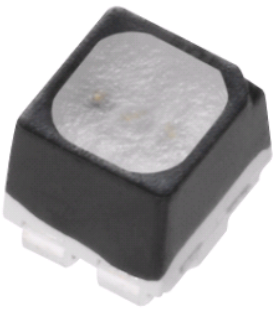


HNB1921W-OS01

Hong Series



Features

- Unique packaging technology provides better moisture resistance for outdoor use.
- Various options for color mixture including white.
- Good color fidelity and brightness uniformity across the viewing angle
- RoHS compliant.
- Black body provides better contrast for the display.
- Compliance with EU REACH
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)

Description

- The HNB1921W-OS01 SMD LED package provides a perfect solution when users need a clear view of signage Display with any size board with 3 in 1 full color SMD LEDs which offer smaller pixel pitch between two LEDs to create a high resolution and better contrast with its black body design.

Applications

- Outdoor signage display
- Outdoor decorating and entertainment design
- Gaming equipment.
- Indicator and backlighting for all consumer electronics.

Device Selection Guide

Part No.	Chip Materials	Emitted Color	Resin Color
R	AlGaInP	Brilliant Red	White Matte Surface
G	InGaN	Brilliant Green	
B	InGaN	Brilliant Blue	

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating			Unit
		R6	GA	BD	
Forward Current	I _F	20	20	10	mA
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	40	40	40	mA
Power Dissipation	P _d	48	68	68	mW
Operating Temperature	T _{opr}	-40~ +85			°C
Storage Temperature	T _{stg}	-40 ~ +90			°C
Soldering Temperature	T _{sol}	Reflow Soldering : 260°C for 10 sec.			

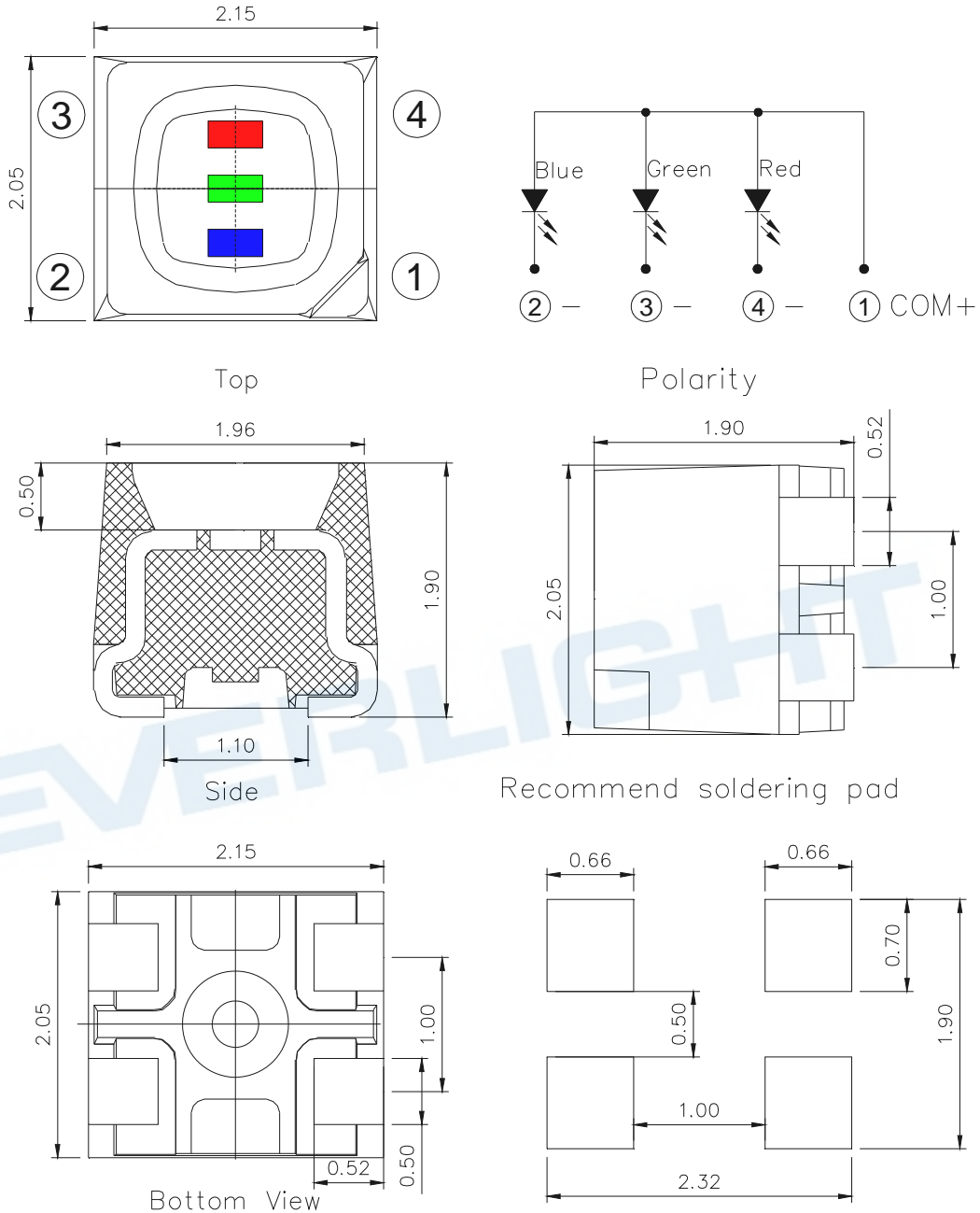
Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity* ¹	I _v	R	390	510	665	mcd	I _F =15mA
		G	560	730	950		I _F =8mA
		B	60	80	105		I _F =5mA
Viewing Angle	2θ _{1/2}		-	110	-	deg	I _F =20mA
Dominant Wavelength* ²	λ _d	R	618	-	628	nm	I _F =15mA
		G	515	-	535		I _F =8mA
		B	462	-	477		I _F =5mA
Forward Voltage* ³	V _F	R	1.8	2.1	2.6	V	I _F =15mA
		G	2.5	2.7	3.3		I _F =8mA
		B	2.5	2.8	3.3		I _F =5mA
Reverse Current	I _R		-	-	10	μA	V _R =5V

Note:

1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V
4. Only for Electronic test

Package Dimension



Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

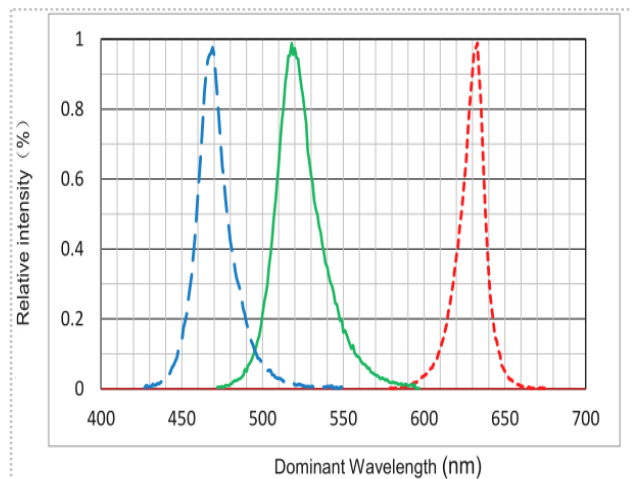
Notes:

1. Dimensions are in millimeters.
2. Tolerances for fixed dimensions are ± 0.1 mm.

Typical Electro-Optical Characteristics Curves

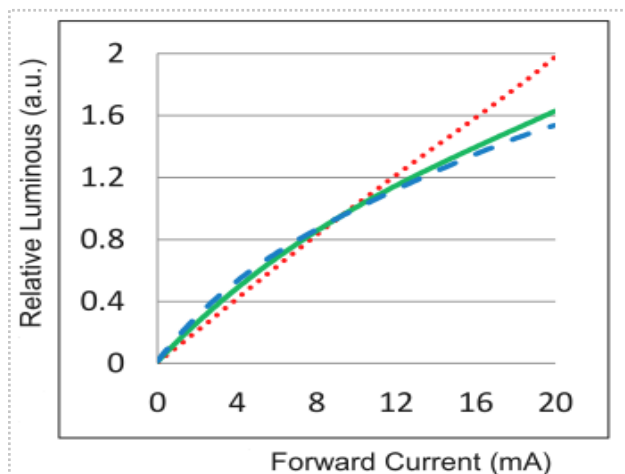
1. Spectrum Distribution

($T_A=25^{\circ}\text{C}$)



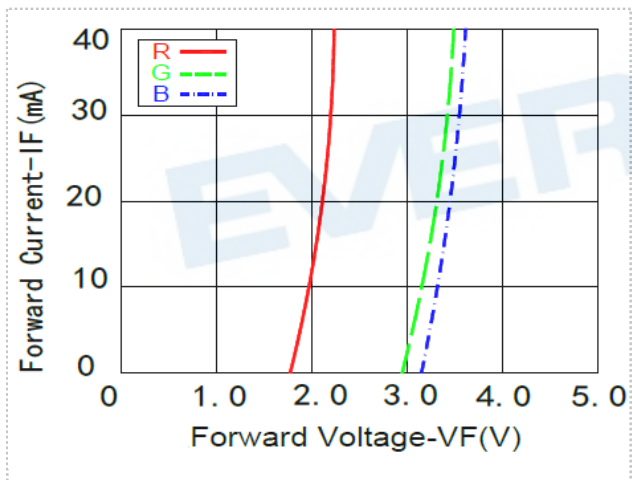
2. Relative Luminous Intensity vs. Forward Current

($T_A=25^{\circ}\text{C}$)



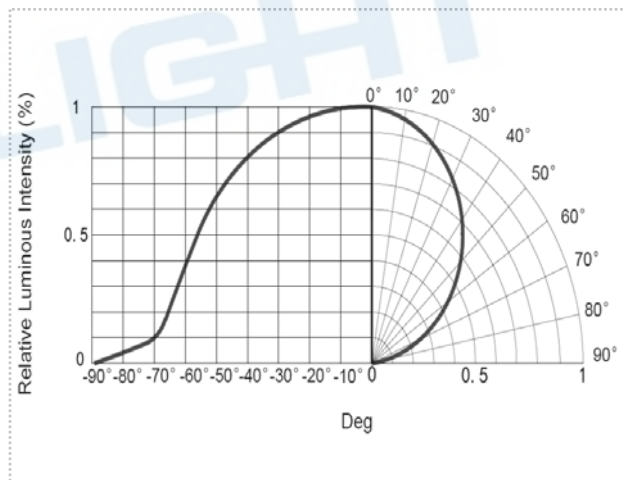
3. Relative Forward Voltage vs. Forward Current

($T_A=25^{\circ}\text{C}$)



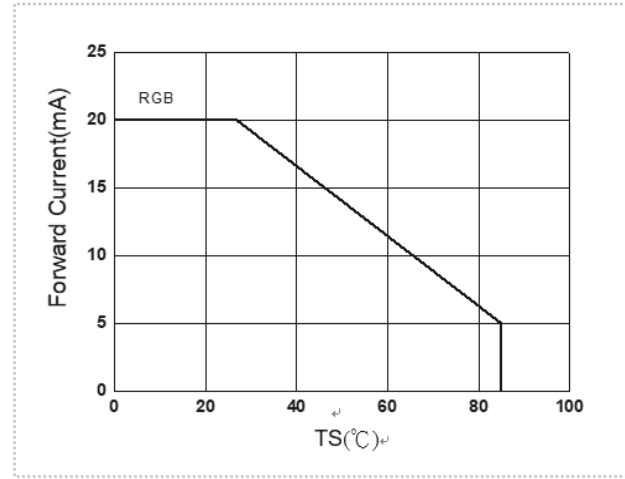
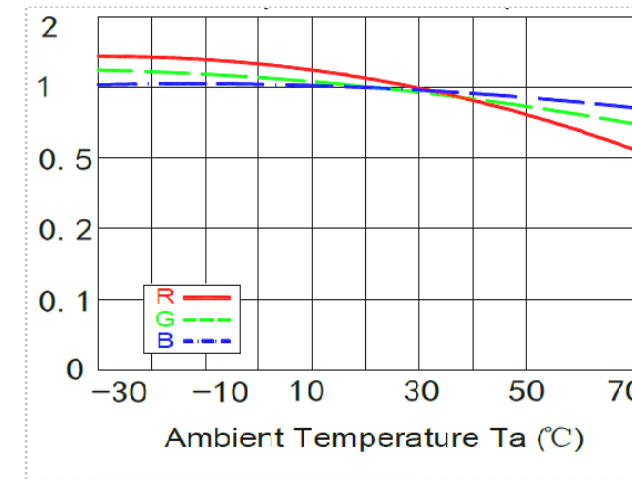
4. Radiation Diagram

($T_A=25^{\circ}\text{C}$)



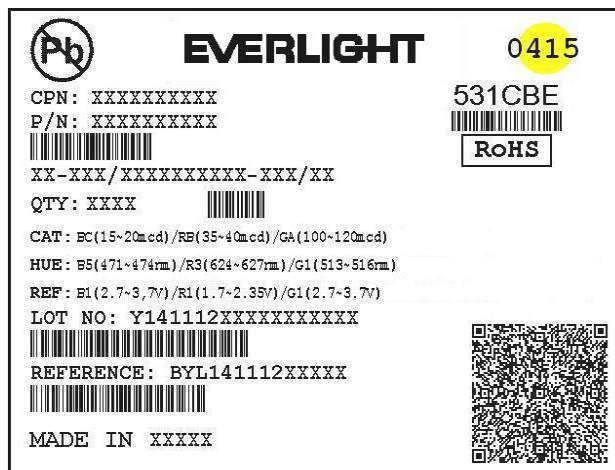
5. Relative Radiant Power vs. Ambient Temperature

6. Forward Current vs. Temperature



Moisture Resistant Packing Materials

Label Explanation

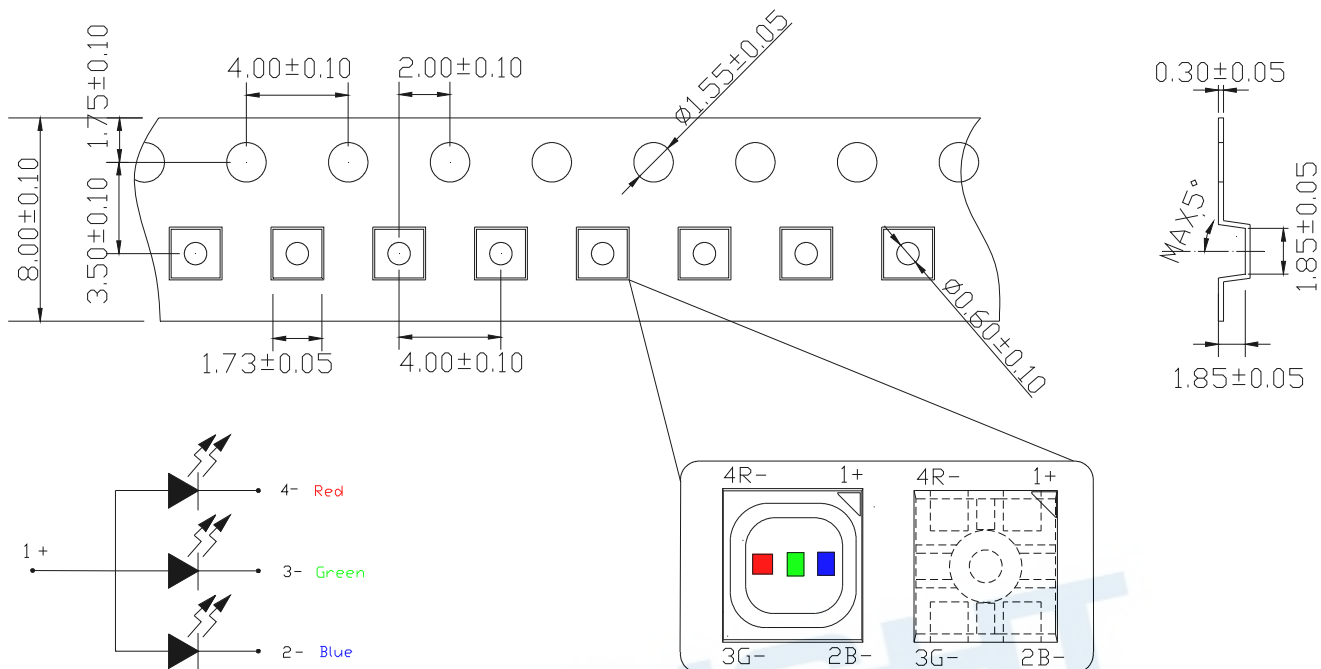


- PN: Customer's Product Number
- SPECIFICATION: LED
- PO TYPE: the label's function
- LOT No: Lot Number
- QTY: Packing Quantity
- VENDOR P/N: express the product type
- VENDOR/Code: EVERLIGHT'code

EVERLIGHT

Carrier Tape Dimensions:

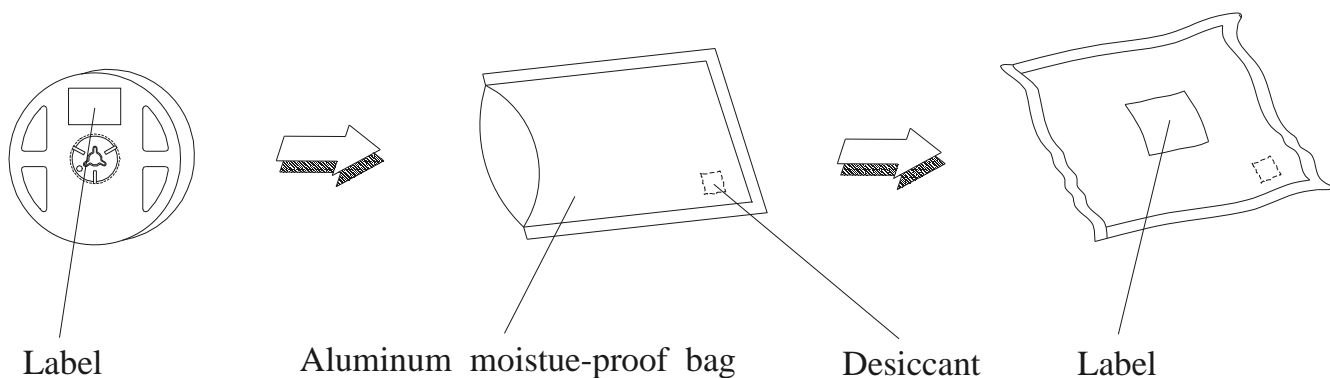
The minimum quantity of packing is 10000 pcs per reel. 2 reel for each bag.



Notes:

1. Dimensions are in millimeters.
2. Tolerances for fixed dimensions are ± 0.1 mm.

Moisture Resistant Packing Process



Notes:

1. Dimensions are in millimeters.
2. Tolerances for fixed dimensions are ± 0.1 mm.

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 60%RH or less and be used within 2 months..

2.3 After opening the package: The LED's floor life is 168Hrs under 30°C or less and 60% RH or less.If unused LEDs remain, it should be stored in moisture proof packages.

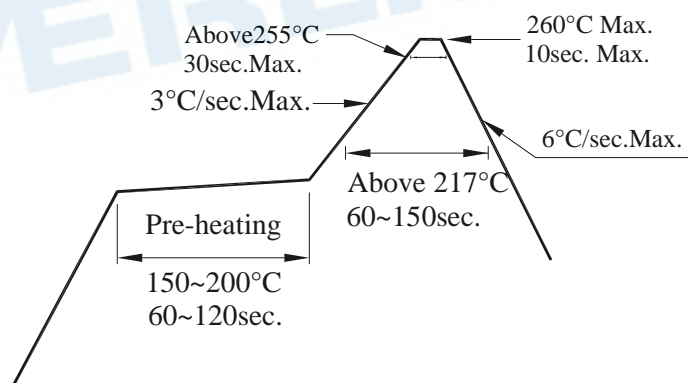
2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

2.5 Before using LEDs, baking treatment should be implemented based on the following conditions: pre-curing at 60±5°C for 24 hours or 125±5°C for 3 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. ESD (Electrostatic Discharge)

4.1 The products are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability. When handling the products, the following measures against electrostatic discharge are strongly recommended:

4.1.1 Eliminating the charge

4.1.2 Grounded wrist strap, ESD footwear, clothes, and floors

4.1.3 Grounded workstation equipment and tools

4.1.4 ESD table/shelf mat made of conductive materials

4.2 Proper grounding is required for all devices, equipment, and machinery used in product assembly. Surge protection should be considered when designing of commercial products.

4.3 If tools or equipment contain insulating materials such as glass or plastic, the following measures against electrostatic discharge are strongly recommended:

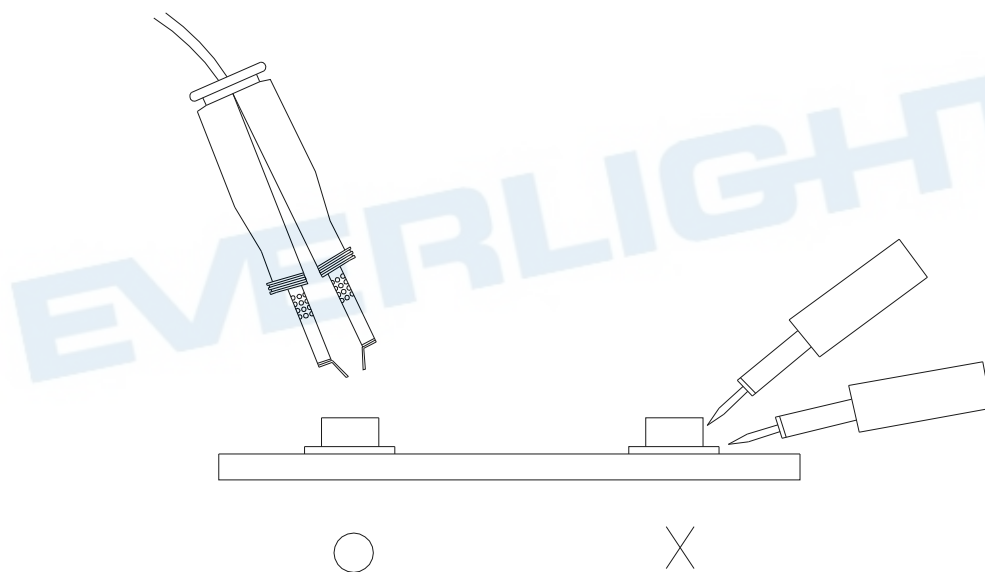
4.3.1 Dissipating static charge with conductive materials

4.3.2 Preventing charge generation with moisture

4.3.3 Neutralizing the charge with ionizers.

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.



6. Directions for use

The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, it may cause migration resulting in LED damage.

EVERLIGHT ELECTRONICS CO., LTD.
Office: No 6-8, Zhonghua Rd., Shulin Dist.,
New Taipei City 23860, Taiwan, R.O.C

Tel: 886-2-2685-6688
Fax: 886-2-2685-6699
<http://www.everlight.com>

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 eighteen (18) 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.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.

EVERLIGHT