

# SMT1050

## High Performance NIR TOP IR LED

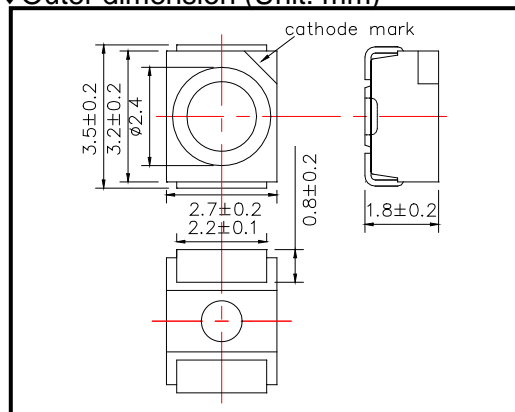
SMT1050 consists of an InGaAsP LED mounted on the lead frame as TOP LED package, and is sealed with epoxy resin.

It emits a spectral band of radiation at 1050nm.

### ◆ Specifications

1) Product Name	TOP NIR LED
2) Type No.	SMT1050
3) Chip	
(1) Chip Material	InGaAsP
(2) Peak Wavelength	1050nm typ..
4) Package	
(1) Lead Frame Die	Silver Plated
(2) Package Resin	PPA Resin
(3) Lens	Epoxy resin

### ◆ Outer dimension (Unit: mm)



### ◆ Absolute Maximum Ratings

Item	Symbol	Maximum Rated Value	Unit	Ambient Temperature
Power Dissipation	P <sub>D</sub>	70	mW	T <sub>a</sub> =25°C
Forward Current	I <sub>F</sub>	50	mA	T <sub>a</sub> =25°C
Pulse Forward Current	I <sub>FP</sub>	200	mA	T <sub>a</sub> =25°C
Reverse Voltage	V <sub>R</sub>	5	V	T <sub>a</sub> =25°C
Thermal Resistance	R <sub>thja</sub>	250	K/W	
Junction Temperature	T <sub>j</sub>	100	°C	
Operating Temperature	T <sub>OPR</sub>	-40 ~ +85	°C	
Storage Temperature	T <sub>STG</sub>	-40 ~ +100	°C	
Soldering Temperature	T <sub>SOL</sub>	250	°C	

‡Pulse Forward Current condition: Duty=1% and Pulse Width=10us.

‡Soldering condition: Soldering condition must be completed within 5 seconds at 250°C

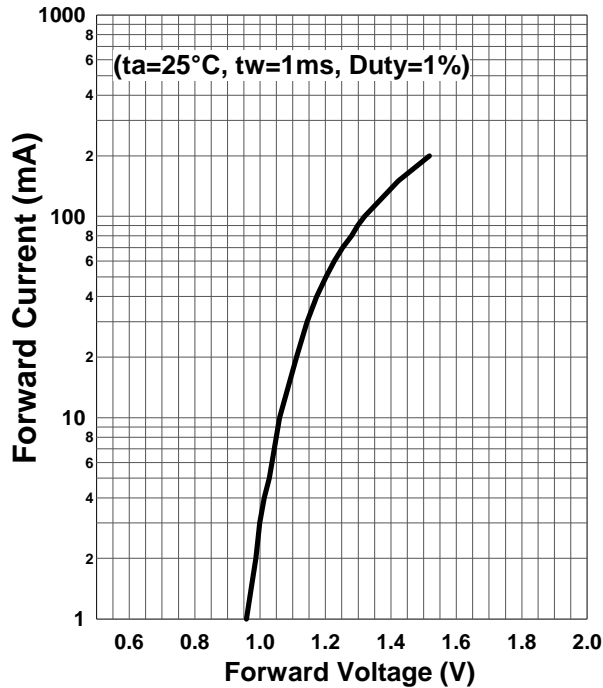
### ◆ Electro-Optical Characteristics [T<sub>a</sub>=25°C]

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =50mA		1.18		V
	V <sub>FP</sub>	I <sub>FP</sub> =200mA		1.55		
Radiated Power	P <sub>O</sub>	I <sub>F</sub> =50mA		4.5		mW
		I <sub>FP</sub> =200mA		18		
Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> =50mA		1.3		mW/sr
		I <sub>FP</sub> =200mA		5.2		
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =50mA	1000	1050	1100	nm
Half Width	Δλ	I <sub>F</sub> =50mA		50		nm
Viewing Half Angle	θ <sub>1/2</sub>	I <sub>F</sub> =50mA		±60		deg.

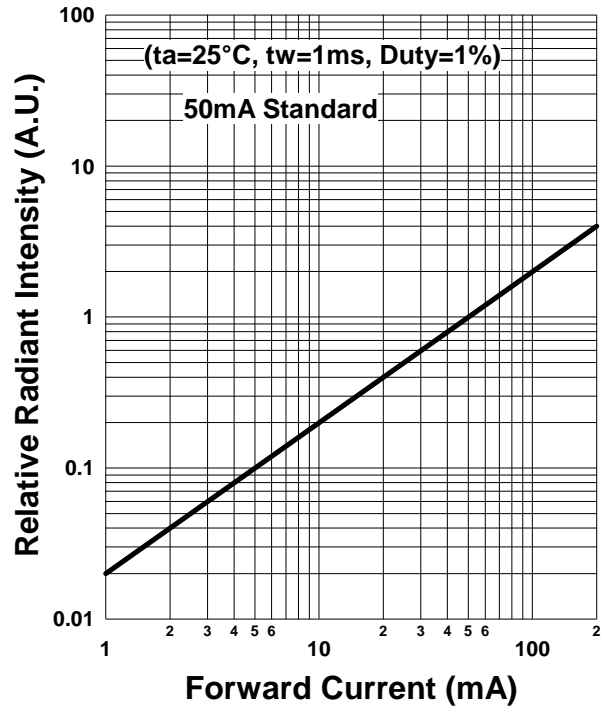
‡Radiated Power is measured by G8370-85.

‡Radiant Intensity is measured by Ando Optical Multi Meter AQ2140 & AQ2743.

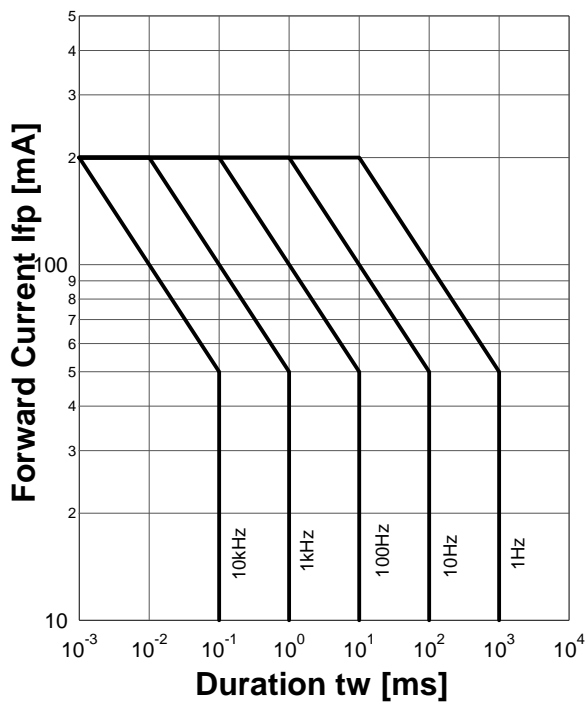
**Forward Current - Forward Voltage**



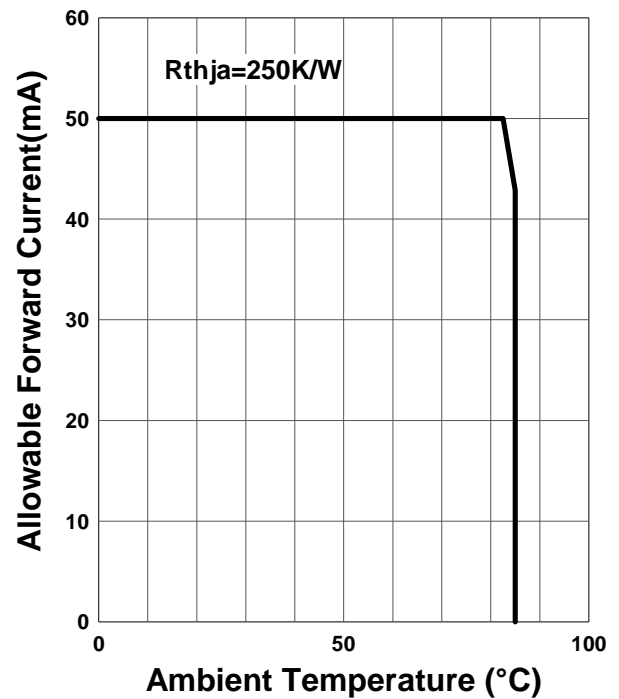
**Relative Radiant Intensity - Forward Current**



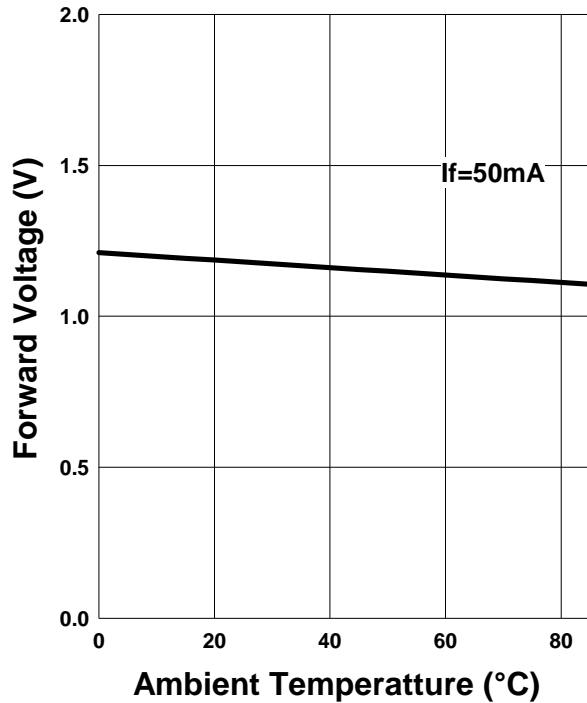
**Forward Current - Pulse Duration**



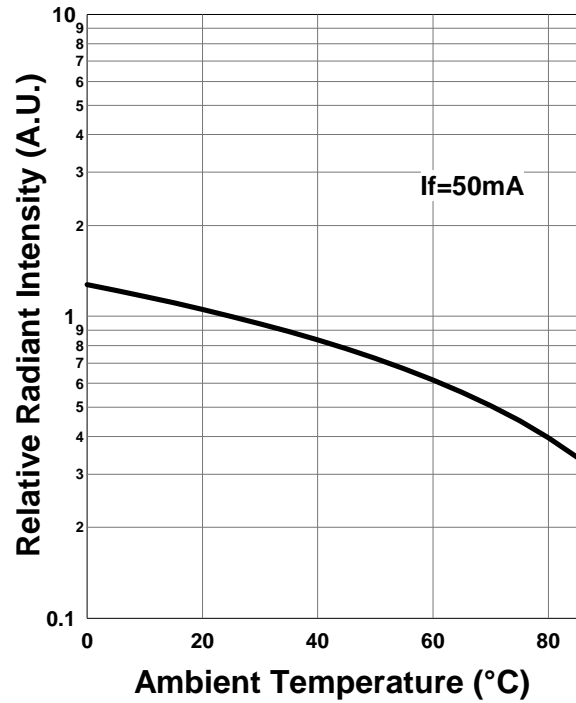
**Allowable Forward Current - Ambient Temperature**



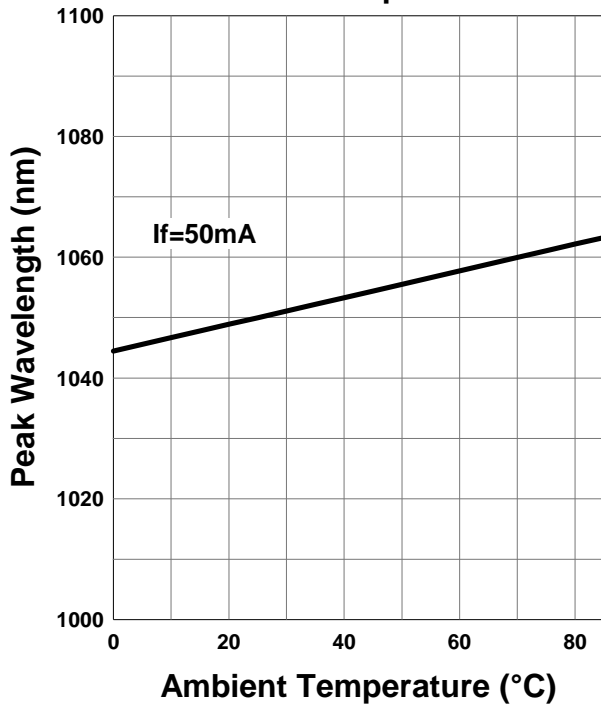
Forward Voltage - Ambient Temperature



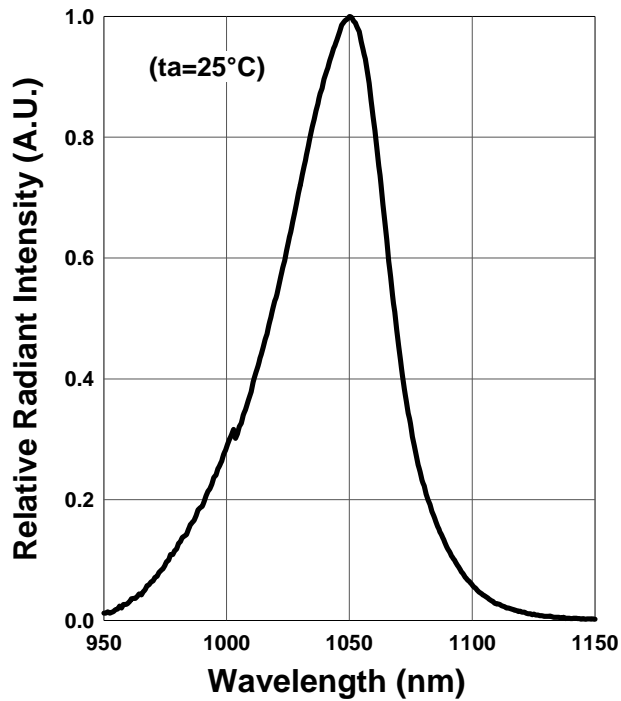
Relative Radiant Intensity - Ambient Temperature



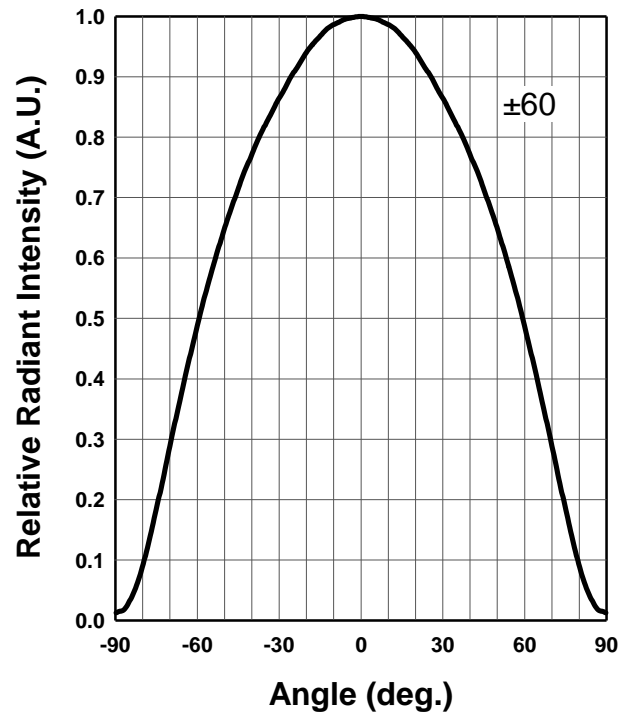
Peak Wavelength - Ambient Temperature



Relative Spectral Emission



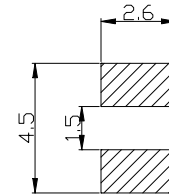
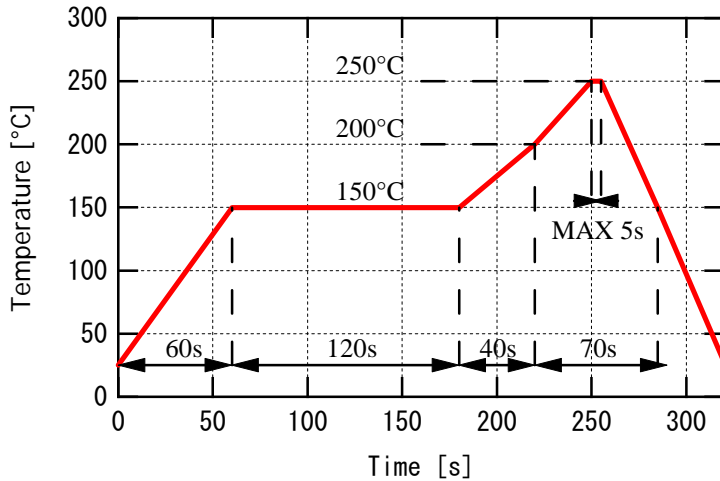
Radiation Characteristics



◆SMD Application

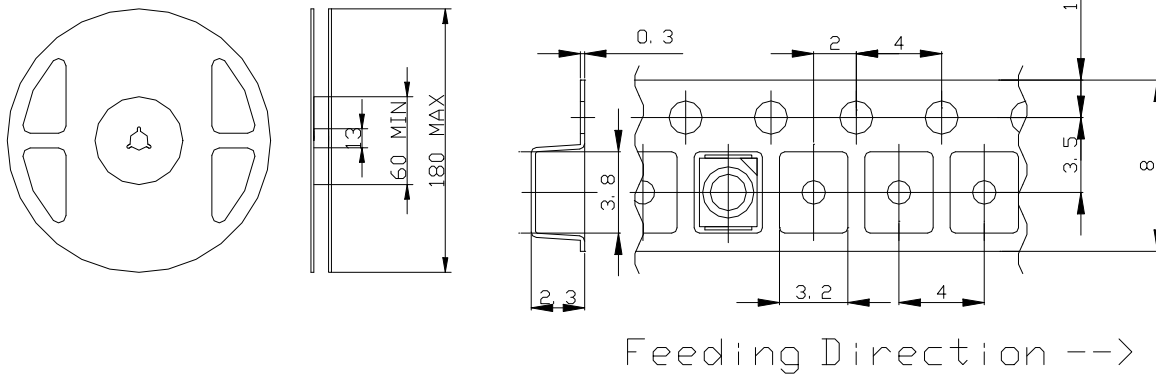
◆Recomended Lnd Layout (Unit : mm)

IR-Reflow Soldering Profile for lead free soldering



◆SMD Packing

Tape and Reel Dimensions (Unit: mm)



◆Wrapping

Moisture barrier bag aluminum laminated film with a desiccant to keep out the moisture absorption during the transportation and storage.

## SMD LED STORAGE AND HANDLING PRECAUTIONS

### < Storage Conditions before Opening a Moisture-Barrier Aluminum Bag >

- Before opening a moisture-barrier aluminum bag, please store it at <30°C, <60%RH. Please note that the maximum shelf life is 12 months under these conditions.

### < Storage Conditions after Opening a Moisture-Barrier Aluminum Bag >

- After opening a moisture-barrier aluminum bag, store the aluminum bag and silica gel in a desiccator.
- After opening the bag, please solder the LEDs within 72 hours in a room with 5 - 30°C, <50%RH.
- Please put any unused, remaining LEDs and silica gel back in the same aluminum bag and then vacuum-seal the bag.
- It is recommended to keep the re-sealed bag in a desiccator at <30%RH.

### < Notes about Re-sealing a Moisture-Barrier Aluminum Bag >

- When vacuum-sealing an opened aluminum bag, if you find the moisture-indicator of the silica gel has changed to pink from blue (indicating a relative humidity of 30 % or more), please do not use the unused LEDs, the aluminum bag, or the silica gel.

### < Notes about Opening a Re-sealed Moisture-Barrier Aluminum Bag >

- When opening a vacuumed and re-sealed aluminum bag in order to use the remaining LEDs stored in the bag, if you find that the moisture-indicator of the silica has changed to pink, please do not use the LEDs.

※The 72-hour- long floor life does not include the time while LEDs are stored in the moisture-barrier aluminum bag.

However, we strongly recommend to solder the LEDs as soon as possible after opening the aluminum bag.