



## SMC970

- Infrared LED
- 970 nm, 3.6 mW
- SMD package, Ceramic
- Dimension: 3.0 x 2.0 x 1.1 mm
- Viewing Angle: 136°



### Description

**SMC970** is a surface mount GaAs infrared LED with a typical peak wavelength of **970 nm** and radiation of **18 mW**. It comes in SMD package (ceramic) and is sealed with silicone or epoxy resin.

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

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation	$P_D$		140	mW
Forward Current	$I_F$		100	mA
Pulse Forward Current *1	$I_{FP}$		1000	mA
Reverse Voltage	$V_F$		5	V
Thermal Resistance	$R_{THJA}$		80	K/W
Junction Temperature	$T_J$		120	°C
Operating Temperature	$T_{CASE}$	- 40	+ 100	°C
Storage Temperature	$T_{STG}$	- 40	+ 100	°C
Lead Solder Temperature *2	$T_{SLD}$		+ 250	°C

\*1 duty=1%, pulse width = 10  $\mu$ s

\*2 must be completed within 3 seconds

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

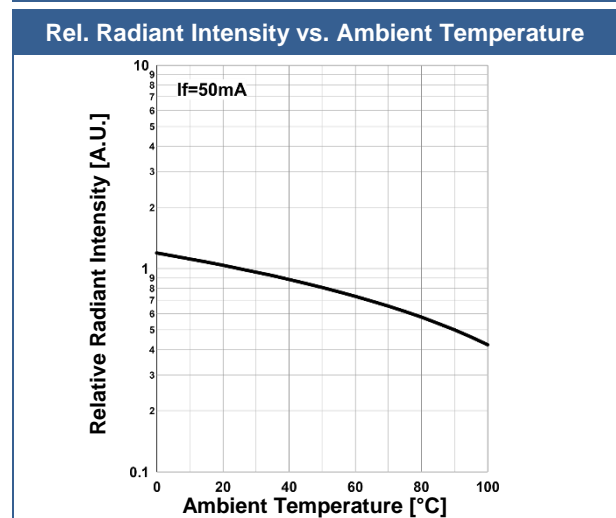
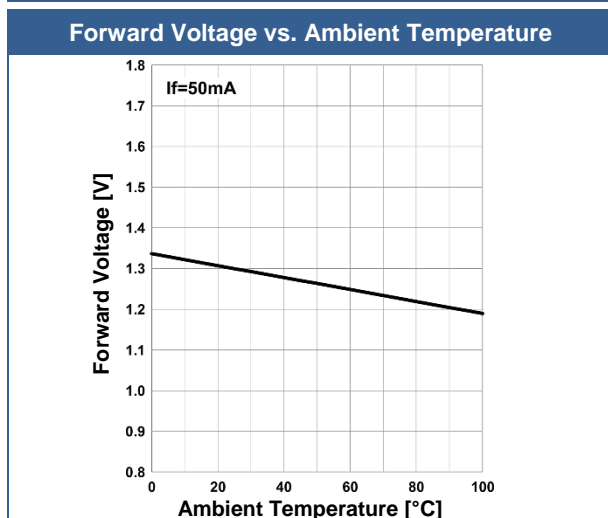
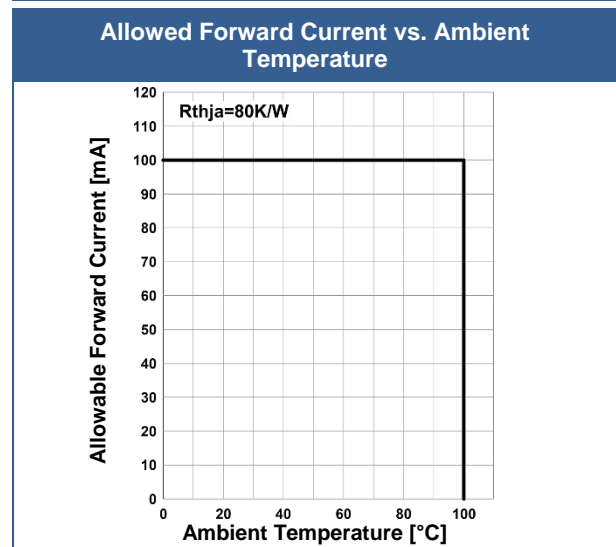
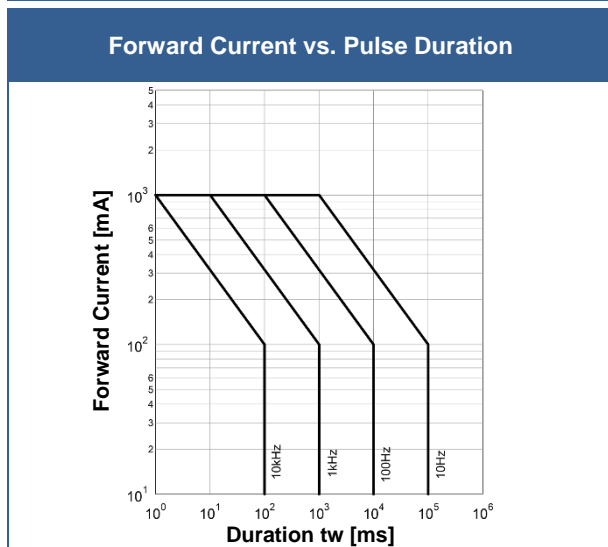
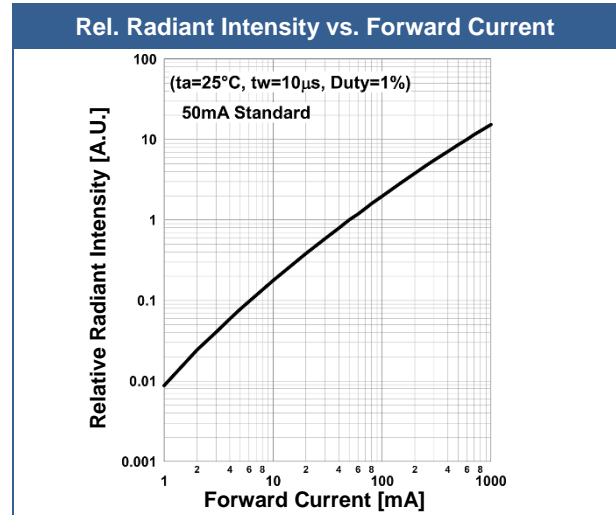
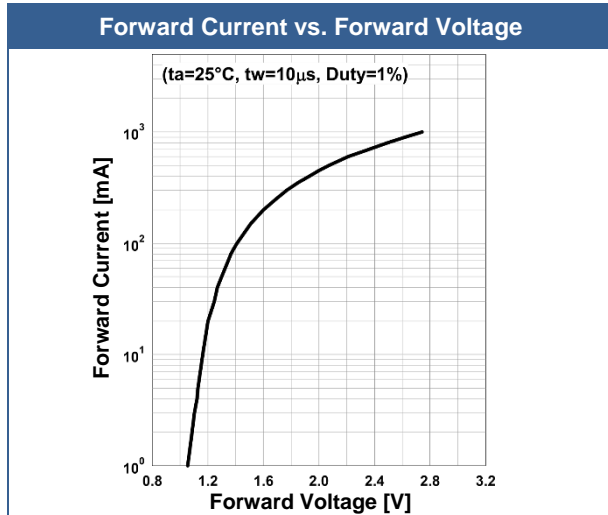
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	$\lambda_P$	$I_F=50mA$	960		980	nm
Half Width	$\Delta\lambda$	$I_F=50mA$		50		nm
Forward Voltage	$V_F$	$I_F=50mA$		1.3		V
		$I_{FP}=1000mA$		2.7		
Radiated Power *1	$P_O$	$I_F=50mA$		3.6		mW
		$I_{FP}=1000mA$		55		
Radiant Intensity *2	$I_E$	$I_F=50mA$		1.2		mW/sr
		$I_{FP}=1000mA$		18		
Viewing Angle	$\varphi$	$I_F=50mA$		136		deg.
Rise Time	$t_r$	$I_F=50mA$		800		ns
Fall Time	$t_f$	$I_F=50mA$		800		ns

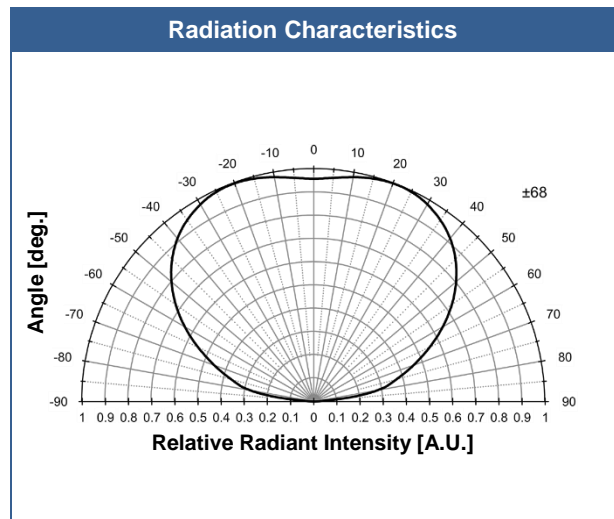
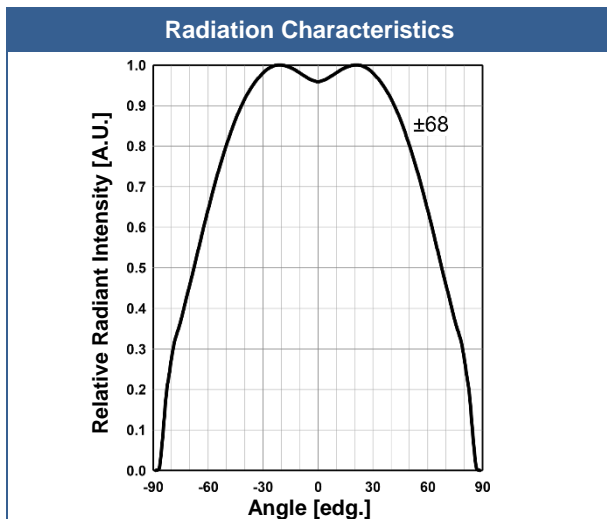
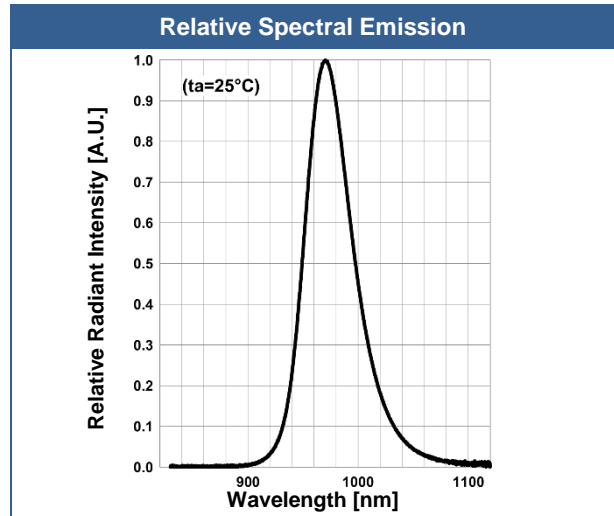
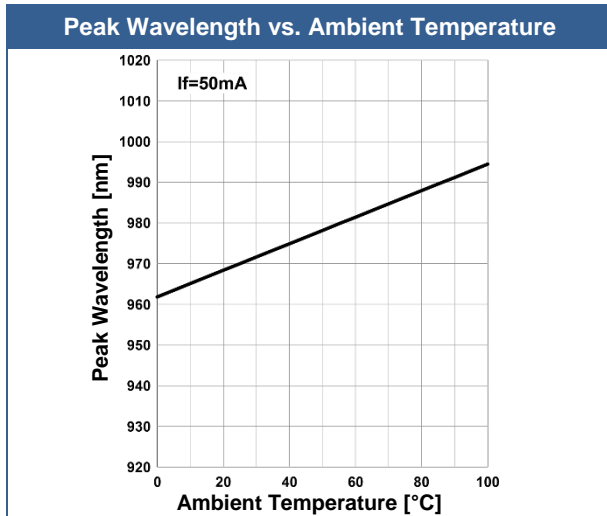
\*1 measured by S3584-08

\*2 measured by CIE127-2007 Condition B

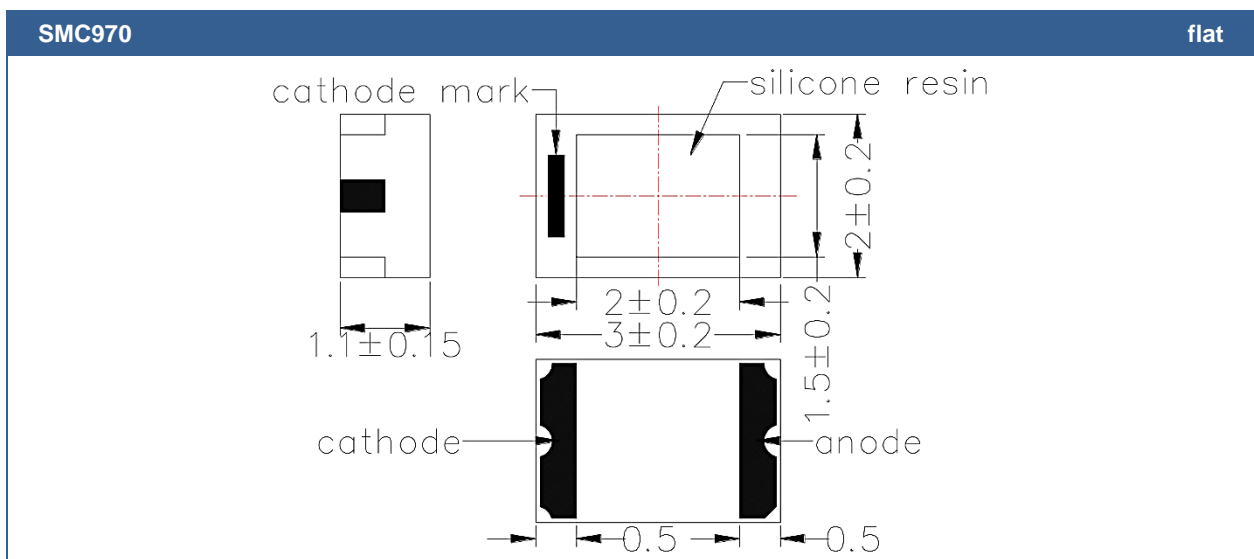


## Typical Performance Curves





## Outline Dimensions



All Dimensions in mm



## Precautions

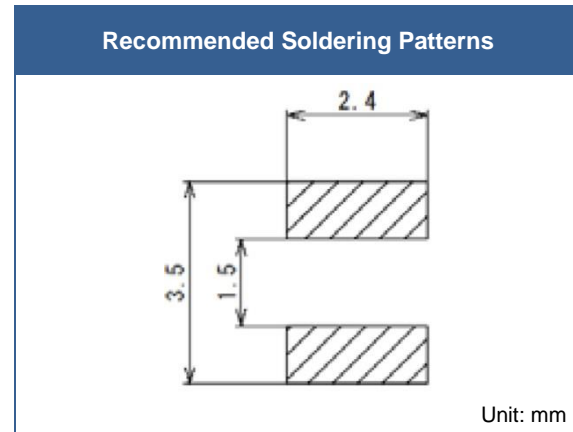
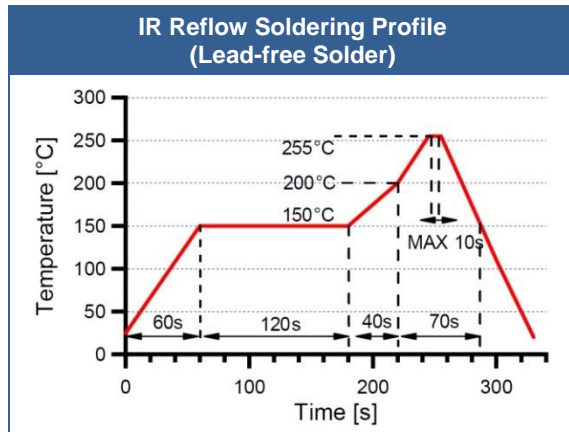
### Soldering:

- 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

### Recommended soldering conditions:

This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, its reliability cannot be guaranteed.

Nitrogen reflow soldering is recommended. Air flow soldering conditions can cause optical degradation, caused by heat and/or atmosphere.



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:

Those LEDs do emit **invisible light**, which is invisible and may cause cancer. Do avoid exposure to the emitted light. 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.