

SMD ■ B

16-916/BHC-ZQ1R2N/3C

**Features**

- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.
- 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 16-916 SMD LED is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications. etc.

Applications

- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Blue	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Power Dissipation	P _d	110	mW
Electrostatic Discharge	ESD _{HBM}	150	V
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. Hand Soldering : 350 °C for 3 sec.	

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I _v	72	-----	180	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	-----	125	-----	deg	
Peak Wavelength	λ _p	-----	468	-----	nm	
Dominant Wavelength	λ _d	460	-----	475	nm	
Spectrum Radiation Bandwidth	Δλ	-----	35	-----	nm	
Forward Voltage	V _F	2.7	----	3.7	V	V _R =5V
Reverse Current	I _R	-----	-----	50	μA	

Note:

- 1.Tolerance of Luminous Intensity: ±11%
- 2.Tolerance of Dominant Wavelength ±1nm
- 3.Tolerance of Forward Voltage: ±0.05V
- 4.RA test at 5mA.

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Test Condition
Q1	72	90	mcd	$I_F = 20\text{mA}$
Q2	90	112		
R1	112	140		
R2	140	180		

Bin Range Of Dom. Wavelength

Bin Code	Min.	Max.	Unit	Test Condition
T	460	465	nm	$I_F = 20\text{mA}$
X	465	470		
Y	470	475		

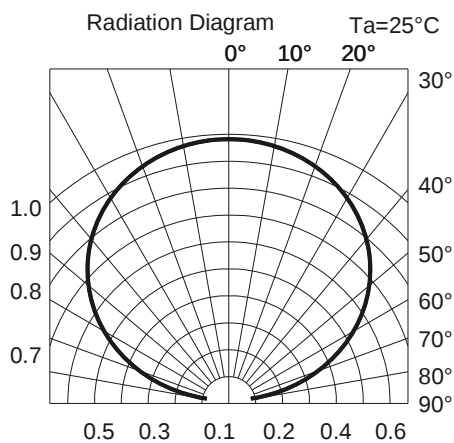
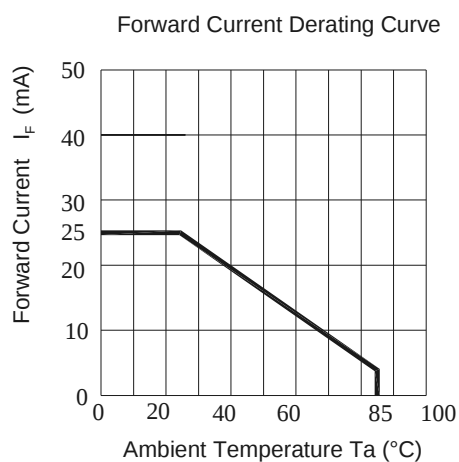
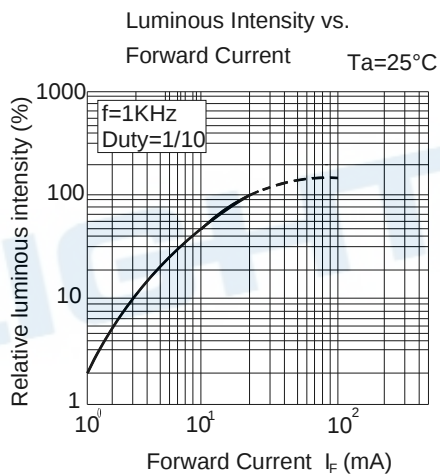
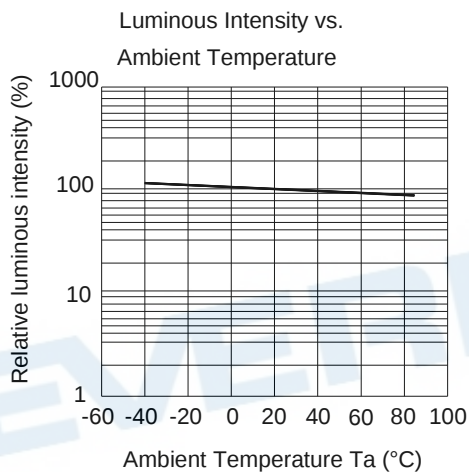
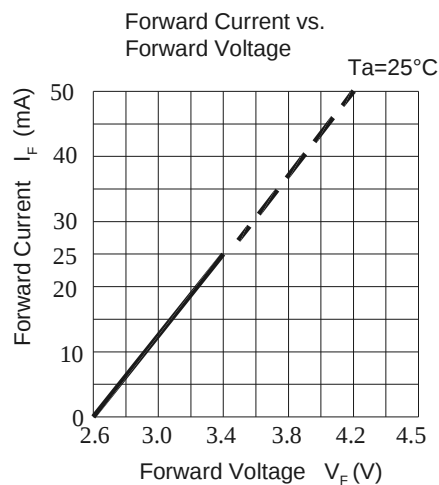
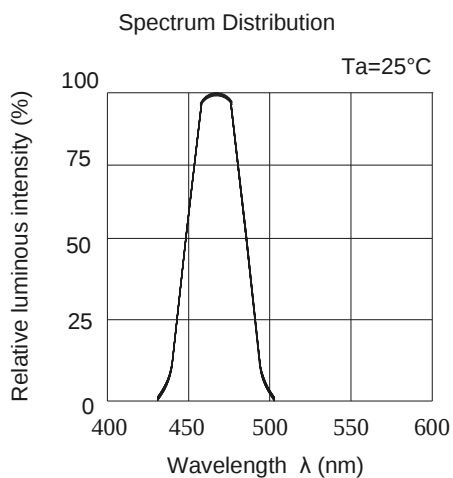
Bin Range Of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Test Condition
N	10	2.7	2.9	V	$I_F = 20\text{mA}$
	11	2.9	3.1		
	12	3.1	3.3		
	13	3.3	3.5		
	14	3.5	3.7		

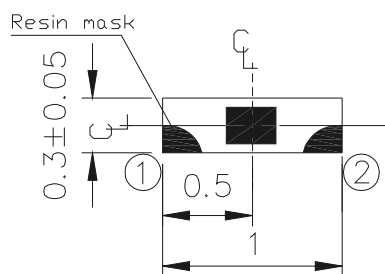
Note:

1. Tolerance of Luminous Intensity: $\pm 11\%$
2. Tolerance of Dominant Wavelength $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.05\text{V}$

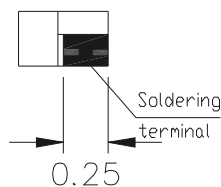
Typical Electro-Optical Characteristics Curves



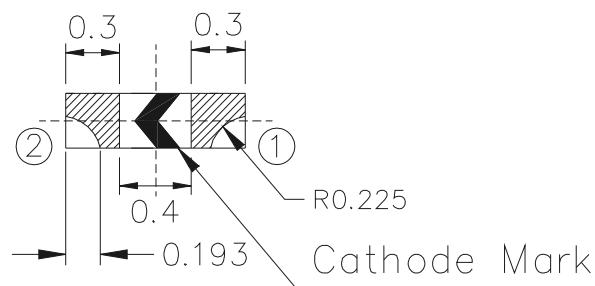
Package Dimension



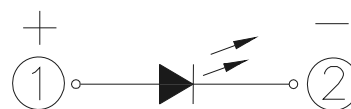
Top



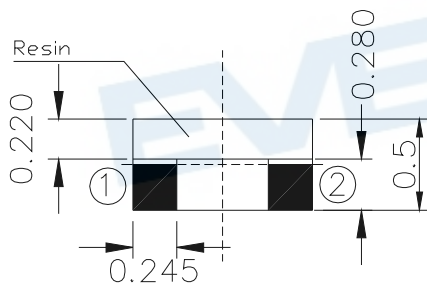
Side



Bottom

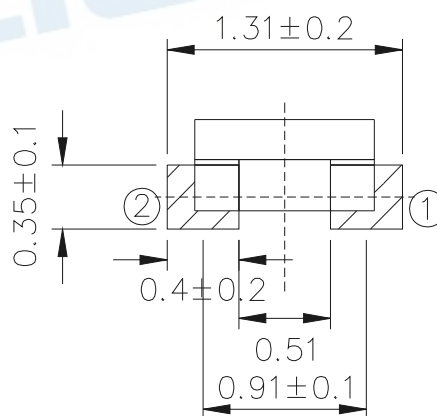


Polarity



Side

Recommend soldering pad



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

Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

Moisture Resistant Packing Materials

Label Explanation

RoHS  **EVERLIGHT** 5

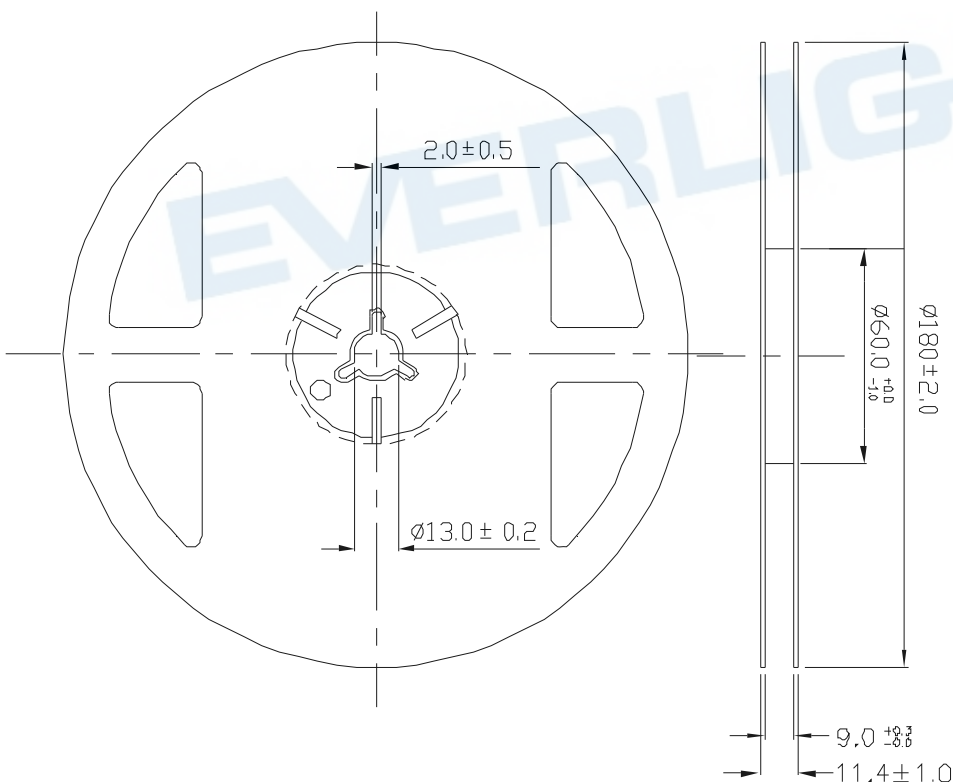
CPN: XXXXXXXXXXXXXXXX
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX
P/N: XXXXXXXXXXXX
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX
LOT NO: Y150716XXX-XXXXXXXXXX-XXXXXXXXXX
QTY: 0123456789 HUE: XXXXXXXXXXXX
CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX
REFERENCE: BTPYYMDDXXXXX

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

MADE IN TAIWAN



Reel Dimensions



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

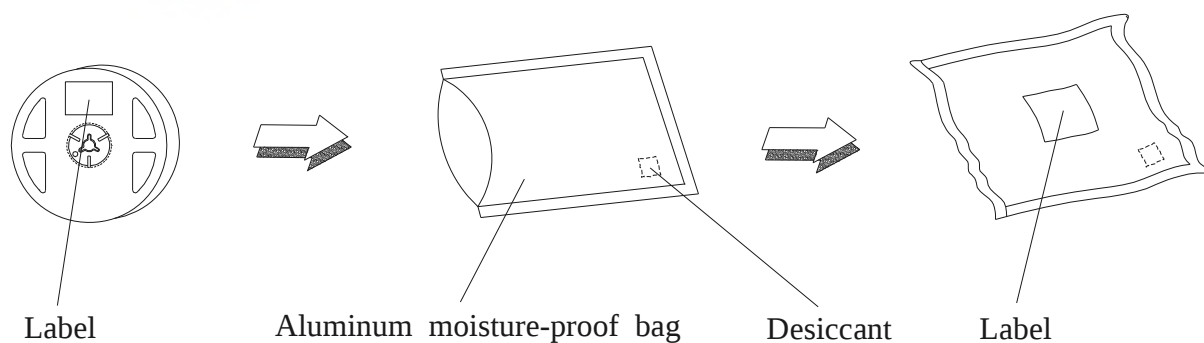
Technical drawing of a 5-pin D-subminiature connector, showing three views: Top view, Front view, and Bottom view.

Top View: Shows the overall dimensions and pin layout. The overall width is 3.5. The distance between the first and second pins is 1.75. The distance between the second and third pins is 2.0. The distance between the third and fourth pins is 4.0. The distance between the fourth and fifth pins is 1.50. The overall height is 8.0, with a tolerance of $+0.3$ and -0.2 . The distance between the first and second pins is 4.0. The distance between the second and third pins is 0.600.

Front View: Shows the profile of the connector. The overall height is 1.200. The distance between the first and second pins is 0.20. The distance between the second and third pins is 0.51.

Bottom View: Shows the underside of the connector. It includes a polarity diagram with a triangle pointing up and a triangle pointing down, labeled with ① and ②. A note indicates "Polarity".

Moisture Resistant Packaging



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 90%RH or less.

2.3 After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less.

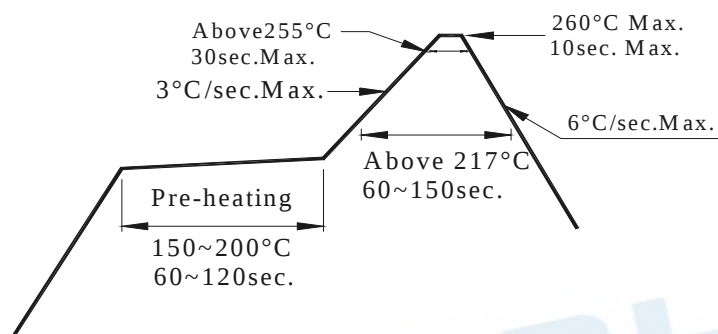
If unused LEDs remain, it should be stored in moisture proof packages.

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.

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.

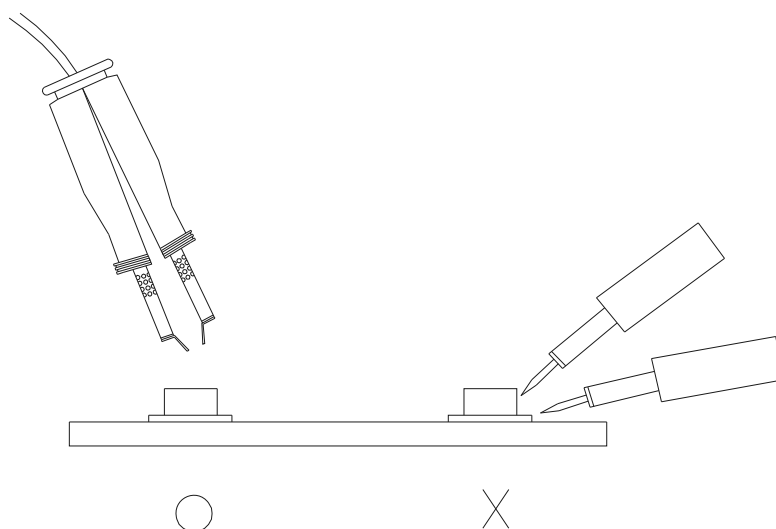
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

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



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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