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RGB Power Light LED

LGXRGB-501E

DATA SHEET

DOC. NO : QW0905-LGXRGB-501E#

DATE : 11 - Jun - 2007

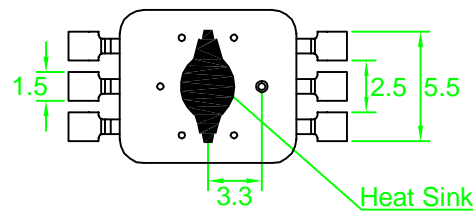
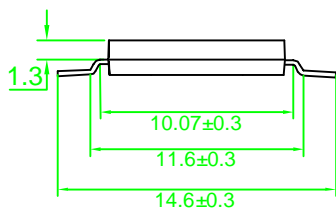
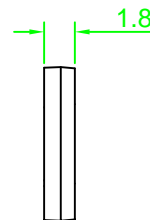
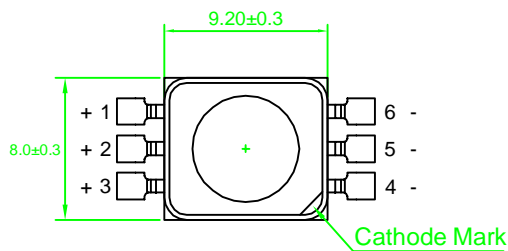
Features

- *. Three chip(color) in one package for High Flux LED.
- *. Various colors for choice.
- *. More Energy Efficient than Incandescent and most Halogen lamps.
- *. Low voltage DC operated..
- *. Instant light(less than 100 ns).
- *. Independent control of each color.
- *. No UV.
- *. IR reflow process compatible.

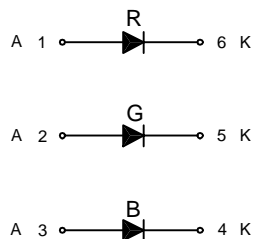
Typical Applications

- *. LCD Backlights / Light Guides.
- *. Commercial and Residential Architectural lighting.
- *. Mini-accent / Uplighters / Downlighters / Orientation lighting
- *. Fiber Optic Alternative / Decorative / Entertainment lighting.
- *. Security / Garden lighting.
- *. Sign and channel Letter.

Dimension



(Bottom)



1. Anode Red
2. Anode Green
3. Anode Blue
4. Cathode Blue
5. Cathode Green
6. Cathode Red

Note:1.All dimension are in millimeter tolerance is $\pm 0.25\text{mm}$ unless otherwise noted
 2.Specifications are subject to change without notice



Absolute Maximum Ratings at Ta=25

Parameter	Symbol	Ratings	UNIT
		White	
DC Forward Current for each color	IF	350	mA
Total Power Dissipation	PD	3.92	W
Peak pulse current Duty 1/10@10KHz	IFP	500	mA
LED junction Temperature	Tj	125	
Reverse Current(VR=5V)	Ir	100	μ A
Storage Temperature	Tstg	-40 ~ +120	
Operating Temperature	Topr	-40 ~ +100	
Manual Soldering Time at 260°C(Max)	Tsol	5	seconds

Luminous Flux Characteristics at 350mA (Ratings At 25 Ambient)

PART NO	Emission Color	Luminous Flux @350mA(lm)			Units
		Min.	Typ.	Max.	
LGXRGB-501E	Red	13.9	23.5	----	lm
	Green	30.6	45	----	
	Blue	6.3	10.7	----	



. Forward Voltage Characteristics at 350mA

(Ratings At 25 Ambient)

PART NO	Emission Color	Vf			Units
		Min.	Typ.	Max.	
LGXRGB-501E	Red	2.0	2.5	3.2	V
	Green	3.0	3.6	4.0	
	Blue	3.0	3.6	4.0	

Note : Forward Voltage is measured with an accuracy of $\pm 0.1V$

. Dominant Wavelength Characteristics at 350mA

(Ratings At 25 Ambient)

PART NO	Emission Color	D			Units
		Min.	Typ.	Max.	
LGXRGB-501E	Red	619	----	629	nm
	Green	520	----	525	
	Blue	465	----	470	

. Temperature Coefficient Of Forward Voltage&Thermal Resistance Junction To Board Characteristics at 350mA

(Ratings At 25 Ambient)

PART NO	Emission Color	VF/ ΔT		Rth,j-B	
		Typ.	Units	Typ.	Units
LGXRGB-501E	Red	-2	mV/ $^{\circ}C$	18	$^{\circ}C/W$
	Green				
	Blue				

. View Angle Characteristics at 350mA

(Ratings At 25 Ambient)

PART NO	Emission Color	Lambertian	Units
LGXRGB-501E	Red	120	Degrees
	Green		
	Blue		



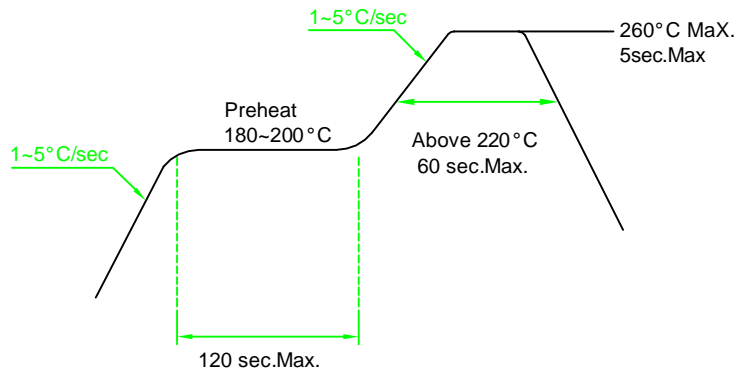
Recommended Soldering Conditions

Soldering Conditions:

The LEDs can soldered in place using the reflow soldering method.

	Reflow Soldering (Lead-free Soder)	Hand Soldering
Pre-heat	180 ~ 200 °C	
Pre-heat time	120sec. Max.	
Peak temperature	260°C Max.	Temperature Soldering Time 260
Soldering time	10 sec. Max.	5 sec Max one time only.
Condition	refer to Temperature - profile	

PB-Free Reflow Solder



Reflow Soldering should not be done more than two times.



Fig.1 Forward current vs. Forward Voltage

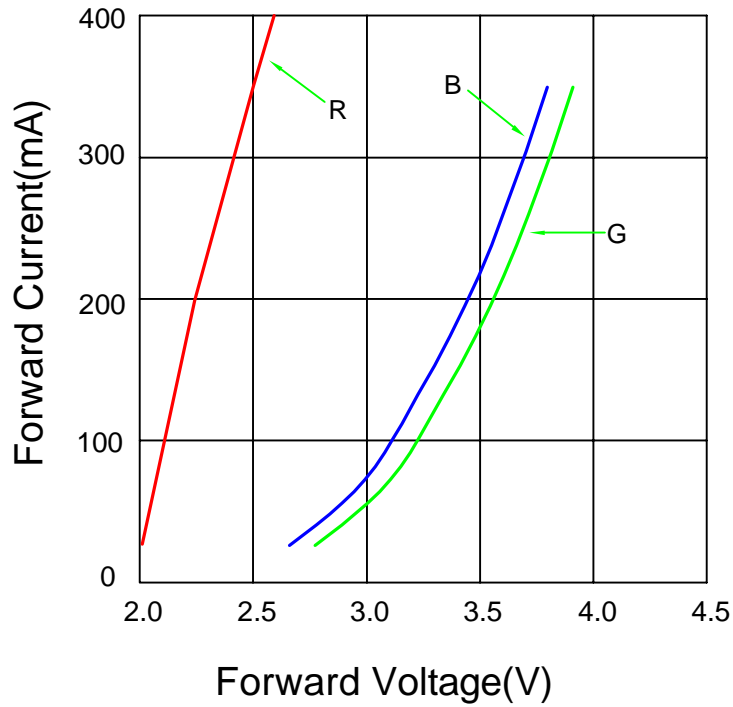


Fig.2 Operating current vs. Ambient Temperature

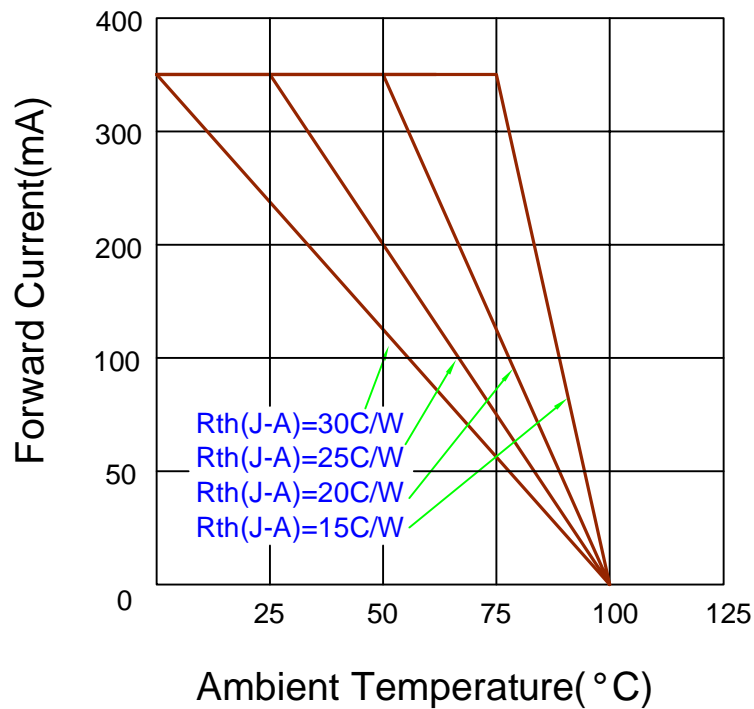




Fig.3 Forward current vs. Luminous Flux

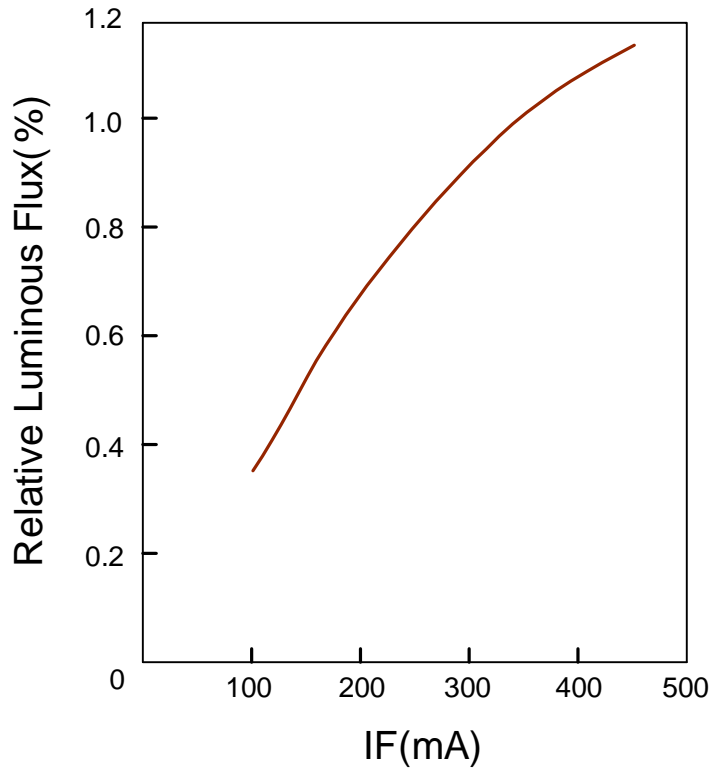


Fig.4 Junction Temperature vs. Forward Voltage

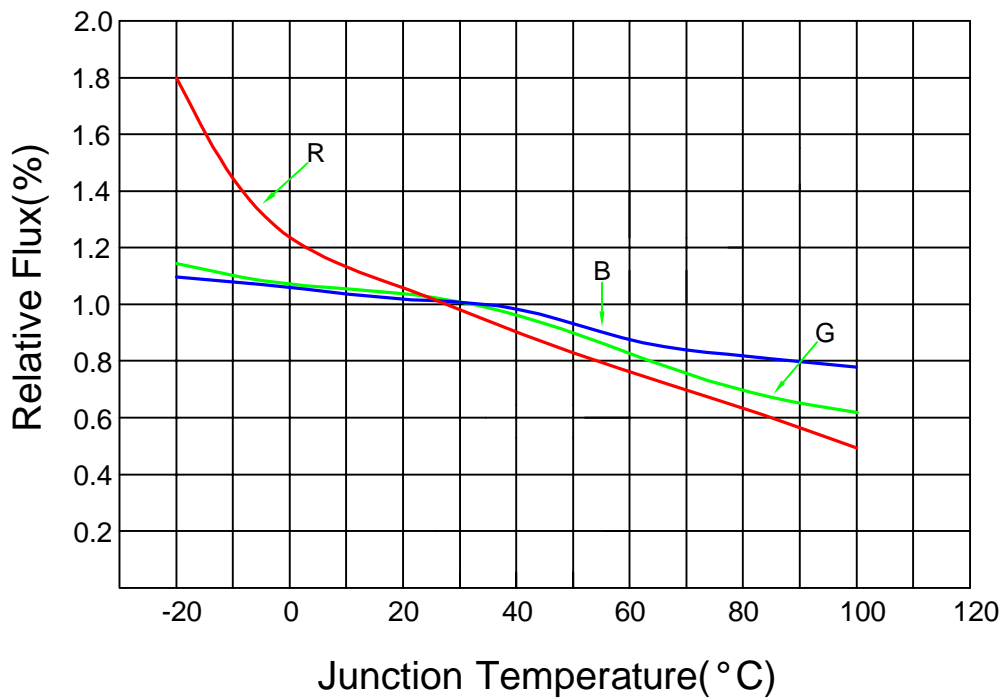




Fig.5 Luminous Spectrum(Ta=25)

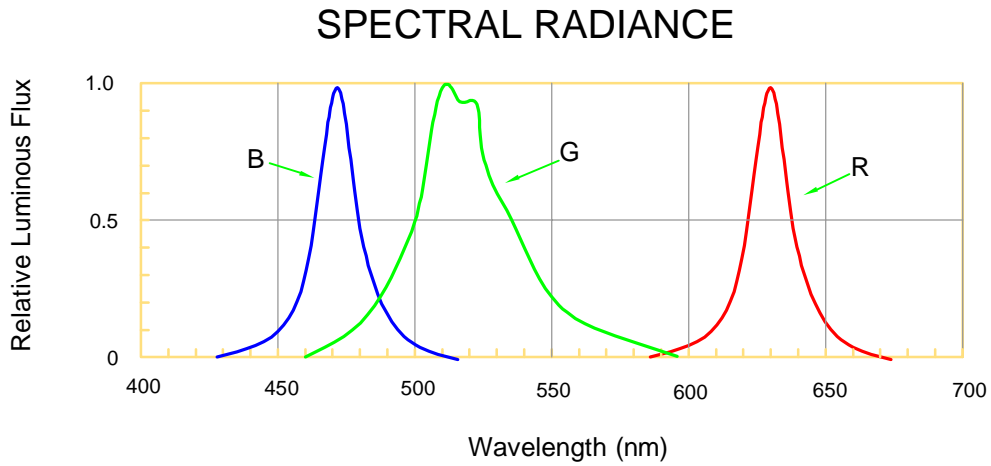
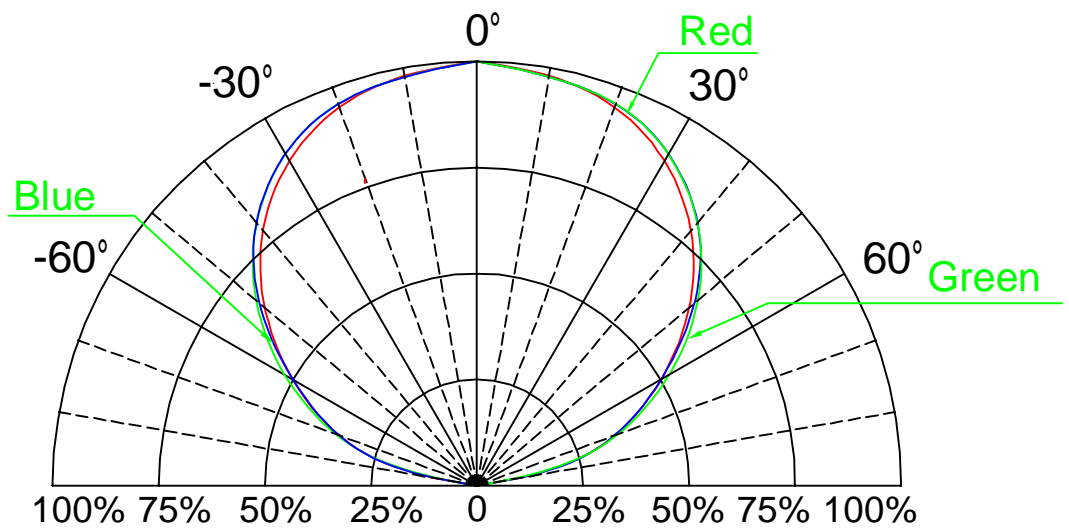
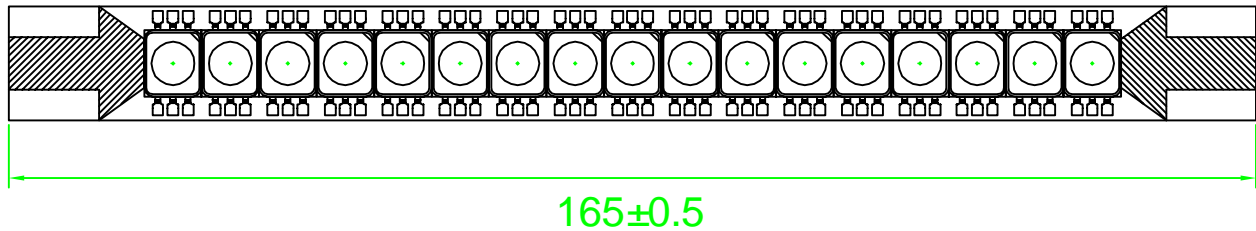


Fig.6 Directivity Radiation



Package Specification



1. All dimensions are in mm.
2. There are 18 pcs emitters in a tube.
3. There are 85 tubes in a inner box.



Reliability Test

Item	Description	Stress Condition	Test Duration
RTOL	Room Temperature Operation Life	25°C, Max. IF	1000 hours
WHT	Wet High Temperature	85°C/85%RH	1000 hours
TC	Temperature Cycling	-40/+110°C, 30min dwell,<5min trans.	200 cycles
TS	Thermal Shock	-40/+110°C, 20min dwell,<20min trans.	200 cycles
HTSL	High Temperature Storage Life	120°C	1000 hours
LTOL	Low Temperature Storage Life	-40°C	1000 hours
SHR	Solder Heat Resistance	260±5°C, 5secs	
MS	Mechanical Shock	1500G,0.5msec pulse, 5 shocks each 6 axis	
ND	Natural Drop	On concrete from 1.2m, 3times	
RV	Random Vibration	6G RMS from 10 to 2KHz, 10mins/axis	
VVF	Variable Vibration Frequency	10-2000-10Hz, 20G 1 min, 1.5mm, 3timesx/axis	

Note :

Failure criteria:

Electrical failures

V_F shife $\geq 10\%$

$I_R < 50\mu A @ V_r = 5v$

Ligitek output Degradation

$\%I_v$ shift $\geq 30\% @ 1000hrs$ or 200cycle

Visual failures

Broken or damaged pockage or lead

Dimension out of tolerance