

Specification for approval

PART NUMBER: IE-1616RBG-ST-BBI-A2 REVISION: 2.0

ISSUE DATE: 2014/01/08 RETURN DATE: / /

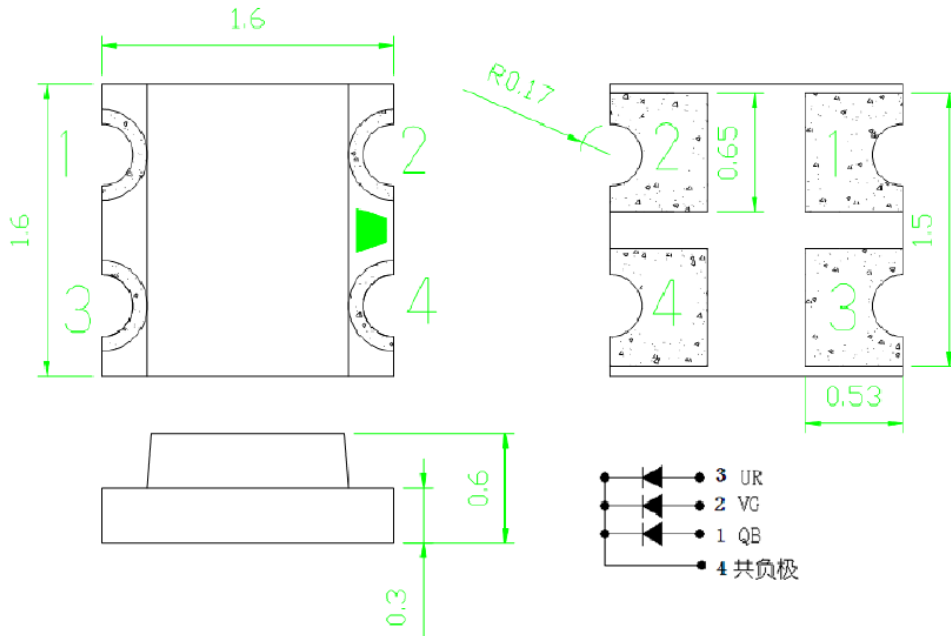


Features

- 1.6mmx1.6mm SMT LED,0.60 mm THICKNESS.
- _LOW POWER CONSUMPTION.
- _WIDE VIEWING ANGLE.
- _IDEAL FOR BACKLIGHT AND INDICATOR.
- _VARIOUS COLORS AND LENS TYPES AVAILABLE.
- _RoHS COMPLIANT.

Description

The Blue source color devices are made with GaN on Sapphire Light Emitting Diode.
 The Green source color devices are made with InGaN on SiC Light Emitting Diode.
 The Hyper Orange source color devices are made with DH InGaAlP on GaAs substrate Light Emitting Diode.
 Static electricity and surge damage the LEDs.
 It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
 All devices, equipment and machinery must be electrically grounded.
 Emitting Diode.



Notes:

- 1. All dimensions are in millimeters (inches).
- 2. Tolerance is $\pm 0.1(0.004)$ unless otherwise noted.
- 3. Specifications are subject to change without notice.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @ 20mA		Viewing Angle
			Min.	Typ.	2 θ 1/2
IE-1616RBG-ST-BBI-A2	BLUE (GaN)	WATER CLEAR		100	120
	GREEN (InGaN)			390	
	RED (InGaAlP)			130	

Note:

1. θ 1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ_{peak}	Peak Wavelength	Blue Green Red			nm	IF=20mA
λ_D	Dominant Wavelength	Blue Green Red	466 523 622		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Half-width	Blue Green Red	25 38 20		nm	IF=20mA
C	Capacitance	Blue Green Red	100 45 25		pF	VF=0V;f=1MHz
VF	Forward Voltage	Blue Green Red	3.1 2.9 1.9		V	IF=20mA
IR	Reverse Current	Blue Green Red		5 5 5	uA	VR = 5V

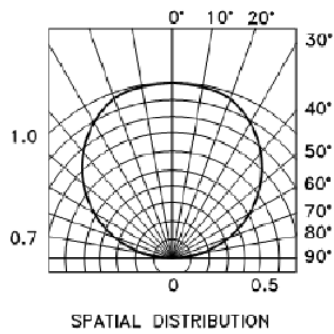
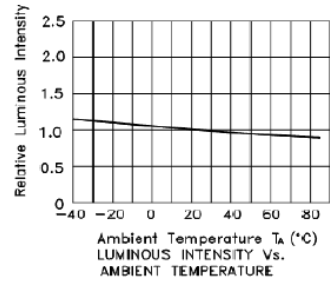
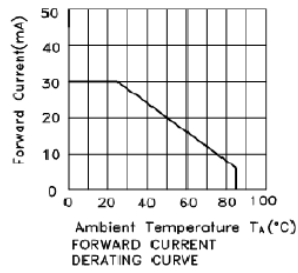
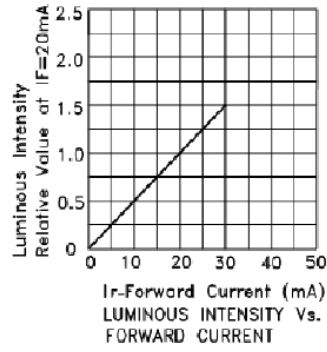
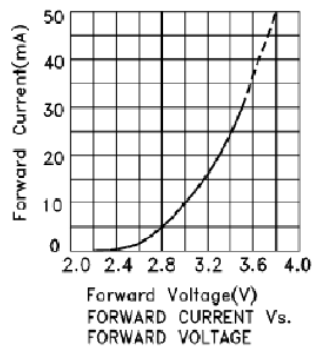
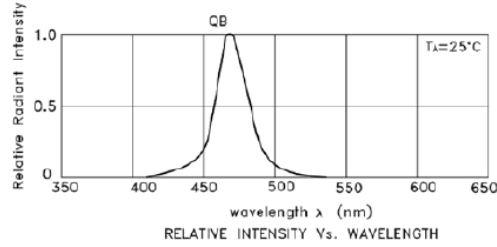
Absolute Maximum Ratings at TA=25°C

Parameter	Blue	Green	Red	Units
Power dissipation	135	135	75	mW
DC Forward Current	30	30	30	mA
Peak Forward Current [1]	135	135	80	mA
Reverse Voltage	5	5	5	V
Operating/Storage Temperature	-40°C To +85°C			

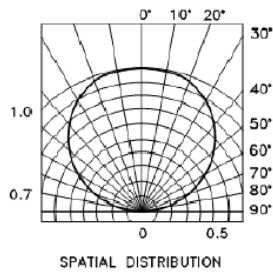
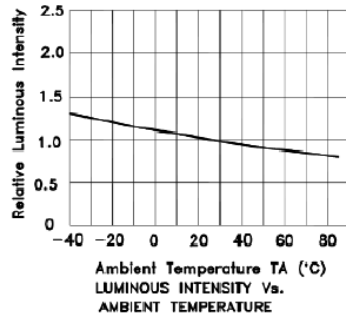
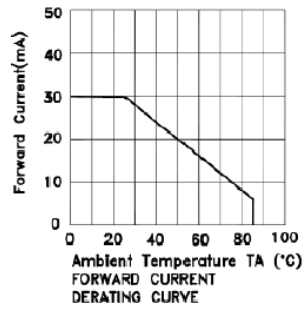
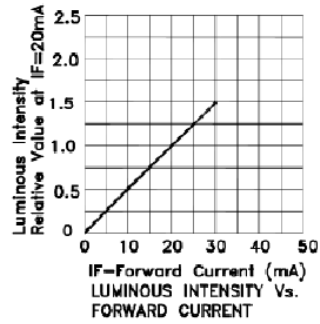
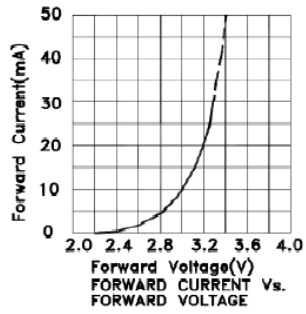
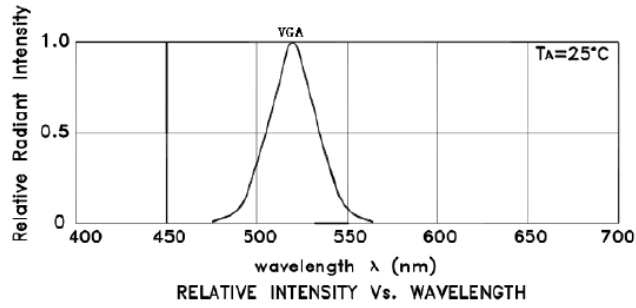
Note:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.

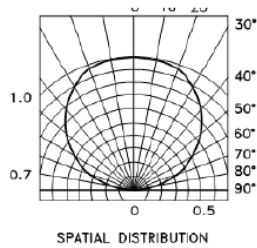
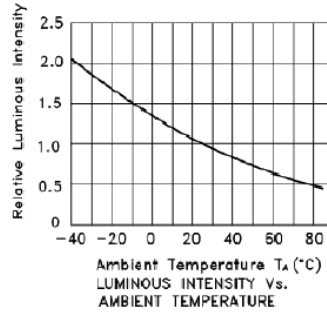
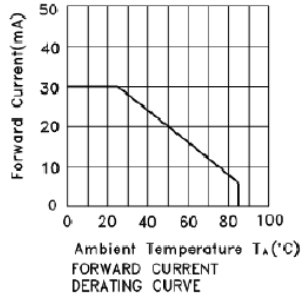
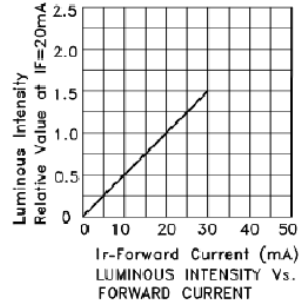
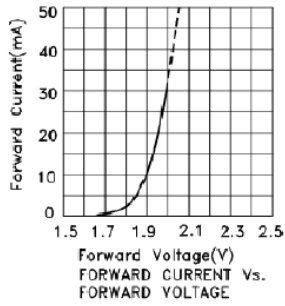
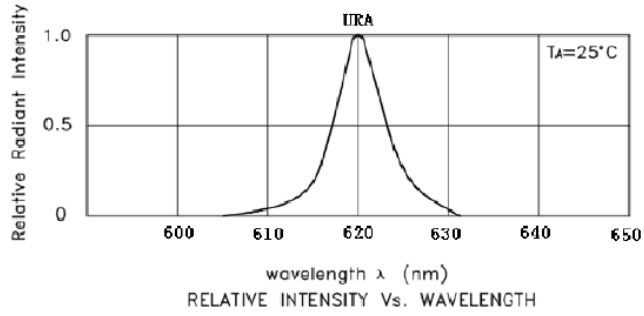
Blue



Green



Red



RELIABILITY

Test Items and Results

1		JEITA ED-4701	-40°C~25°C~100°C~ 25°C 30 5 30 5	100	50	0/50
2		MIL-STD-202G	-40°C~100°C 15 15	500	50	0/50
3		JEITA ED-4701 200 201	$T_a=100^\circ\text{C}$	1000	50	0/50
4		JEITA ED-4701 200 201	$T_a=-40^\circ\text{C}$	1000	50	0/50
5			$T_a=25\pm 5^\circ\text{C}$ $I_f=20\text{mA}$	1000	50	0/50
6			$T_a=60^\circ\text{C}$ RH=85% $I_f=20\text{mA}$	1000	50	0/50
7		JEITA ED-4701 300 303	$T_{\text{sol}}=235^\circ\text{C}\pm 5^\circ\text{C}, 5$	5	10	0/10
8		JEITA ED-4701 300 301	$T_{\text{sol}}=260^\circ\text{C}, 10$ 35°C 95%RH 96	10	10	0/10

5. Cautions

(1) Soldering Conditions

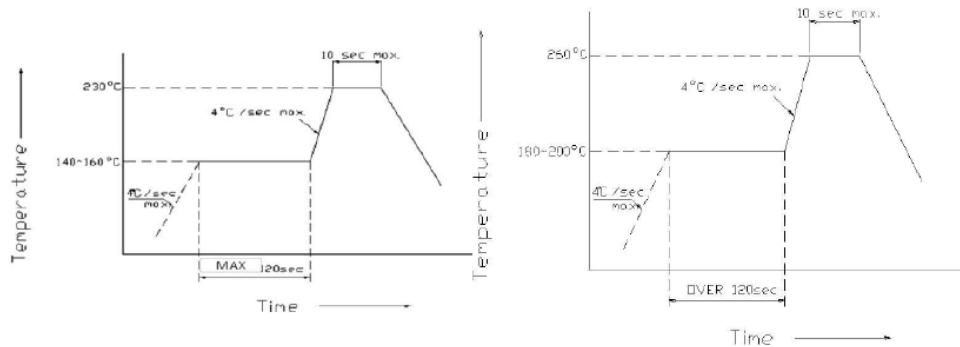
Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

(Recommended soldering conditions)

Reflow Soldering			
	Lead Solder	Lead-free Solder	Temperature Soldering time
Pre-heat	140 ~ 160° C	180 ~ 200° C	350° C Max. 3 sec. Max. (one time only)
Pre-heat time	120 sec. Max.	120 sec. Max.	
Peak temperature	230° C Max.	260° C Max.	
Soldering time	10 sec. Max.	10 sec. Max.	

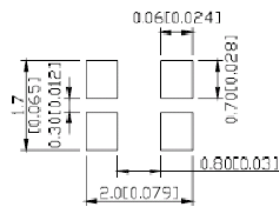
(Lead Solder)

(Lead-Free Solder)



Recommended Soldering Pattern

(Units : mm)



(2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

2.0V Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ($V_F > 2.0V$ at $I_F=0.5mA$)

(3) Moisture Proof Package

It is recommended that moisture proof package be used .

(4) Cautions:

4.1.

Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

4.2

Products can be used within 15days after packaging, after that, they must be:

4.2.1 Soldered within 24 hrs

4.2.2 Used in the condition: $30^{\circ}C$ within and 60%RH below

4.2.3 Stored in 30%RH for moisture below.

4.3

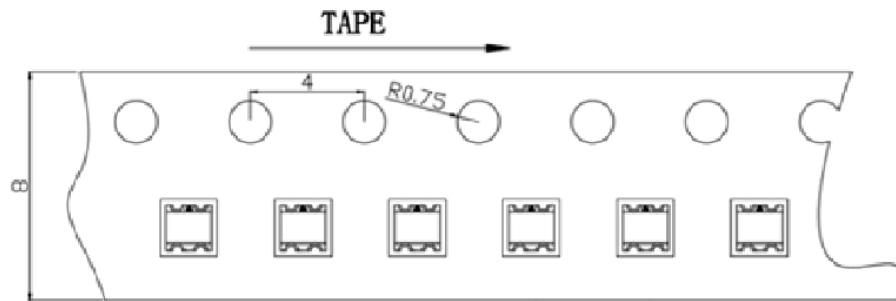
Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in $85^{\circ}C/6H$.

4.4.

Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

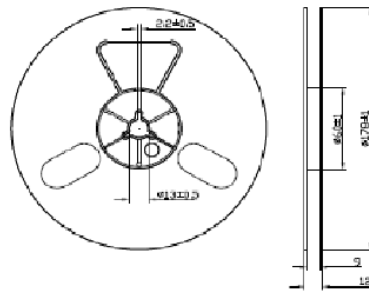
PACKAGING

The LEDs are packed in cardboard boxes after taping.

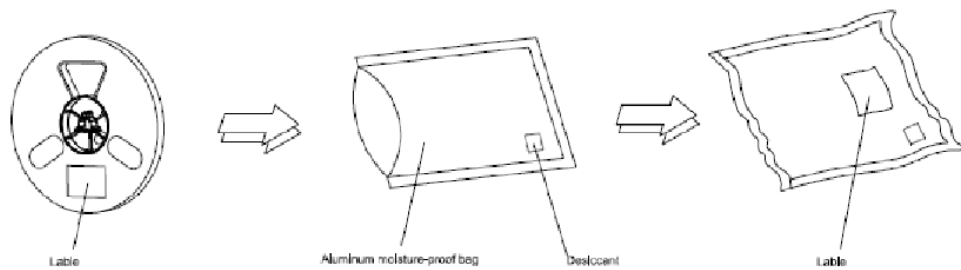


Package: 3000 pcs/reel

Reel Dimensions



Moisture Resistant Packaging



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