

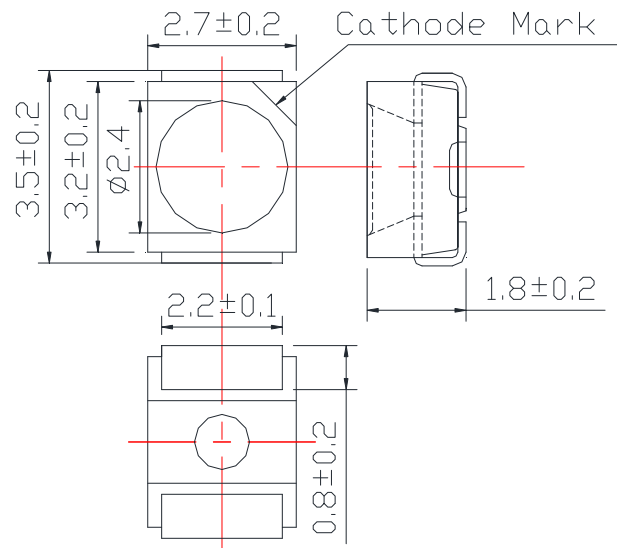
# Data Sheet

## SMT1050G

1050nm High Performance Infrared TOP LED

USHIO

### Outline and Internal Circuit



(Unit : mm)

### Features

- Chip Material : GaAs
- Chip Dimension: 300um \* 300um
- Number of Chips : 1pce
- Peak Wavelength : 1050nm typ.
- Lead Frame Die : Silver Plated
- Package Resin : PA6T
- Lens : Silicone or Epoxy Resin

### Application

## Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Ratings	Unit
Power Dissipation	PD	140	mW
Forward Current	IF	100	mA
Pulse Forward Current	IFP	1000	mA
Reverse Voltage	VR	5	V
Thermal Resistance	Rthja	80	K/W
Junction Temperature	Tj	120	°C
Operating Temperature	Topr	-40 ~ +100	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Soldering Temperature	TSOL	250	°C

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

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

## Optical and Electrical Characteristics (Tc=25°C)

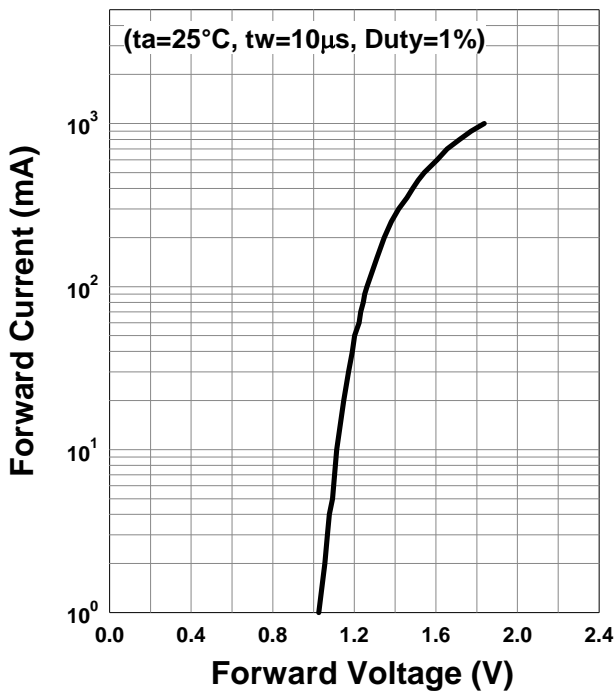
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	VF		1.2	1.4	V	IF=50mA
	VFP		1.8			IFP=1000mA
Total Radiated Power	PO		14		mW	IF=50mA
			150			IFP=1000mA
Radiant Intensity	IE		7		mW/sr	IF=50mA
			75			IFP=1000mA
Peak Wavelength	$\lambda_p$	1000		1100	nm	IF=50mA
Half Width	$\Delta\lambda$		41		nm	IF=50mA
Viewing Half Angle	$\theta_{1/2}$		$\pm 64$		deg.	IF=50mA
Rise Time	tr		15		ns	IF=50mA
Fall Time	tf		15		ns	IF=50mA

‡ Radiated Power is measured by G8370-85.

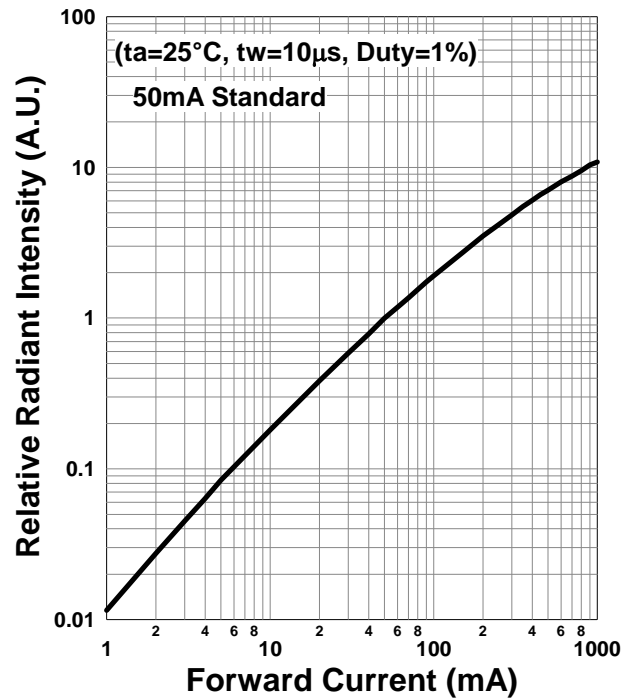
‡ Radiant Intensity is measured by Ando Optical Multi Meter AQ2140 & AQ2742.

## Typical Characteristic Curves

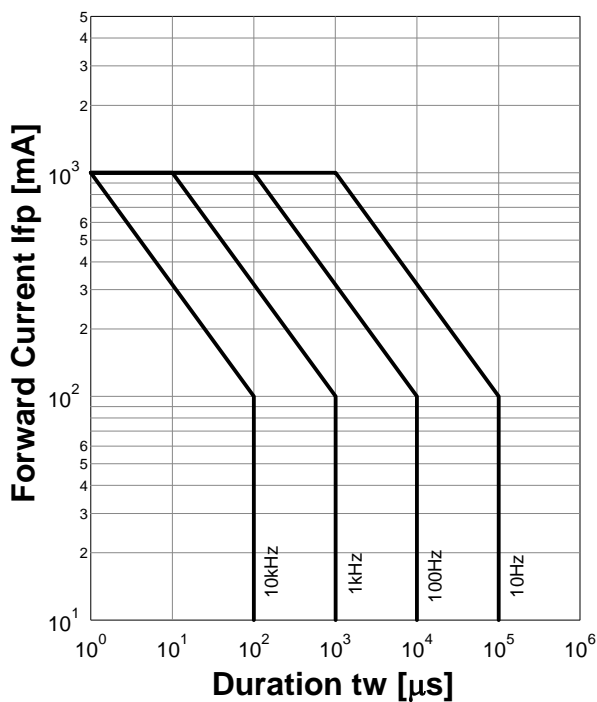
### Forward Current - Forward Voltage



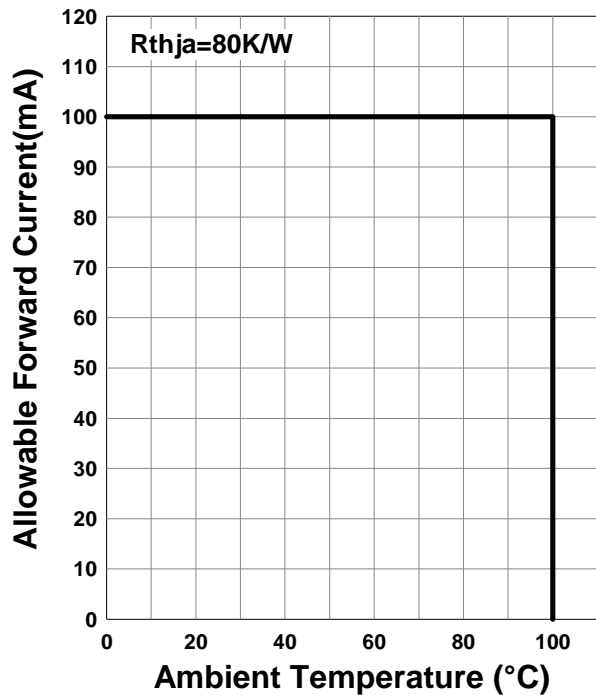
### Relative Radiant Intensity - Forward Current



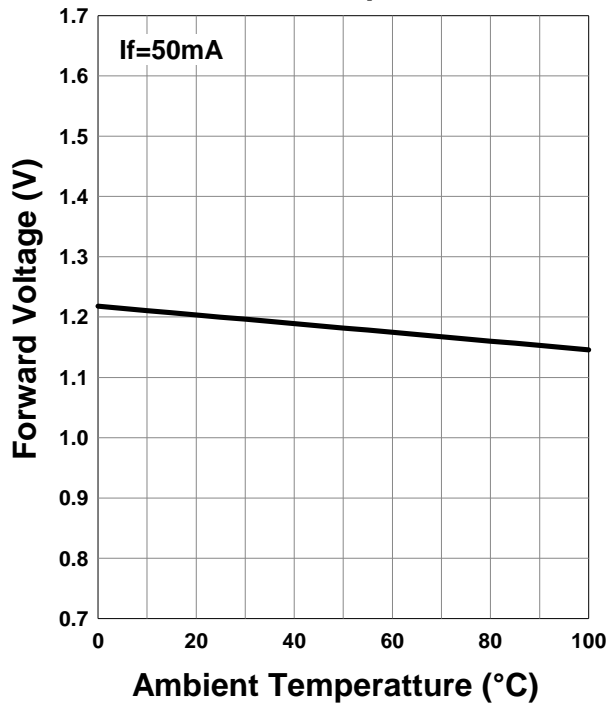
### Forward Current - Pulse Duration



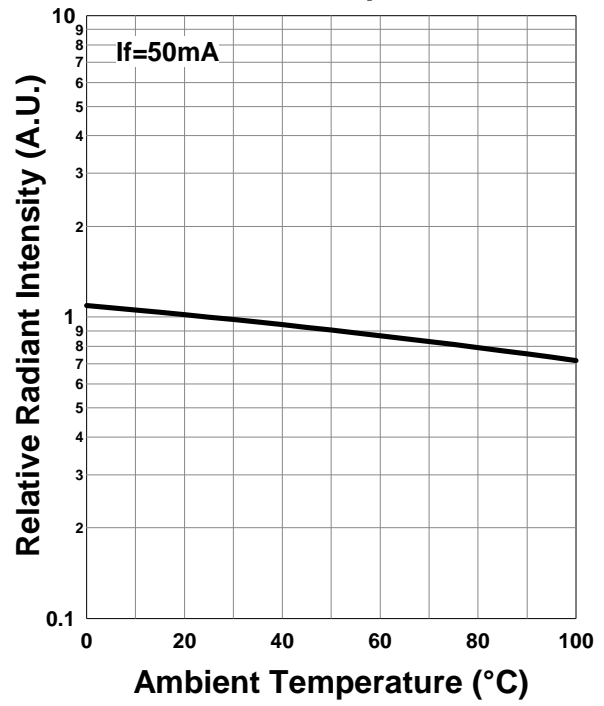
### Allowable Forward Current - Ambient Temperature



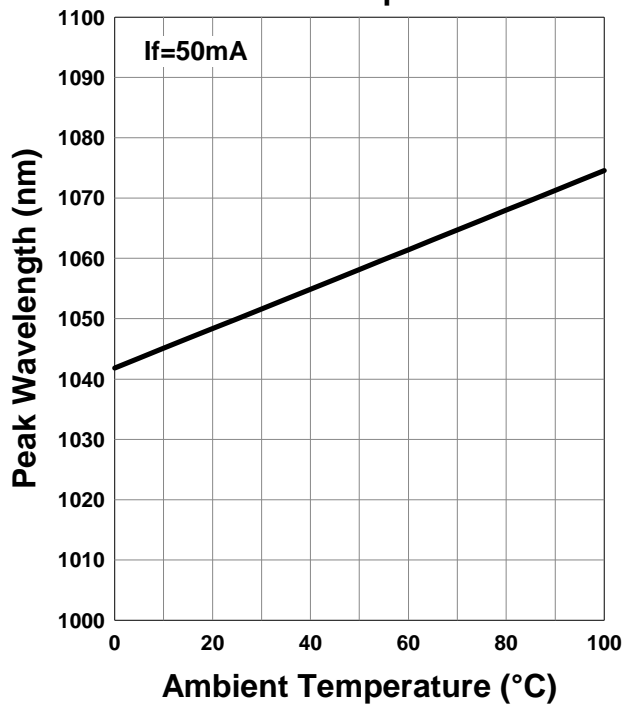
**Forward Voltage - Ambient Temperature**



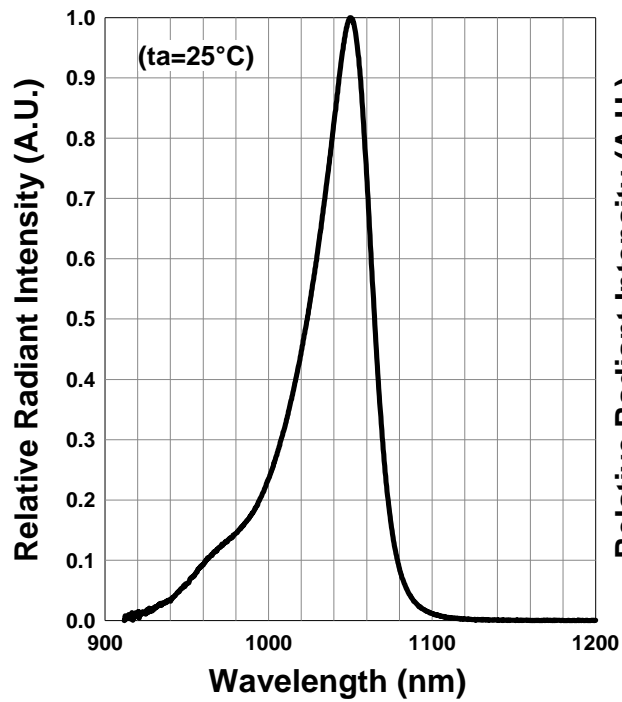
**Relative Radiant Intensity - Ambient Temperature**



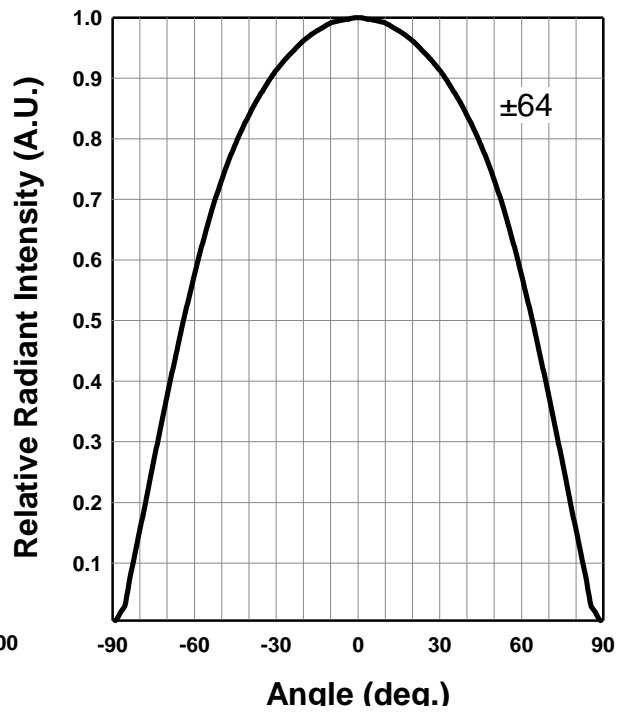
**Peak Wavelength - Ambient Temperature**



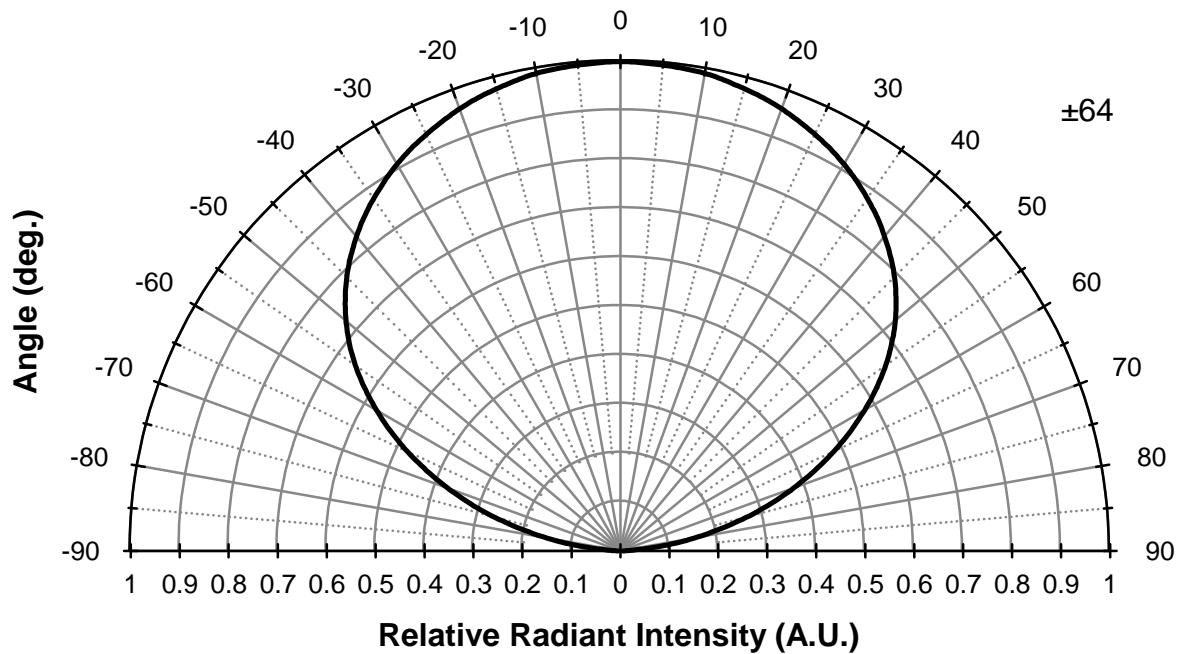
### Relative Spectral Emission



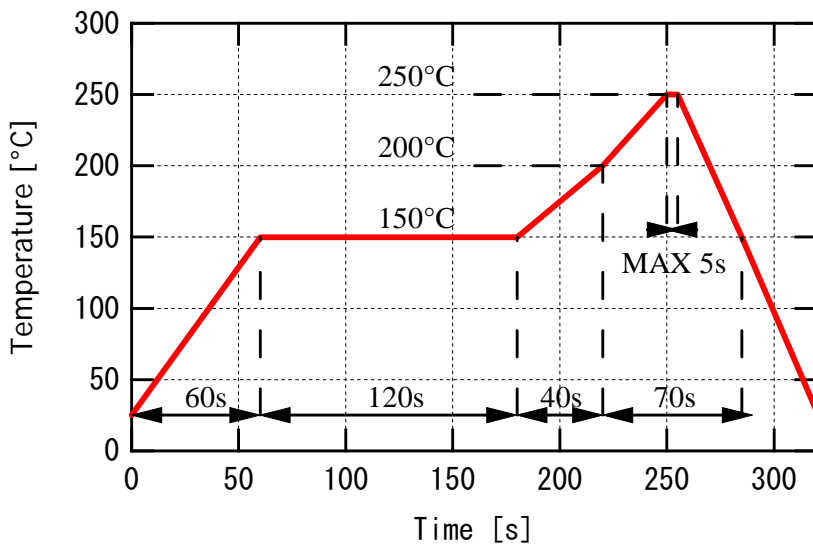
### Radiation Characteristics



### Radiation Characteristics

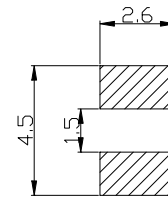


## Recommended reflow soldering profile



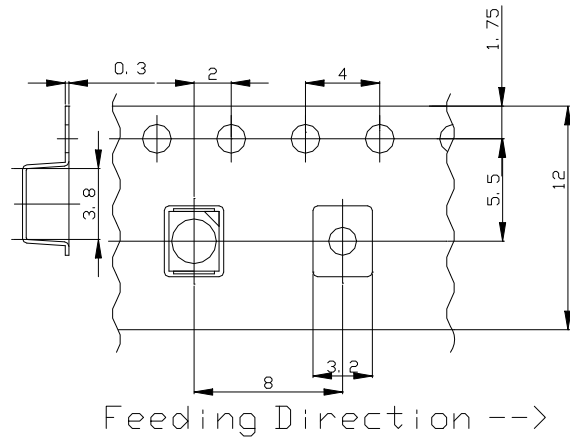
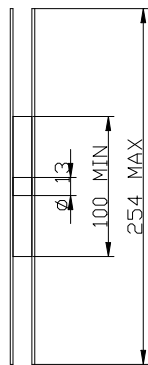
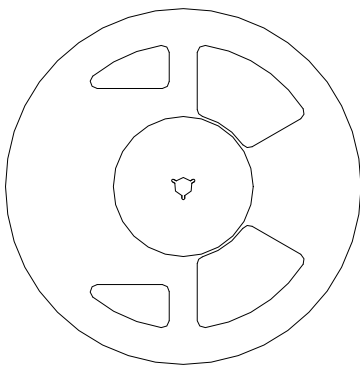
Don't put stress on SMD and a circuit board after soldering

## Recommended Land Layout (Unit: mm)



## 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.
- 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

### 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.

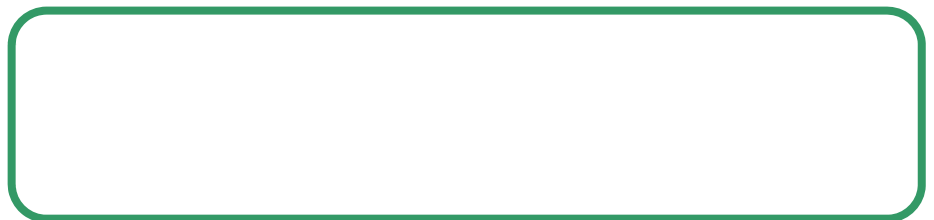
## Disclaimer

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Product data and parameters in this catalog are typical values based on reasonably up-to-date measurements.

Product data and parameters may vary by user application and over time.

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