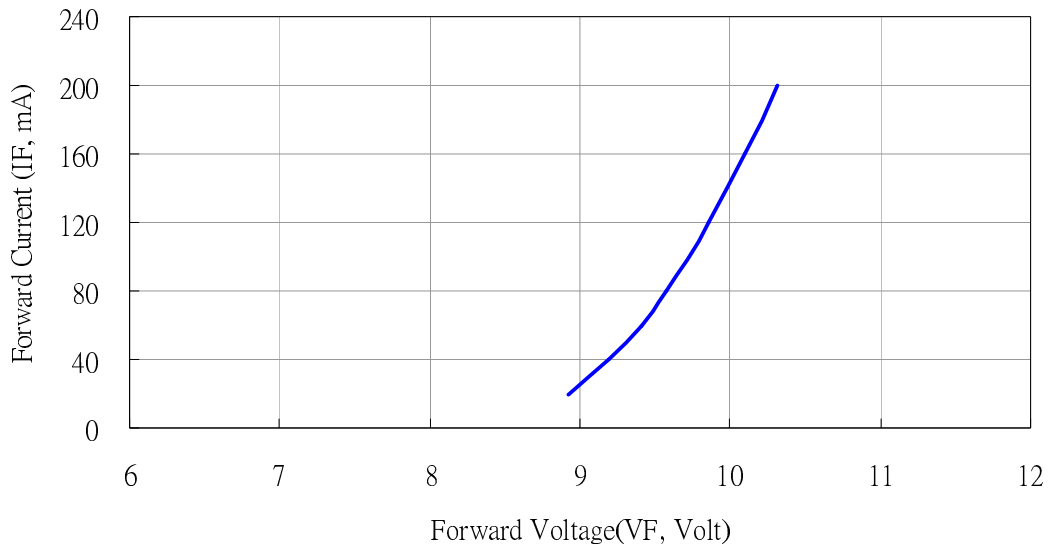
The LED light output is strong enough to injure human eyes. Precautions must be taken to prevent looking directly at the LEDs with unaided eyes for more than a few seconds.

The formal specification must be exchanged and signed by both parties before large volume purchase begins.

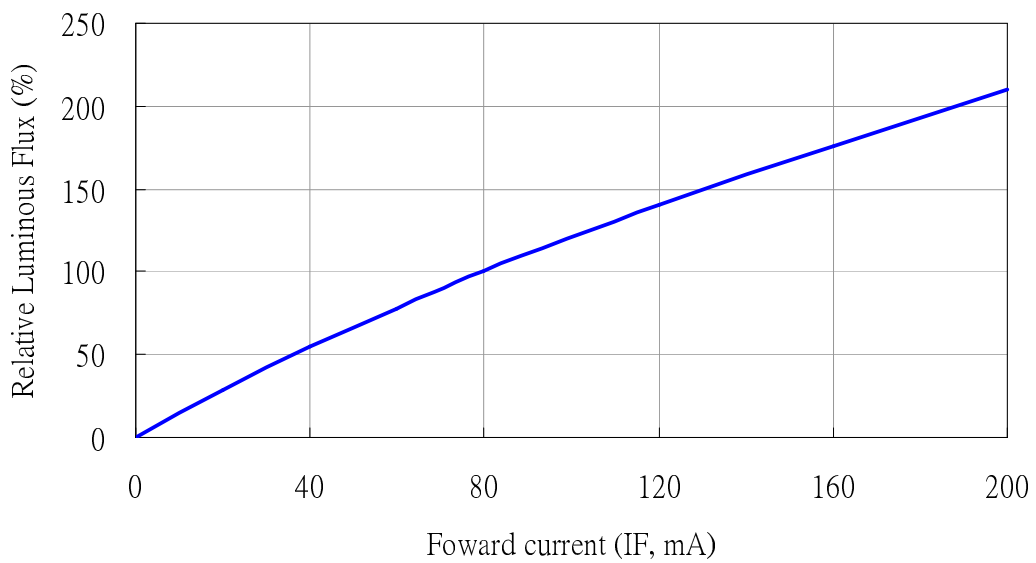
The appearance and specifications of the product may be modified for improvement without notice.

10. Typical Electrical & Optical Characteristic Curves

10-1. Electrical Characteristics (Ta=25°C, pulsed measurement)

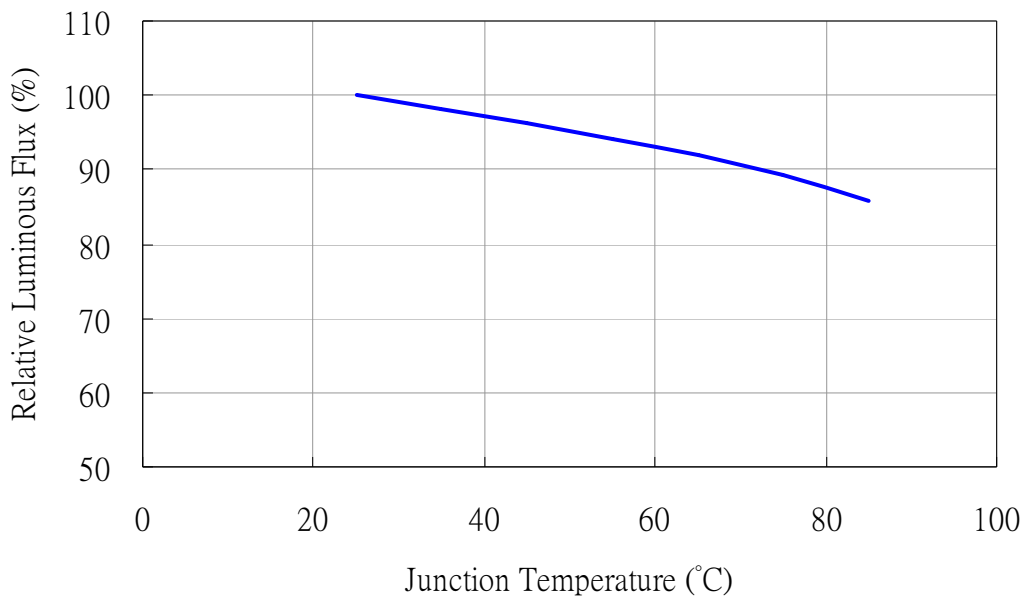


10-2. Relative Flux vs Forward Current (Ta=25°C, pulsed measurement)

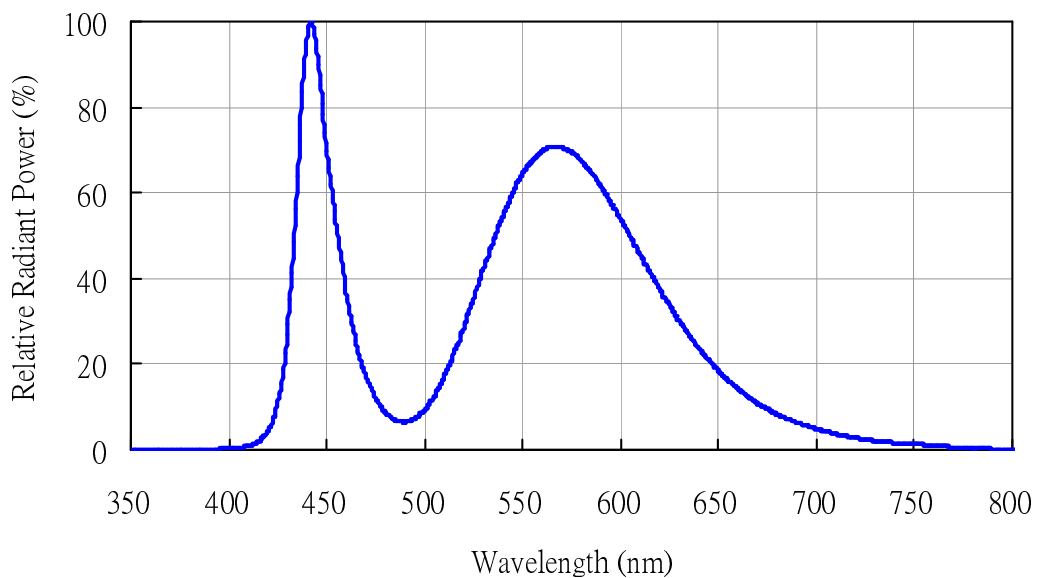


10. Typical Electrical & Optical Characteristic Curves:

10-3. Relative Flux vs Junction Temperature (IF=80mA)

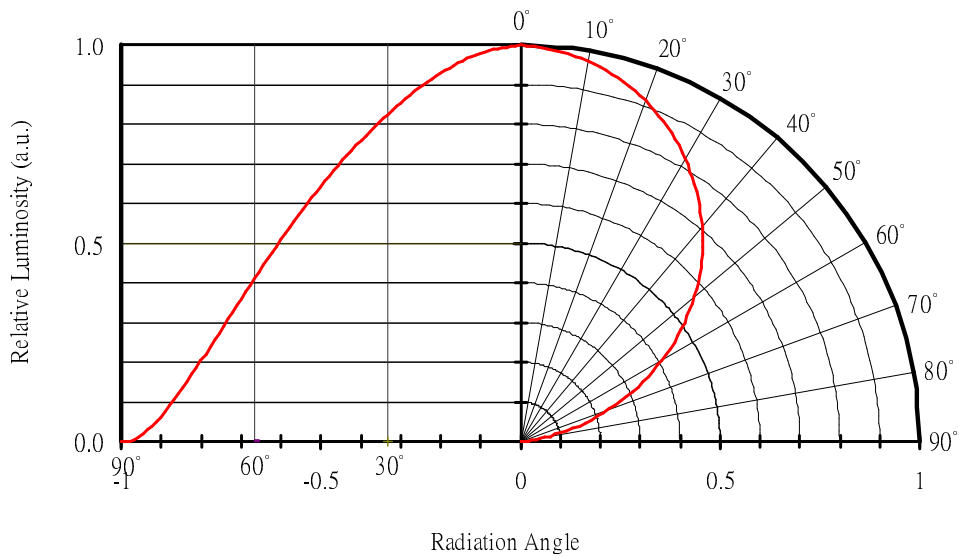


10-4. Spectrum (IF=80mA, Ta=25°C)



10. Typical Electrical & Optical Characteristic Curves:

10-6. Radiant Angle & Pattern (IF=80mA, Ta=25°C)



11. Reliability Test Item and Criteria

NO	Test Item	Test Condition	
		Condition	Note
1	Soldering Heat	Tsld=260°C±5°C, 10sec	2 times
2	Temperature Cycle	-40°C~110°C 30min dwell.,5min transfer	500 cycles
3	Steady State Operating of High Temperature	Ta=85°C, IF= 80mA	1008 hrs
4	Steady State Operating of High Humidity Heat	Ta=60°C, RH=90%IF=80mA	1008 hrs

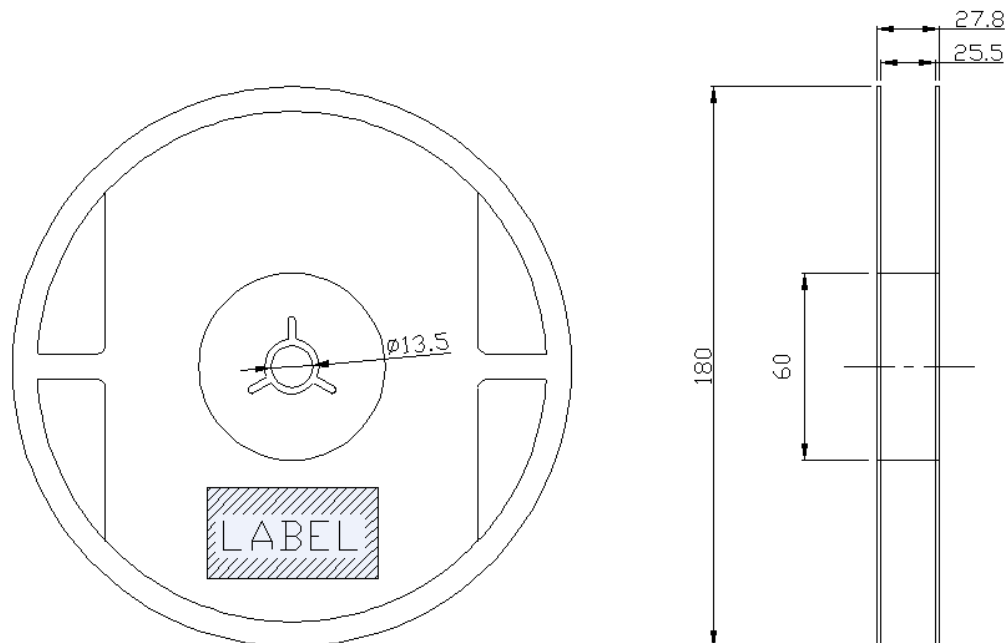
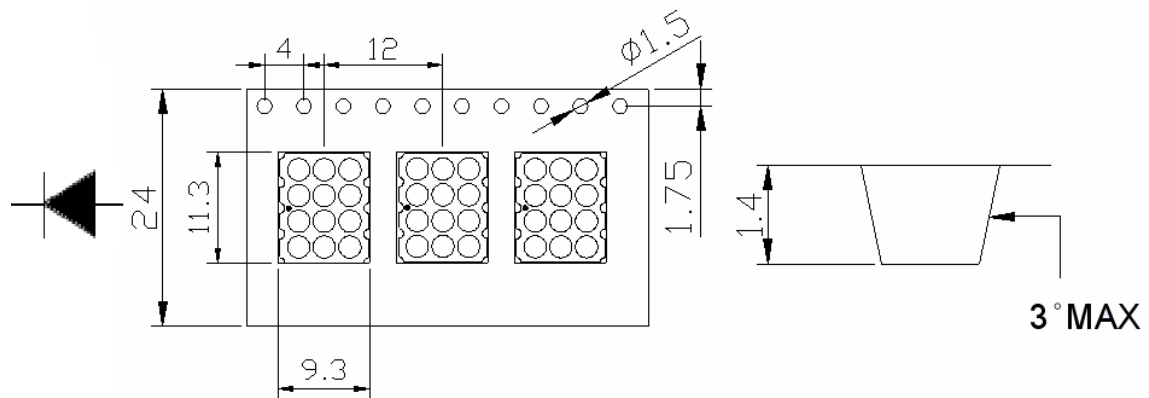
Criteria for Failure :

* Luminous Flux(lm) = 0.7 * initial flux @ rated current

* Vf = Initial Vf * 1.10 @ rated current

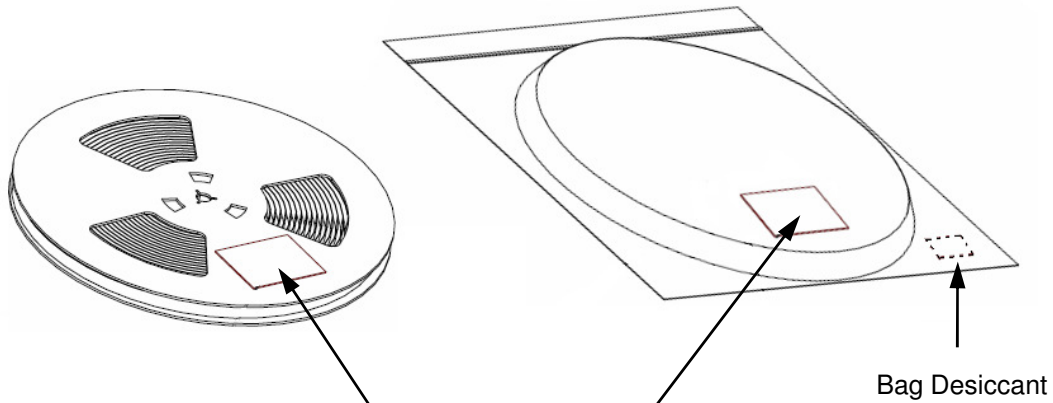
12. Package

12-1. Carrier & Tapping







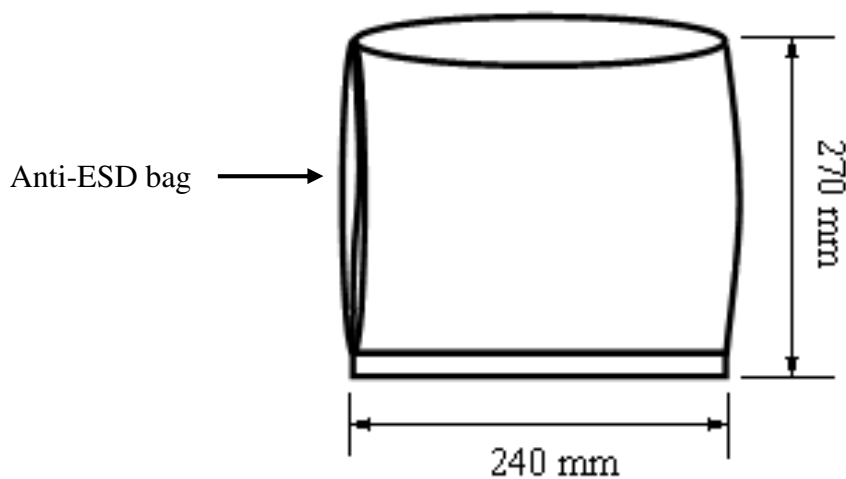
12. Package

12-2. Drying Package & Labeling



ITC

Model No: C1109SW-12008-001
 Part No: 599-4101-001-01

 Serial NO: TR0907XXX

 Flux Rank: 45 lm (Min.)
 VF Rank: 9.0 -9.6 V
 CIE Rank: E7
 Q'ty: 800 pcs G01 
 XXXXXXXX-EZ-01-SW



Notes :





1. Total Weight of one Reel : 460g(typical)

12. Package

12-3. Inner Box

Maximum: 3 bags per inner box

Inner Box: 235mm(L) x 87mm(W) x 276mm(H)

ITC	
Model No: C1109SW-12008-001	
Part No: 599-4101-001-01	
	
Serial NO: TR0907XXX	
	
Flux Rank: 45 lm (Min.)	
VF Rank: 9.0 -9.6 V	
CIE Rank: E7	
Q'ty: 800 pcs	G01 
	XXXXXXXX-EZ-01-SW



12-4. Carton

550mm x 500mm x 300mm (for 12 inner boxes)

550mm x 255mm x 300mm (for 6 inner boxes)


P/O : A513-090616001
P/N : C1109SW-12008-001
Q'ty : 14400 pcs
DATE : 2009/07/07
N.W : 3 Kg
G.W : 7 Kg
C/N : 1
Made In Taiwan

