RGB Power Light LED

LGXRGB-501E

DATA SHEET

DOC. NO : QW0905-LGXRGB-501E#

DATE : 11 - Jun - 2007

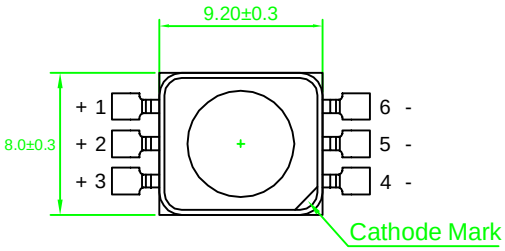
Features

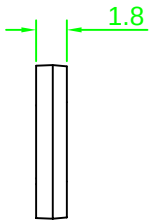
*. Three chip(color) in one package for High Flux LED.
*. Various colors for choice.
*. More Energy Efficient than Incandescent and most Halogen lamps.
*. Low voltage DC operated..
*. Instant light(less than 100 ns).
*. Independent control of each color.
*. No UV.
*. IR reflow process compatible.

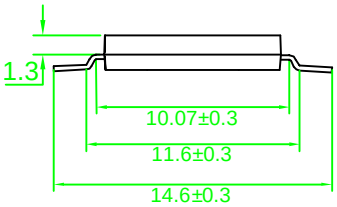
Typical Applications

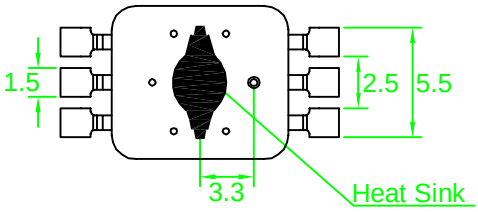
*. LCD Backlights / Light Guides.
*. Commercial and Residential Architectural lighting.
*. Mini-accent / Uplighters / Downlighters / Orientation lighting
*. Fiber Optic Alternative / Decorative / Entertainment lighting.
*. Security / Garden lighting.
*. Sign and channel Letter.

Dimension

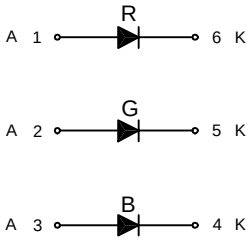








(Bottom)



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 ±0.25mm 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	I_F	350	mA
Total Power Dissipation	PD	3.92	W
Peak pulse current Duty 1/10@10KHz	I_{FP}	500	mA
LED junction Temperature	Tj	125	℃
Reverse Current(VR=5V)	Ir	100	μA
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±0.1V

. Dominant Wavelength Characteristics at 350mA

(Ratings At 25℃ Ambient)

PART NO	Emission Color	λ 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/°C	18	°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		

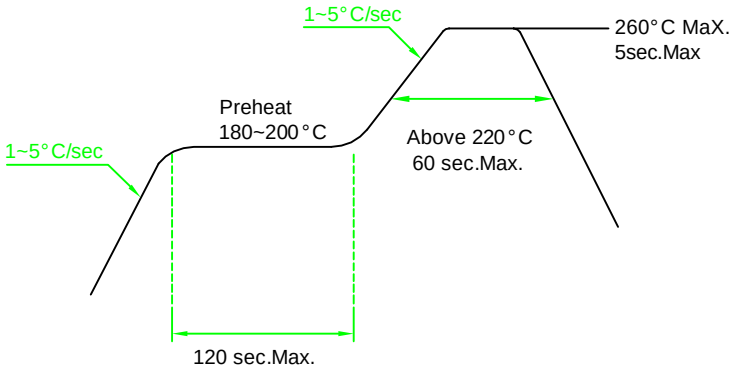
Recommended Soldering Conditions

Soldering Conditions:

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

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

PB-Free Reflow Solder



Reflow Soldering should not be done more than two times.

Fig.1 Forward current vs. Forward Voltage

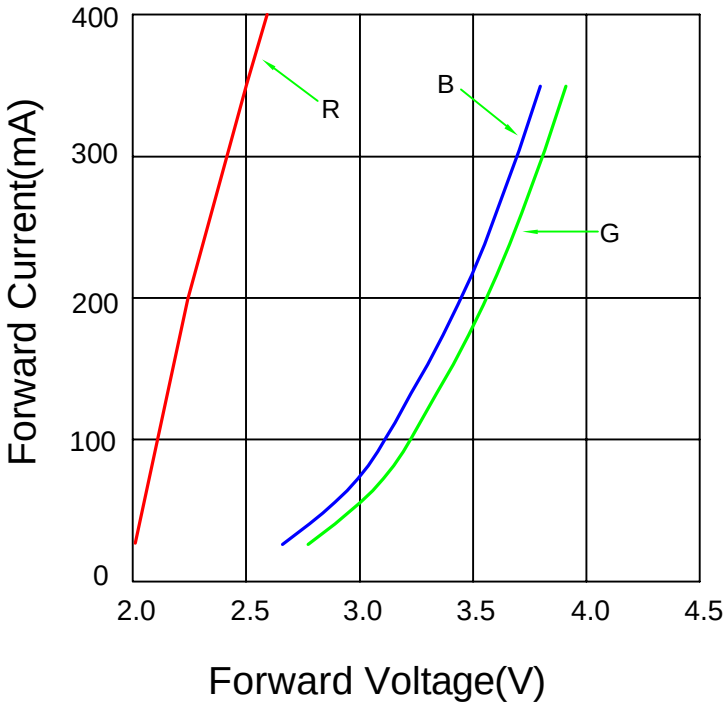


Fig.2 Operating current vs. Ambient Temperature

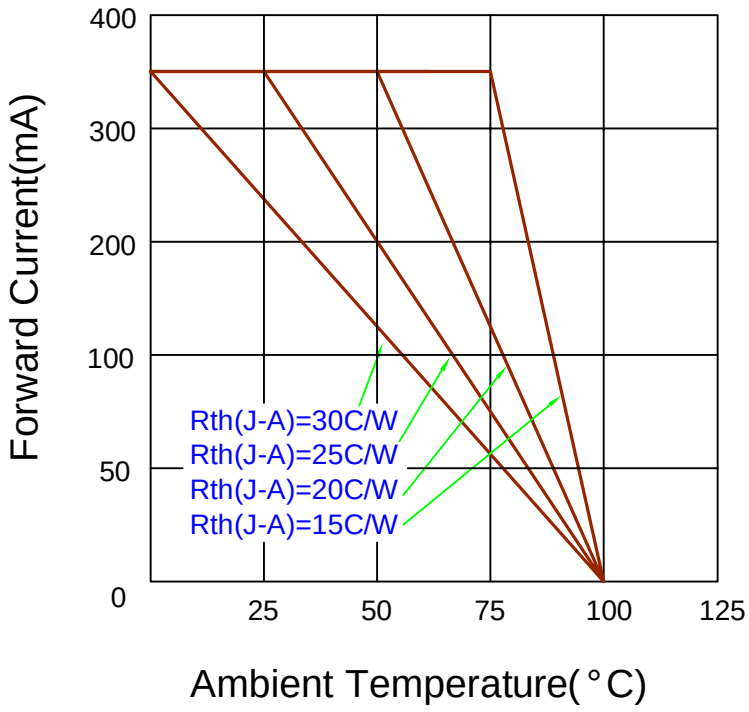


Fig.3 Forward current vs. Luminous Flux

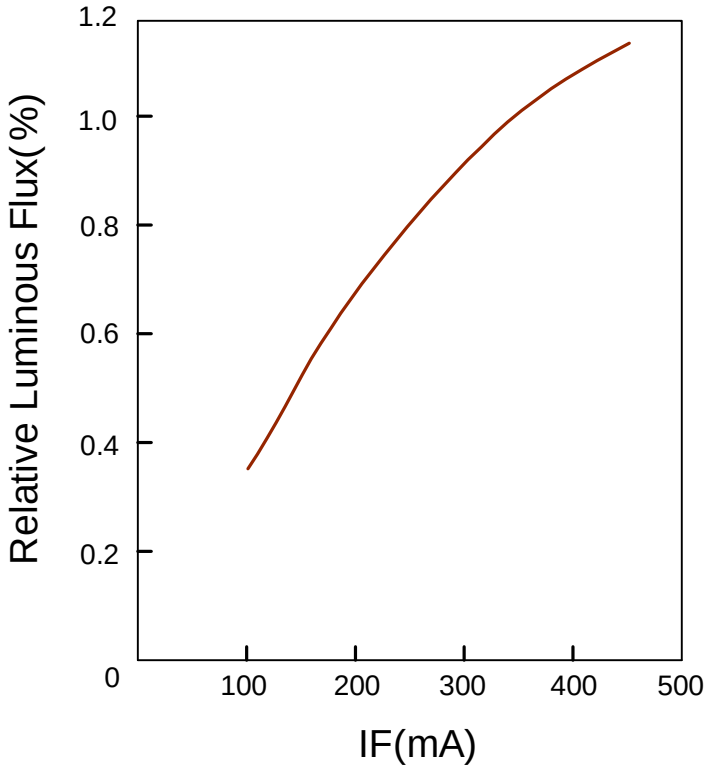


Fig.4 Junction Temperature vs. Forward Voltage

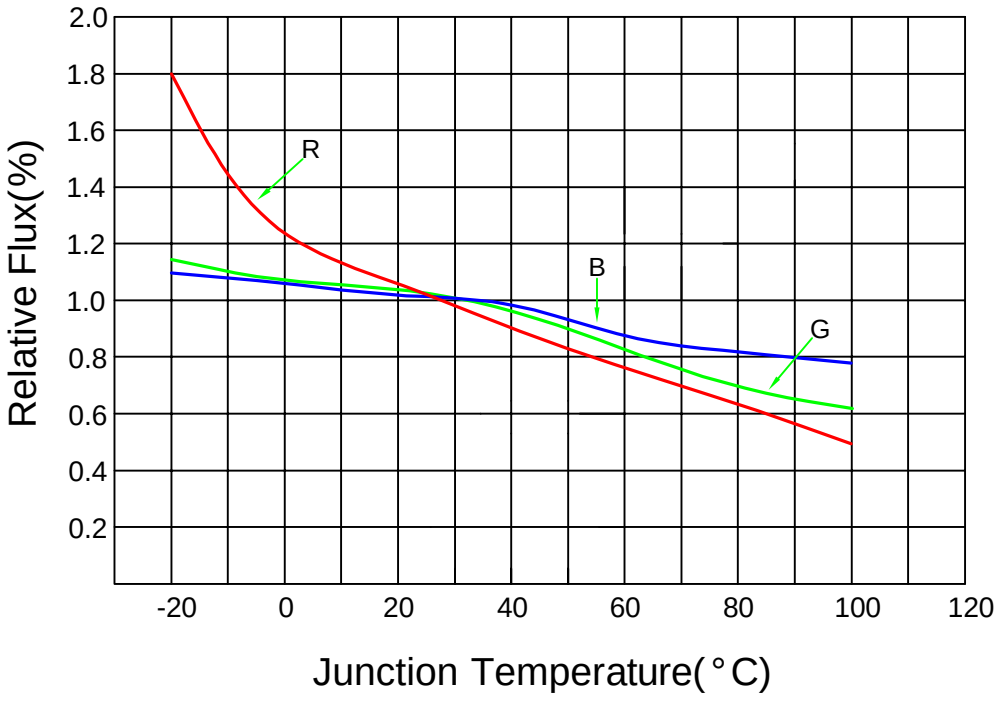


Fig.5 Luminous Spectrum(Ta=25℃)

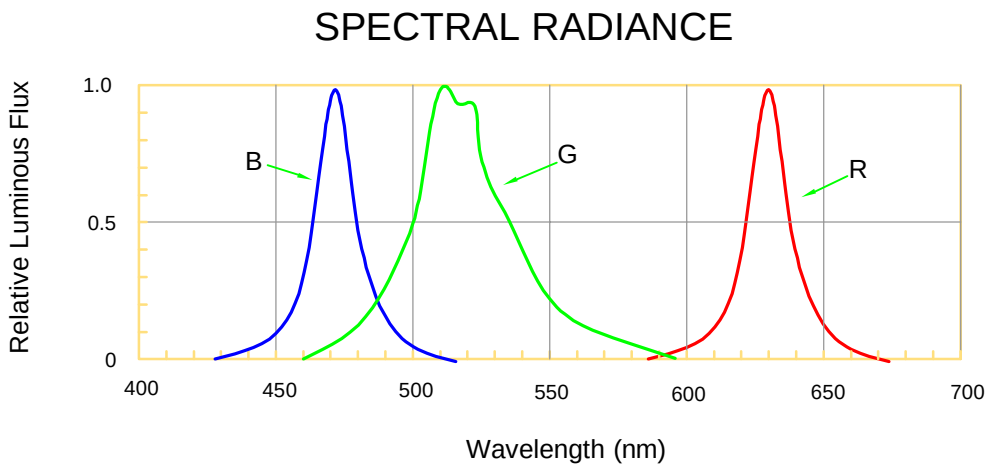
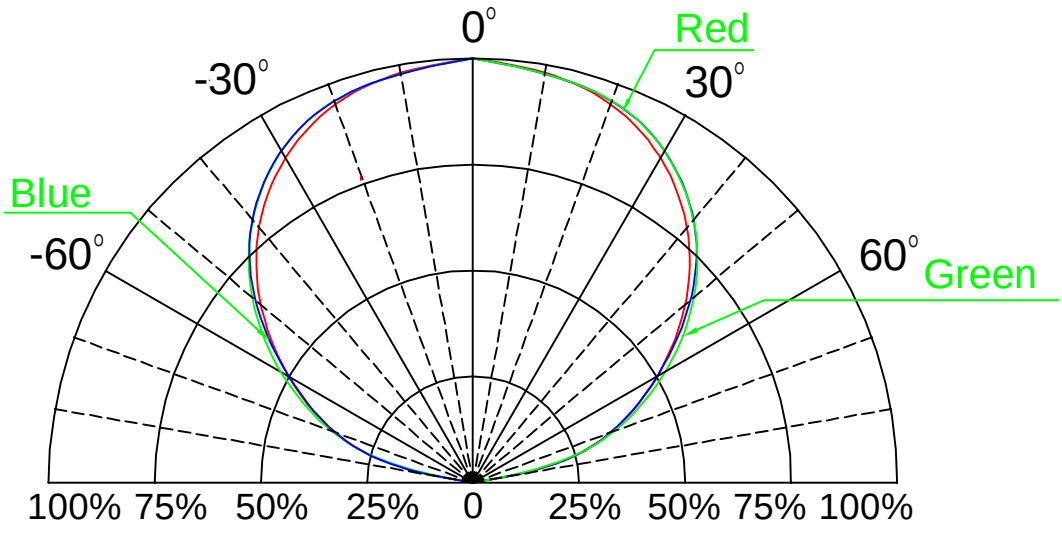
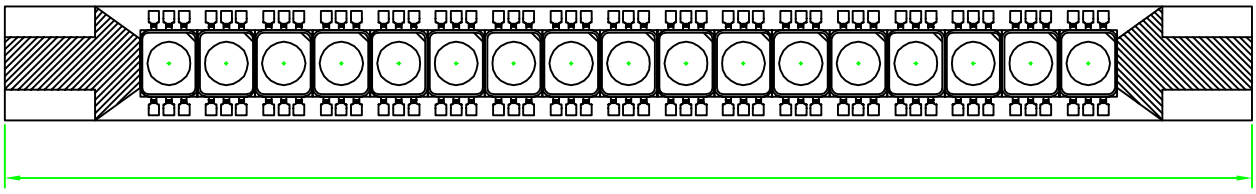


Fig.6 Directivity Radiation



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. I_F	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, 3xtimes	
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 >= 10%

I_R < 50uA@Vr = 5v

Ligitek output Degradation

%I_V shift >= 30%@1000hrs or 200cycle

Visual failures

Broken or damaged package or lead

Dimension out of tolerance