



LED1300-03

- Infrared LED
- 1300 nm, 7 mW
- Chip: InGaAsP, 300 x 300 μm
- 5 mm Clear Molding, Epoxy Resin
- Viewing Angle: 28°



Description



LED1300-03 contains one InGaAsP LED chip die mounted on a lead frame hermetically sealed with a clear epoxy lens.

On forward bias, it emits a power radiation of typical **7 mW** at a peak wavelength at **1300 nm**.

Maximum Ratings ($T_{\text{CASE}}=25^{\circ}\text{C}$)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		130	mW
Forward Current	I_F		100	mA
Pulse Forward Current *1	I_{FP}		1000	mA
Reverse Voltage	V_F		5	V
Thermal Resistance	R_{THJA}		300	K/W
Junction Temperature	T_J		120	$^{\circ}\text{C}$
Operating Temperature	T_{CASE}	- 40	+ 100	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	- 40	+ 100	$^{\circ}\text{C}$
Lead Solder Temperature *2	T_{SLD}		+ 265	$^{\circ}\text{C}$

*1 duty=1%, pulse width = 10 μs

*2 must be completed within 3 seconds

Electro-Optical Characteristics ($T_{\text{CASE}}=25^{\circ}\text{C}$)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	$I_F=50\text{mA}$	1250		1350	nm
Half Width	$\Delta\lambda$	$I_F=50\text{mA}$		80		nm
Forward Voltage	V_F	$I_F=50\text{mA}$		1.0	1.3	V
	V_{FP}	$I_{FP}=1\text{A}$		1.8		
Radiated Power *1	P_O	$I_F=50\text{mA}$		7.0		mW
		$I_{FP}=1\text{A}$		41		
Radiant Intensity *2	I_E	$I_F=50\text{mA}$		51		mW/sr
		$I_{FP}=1\text{A}$		300		
Viewing Angle	φ	$I_F=50\text{mA}$		28		deg.
Rise Time	t_R	$I_F=50\text{mA}$		80		ns
Fall Time	t_F	$I_F=50\text{mA}$		30		ns

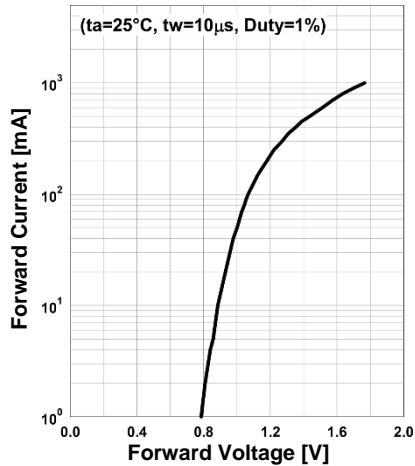
*1 measured by G8370-85

*2 measured by Ando Optical Multi Meter AQ2140 & AQ2742

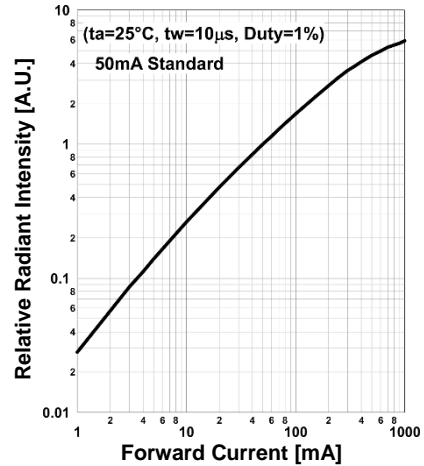


Typical Performance Curves

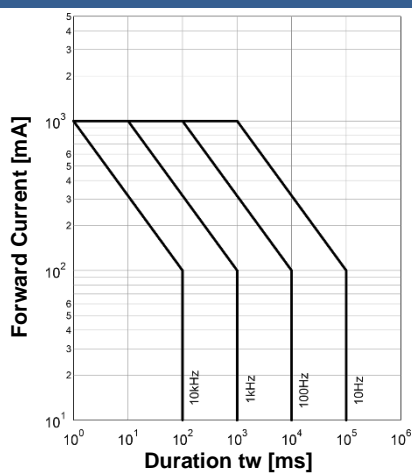
Forward Current vs. Forward Voltage



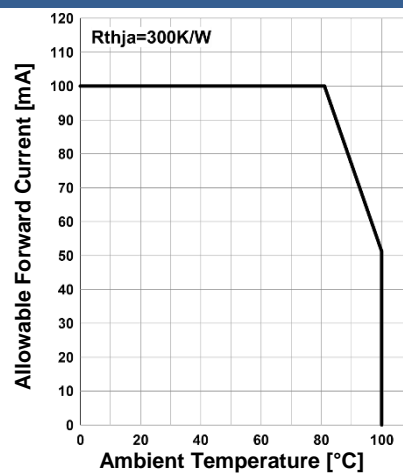
Rel. Radiant Intensity vs. Forward Current



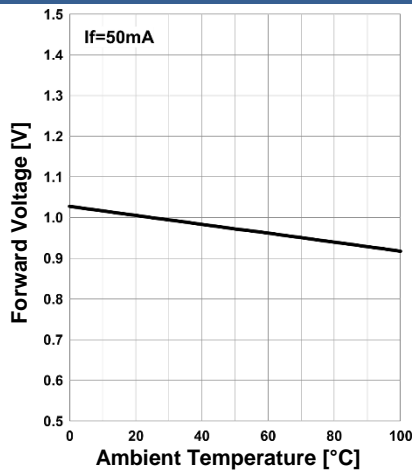
Forward Current vs. Pulse Duration



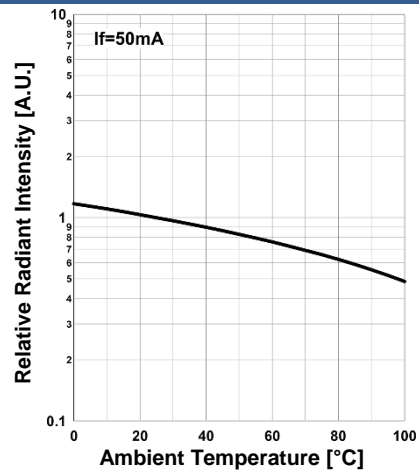
Allowed Forward Current vs. Ambient Temperature



Forward Voltage vs. Ambient Temperature

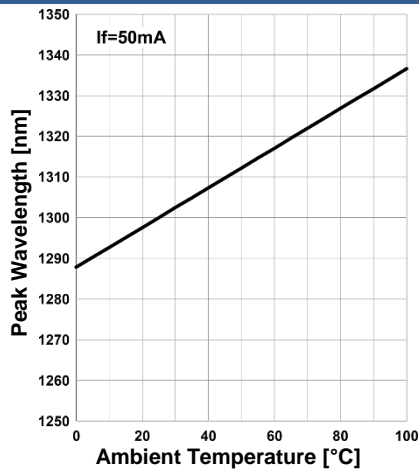


Rel. Radiant Intensity vs. Ambient Temperature

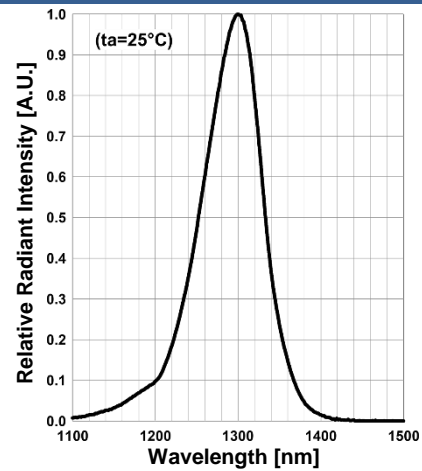




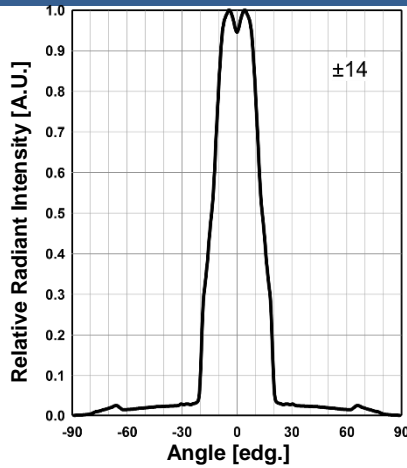
Peak Wavelength vs. Ambient Temperature



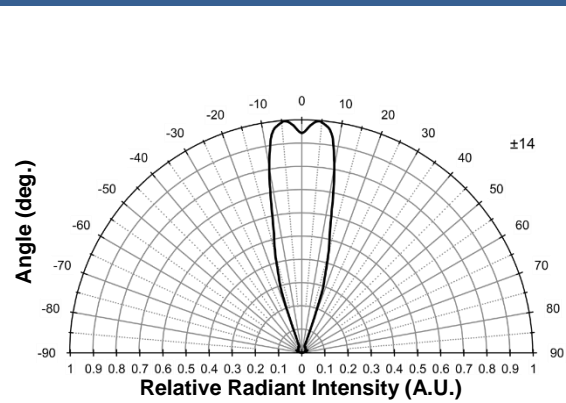
Relative Spectral Emission



Radiation Characteristics



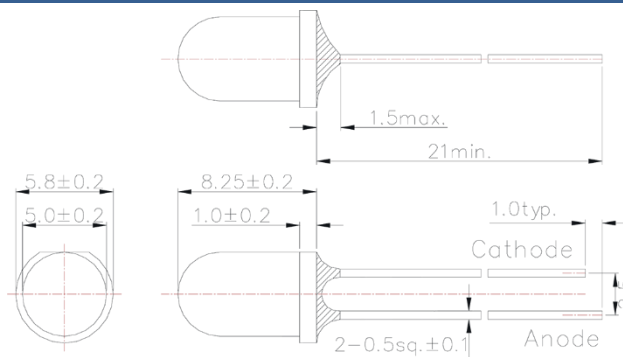
Radiation Characteristics



Outline Dimensions

LED1300-03

5 mm clear molding



Lead	Description
Short Pin	LED Cathode
Long Pin	LED Anode

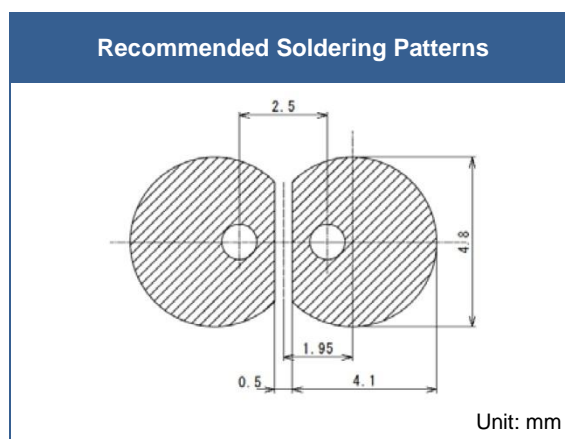
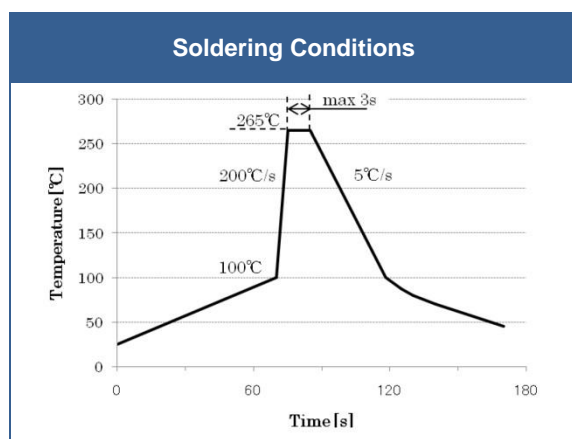
All Dimensions in mm

Precautions

Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux
- Do not apply current to the LED until it has cooled down to room temperature after soldering
- Do not solder the LED closer than 3 mm from the base of the lead.

Recommended soldering conditions:



Above table specifies the maximum allowed duration and temperature during soldering. It is strongly advised to perform soldering at the shortest time and lowest temperature possible.

Cleaning:

Cleaning with isopropyl alcohol, propanol, or ethyl alcohol is recommended

DO NOT USE acetone, chloroform, trichloroethylene, or MKS

DO NOT USE ultrasonic cleaners

Static Electricity:

LEDs are sensitive to electrostatic discharge (ESD). Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

Radiation:

During operation these LEDs do emit light, which could be hazardous to skin and eyes, and may cause cancer. Do avoid exposure to the emitted light. Protective glasses if needed. It is further advised to attach a warning label on products/systems.

Operation:

Do *only* operate LEDs with a current source.

Running these LEDs from a voltage source will result in complete failure of the device.

Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.