



LIGITEK

LIGITEK ELECTRONICS CO.,LTD.
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1W Power Light LED

LGSW-311H

DATA SHEET

DOC. NO : QW0905-LGSW-311H#

DATE : 04- Jun - 2007

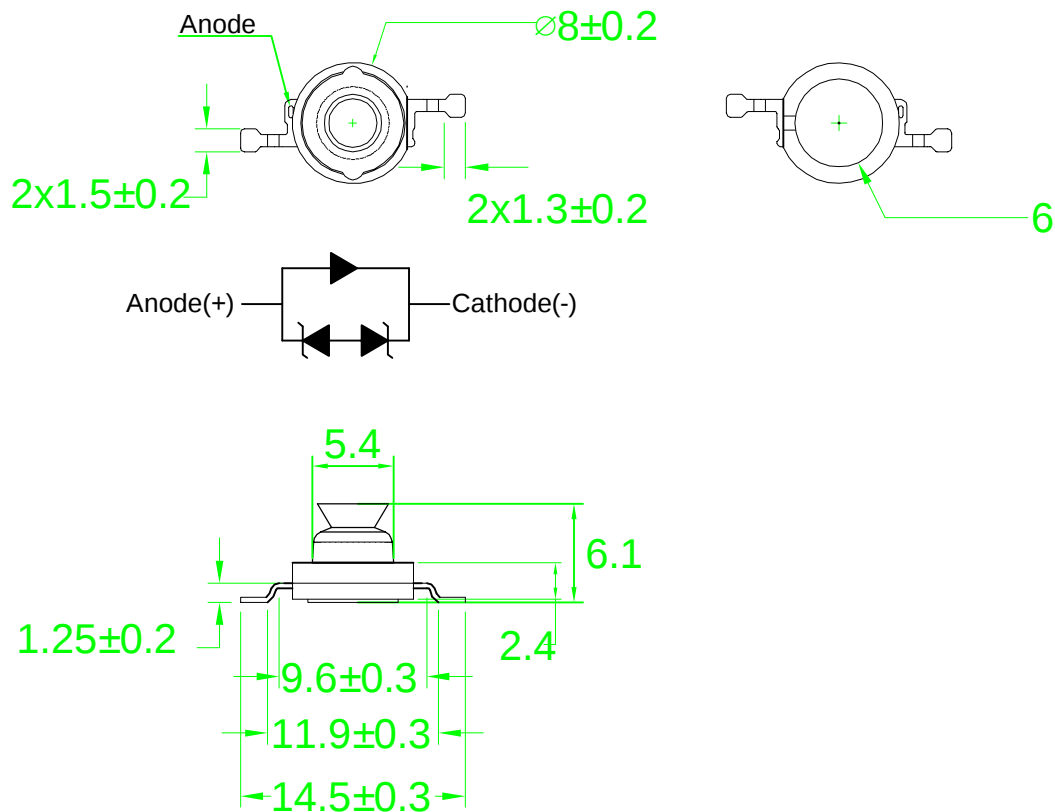
Features

- *. High Flux per LED
- *. Very long operating life(up to 100k hours).
- *. Available in White.
- *. More Energy Efficient than Incandescent and most Halogen lamps.
- *. Low voltage DC operated..
- *. Cool beam, safe to the touch.
- *. Instant light(less than 100 ns).
- *. Fully dimmable.
- *. No UV.
- *. Superior ESD protection..
- *. Soldering methods: hand Soldering.

Typical Applications

- *. Reading Light (car,bus,aircraft)
- *. Portable(flashlight,bicycle).
- *. LCD Backlights / Light Guides.
- *. Automotive Exterior (Stop-Tail-Turn,CHMSL,Mirror Side Repeat).
- *. Commercial and Residential Architectural lighting.
- *. Mini-accent / Uplighters / Downlighters / Orientation lighting
- *. Fiber Optic Alternative / Decorative / Entertainment lighting.
- *. Security / Garden lighting.
- *. Cove / Underself / Task lighting.
- *. Traffic signaling / Beacons / Rail crossing and Wayside lighting.
- *. Decorative.
- *. Sign and channel Letter.

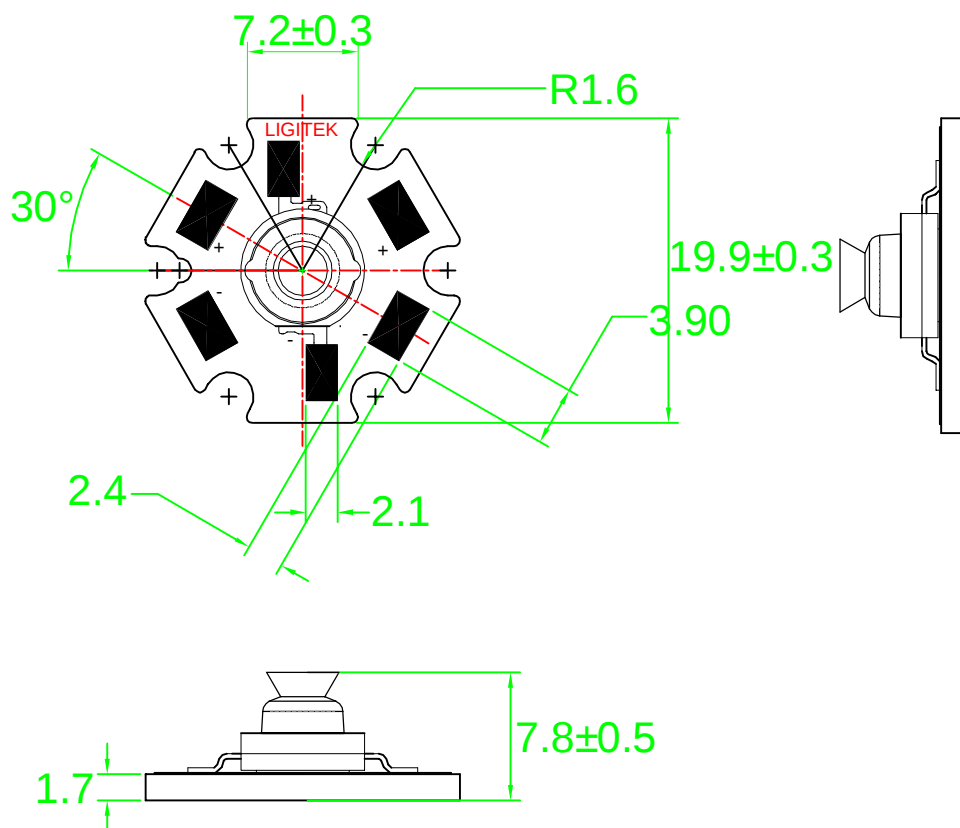
Dimension



Note:1.All dimension are in millimeter
 2.Specifications are subject to change without notice



Star Mechanical Dimensions



Note:1.All dimension are in millimeter



Absolute Maximum Ratings at Ta=25

Parameter	Symbol	Ratings	UNIT
		White	
DC Forward Current	I _F	350	mA
Power Dissipation	PD	1.4	W
Peak pulse current Duty 1/10@10KHz	I _{FP}	500	mA
LED junction Temperature	T _j	125	
Reverse Current(VR=5V)	I _r	100	μA
Storage Temperature	T _{stg}	-40 ~ +120	
Operating Temperature	T _{opr}	-40 ~ +100	
Manual Soldering Time at 260°C(Max)	T _{sol}	5	seconds

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

Radiation Pattern	PART NO	Emission Color	Luminous Flux @350mA(I _m)			Units
			Min.	Typ.	Max.	I _m
Lambertian	LGSW-311H	White	30.6	48	----	

Note : White emitters are built with InGaN.



. Forward Voltage Characteristics at 350mA

(Ratings At 25 Ambient)

Radiation Pattern	PART NO	Emission Color	Vf			Units
			Min.	Typ.	Max.	
Lambertian	LGSW-311H	White	3.0	3.6	4.0	V

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

. Color Temperature Characteristics at 350mA

(Ratings At 25 Ambient)

Radiation Pattern	PART NO	Emission Color	CCT			Units
			Min.	Typ.	Max.	
Lambertian	LGSW-311H	White	5500	----	10000	K

Note : CCT $\pm 5\%$ tester tolerance.

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

(Ratings At 25 Ambient)

Radiation Pattern	PART NO	Emission Color	$\Delta V_f / \Delta T$		Rth,j-B	
			Typ.	Units	Typ.	Units
Lambertian	LGSW-311H	White	-2	mV/ $^{\circ}C$	18	$^{\circ}C/W$

. Emission Angle Characteristics at 350mA

(Ratings At 25 Ambient)

PART NO	Emission Color	Side emitting $\theta_{PEAK}(Typ.)$	Units
LGSW-311H	White	± 80	Degrees



Brightness Code For High Power LED

Group	Luminous flux(lm)	
	Min	Max
F21	30.6	39.8
F22	39.8	51.7
F23	51.7	67.2

Note : Flux is measured with an accuracy of $\pm 10\%$

Color Temperature For High Power LED

Group		CCT
C1	C1-1	5500-6000
	C1-2	6000-6500
	C1-3	6500-7000
C2	C2-1	7000-7500
	C2-2	7500-8000
	C2-3	8000-8500
C3	C3-1	8500-9000
	C3-2	9000-9500
	C3-3	9500-10000



Fig.1 Forward current vs. Forward Voltage

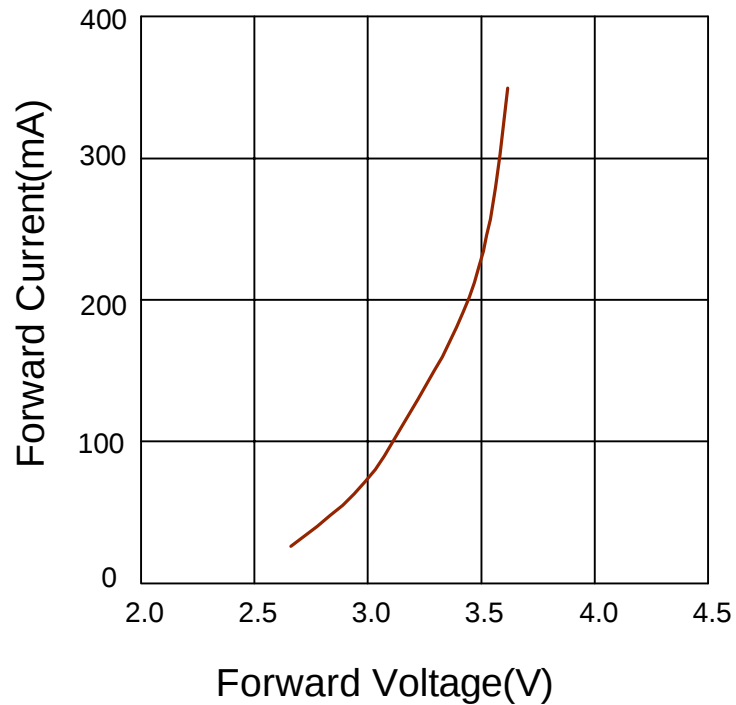


Fig.2 Operating current vs. Ambient Temperature

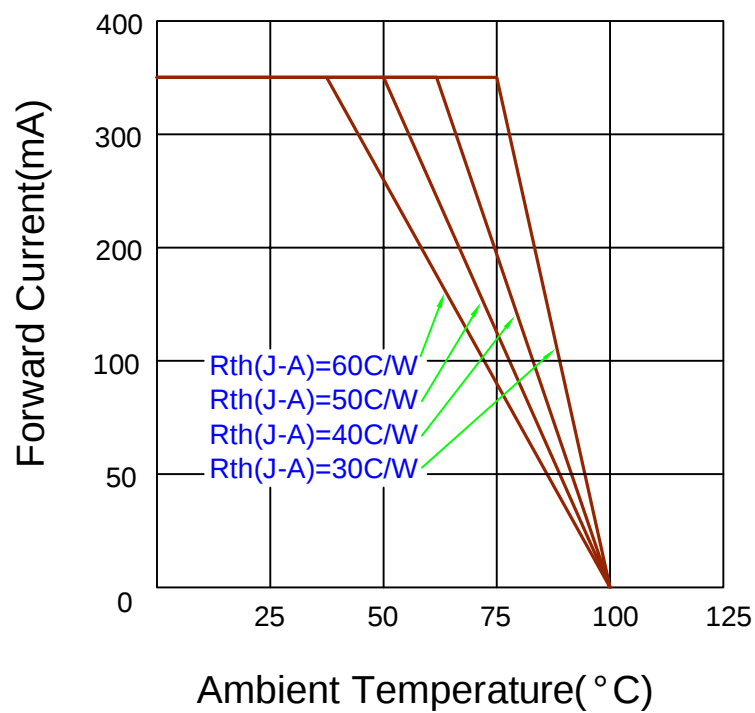




Fig.3 Forward current vs. Luminous Flux

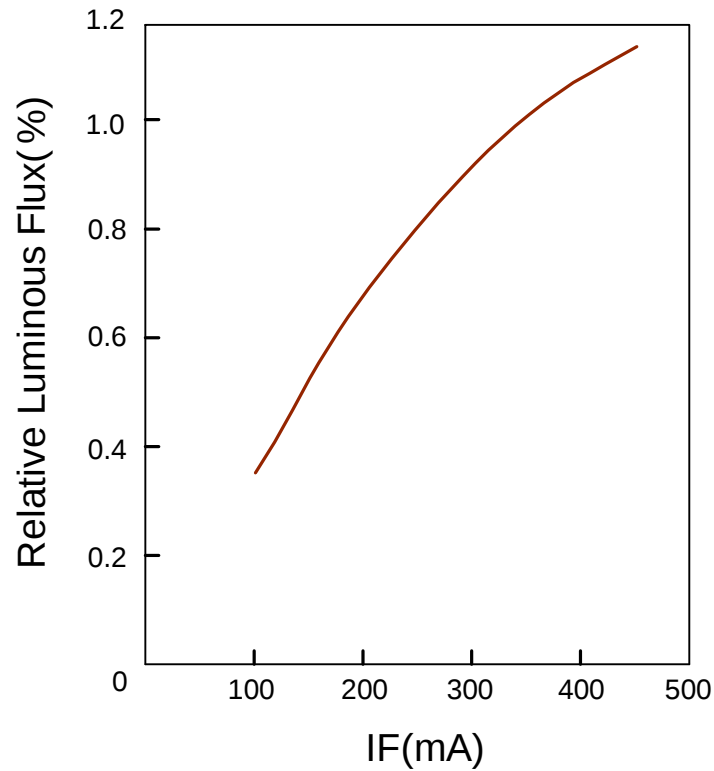


Fig.4 Junction Temperature vs. Forward Voltage

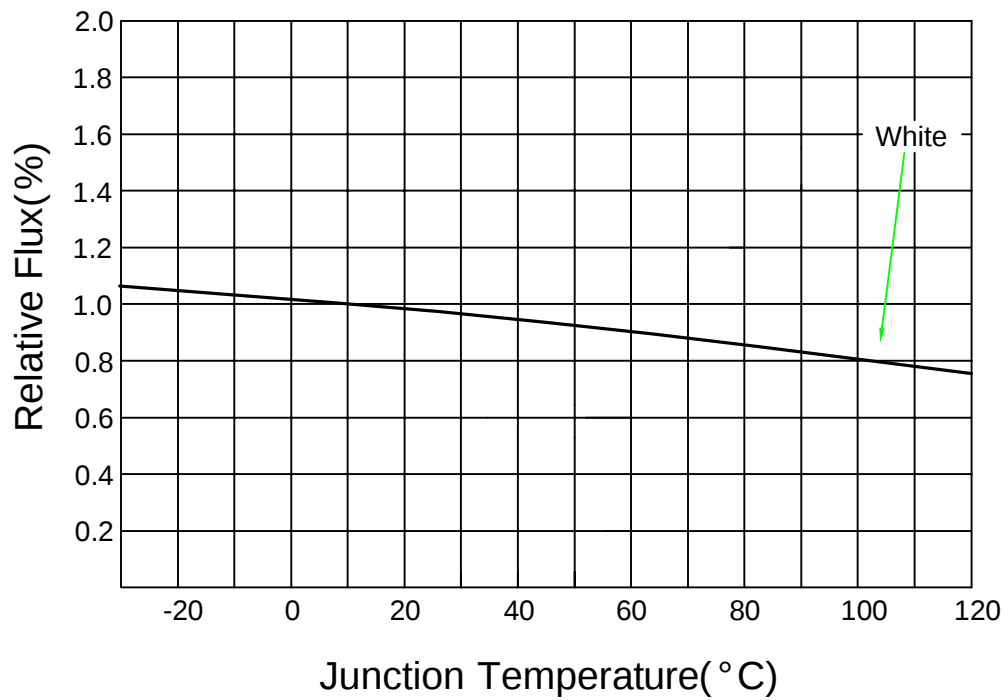




Fig.5 Luminous Spectrum($T_a=25^\circ\text{C}$)

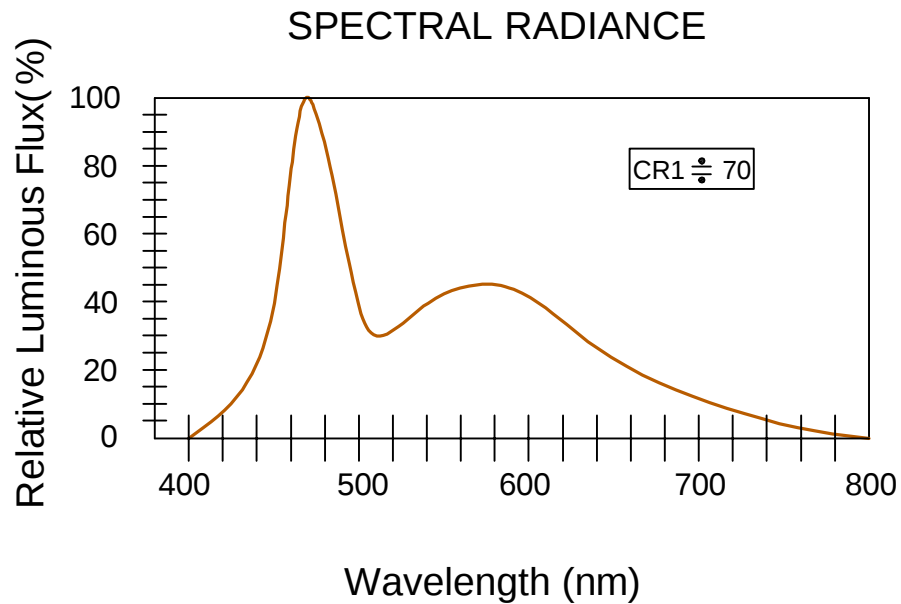
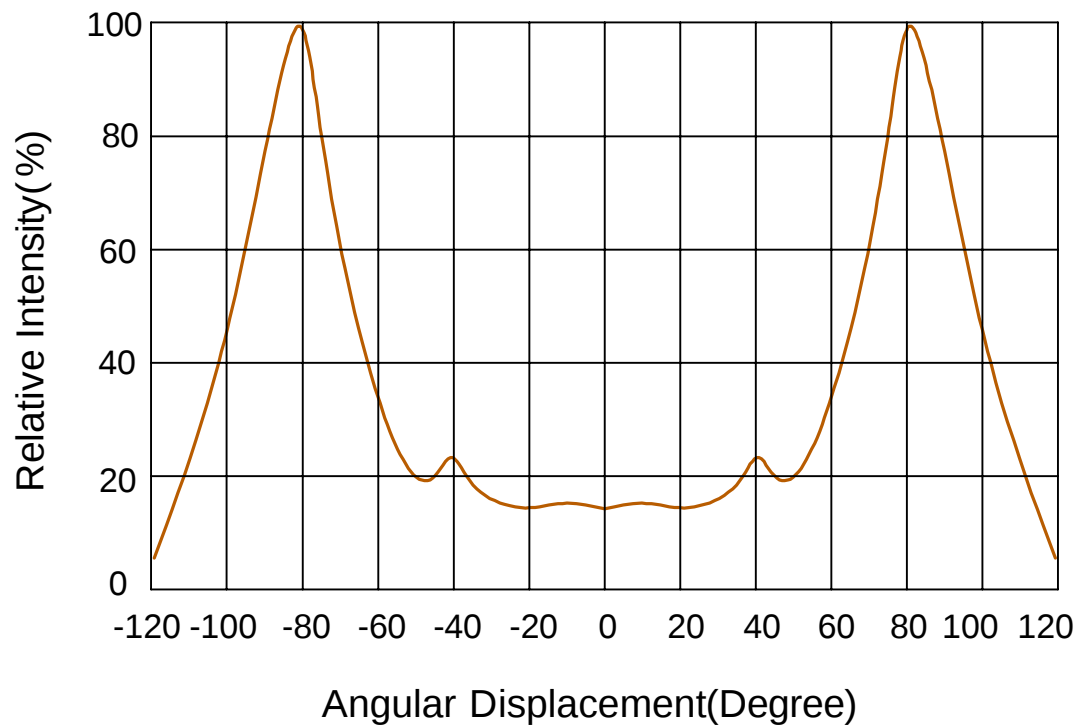
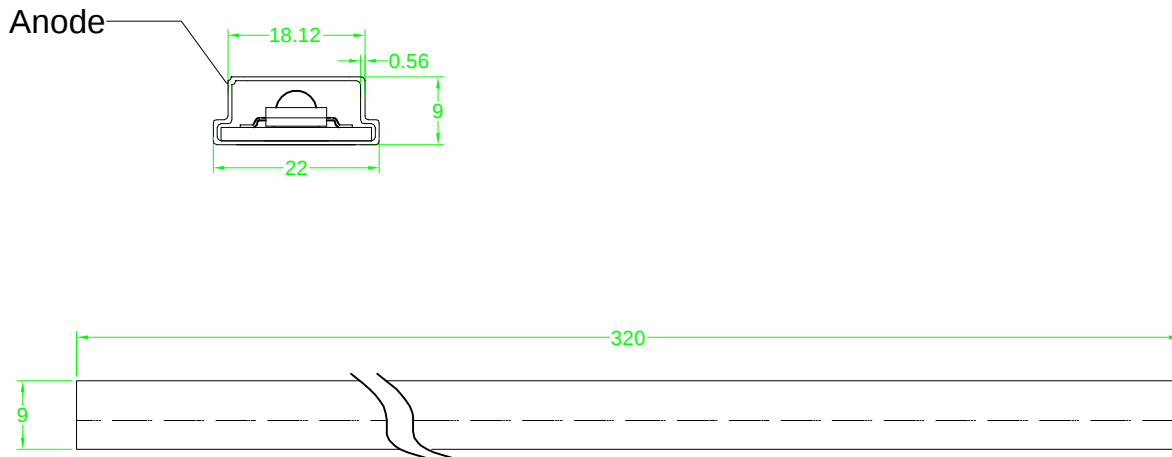


Fig.6 Directivity Radiation



Package Specifications



1. All dimensions are in mm.
2. There are 20 pcs emitters in a tube.
3. There are 64 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