Luckylight

5mm Round Infrared Chip LED T-1 3/4
Technical Data Sheet

Part No.: LL-503SIRC2V-1BD

Features:

- ◇ Standard T-1 3/4 diameter package.
- ◇ Low forward voltage.
- ◇ Infrared Emitting Diode.
- ◇ Viewing angle =30°.
- ◇ Reliable and rugged
- ◇ RoHS compliant.

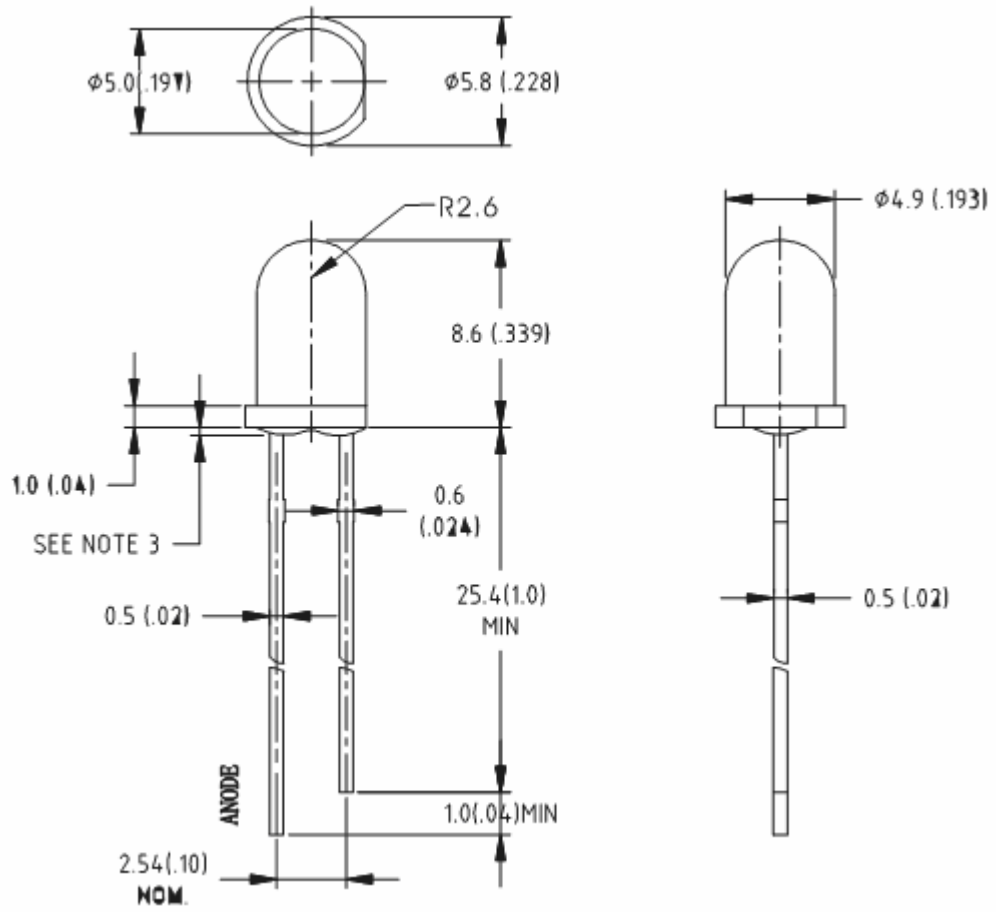
Descriptions:

- ◇ The device is spectrally matched with silicon photodiode and phototransistor.
- ◇ The LEDs are available with different viewing angles.

Applications:

- ◇ Floppy disk drive.
- ◇ Optoelectronic switch.
- ◇ Camera.
- ◇ VCR.
- ◇ Video.
- ◇ Smoke detector.
- ◇ Infrared applied system.
- ◇ Free air transmission system.
- ◇ Infrared remote control units.

Package Dimension:



Part No.	Chip Material	Lens Color	Source Color
LL-503SIRC2V-1BD	GaAlAs	Water Clear	Infrared

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010″) unless otherwise specified.
3. Protruded resin under flange is 1.00 mm (.039″) max.
4. Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25℃

Parameters	Symbol	Max.	Unit
Power Dissipation	PD	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	1	A
Forward Current	IF	35	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40℃ to +85℃	
Storage Temperature Range	Tstg	-40℃ to +100℃	
Soldering Temperature	Tsld	260℃ for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Viewing Angle*	2θ1/2	---	30	---	Deg	(Note 1)
Forward Voltage	VF	---	1.45	1.65	V	IF =70mA
Reverse Current	IR	---	---	10	μA	V_R=5V
Peak Emission Wavelength	λp	---	850	---	nm	IF=20mA
Spectral Bandwidth	△λ	---	45	---	nm	IF=20mA
Radiant Intensity	Ee	7.5	---	---	mW/sr	IF =20mA

Notes:

1. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

Reliability Test Item And Condition:

The reliability of products shall be satisfied with items listed below:

Confidence level: 90%.

LTPD: 10%.

No.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	REFLOW Soldering	TEMP.: 260℃±5℃ 5secs	6Mins	22pcs	$I_R \geq U \times 2$ $Ee \leq L \times 0.8$ $V_F \geq U \times 1.2$ U: Upper Specification Limit L: Lower Specification Limit	0/1
2	Temperature Cycle	H : +100℃15mins 5mins L : -40℃ 15mins	50Cycles	22pcs		0/1
3	Thermal Shock	H :+100℃ 5mins 10secs L :-10℃ 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.：+100℃	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP.：-40℃	1000hrs	22pcs		0/1
6	DC Operating Life	I_F=20mA	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85℃ / 85% R.H	1000hrs	22pcs		0/1

Typical Electrical / Optical Characteristics Curves:

Fig.1 Forward Current vs. Ambient Temperature

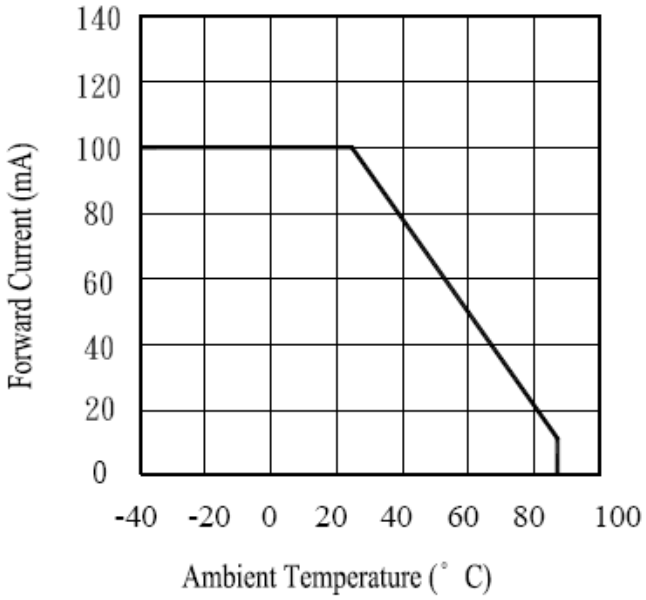


Fig.2 Spectral Distribution

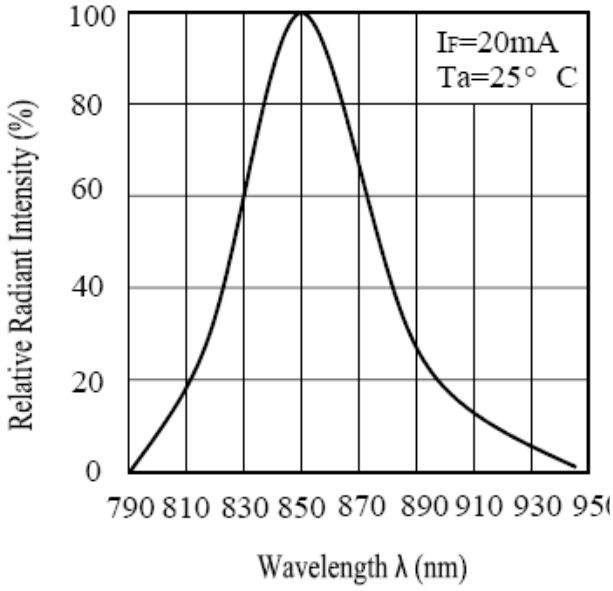


Fig.3 Peak Emission Wavelength Ambient Temperature

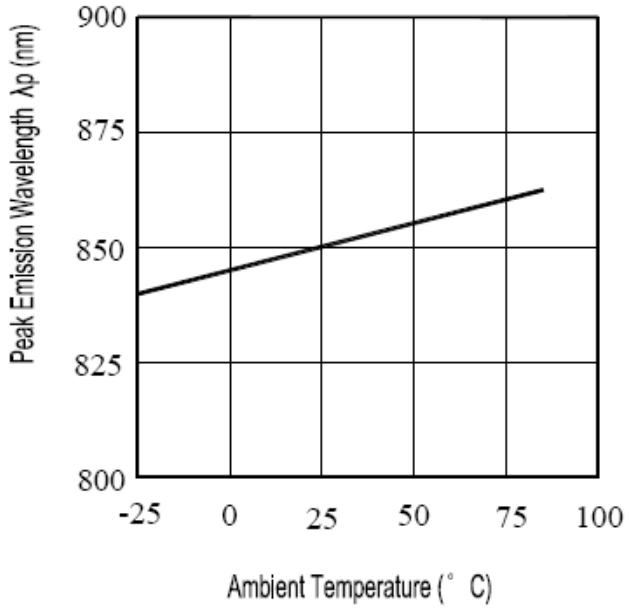


Fig.4 Forward Current vs. Forward Voltage

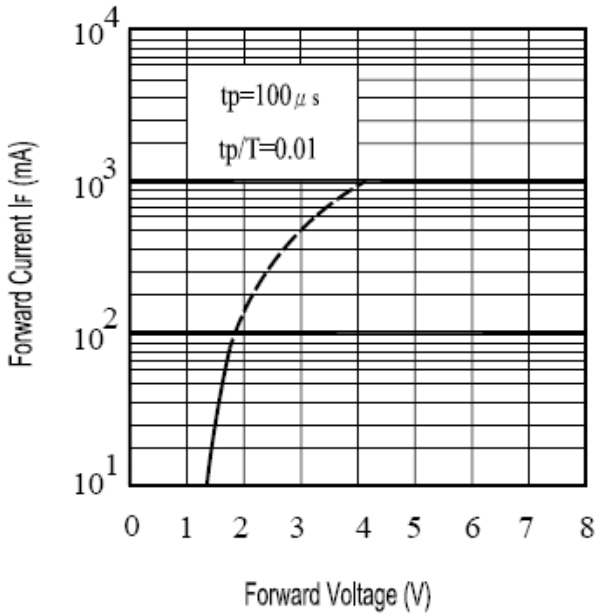


Fig.5 Relative Intensity vs. Forward Current

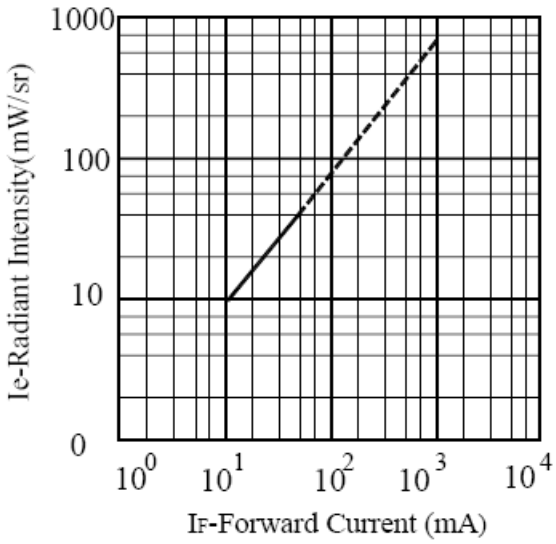


Fig.6 Relative Radiant Intensity vs. Angular Displacement

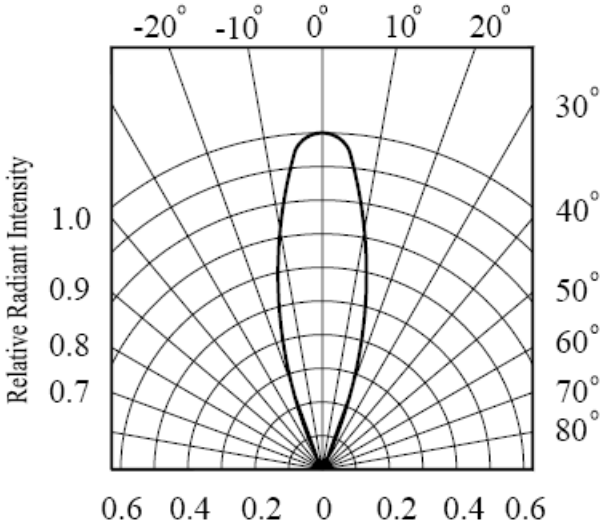


Fig.7 Relative Intensity vs. Ambient Temperature(°C)

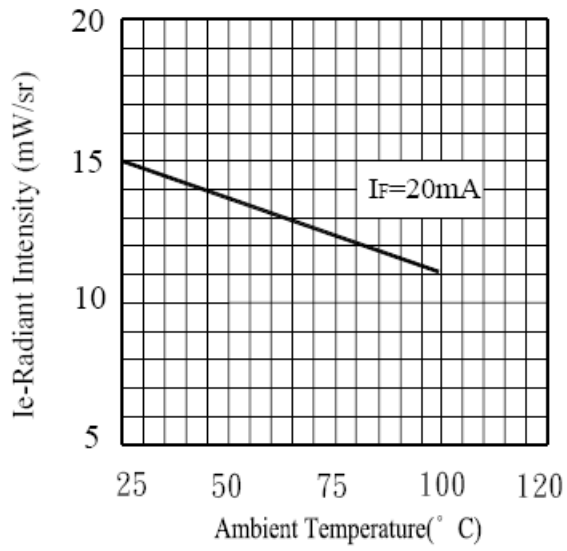
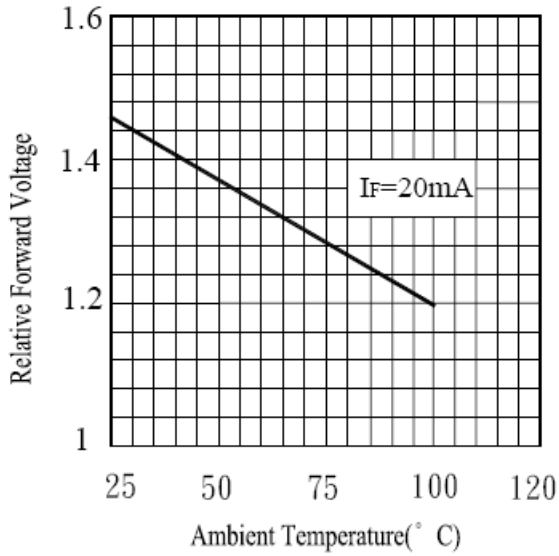


Fig.8 Forward Voltage vs. Ambient Temperature(°C)



Please read the following notes before using the datasheets:

1. Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change (Burn out will happen). s

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30℃ or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

3. Soldering Condition

3.1 Pb-free solder temperature profile

3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.