DATASHEET

SMD ▪ C
45-21/GHC-YU1V1N/2T



Features

.Top view Green LED
.White SMT package.
.Lead frame package with individual 2 pins.
.Wide viewing angle.
.Soldering methods: reflow soldering
.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 45-21 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 device 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

- Telecommunication: indicator and backlighting in telephone and fax
- Flat backlight for LCD, switch and symbol
- Light pipe application
- General use

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Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Brilliant Green	Water Clear

Absolute Maximum Ratings (Ta=25℃)

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}	100	mA
Power Dissipation	Pd	95	mW
Electrostatic Discharge(HBM)	ESD	150	V
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	450	----	1120	mcd	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I_F=20mA
Peak Wavelength	λp	-----	518	-----	nm	I_F=20mA
Dominant Wavelength	λd	520	-----	535	nm	I_F=20mA
Spectrum Radiation Bandwidth	△ λ	-----	20	-----	nm	I_F=20mA
Forward Voltage	V_F	2.7	-----	3.7	V	I_F=20mA
Reverse Current	I_R	-----	-----	10	μA	V_R=5V

Notes:

1.Tolerance of Luminous Intensity: ±11%

2. Tolerance of Dominant Wavelength: ±1nm

3. Tolerance of Forward Voltage: ±0.1V

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Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Conduction
U1	450	565	mcd	I_F=20mA
U2	565	715		
V1	715	900		
V2	900	1120		

Bin Range of Dominant Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
Y	X	520	525	nm	I_F =20mA
	Y	525	530		
	Z	530	535		

Bin Range of Forward Voltage

Group	Group	Min.	Max.	Unit	Condition
N	10	2.70	2.90	V	IF=20mA
	11	2.90	3.10		
	12	3.10	3.30		
	13	3.30	3.50		
	14	3.50	3.70		

Notes:

1.Tolerance of Luminous Intensity: ±11%

2. Tolerance of Dominant Wavelength: ±1nm

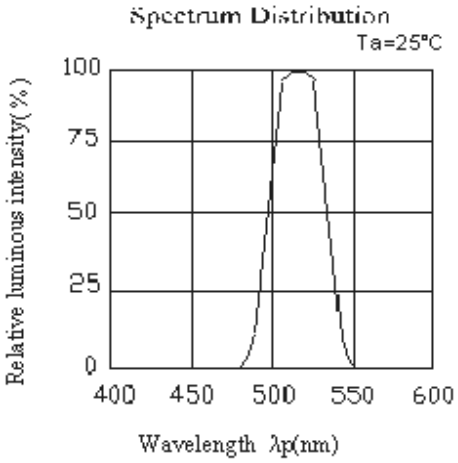
3. Tolerance of Forward Voltage: ±0.1V

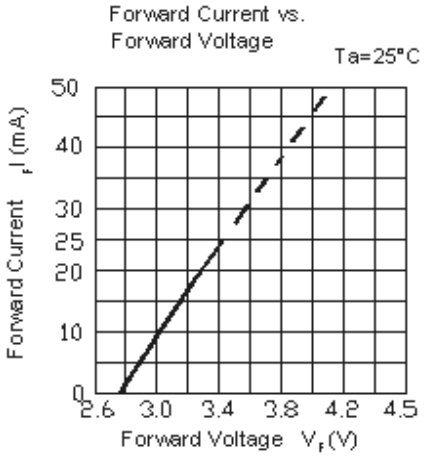
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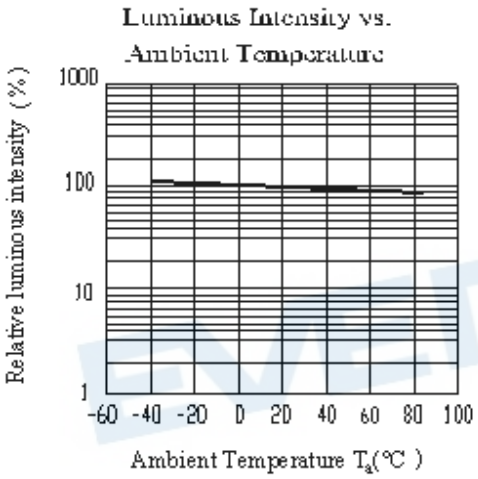
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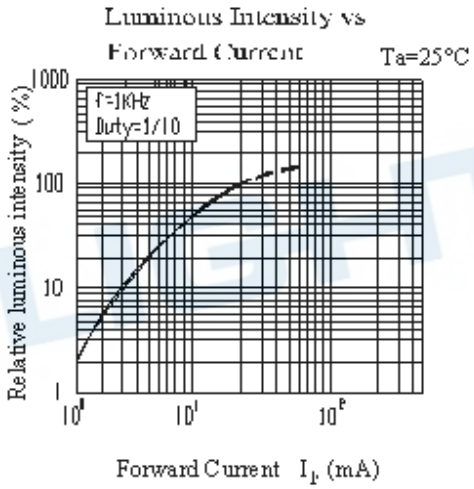
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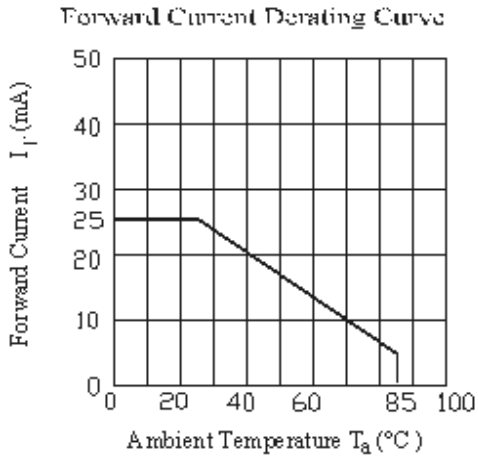
Typical Electro-Optical Characteristics Curves

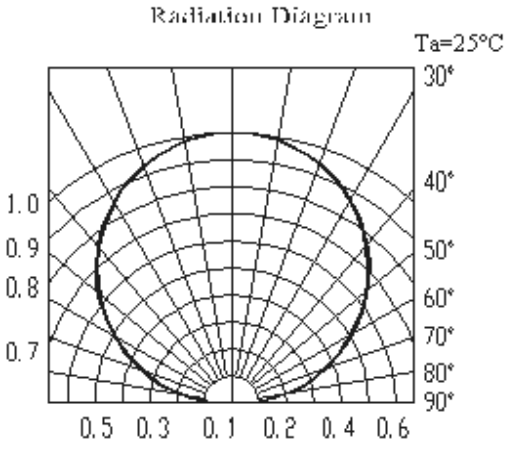






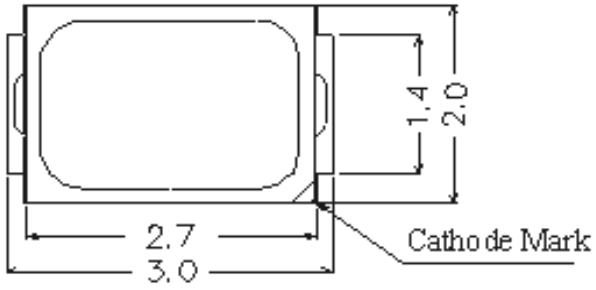


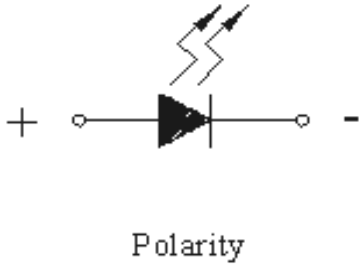


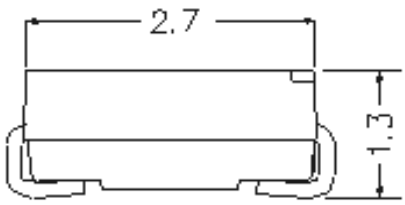


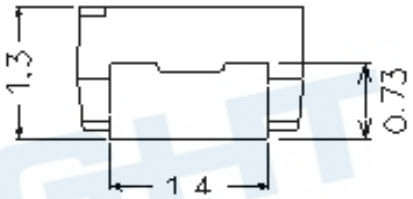
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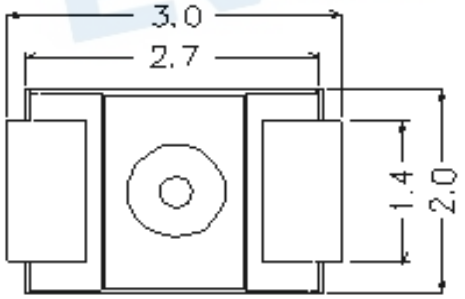
Package Outline Dimensions

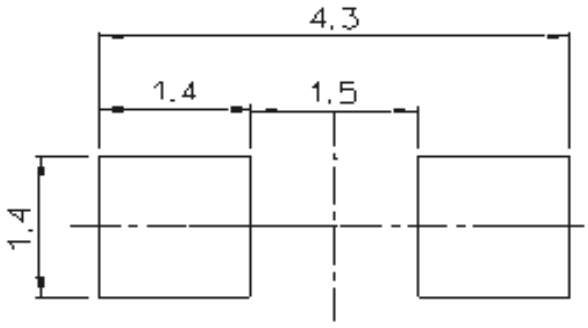












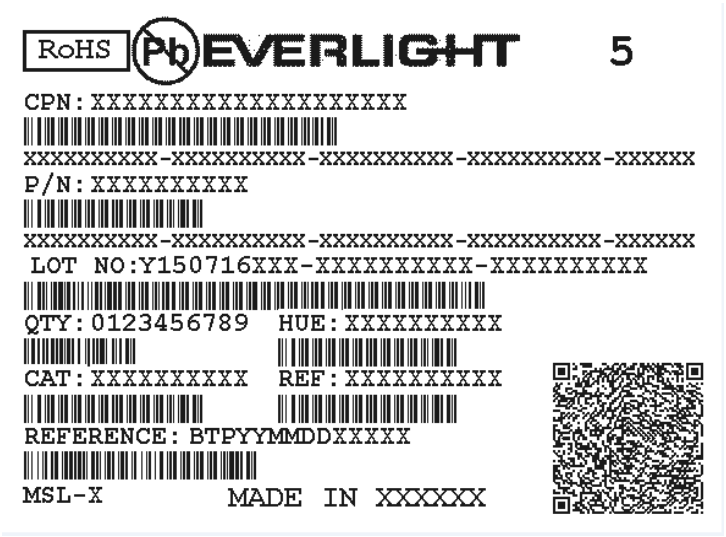
Recommended soldering pad design

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

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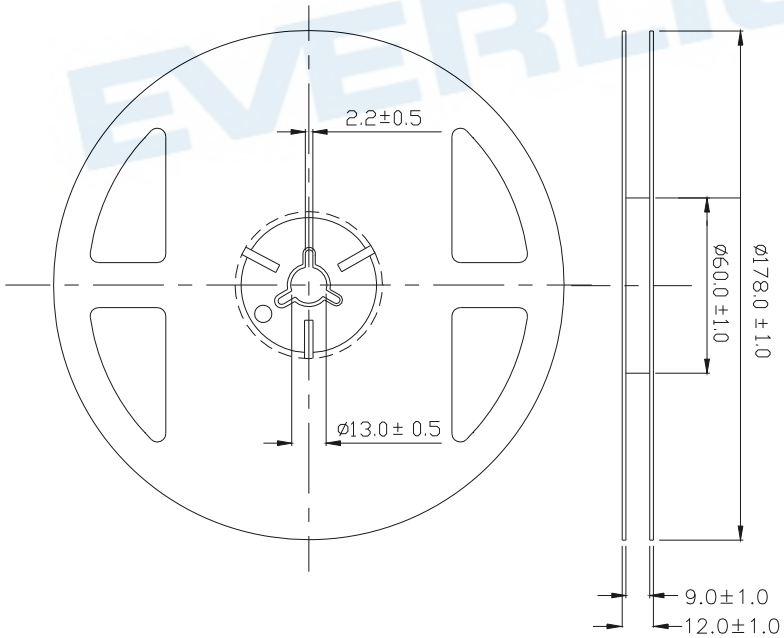
Moisture Resistant Packing Materials

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

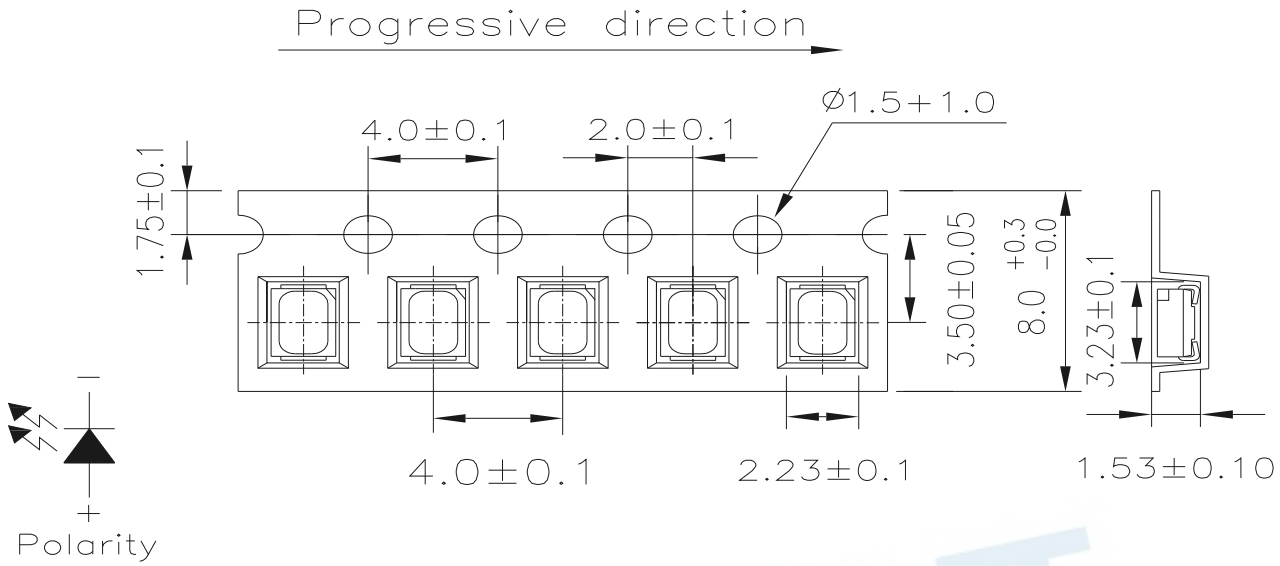


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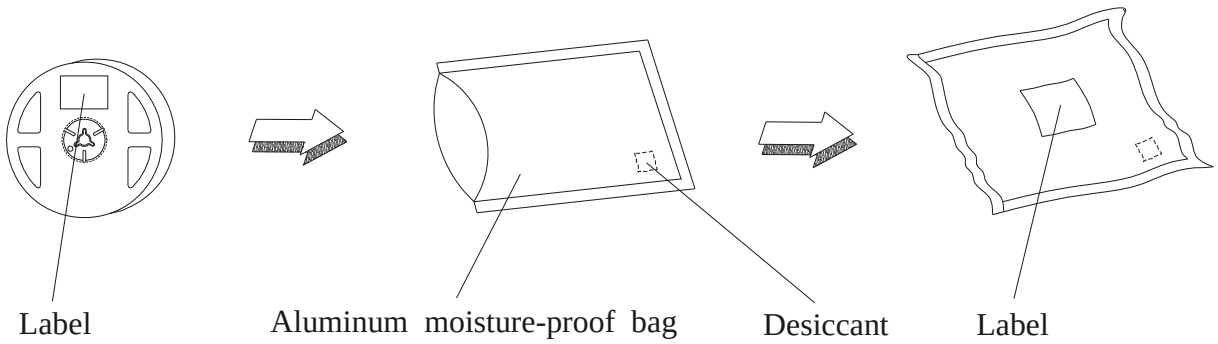
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Loaded quantity 2000 PCS per reel



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

Moisture Resistant Packaging



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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℃/10sec.	6 Min.	22 PCS.	0/1
2	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS.	0/1
3	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS.	0/1
4	High Temperature/High Humidity	Ta=85℃,85%RH,	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Ta=-40℃	1000 Hrs.	22 PCS.	0/1
6	High Temperature Storage	Ta=100℃	1000 Hrs.	22 PCS.	0/1
7	DC Operation Life	Ta=25℃, I_F = 20 mA	1000 Hrs.	22 PCS.	0/1

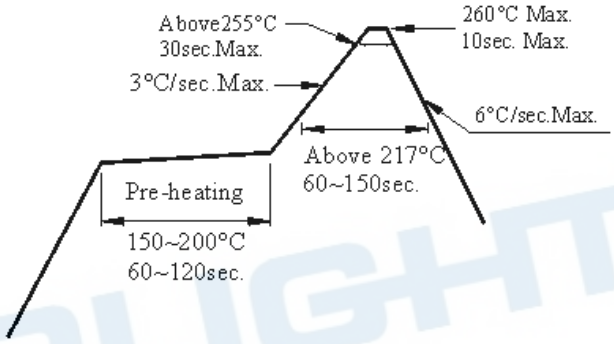
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Precautions For Use

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℃ or less and 90%RH or less.
   2.3 After opening the package: The LED's floor life is 168 Hrs under 30℃ 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℃ for 24 hours.
3. Soldering Condition
   3.1 Pb-free solder temperature profile

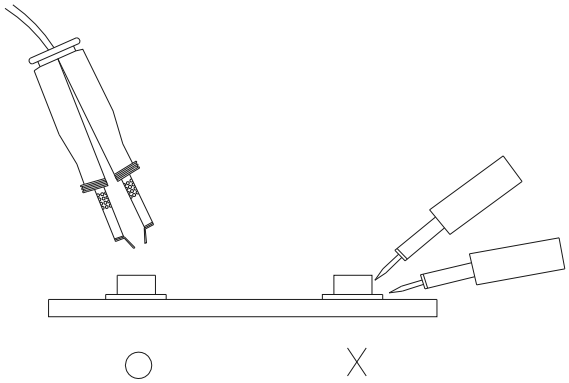


   3.2 Reflow soldering should not be done more than two times.
   3.3 When soldering, do not put stress on the LEDs during heating.
   3.4 After soldering, do not warp the circuit board.

. Soldering Iron
   Each terminal is to go to the tip of soldering iron temperature less than 350℃ 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.



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