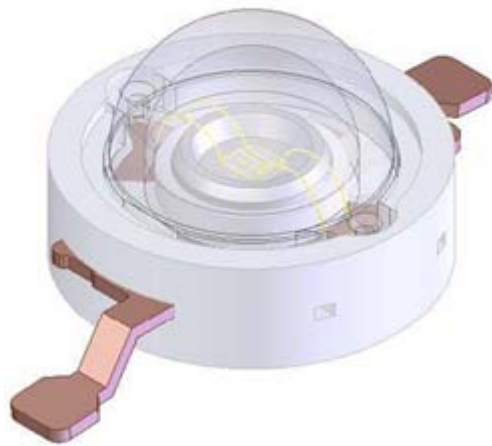


## SW1003P

### Power Light Source

Introduction :

TCI infrared emitter is one the highest flux LEDs in the world. Due to the special design of chip and package, the TCI infrared emitter is designed by particular package for high power LED.

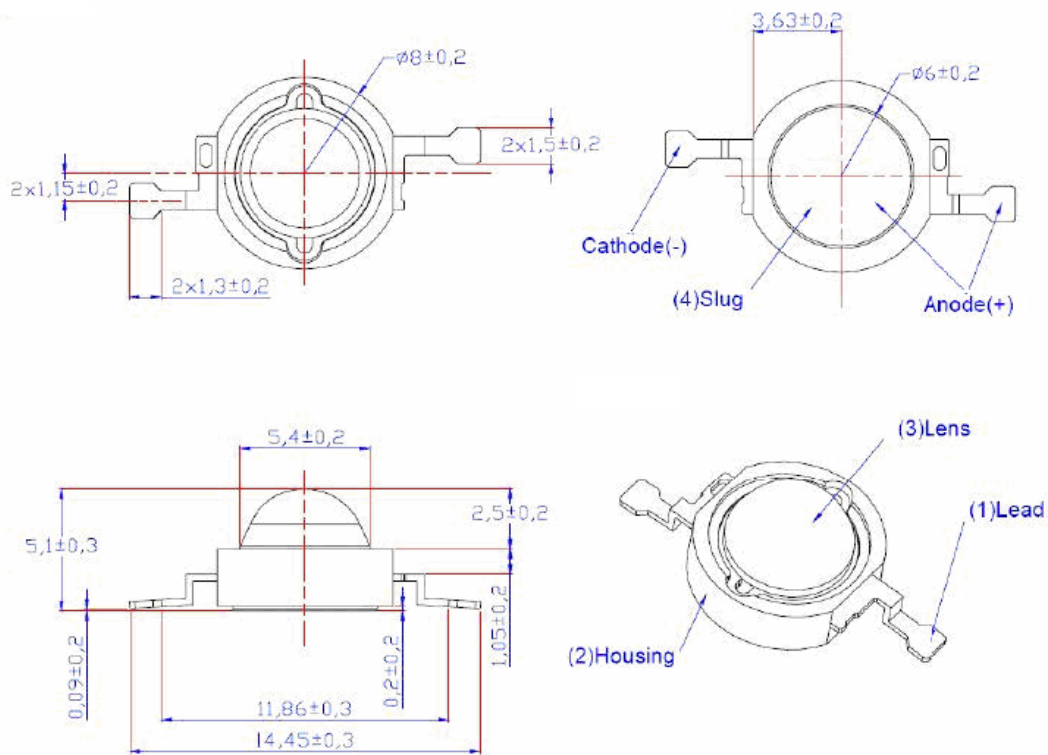


Feature :

- Long operating life
- Energy efficiency
- Low thermal resistance
- Compact design
- Instant light
- Fully dimmable
- Superior ESD protection
- ROHS compatibility

Typical Applications:

- CCTV
- Wireless communication



**Notes :**

1. Drawings are not to scale.
2. All dimensions are in millimeter.
3. General tolerance is  $\pm 0,2$ mm.
4. The polarity of slug at bottom is anode.
5. It is important that the slug can't contact aluminum surface, it is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the surface.
6. It is strongly recommended that the temperature of lead be not higher than  $55^{\circ}\text{C}$ .

### Absolute Maximum Ratings

Parameter	1W
DC Forward Current (mA)	700
Peak Pulse Current (mA) (1/10 Duty Cycle at 1KHz)	1000
LED Junction Temperature (°C)	120
Operating Temperature (°C)	-30~110
Storage Temperature (°C)	-40~120
Soldering Temperature	JEDEC 020c 260°C
Reverse Voltage	Not design to be driven in reverse bias
ESD Sensitivity	> 8,000V Human Body Model (HBM)

### Flux Characteristics at 700mA (Ta=25°C)

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Radiometric power(1)	P <sub>o</sub>	450	500	--	mW
Peak wavelength(3)	$\lambda_p$	840	850	860	nm
View angle	$2\Theta_{1/2}$	140	160	--	degree
Radiometric power(1)	P <sub>D</sub>	0.91	--	1.61	W

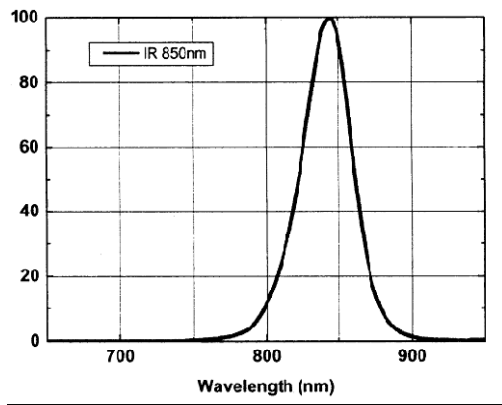
Note:

1. The typical radiometric power of TCI will be upgraded per season.
2. Minimum radiometric power performance guaranteed within published operating conditions. TCI maintains a tolerance of  $\pm 10\%$  on radiometric power measurements.
3. TCI maintains a tolerance of  $\pm 1\text{nm}$  for peak wavelength measurement.
4. TCI maintains a tolerance of  $\pm 0.06\text{V}$  on forward voltage measurement.

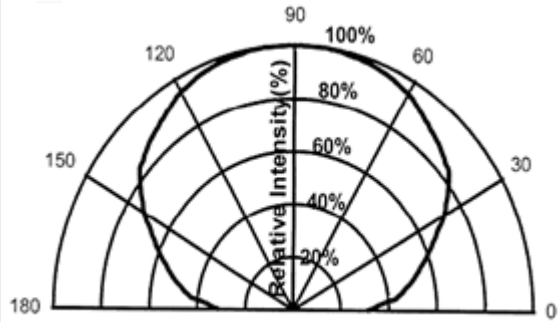
## RELIABILITY ITEMS and SPECTIONS

No	Test Item	Test Conditions	units	Result
1	High Temperature Storage	Temperature : 110±10°C Time : 1000 Hours	20	Pass
2	Solder Heat Resistance	Pre-heat : 125°C Pre-heat time : 60~120 sec. Solder Temperature : 260±10°C Time : 10 sec.	20	Pass
3	Thermal shock	0°C ~ 100°C 300cycle 5mins 5mins	20	Pass
4	High Temperature , High Humidity Storage	Temperature : 85°C Relative Humidity : 85% Time : 1000 Hours	20	Pass
5	Low Temperature Storage	Temperature : -40°C Time : 1000 Hours	20	Pass
6	Solderability	Pad immersion in flux 5~10 sec. Temperature : 230±10°C Time : 5 sec.	20	Pass
7	Room Temperature Operating Life	Ta=25°C, @ 350 mA Time : 1000 Hours	20	Pass

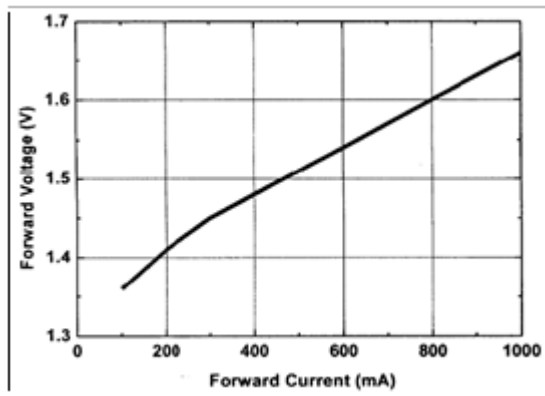
Wavelength Spectrum, Ta=25 °C



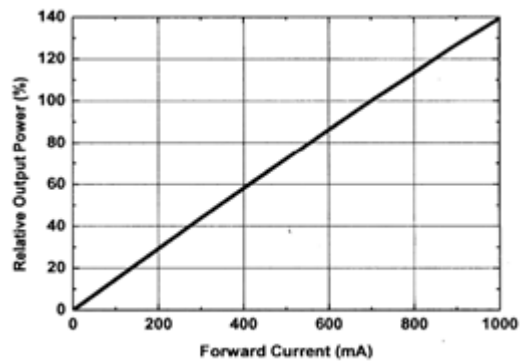
Typical Polar Radiation Pattern



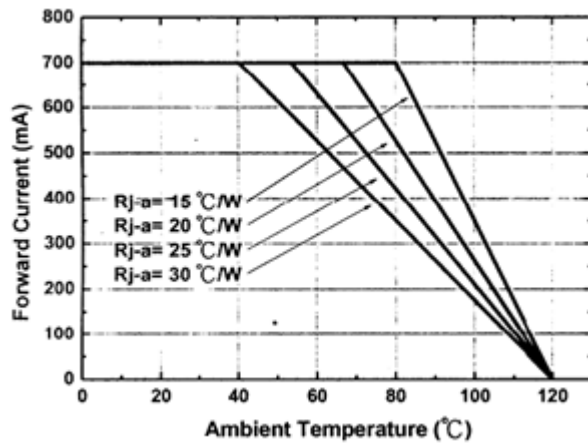
Forward Voltage vs Forward Current



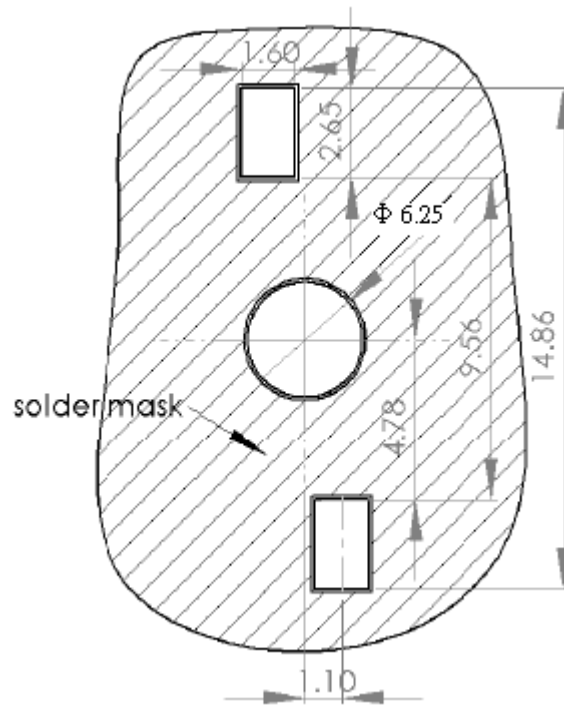
Forward L-V Characteristics



Current Derating Curves

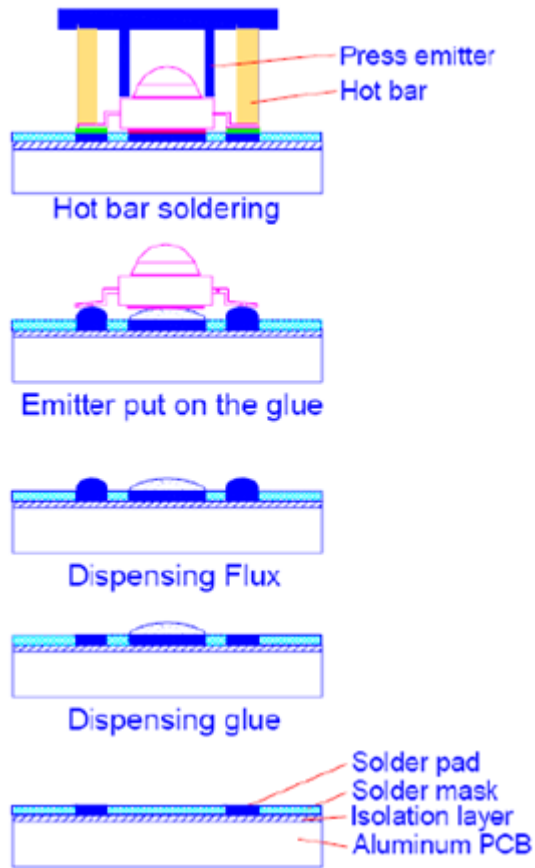


## Recommended Solder Pad Design



Notes :

1. Drawing is not to scale
2. All dimensions are in millimeter
3. Solder pad can't be connected to slug



Notes:

1. Aluminum PCB material with a thermal conductivity greater than 2.0 W/mK.
2. Solder pad can't be connected to slug.
3. The thermal glue should be as thin as possible for better heat conductivity.
4. During any assembly process touching lens is avoided. This will cause pollution or scratch on the surface of lens.
5. Thermal glue with a thermal conductivity greater than 1.0 W/mK and the thickness must be less than 100um.