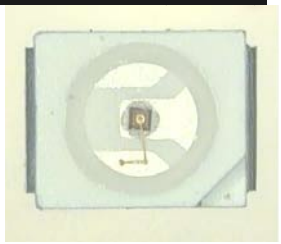
Technical Data Sheet

Top View Hyper-Red LED

SS67-21C/TR8(WW)



Features

- Low forward voltage.
- Compatible with infrared and vapor phase reflow solder process.
- Package in 8mm tape on 7” diameter reels.
- Size of emitting area 0.325mm * 0.325mm
- Pb free
- Typical peak wavelength 675nm
- The product itself will remain within RoHS compliant version

Descriptions

- The SS67-21C/TR8(WW) is a red Hyper-red LED , 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.

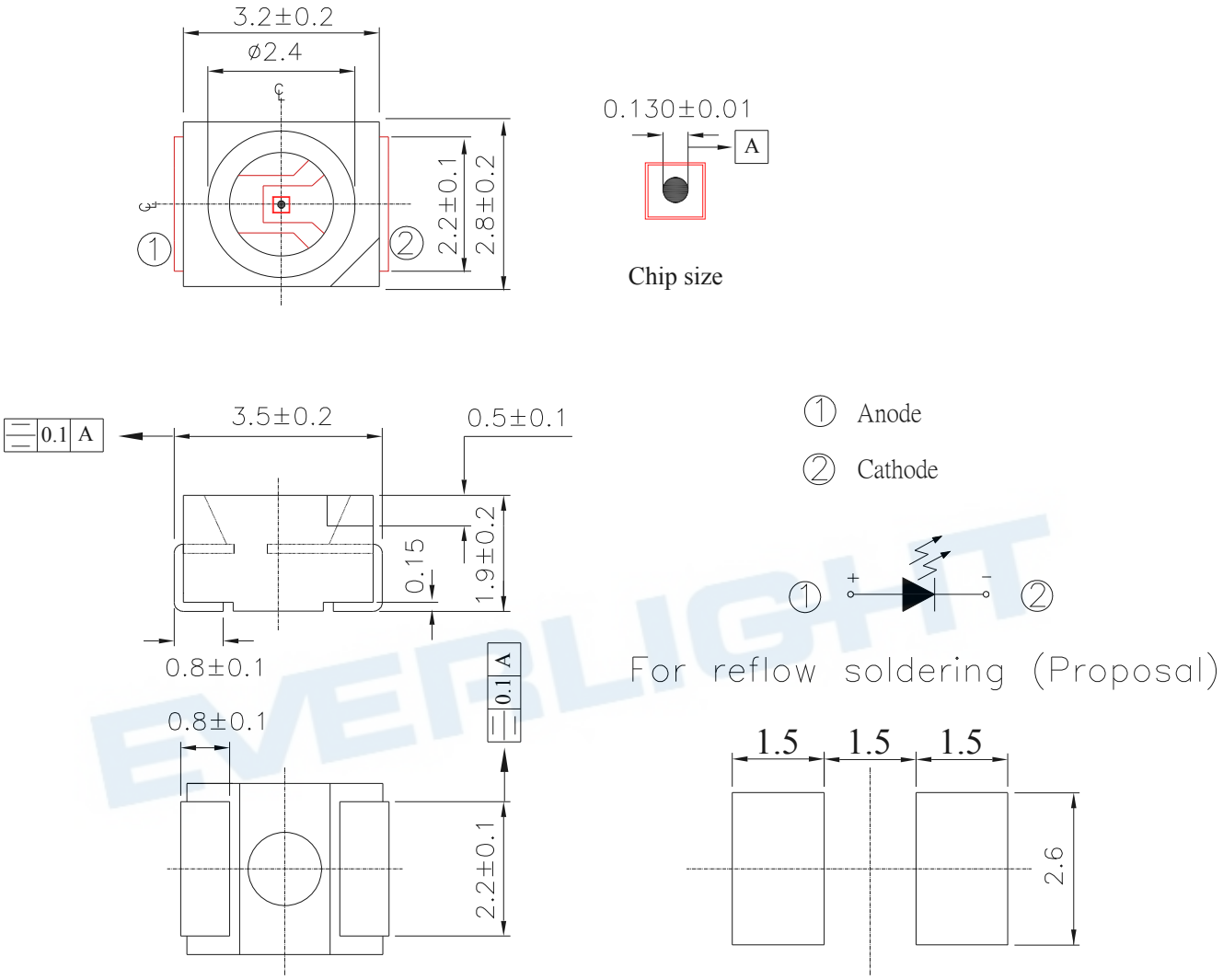
Applications

- Sensor technology
- IR free air transmission
- For drive and control circuits

Device Selection Guide

LED Part No.	Chip Material	Epoxy color
SS67-21C/TR8(WW)	GaAlAs	Water clear

Package Dimensions



Notes: 1.All dimensions are in millimeters
2.Tolerances unless dimensions ±0.1mm

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I_F	50	mA
Reverse Voltage	V_R	3	V
Surge current(t=10 μ s)	I_{FSM}*1	0.5	A
Operating Temperature	T_{opr}	-40 ~ +100	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Thermal resistance junction to ambient mounted on PC-board	R_{thJA}	330	K/W
Thermal resistance junction to soldering point, mounted on metal block	R_{thJS}	210	K/W
Manual solder condition	T_{sol}*2	350	℃
Soldering Temperature	T_{sol}*3	260	℃
Power Dissipation at(or below) 25℃ Free Air Temperature	P_d	125	mW

Notes: *1:I_{FP} Conditions--Pulse Width≦100 μ s and Duty≦1%.

*2:Soldering time≦3 seconds.

*3:Soldering time≦10 seconds.

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Radiant Intensity	Ie	I_F=20mA	0.5	1.8	--	mW/sr
		I_F=50mA,tp=20ms	--	4.5	--	
Luminous Intensity	I_V	I_F=20mA	--	35	--	mcd
Peak Wavelength	λ p	I_F=20mA	--	675	--	nm
Dominant wavelength	λ d	I_F=20mA	--	655	--	nm
Spectral Bandwidth	Δ λ	I_F=20mA	--	20	--	nm
Forward Voltage	V_F	I_F=20mA	--	1.85	2.3	V
		I_F=50mA,tp=20ms	--	2.0	2.8	
Reverse Current	I_R	V_R=5V	--	--	10	μA
Rise Time	tr	I_F=50mA, R_L=50Ω	--	100	--	ns
Fall Time	tf	I_F=50mA, R_L=50Ω	--	100	--	ns
Capacitance	C_o	V_R=0V, f=1MHz	--	30	--	pF
Temperature coefficient of Ie or Po	TC_I	I_F=50mA	--	-0.4	--	%/K
View Angle	2θ 1/2	I_F=20mA	--	120	--	deg
Active chip area	A	---	0.106			mm^2
Dimensions of the active chip area	L*W	---	0.325*0.325			mm*mm

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

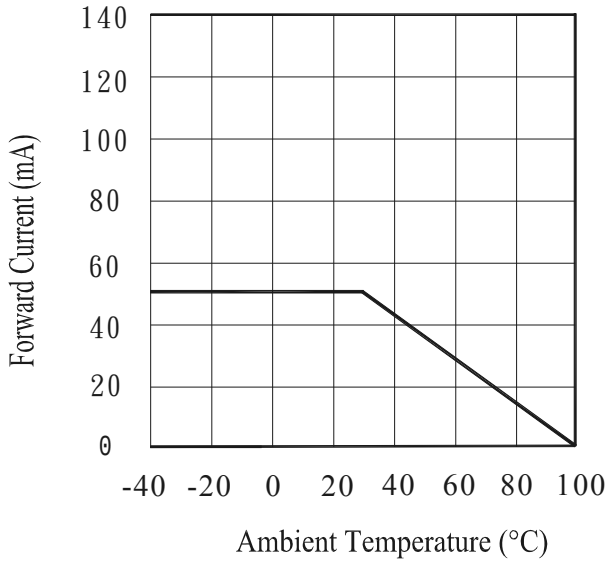


Fig.2 Spectral Distribution

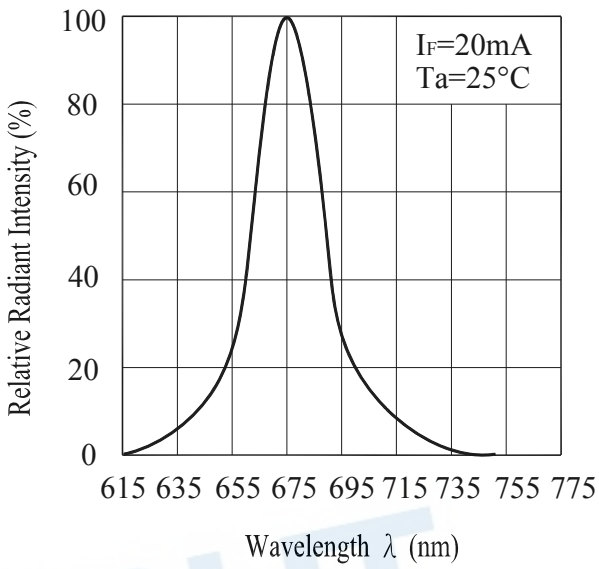


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

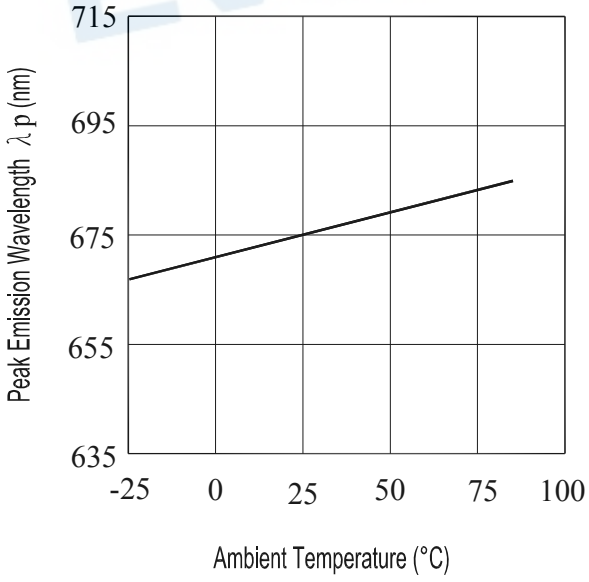
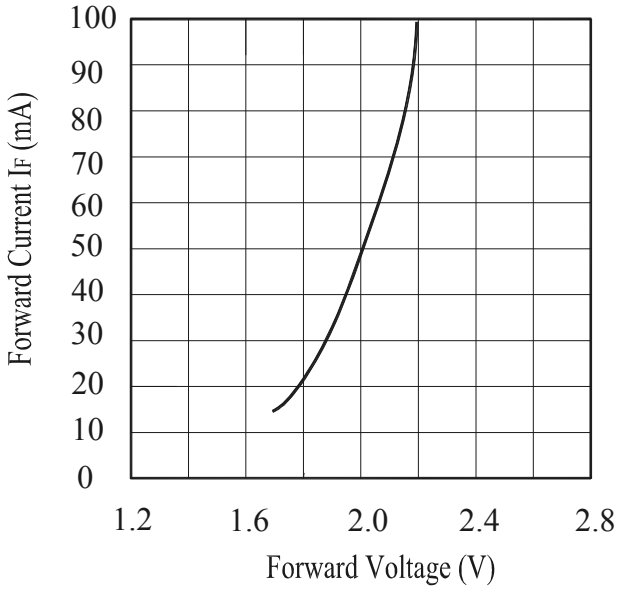
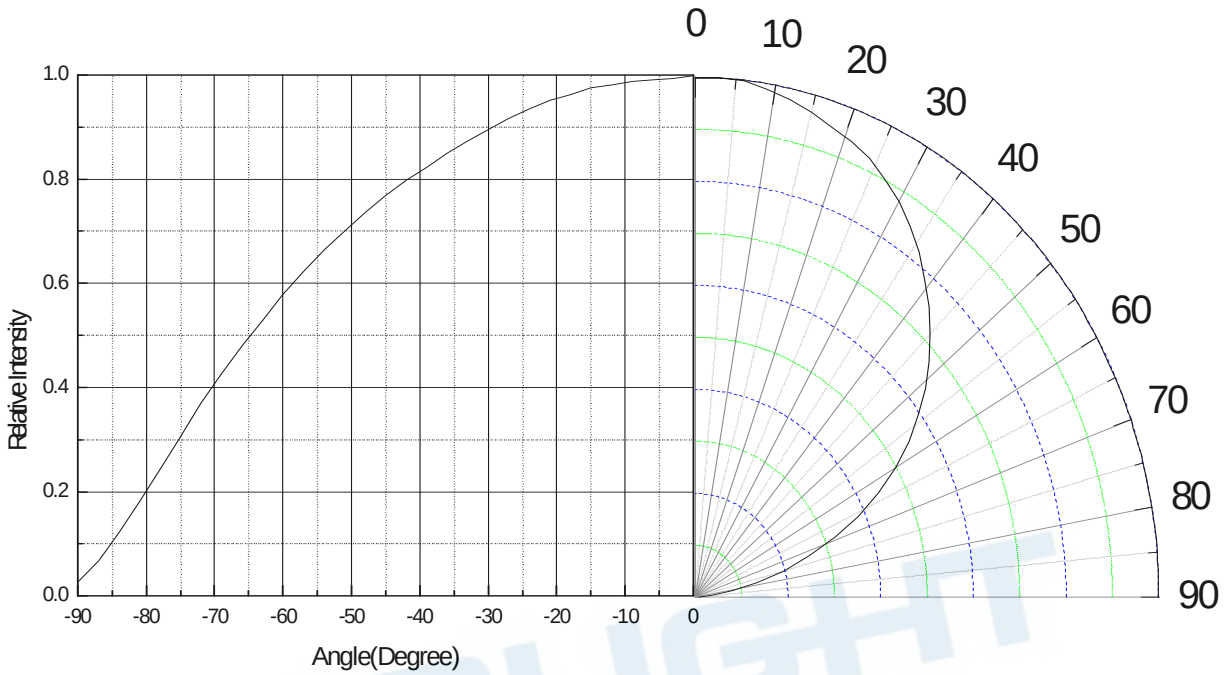


Fig.4 Forward Current vs. Forward Voltage



Typical Electro-Optical Characteristics Curves

Fig.5 Relative Radiant Intensity vs. Angular Displacement



Assembly specification

Die:	ABU35 (manufacturer Showa Denko)
PLCC2-Package:	material PPA, outer lead plating Ag, thickness min. 2µm
Die glue:	H20E
Bonding wire:	material Au, diameter 1.25mils
Epoxy:	13014/Huntsman
Special treatment:	plasma clean done before die attach, wire bonding and epoxy filling
Assembly location:	Taiwan Yuan-Li Factory

Precautions For Use

1. Over-current protection

   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.

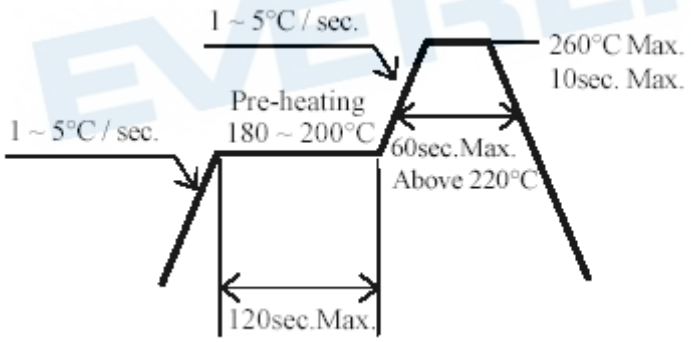
   2.2 The moisture barrier bag should be stored at 30°C and 90%R.H. max. before opening. Shelf life of non-opened bag is 12 months after the bag sealing date.

   2.3 After opening the moisture barrier bag floor life is 168h at 30°C/60%RH. max. Unused LEDs should be resealed into moisture barrier bag.

   2.4. In case after opening the moisture barrier bag the moisture humidity indicator indicated 10% RH. or floor life of 168h was exceeded or shelf life of 1 year was exceeded, baking treatment should be performed using the following conditions before performing reflow soldering: Baking treatment: 60+5°C for 24 hours min.

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

Manual soldering may be performed using the following conditions:

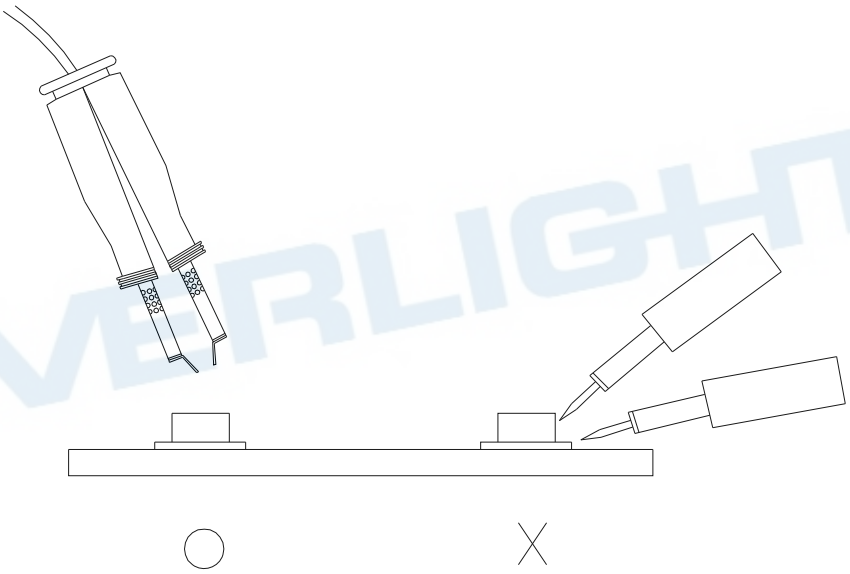
Soldering iron power: 25W max.

Temperature of 350°C applied for 3 seconds max. on each terminal, terminals soldered sequentially with a minimum of 2 seconds cooling interval between heat application.

Careful soldering is advised because damage of the product may often be started by manual soldering.

5. Repairing and removal of LED from PCB

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.



Reliability Test Item And Condition

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

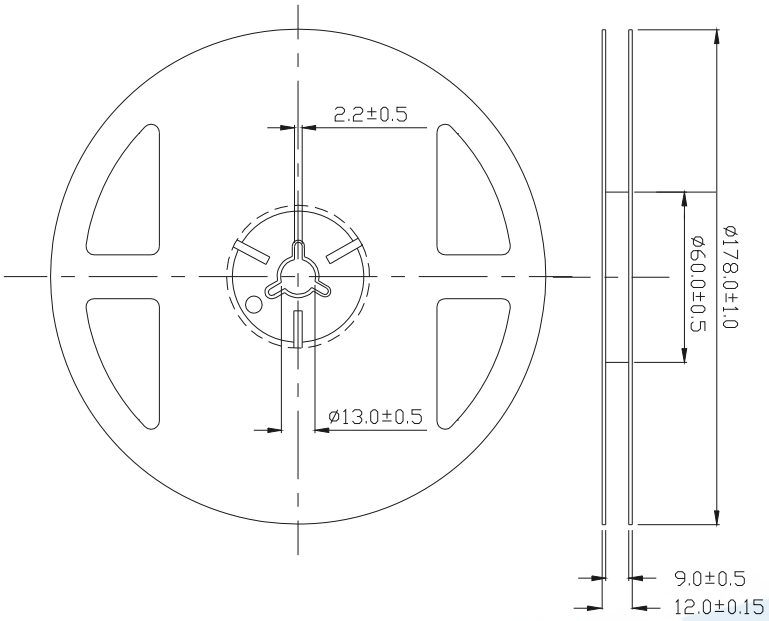
Confidence level：90%

LTPD：10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	REFLOW	TEMP.：260℃±5℃ 10secs	6Mins	22pcs	$I_R \geqq U \times 2$ $Ie \leqq L \times 0.8$ $V_F \geqq U \times 1.2$ U：Upper Specification Limit L：Lower Specification Limit	0/1
2	Temperature Cycle	H：100℃ 15mins ↕ 5mins L：-40℃ 15mins	300Cycles	22pcs		0/1
3	Thermal Shock	H：+100℃ 5mins ↕ 10secs L：-10℃ 5mins	300Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.：+100℃	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP.：-40℃	1000hrs	22pcs		0/1
6	DC Operating Life	I_F=20mA	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85℃ / 85% R.H	1000hrs	22pcs		0/1

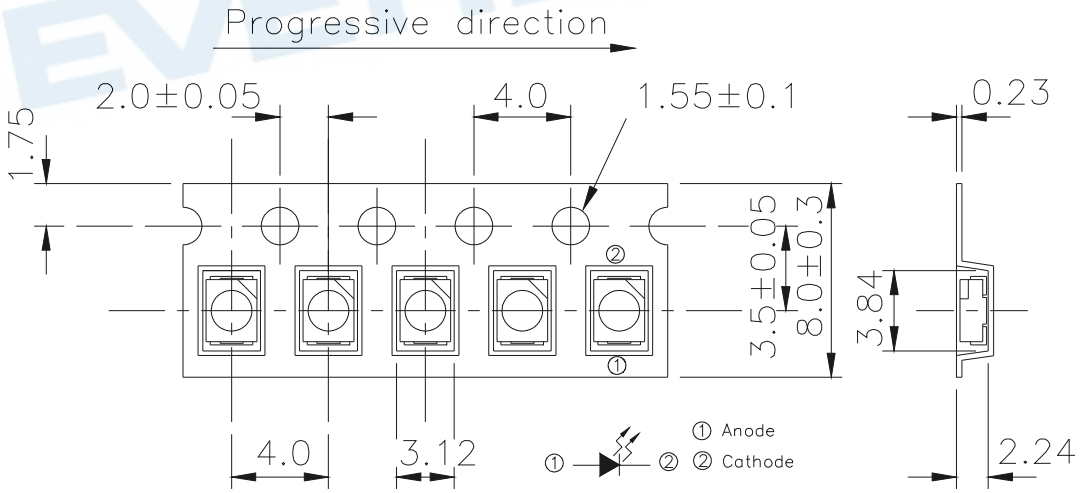
Package Dimensions

1. Reel Dimensions



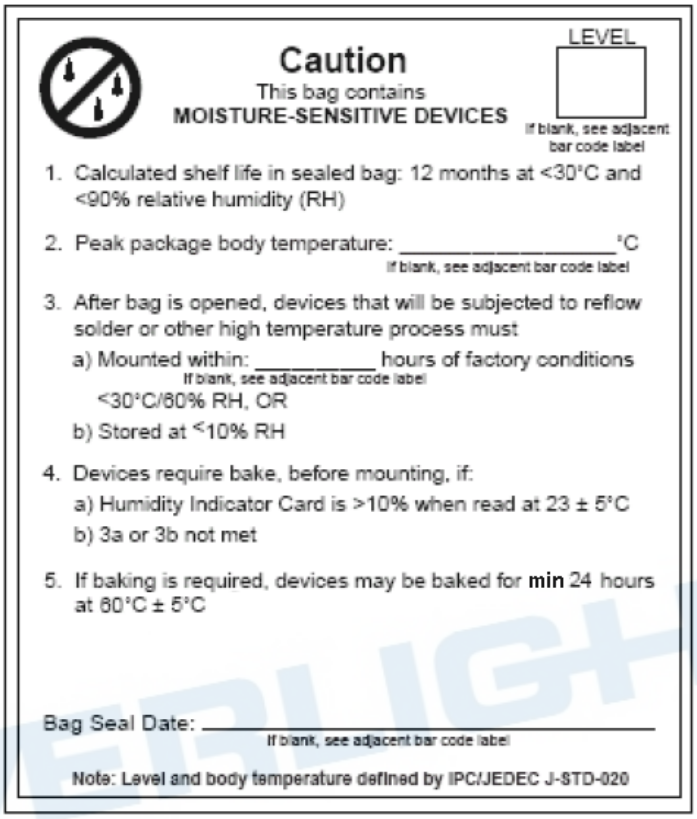
Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

2. Carrier Tape Dimensions:(Quantity: 2000pcs/reel)

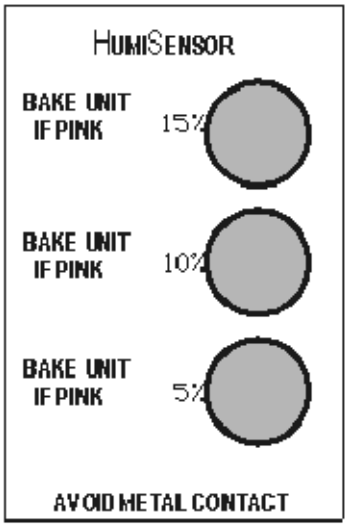


TOLERANCES UNLESS DIMENSION±0.1
ANGLE±0.5
UNIT:mm

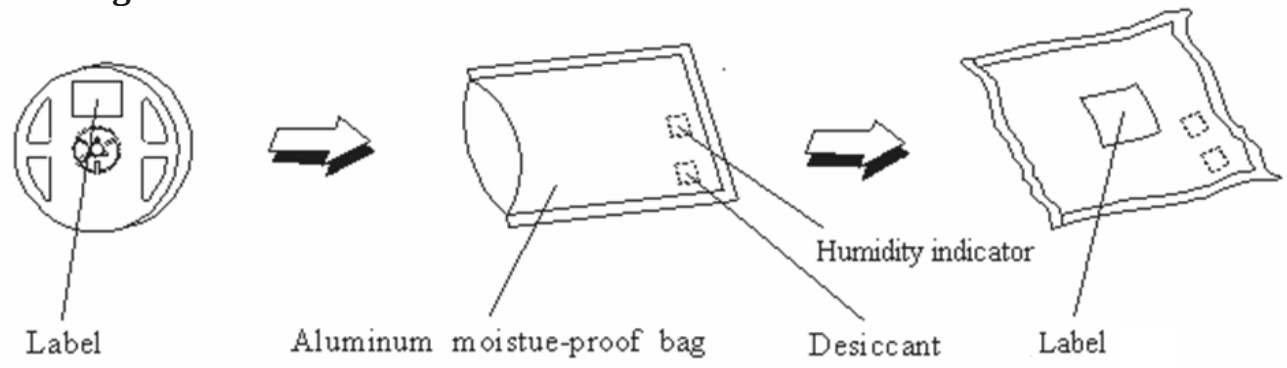
MSL Label:



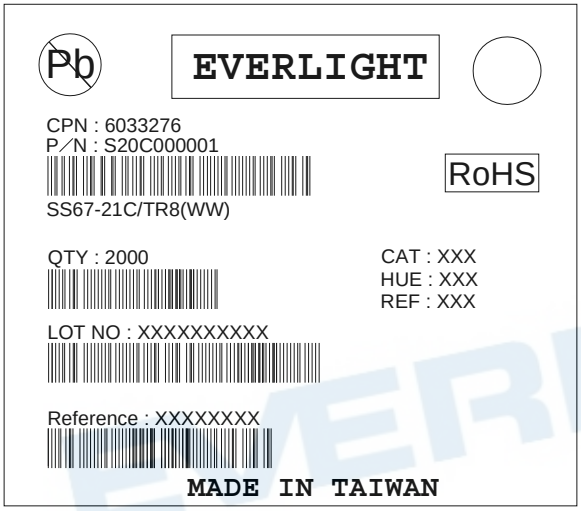
Humidity indicator (5-10-15%)



Packing Procedure



Label Form Specification



CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

Notes

1. In case of changes the rules described in EVERLIGHT's document: PRO-016 " Control Procedure of engineering change" edition date 2007-11-06 will be followed.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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