

## **Technical Data Sheet**

# Reverse Package Chip LED (Multi-Color)

### 23-22B/BHS2C-A01/2A

#### **Features**

- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Multi-color type.
- Pb-free.
- The product itself will remain within RoHS compliant version.

#### **Descriptions**

- The 23-22B SMD Taping 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 use.

#### **Device Selection Guide**

Dout No.	Chip	F. W. LC.L.	Lens Color	
Part No.	Material	Emitted Color		
23-22B/BHS2C-A01/2A	InGaN	Blue		
	AlGaInP	Brilliant Orange	Water Clear	



Everlight Electronics Co., Ltd. http://www.everlight.com Rev. 1 Page: 1 of 11 Device No.: DSE-232-A01

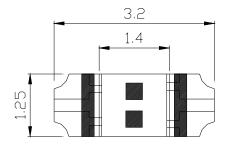
Prepared date: 13-Oct-2005 Prepared by: Jeff Tsai

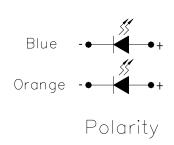


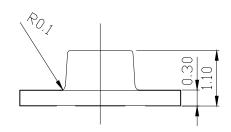
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# 23-22B/BHS2C-A01/2A

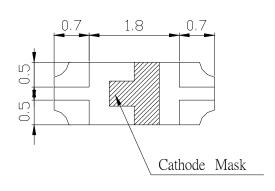
# **Package Outline Dimensions**

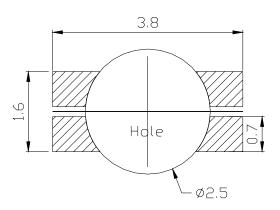






For reflow soldering(Propose)





**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm, Unit = mm

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# **Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit	
Reverse Voltage	VR	5	V	
Forward Current	IF	25	mA	
Operating Temperature	Topr	-40 ~ +85	$^{\circ}\!$	
Storage Temperature	Tstg	-40 ~ +90	$^{\circ}\!\mathbb{C}$	
Soldering Temperature	Tsol	260 (for 5 seconds)	$^{\circ}$	
Electrostatic Discharge(HBM)	ESD	BH:150 S2:2000	V	
Power Dissipation	Pd	BH:110 S2:60	mW	
Peak Forward Current (Duty 1/10 @1KHz)	IFP	BH:100 S2:60	mA	
Soldering Temperature	Tsol	Reflow Soldering: 260 °C for 10 sec.  Hand Soldering: 350 °C for 3 sec.		

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# **Electro-Optical Characteristics** (Ta=25 $^{\circ}$ C)

Parameter	Symbol		Min.	Тур.	Max.	Unit	Condition	
Luminous Intensity	Iv	BH S2	28.5 45.0	45.0 90.0	72.0 140	mcd		
Viewing Angle	2 0 1/2			130		deg		
Peak Wavelength	λΡ	ВН		468		nm	I <sub>F</sub> =20 mA	
		S2		611		11111		
Dominant Wavelength	λd	ВН		470		nm		
		S2		605				
Spectrum Radiation Bandwidth	Δλ	ВН		35		nm		
		<b>S</b> 2		17				
Forward Voltage	VF	ВН	2.7	3.3	3.7	V		
		S2	1.7	2.0	2.4			
Reverse Current	IR	ВН			50	4	Vn_5V	
		S2			10	$\mu$ A	V <sub>R</sub> =5V	

#### **Notes:**

1.Tolerance of Luminous Intensity ±10%

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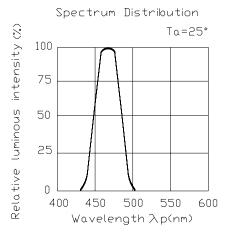


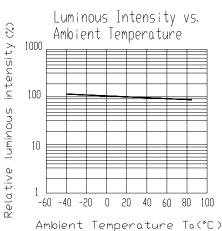
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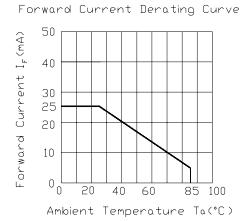
### 23-22B/BHS2C-A01/2A

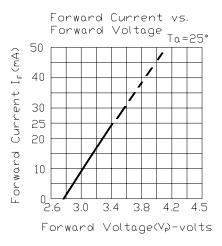
# **Typical Electro-Optical Characteristics Curves**

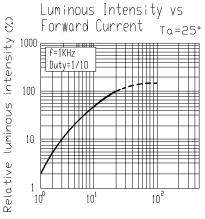
## BH

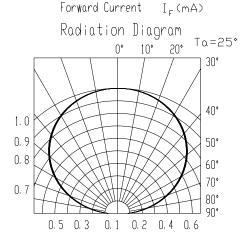








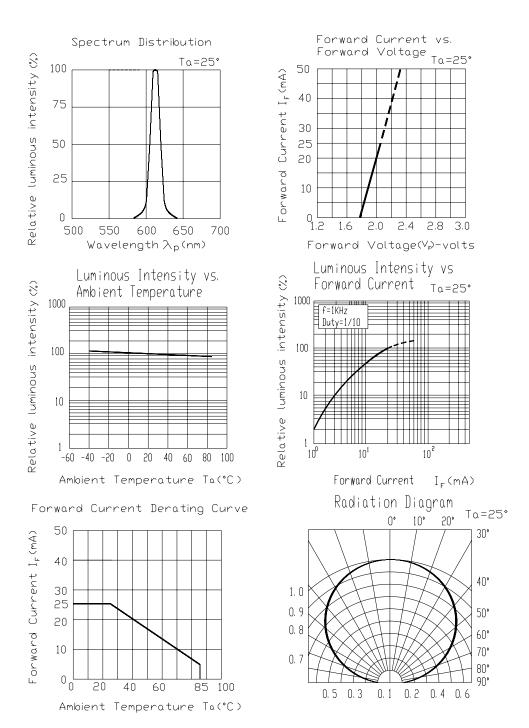




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### **Typical Electro-Optical Characteristics Curves**

**S2** 



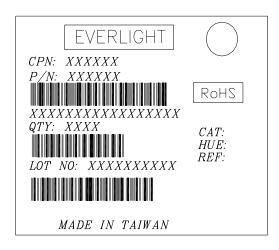
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#### Label explanation

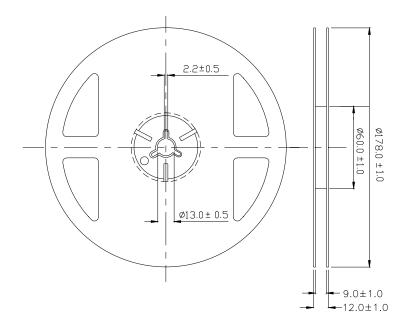
**CAT: Luminous Intensity Rank** 

**HUE: Dom. Wavelength Rank** 

**REF: Forward Voltage Rank** 



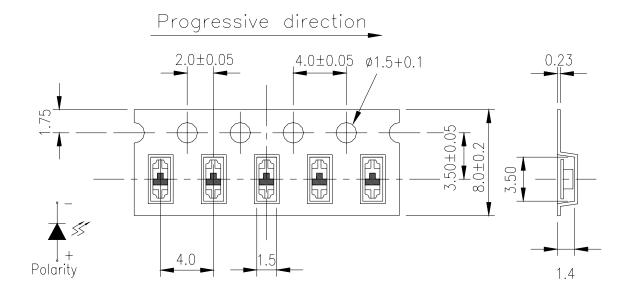
#### **Reel Dimensions**



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm, Unit = mm

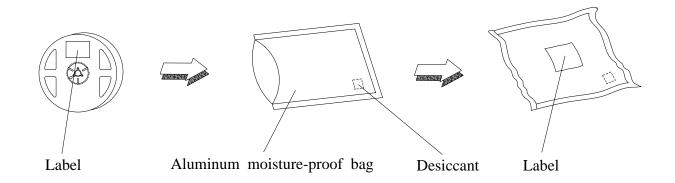
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## Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm, 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°C±5°C Min. 5sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	$H: +100^{\circ}\mathbb{C}$ 15min $\int 5 \text{ min}$ $L: -40^{\circ}\mathbb{C}$ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	$H: +100^{\circ}\mathbb{C}$ 5min $\int 10 \sec$ $L: -10^{\circ}\mathbb{C}$ 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°€	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	$I_F = 20 \text{ mA}$	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85% RH	1000 Hrs.	22 PCS.	0/1

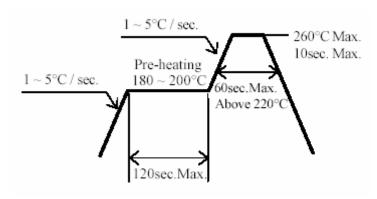
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#### **Precautions For Use**

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  $30^{\circ}$ C or less and 90%RH or less.
- 2.3 After opening the package: The LED's floor life is 1 year under 30 deg 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 :  $60\pm5^{\circ}$ 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.

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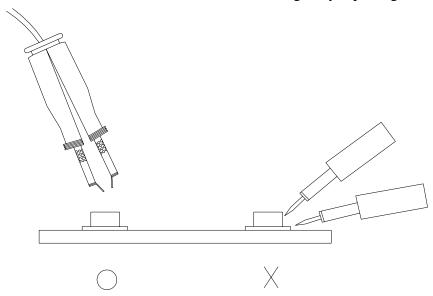


#### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than  $350^{\circ}$ 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.



EVERLIGHT ELECTRONICS CO., LTD.

Office: No 25, Lane 76, Sec 3, Chung Yang Rd, Tucheng, Taipei 236, Taiwan, R.O.C Tel: 886-2-2267-2000, 2267-9936

Fax: 886-2267-6244, 2267-6189, 2267-6306

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