

Technical Data Sheet Full Color Chip LED

15-13D/R6GHBHC-A01/2T

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.
- ESD Protect.
- The product itself will remain within RoHS compliant version.

Descriptions

- The 15-13D 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

- 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

Type	Material	Emitted Color	Resin Color	
R6	AlGaInP	Brilliant Red		
GH	InGaN	Brilliant Green	Water Clear	
ВН	InGaN	Blue		



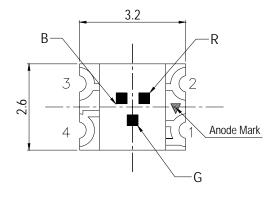
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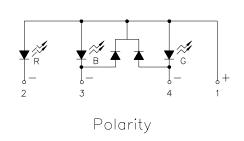
Device No.: DSE-00005368 Prepared date: 05-Jul-2011 Prepared by: Esther Yan

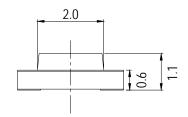


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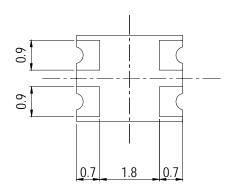
Package Outline Dimensions

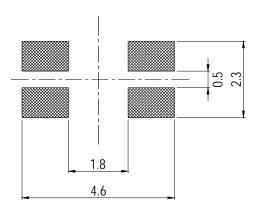






For reflow soldering (propose)





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

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Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit	
Reverse Voltage	V_R	5	V	
	IF	R6:25		
Forward Current		GH:25	mA	
		BH:25		
Dook Formword Comment		R6:60		
Peak Forward Current (Duty 1/10 @1KHz)	Ifp	GH:100	mA	
(Duty 1/10 @TKHZ)		BH:100		
	Pd	R6:60		
Power Dissipation		GH:110	mW	
		BH:110		
	ESD	R6:2000		
Electrostatic Discharge(HBM)		GH:2000	V	
		BH:2000		
Operating Temperature	Topr	-40 ~ +85	$^{\circ}\! \mathbb{C}$	
Storage Temperature	Tstg	-40 ~ +90	$^{\circ}\!\mathbb{C}$	
Coldoning Tomporoty	Tsol	Reflow Soldering: 260 °C for 10 sec.		
Soldering Temperature		Hand Soldering: 350	C for 3 sec.	

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Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
		R6	90	140			
Luminous Intensity	Iv	GH	112	180		mcd	IF=20mA
		ВН	45	70			
Viewing Angle	2 \theta 1/2			120		deg	I _F =20mA
		R6		632			
Peak Wavelength	λр	GH		518		nm	I _F =20mA
		ВН		468			
		R6		624			
Dominant Wavelength	λd	GH		525		nm	I _F =20mA
		ВН		470			
		R6		20			
Spectrum Radiation Bandwidth	Δλ	GH		35		nm	I _F =20mA
		ВН		25			
		R6	1.7	2.0	2.4		
Forward Voltage	VF	GH	2.7	3.3	3.7	V	I _F =20mA
		ВН	2.7	3.3	3.7		
		R6			10		
Reverse Current	Ir	GH			50	μ A	$V_R=5V$
		ВН			50		

Notes:

- 1.Tolerance of Luminous Intensity ±11%
- 2. Tolerance of Forward Voltage $\pm 0.05V$

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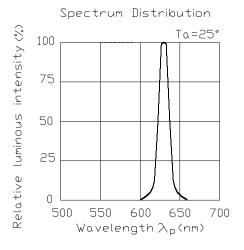
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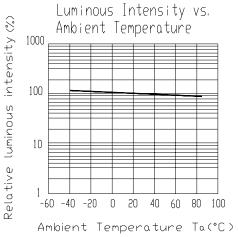


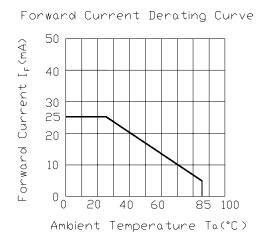
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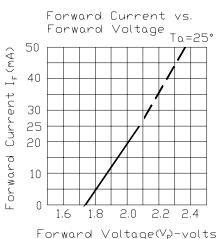
Typical Electro-Optical Characteristics Curves

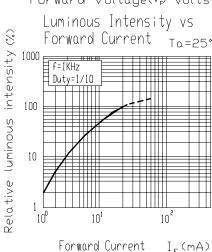
R6

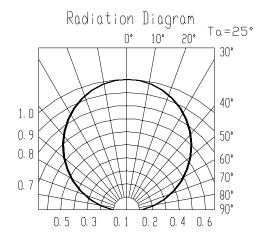












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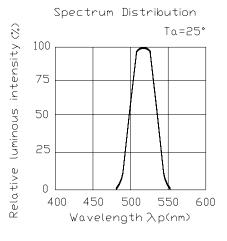
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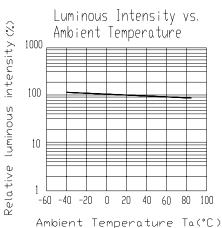


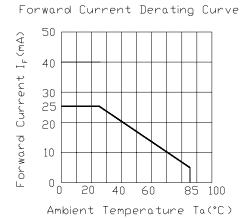
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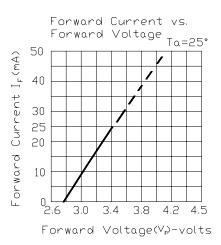
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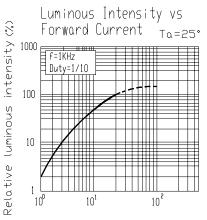
GH

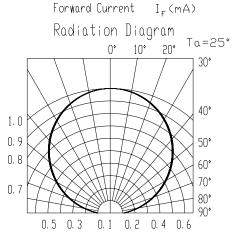












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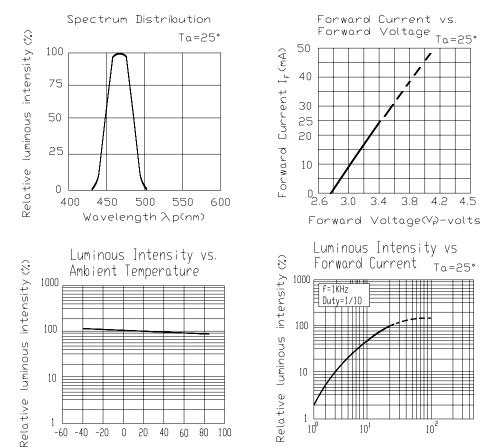
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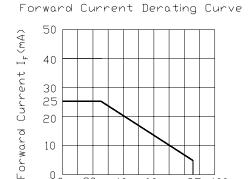


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Typical Electro-Optical Characteristics Curves

BH





Ambient Temperature Ta(°C)

-20 0 20 40 60

10

20 40 60 100 Ambient Temperature Ta(°C)

Forward Current I_F(mA) Radiation Diagram Ta=25° 20° 10° 30° 40° 1.0 0. 9 50° 0.8 60° 70° 0.7 80° 0.5 0.3 0. 1 0.2 0.4 0.6

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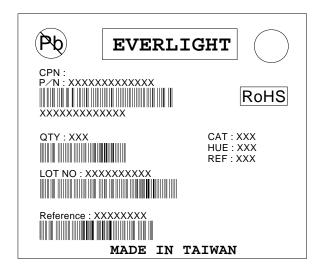
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Label Explanation

CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

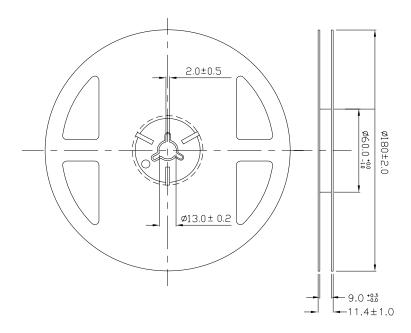


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Reel Dimensions

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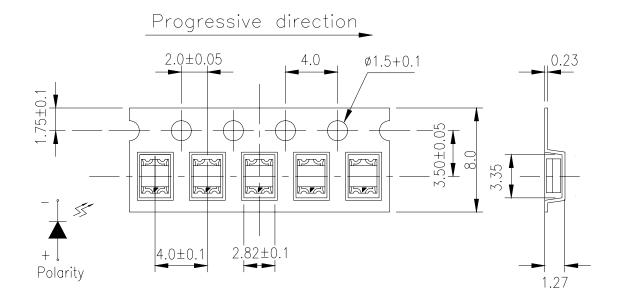
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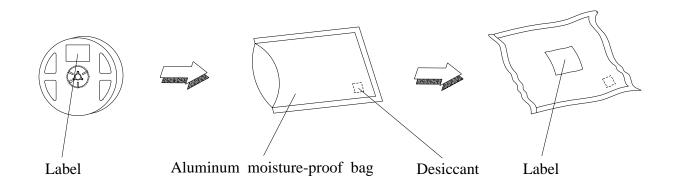
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Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



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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 Max. 10sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	$H: +100^{\circ}\mathbb{C}$ 15min \int 5 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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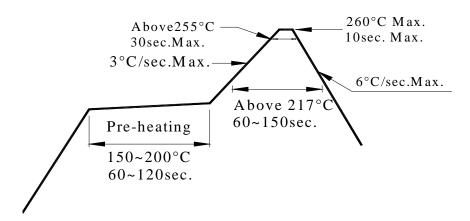
Precautions For Use

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° 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.

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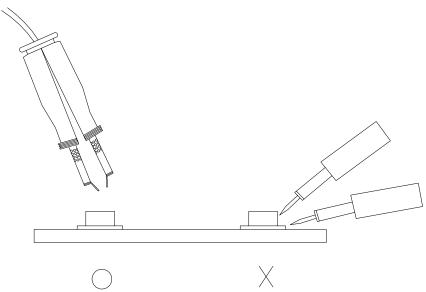
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4. Soldering Iron

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.



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