EVERLIGHT EVERLIGHT ELECTRONICS CO., LTD.

Technical Data Sheet

Full Color Chip LED (Chip LED with Right Angle Lens)

12-23C/S2GHBHC-A01/2C

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.

Descriptions

- The 12-23C 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

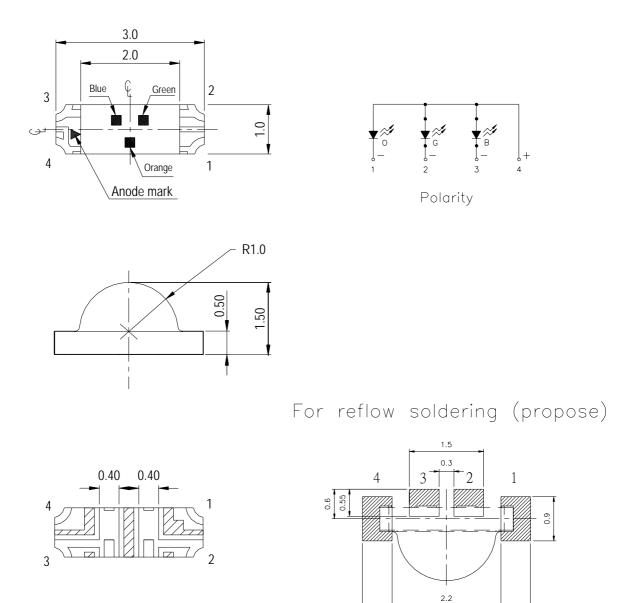
- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

Device Selection Guide

Chip				
Туре	Material	Emitted Color	Lens Color	
S2	AlGaInP	Brilliant Orange		
GH	InGaN	Brilliant Green	Water Clear	
BH	InGaN	Blue		



Package Outline Dimensions



Note: The tolerances unless mentioned is ± 0.1 mm, Unit = mm

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Absolute Maximum Ratings (Ta=25°C)

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Parameter	Symbol	Rating	Unit
Reverse Voltage	VR	5	V
Forward Current	IF	S2:25 GH:25 BH:25	mA
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +90	°C
Soldering Temperature	Tsol	260 (for 5 seconds)	°C
Power Dissipation	Pd	S2:60 GH:110 BH:110	mW
Peak Forward Current (Duty 1/10 @1KHz)	Ifp	S2:60 GH:100 BH:100	mA

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12-23C/S2GHBHC-A01/2C

Electro-Optical Characteristics (Ta=25°C)

Parameter	Parameter Symbo		Min.	Тур.	Max.	Unit	Condition
		S2	72	140			
Luminous Intensity	Iv	GH	140	210		mcd	IF=20mA
		BH	36	65			
Viewing Angle	2 0 1/2			100		deg	IF=20mA
		S2		611			
Peak Wavelength	λp	GH		518		nm	IF=20mA
		BH		468			
		S2		605			
Dominant Wavelength	λd	GH		525		nm	IF=20mA
		BH		470			
Guardina Dadiatian		S2		17			
Spectrum Radiation Bandwidth	$ riangle \lambda$	GH		25		nm	IF=20mA
		BH		25			
		S2		2.0	2.4		
Forward Voltage	VF	GH		3.3	3.9	v	IF=20mA
		BH		3.3	3.9		
		S2			10	μ A	V _R =5V
Reverse Current	Ir	GH			50		
		BH			50		

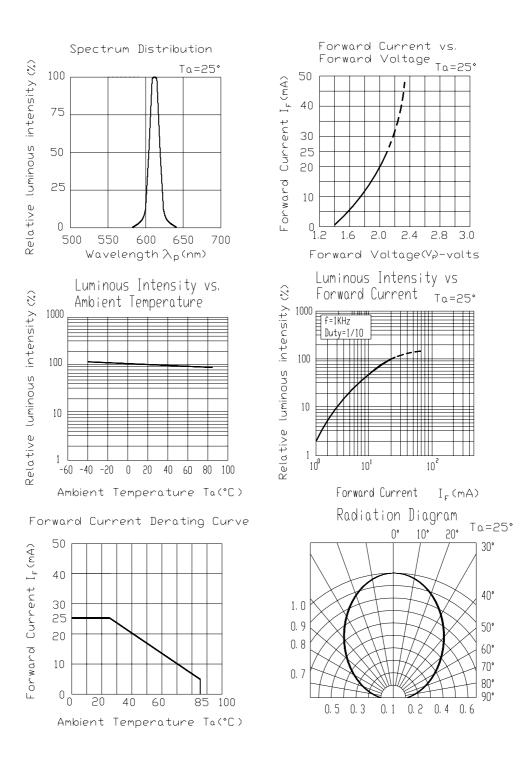
Notes:

1.Tolerance of Luminous Intensity ±10%

- 2.Tolerance of Dominant Wavelength ±1nm
- 3.Tolerance of Forward Voltage ±0.1V

Typical Electro-Optical Characteristics Curves

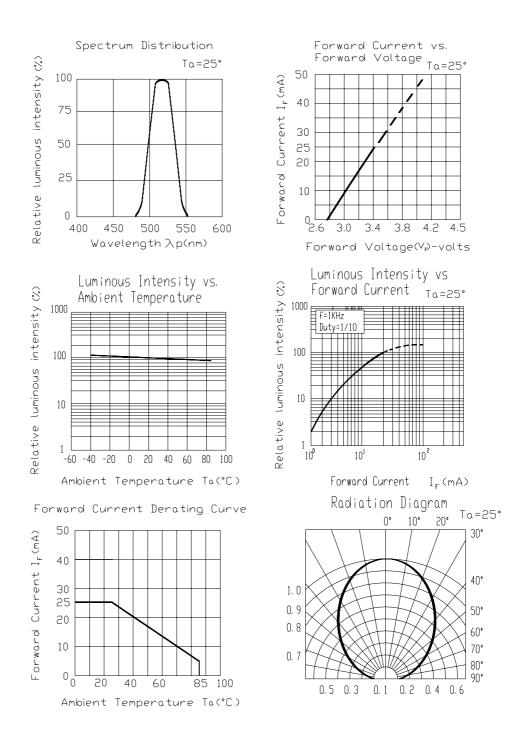
S2



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Typical Electro-Optical Characteristics Curves

GH

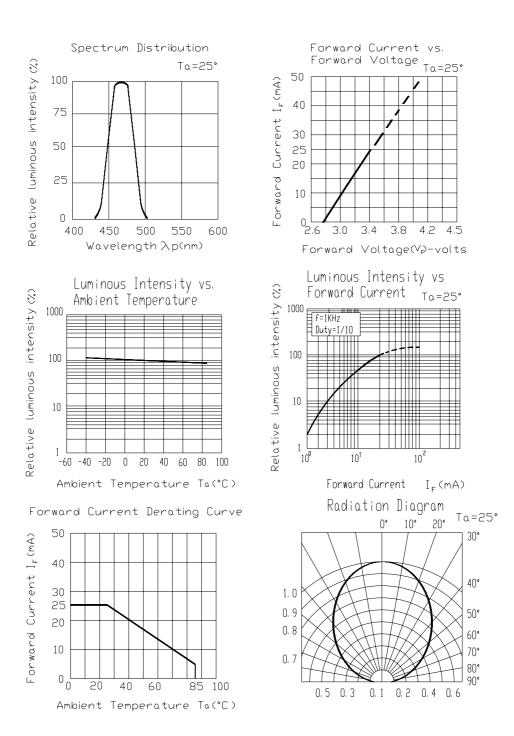


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Typical Electro-Optical Characteristics Curves

BH



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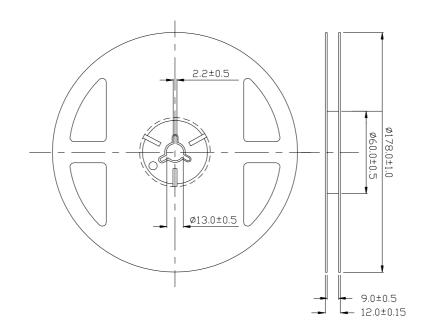
12-23C/S2GHBHC-A01/2C

Label explanation

- **CAT: Luminous Intensity Rank**
- HUE: Dom. Wavelength Rank
- **REF: Forward Voltage Rank**



Reel Dimensions



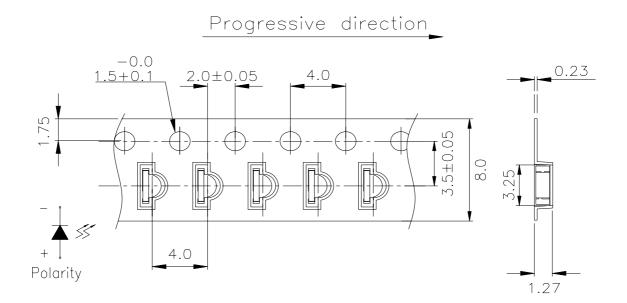
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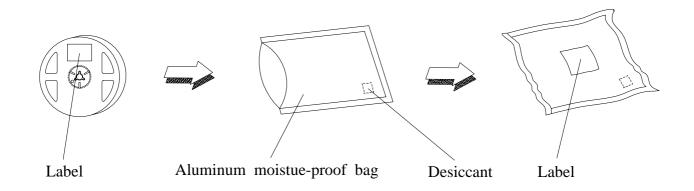
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Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



Note: The tolerances unless mentioned is ± 0.1 mm ,Unit = mm

Moisture Resistant Packaging



Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD: 10%

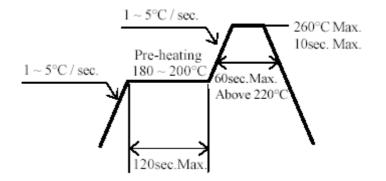
No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C±5°C Min. 5sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	H : +100°C 15min $\int 5 \text{ min}$ L : -40°C 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H: +100°C 5min $\int 10 \sec$ L: -10°C 5min	300 Cycles	22 PCS.	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
б	DC Operating Life	$I_F = 20 \text{ mA}$	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85℃/ 85%RH	1000 Hrs.	22 PCS.	0/1

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 The LEDs should be used within a year.
- 2.4 After opening the package, the LEDs should be kept at 30° C or less and 70%RH or less.
- 2.5 The LEDs should be used within 168 hours (7 days) after opening the package.
- 2.6 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.

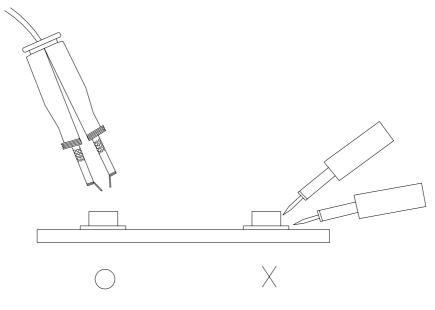
4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280° 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.



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