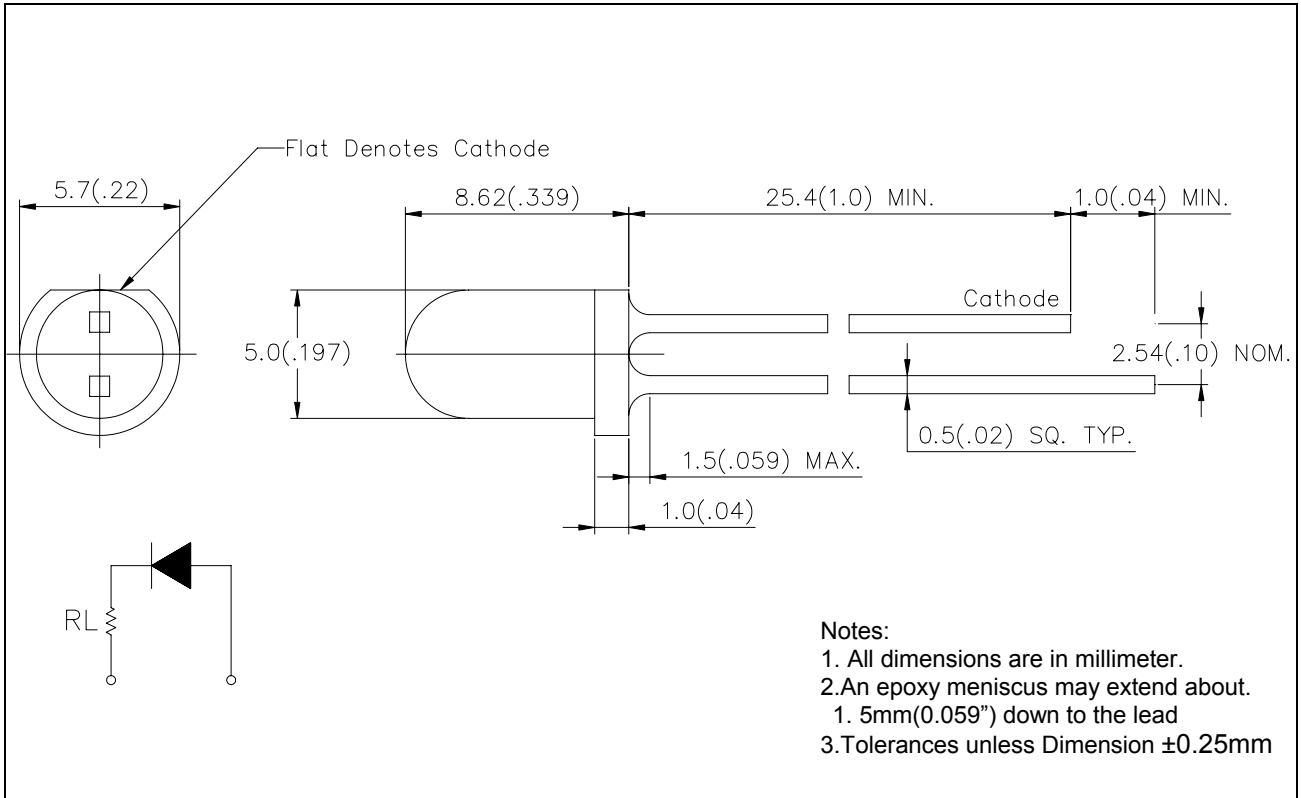


Package Dimension :



■ Features :

- Choice of various viewing angle.
- Available on Tape and Reel.
- Reliable and robust.

■ Descriptions :

- The series is specially designed for application requiring higher brightness.
- The LED lamps are available with different colors, intensity, epoxy colors etc.

■ Applications :

- TV set
- Monitor
- Telephone

5 mm

Round

Type : LED Lamps

PART NO.	Chip		Lens Color
	Material	Emitted Color	
AL-513SRD-12V-005	AlGaAs/GaAs	Super Red	Red Diffused

■ Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Unit
Operating Temperature	Topr	-40 to +80	°C
Storage Temperature	Tstg	-40 to +85	°C
Soldering Temperature	Tsol	260 ± 5	°C
Electrostatic Discharge	ESD	1000	V
Power Dissipation	P _D	100	mW
Peak Forward Current (Duty 1/10@1KHz)	I _F (Peak)	150	mA

■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Current	I _F	/	8	12	mA	V _F =12V
Luminous Intensity	I _V	/	120	/	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	/	35	/	deg	I _F =20mA
Peak Wavelength	λ _p	/	660	/	nm	I _F =20mA
Dominant Wavelength	λ _d	/	643	/	nm	I _F =20mA
Spectrum Radiation Bandwidth	Δλ	/	20	/	nm	I _F =20mA

■ Features :

1. For DC and pulse operation.
2. With current limiting Resistor for 12V.
3. TTL & CMOS compatible.
4. 5mm diameter package.
5. Internal Resister 800Ω.
6. This product don't contained restriction substance, compliance RoHS standard.

■ Reliability test items and conditions :

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1	Connect with a power If=30mA Ta=Under room temperature Test time=1,000hrs	0/100
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS C 7021 :B-11	Ta=85°C±5°C RH=90%-95% Test time=1,000hrs	0/100
	High Temperature Storage	MIL-STD-883:1008 JIS C 7021 :B-10	High Ta=85°C±5°C Test time=1,000hrs	0/100
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-35°C±5°C Test time=1,000hrs	0/100
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4	-35°C ~ 25°C ~ 85°C ~ 25°C 30min 5min 30min 5min Test Time=10cycle	0/100
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	85°C±5°C ~ -35°C±5°C 10min 10min Test Time=10cycle	0/100
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1	T.sol=260±5°C Dwell Time=10±1sec.	0/50
	Solderability	MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2	T.sol=230±5°C Dwell Time=5±1sec.	0/50
	Lead Bending Stress	MIL-STD-750:2036 JIS C 7021 :A-11	0°~90°~0°bend , 3 cycles Weight 250g	0/50

■ Typical Characteristics (The data typical , and the value is not guaranteed.)

Fig.1 Relative Intensity vs. Wavelength

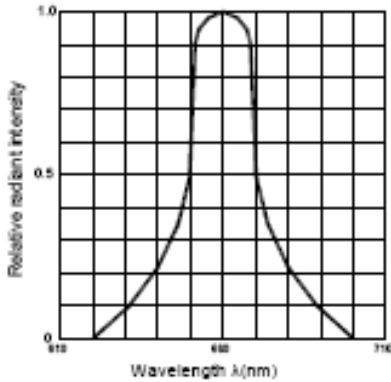


Fig.2 Forward current derating curve vs. Ambient temperature

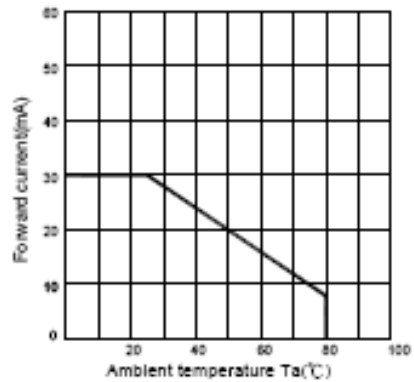


Fig.4 Relative luminous intensity vs. Ambient temperature

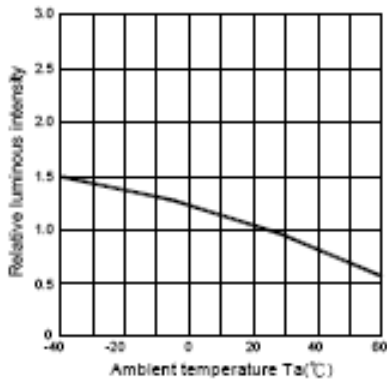


Fig.5 Radiation diagram

