

SMD ▪ Side View LEDs 99-218/S2C-AP2R2B/2C



Features

- Side view LED.
- .Lead frame package with individual 2 pins.
- .Wide viewing angle.
- .Soldering methods: IR reflow soldering.
- .Pb-free.
- .The product itself will remain within RoHS compliant version.

Descriptions

Due to the package design, 99-218 has wide viewing angle , low power consumption and white LEDs are devices which are materialized by combing Blue LEDs and special phosphors . This feature makes the LED ideal for light guide application.

Applications

- LCD Back Light.
- Mobile phones .
- Indicators.
- Illuminations.
- Switch Lights.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Orange	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	25	mA
Peak Forward Current (Duty 1/10 @10ms)	I _{FP}	60	mA
Power Dissipation	P _d	60	mW
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +85	°C
Electrostatic Discharge _(HBM)	ESD	2000	V
Soldering Temperature	T _{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Note:

*1 Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document.

Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.

*2 LED components are not supposed to be reverse operated.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	57	-----	180	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	-----	110	-----	deg	
Peak Wavelength	λ _p	-----	611	-----	nm	
Dominant Wavelength	λ _d	600.5	----	612.5	nm	
Spectrum Radiation Bandwidth	Δλ	-----	17	-----	nm	
Forward Voltage	V _F	1.75	----	2.35	V	
Reverse Current	I _R	-----	-----	10	μA	V _R =5V

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Chromaticity Coordinates : ±0.01
3. Tolerance of Forward Voltage: ±0.1V
4. All reliability item are tested under good thermal management. Dynamic reliability are tested at 20mA.
5. LED components are not supposed to be reverse operated.
6. Reverse Voltage(V_R) Condition is IR test only The device is not designed for reverse operation

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
P2	57	72	mcd	IF=20mA
Q1	72	90		
Q2	90	112		
R1	112	140		
R2	140	180		

Note: Tolerance of Luminous Intensity: $\pm 11\%$

Bin Range of Dominant Wavelength

Group	Bin Code	Min.	Max.	Unit	Condition
A	D8	600.5	603.5	nm	IF=20mA
	D9	603.5	606.5		
	D10	606.5	609.5		
	D11	609.5	612.5		

Note: Tolerance of Forward Wavelength : $\pm 1\text{nm}$

Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
B	0	1.75	1.95	V	IF=20mA
	1	1.95	2.15		
	2	2.15	2.35		

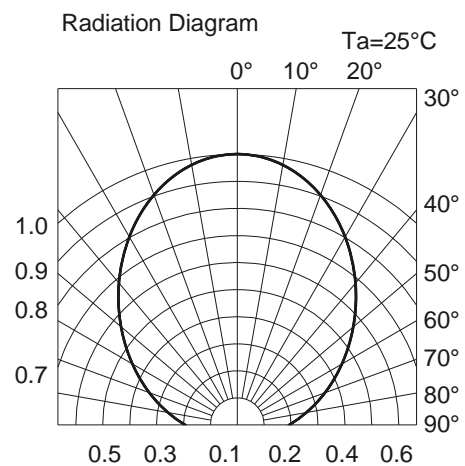
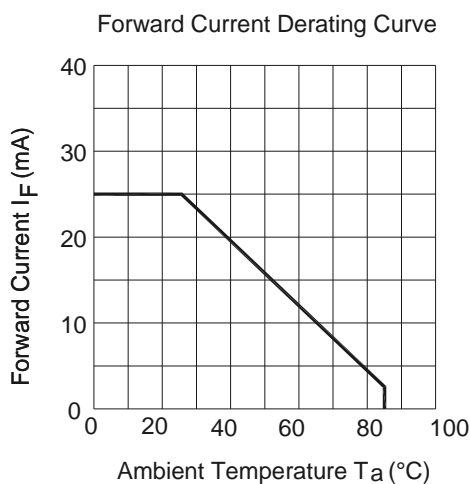
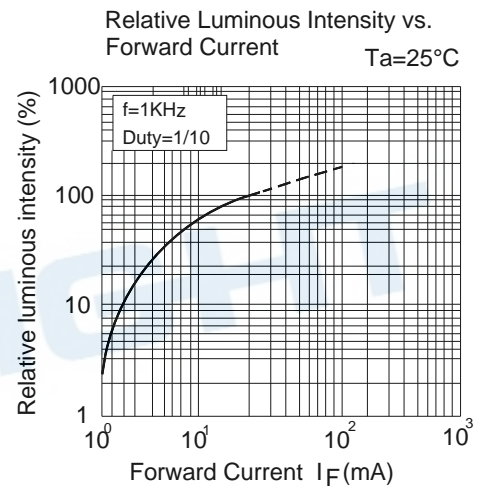
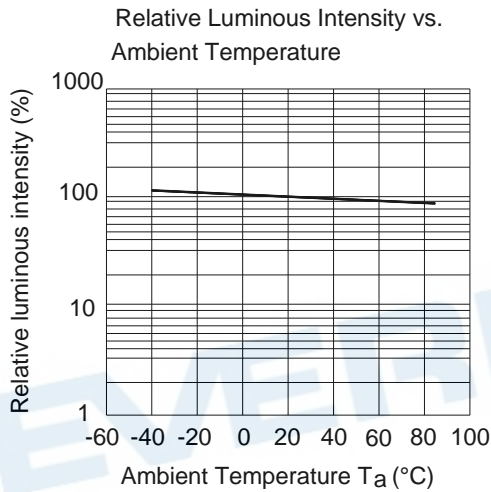
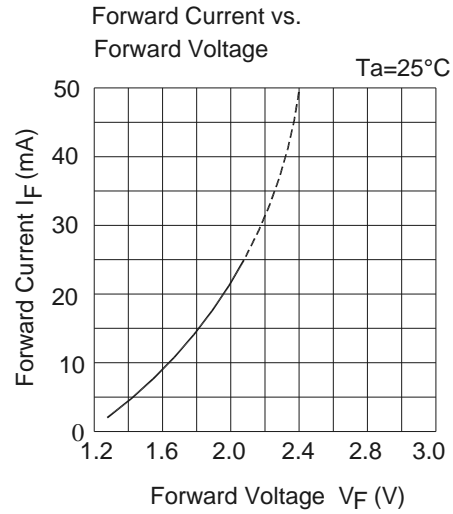
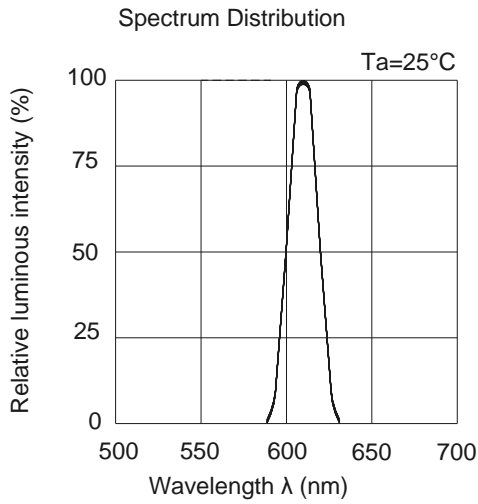
Note: Tolerance of Forward Voltage : $\pm 0.1\text{V}$

	0.2631	0.2315		0.2545	0.2157
	0.2592	0.2339		0.2508	0.2185
	0.2676	0.2494		0.2592	0.2339

Note:

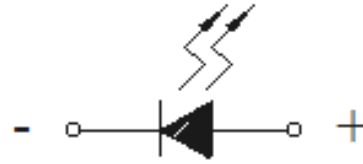
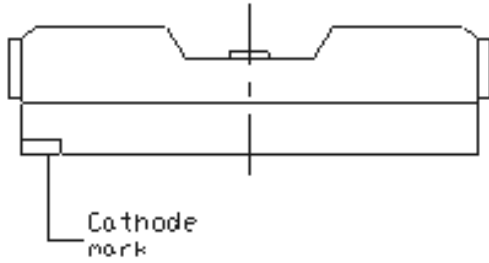
1. The value is based on driving current by 20mA.

Typical Electro-Optical Characteristics Curves

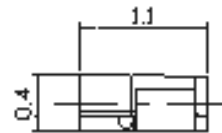
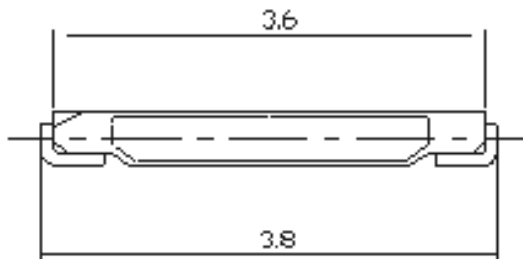


Note: The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.

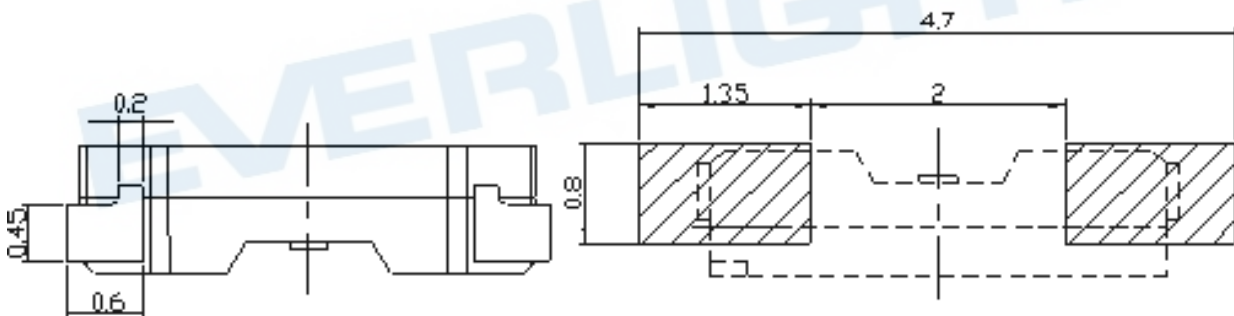
Package Dimension



Polarity



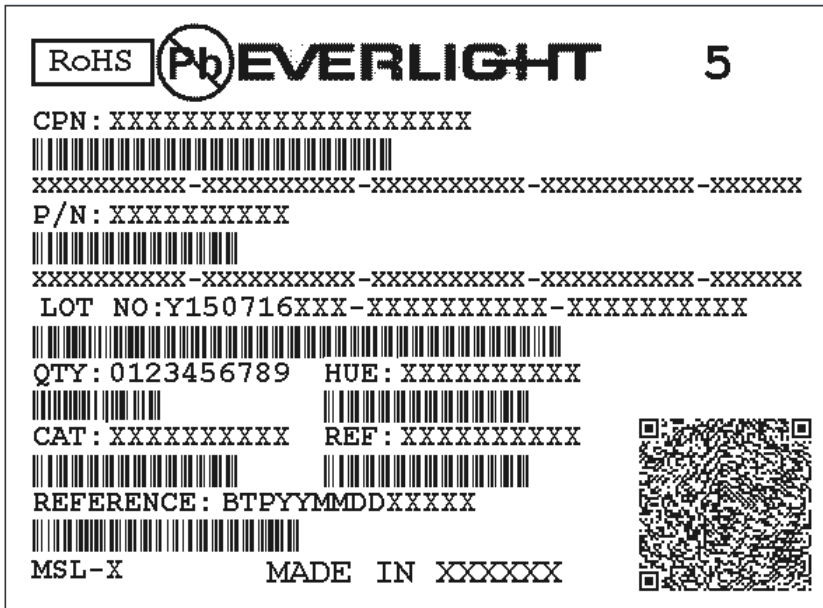
Recommended soldering pad design



Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

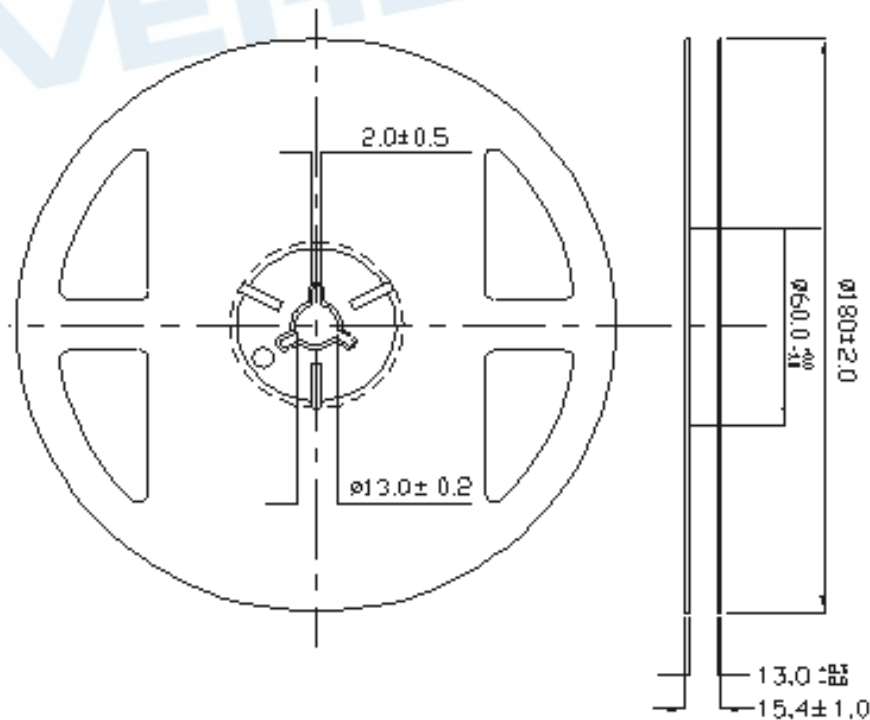
Moisture Resistant Packing Materials

Label Explanation



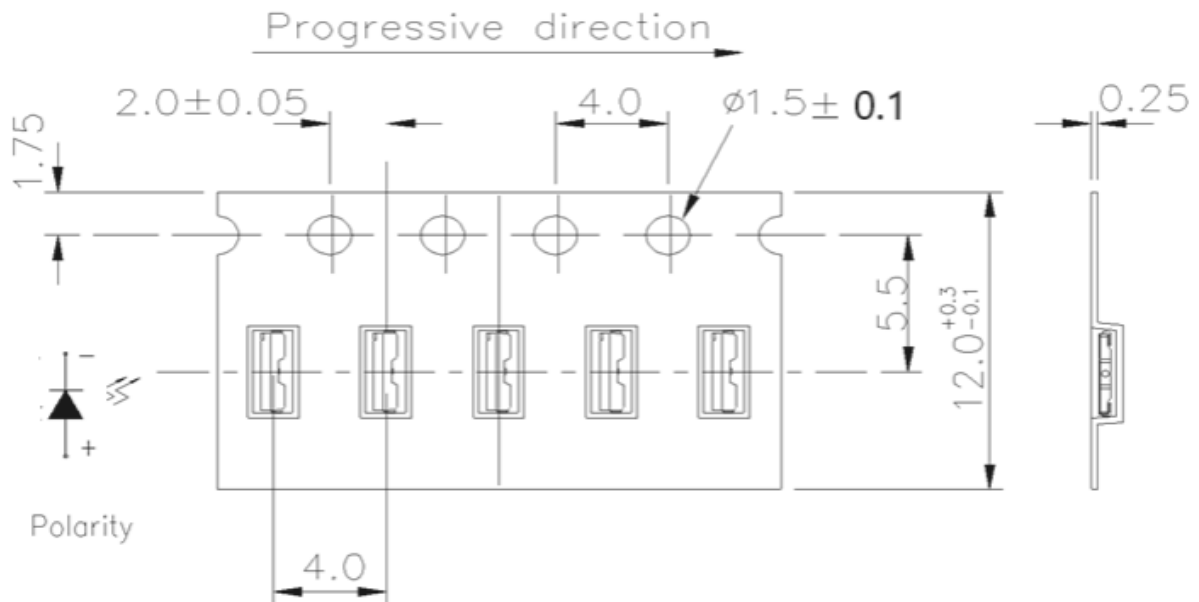
- CPN: Customer's Product Number
- P/N: Product Number
- LOT No: Lot Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank

Reel Dimensions



Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

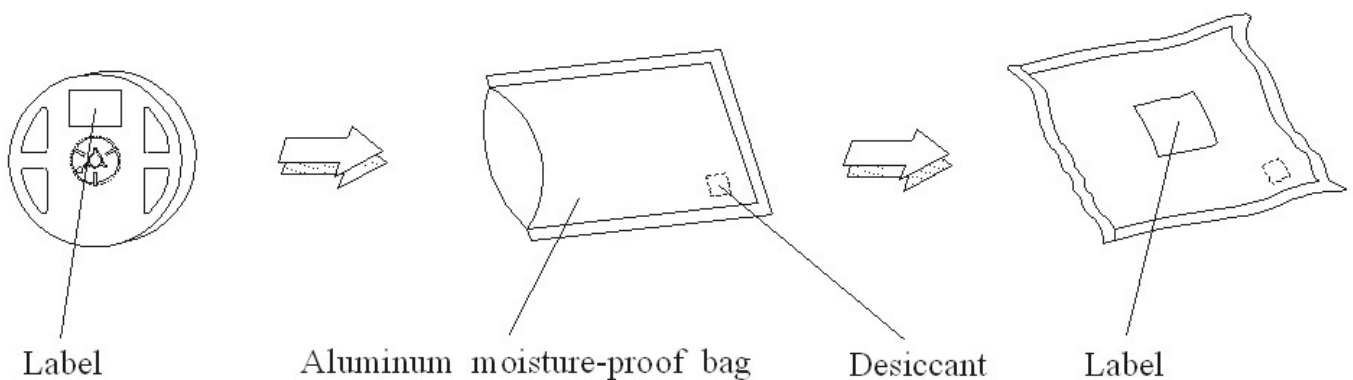
Carrier Tape Dimensions; Loaded Quantity 2000 pcs Per Reel



Note:

1. Tolerance unless mentioned is ± 0.1 mm. Unit = mm
2. Minimum packing amount is 250/500/1000/2000 pcs per reel.

Moisture Resistant Packing Process



Precautions for Use

1. Over-current-proof

1.1 Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Moisture proof bag should only be opened immediately prior to usage.

2.2 Environment should be less than 30°C and 60% RH when moisture proof bag is opened.

2.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

2.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile

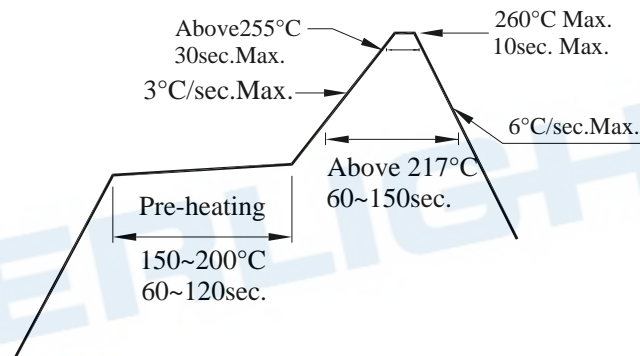
3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

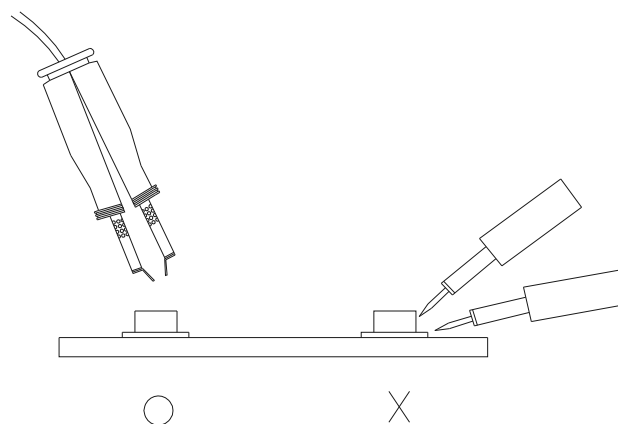
4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds. 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.



ESD Precaution

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the Anti-static bag. Electro-Static Sensitive Devices warning labels are on the packing.

Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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 the 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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