



LED1050D-03

- IR Through Hole LED
- 1050 nm, 10 mW
- InGaAsP chip, 350 x 350 μm
- 5 mm Epoxy Resin Package
- Beam Angle: $\pm 13^\circ$



Description

LED1050D-03 is an InGaAsP based infrared LED, emitting at a peak wavelength of typically 1070 nm and optical output power of 10 mW @ 50 mA. It comes in a **5 mm through hole** clear epoxy resin mold package with a beam angle of $\pm 13^\circ$. Different beam angle variants are available on request.

Maximum Ratings*

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	P_D		150	mW
Forward Current	I_F		100	mA
Pulse Forward Current **	I_{FP}		1000	mA
Reverse Voltage	U_F		5	V
Thermal Resistance	R_{THJA}		250	K/W
Junction Temperature	T_J		120	$^\circ\text{C}$
Operating Temperature	T_{CASE}	- 40	+ 85	$^\circ\text{C}$
Storage Temperature	T_{STG}	- 40	+ 100	$^\circ\text{C}$
Lead Solder Temperature ($t_{max. 3s}$)	T_{SLD}		+ 265	$^\circ\text{C}$

* Operating close to or exceeding these parameters may damage the device

** duty cycle = 1 %, pulse width = 10 μs

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

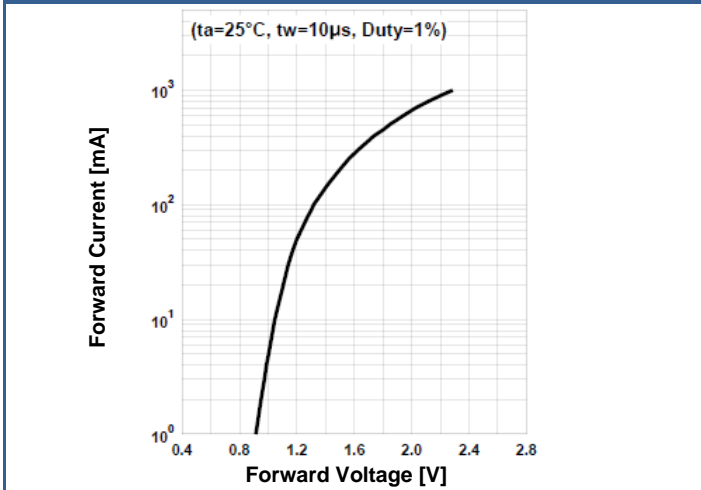
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	$I_F = 50 \text{ mA}$	1020		1080	nm
Half Width	λ_Δ	$I_F = 50 \text{ mA}$		50		nm
Forward Voltage	U_F	$I_F = 50 \text{ mA}$		1.2	1.5	V
	U_{FP}	$I_{FP} = 1 \text{ A}^*$		2.3		
Total Radiated Power	P_O	$I_F = 50 \text{ mA}$	6.5	10		mW
		$I_{FP} = 1 \text{ A}^*$		55		
Radiant Intensity	I_E	$I_F = 50 \text{ mA}$		41		mW/sr
		$I_{FP} = 1 \text{ A}^*$		220		
Beam Angle	$2\theta_{1/2}$	$I_F = 50 \text{ mA}$		26		deg.
Rise Time	t_r	$I_F = 50 \text{ mA}$		60		ns
Fall Time	t_f	$I_F = 50 \text{ mA}$		30		ns

* duty cycle = 1 %, pulse width = 10 μs

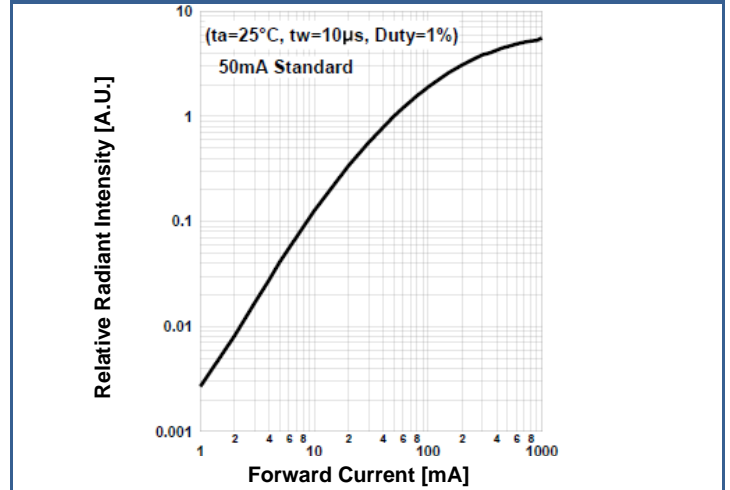


Typical Performance Curves

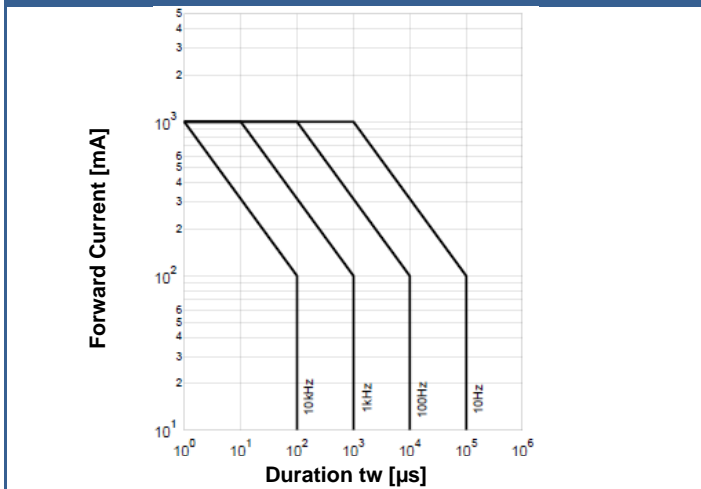
Forward Current vs. Forward Voltage



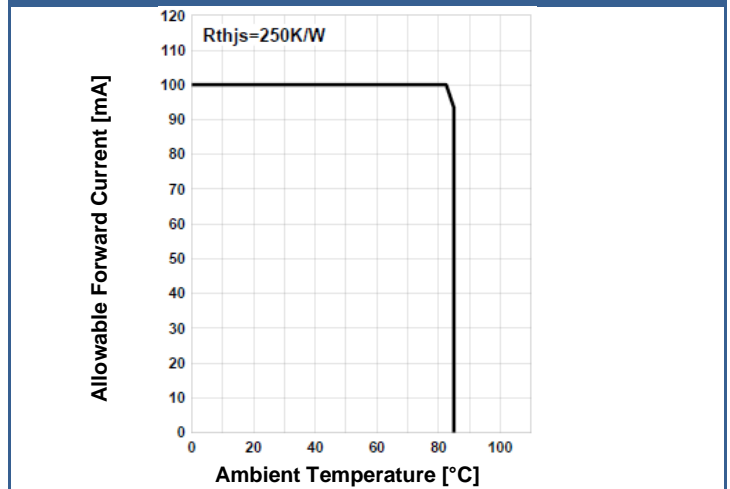
Relative Radiant Intensity vs. Forward Current



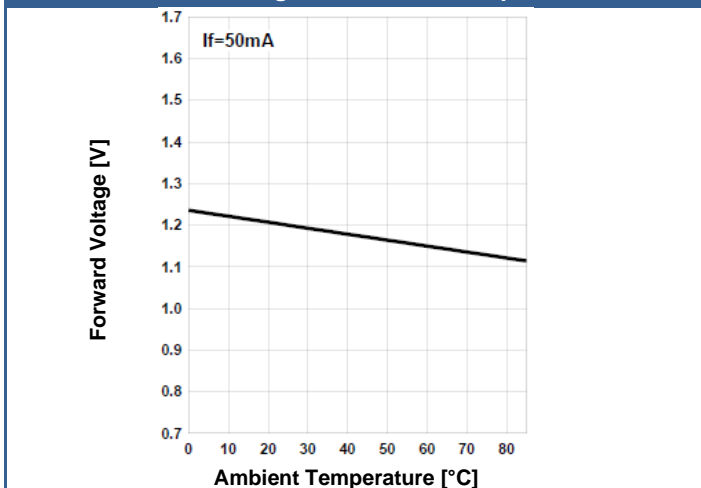
Forward Current vs. Pulse Duration



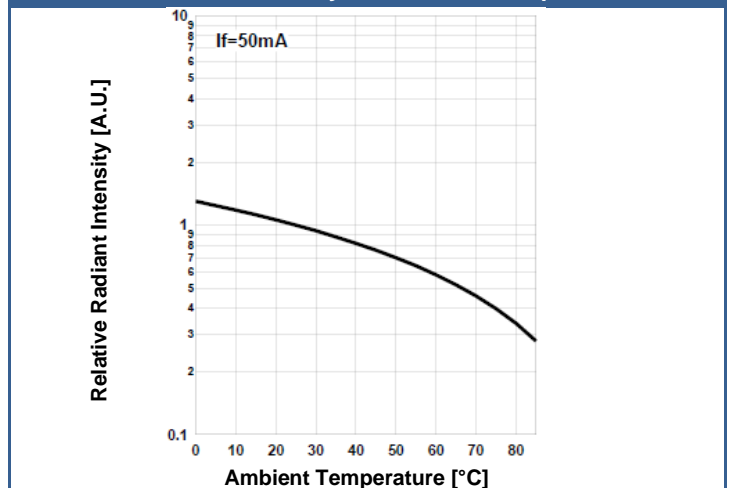
Allowed Forward Current vs. Amb. Temperature



Forward Voltage vs. Ambient Temperature

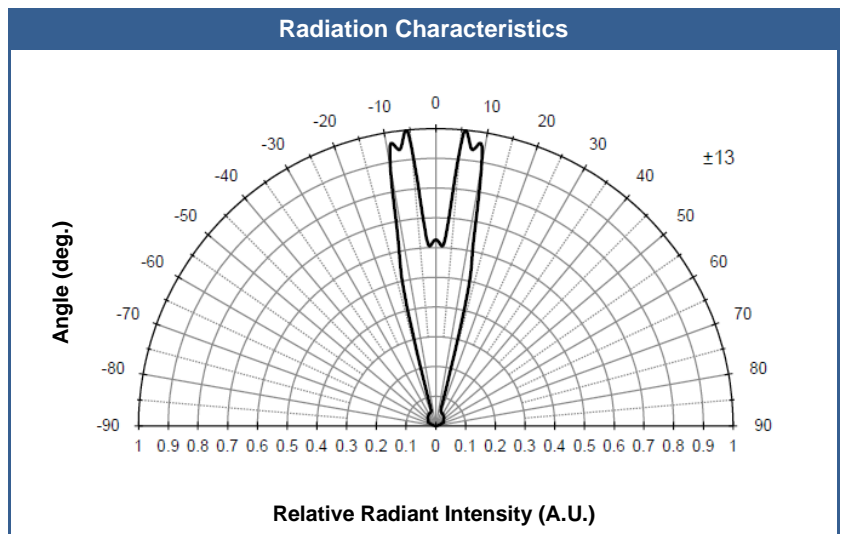
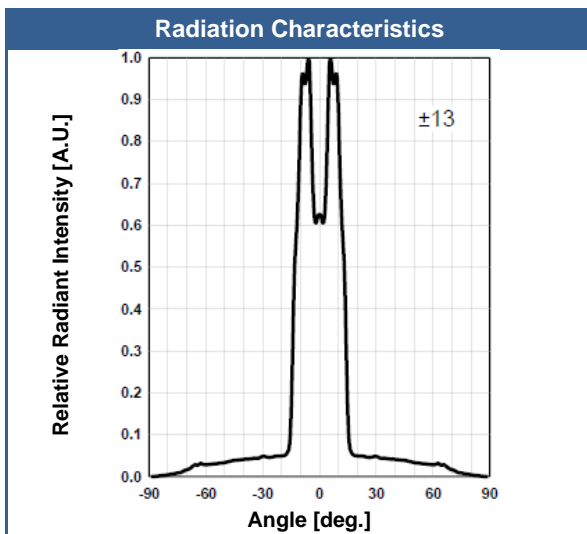
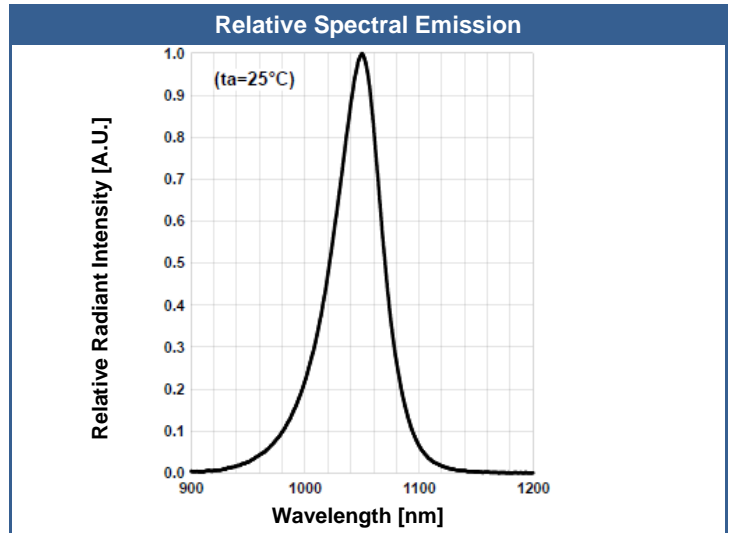
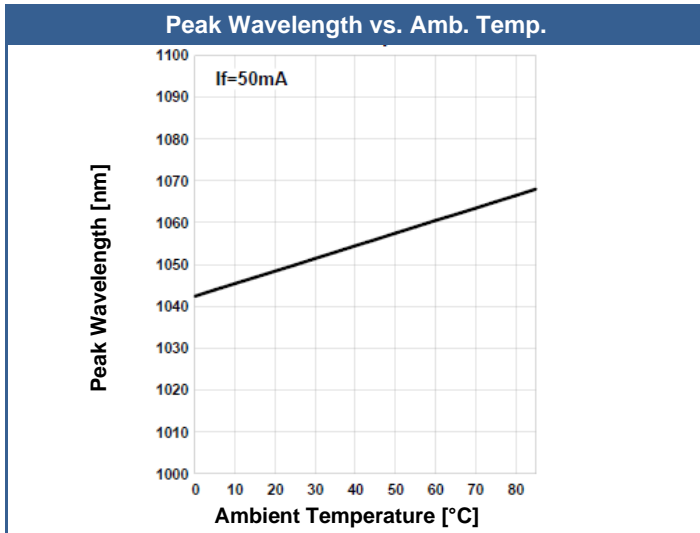


Rel. Radiant Intensity vs. Ambient Temperature



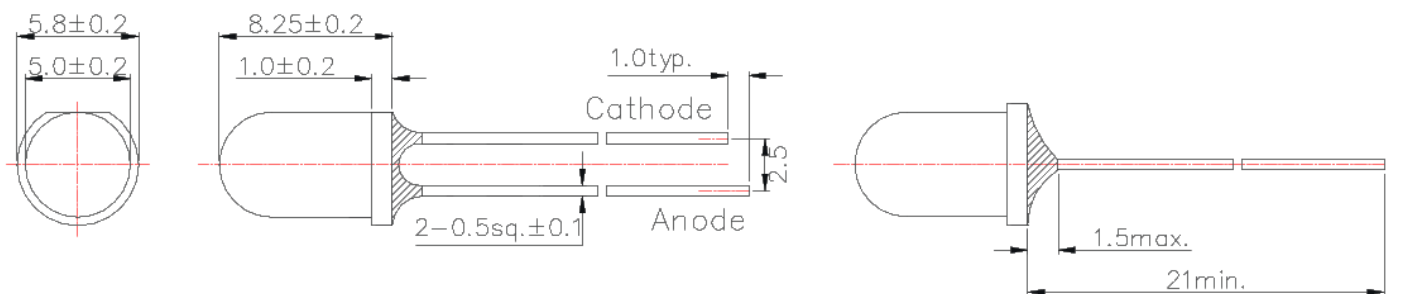


Typical Performance Curves



Outline Dimensions

5 mm Through Hole



all dimensions in mm



General Notes

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

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 LED.

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.

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