



SMC1050S

- Infrared LED
- 1050 nm, 7.5 mW
- Chip: InGaAsP, 300 x 300 μm , 1 pc.
- SMD package, 3.0 x 2.0 x 1.1
- Viewing Angle: 132°



Description

SMC1050S contains one InGaAsP LED chip die mounted on a ceramic SMD package and sealed with silicone or epoxy resin. On forward bias, it emits a radiation power of typical **7.5 mW** at a peak wavelength of **1050 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}		80	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 *2	T_{SLD}		+ 250	$^{\circ}\text{C}$

*1 duty=1%, pulse width = 10 μs

*2 must be completed within 5 seconds

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

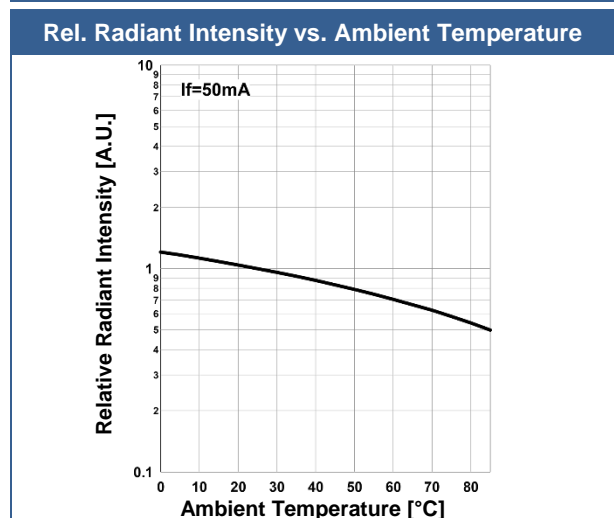
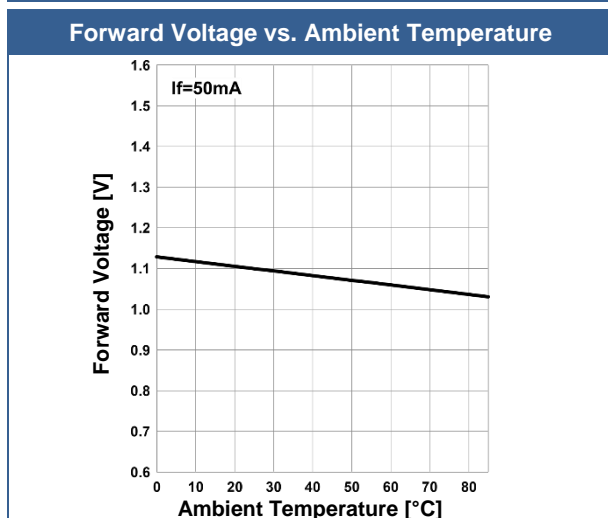
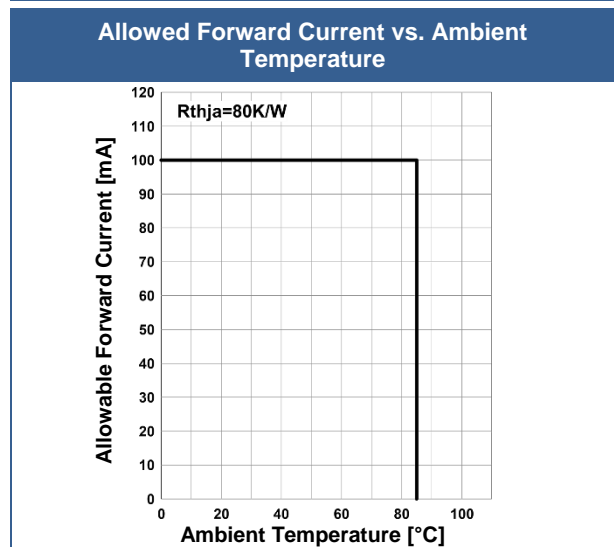
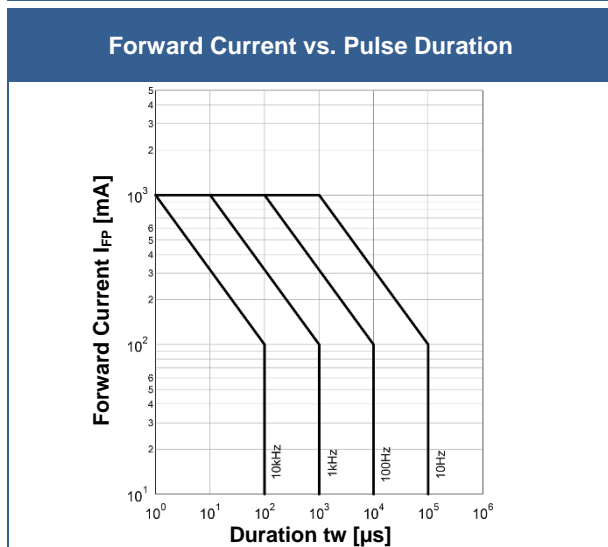
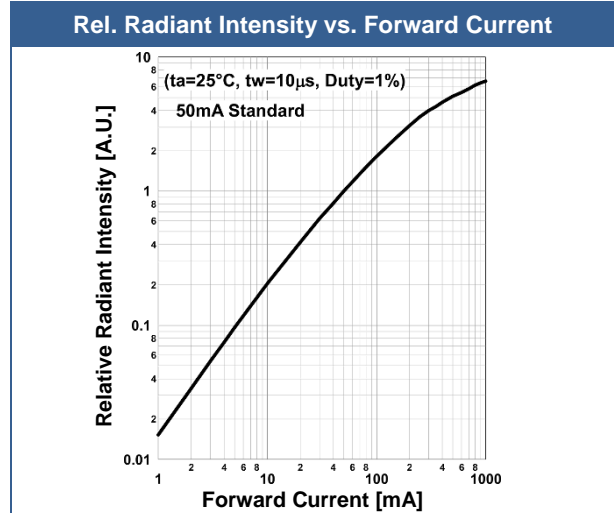
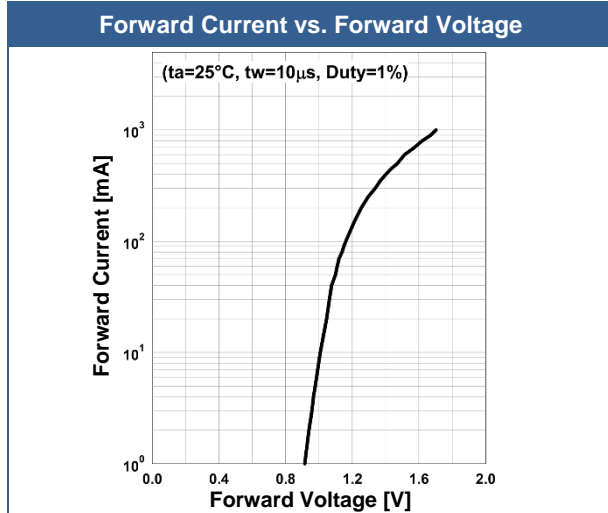
Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Peak Wavelength	λ_P	$I_F=50\text{mA}$	1000		1100	nm
Half Width	$\Delta\lambda$	$I_F=50\text{mA}$		50		nm
Forward Voltage	V_F	$I_F=50\text{mA}$		1.1	1.3	V
	V_{FP}	$I_{FP}=1\text{A}$		1.7		
Reverse Current	I_R	$V_R=5\text{V}$			10	μA
Radiated Power *1	P_O	$I_F=50\text{mA}$		7.5		mW
		$I_{FP}=1\text{A}$		49		
Radiant Intensity *2	I_E	$I_F=50\text{mA}$		2.5		mW/sr
		$I_{FP}=1\text{A}$		16		
Viewing Angle	$2\theta_{1/2}$	$I_F=50\text{mA}$		132		deg.
Rise Time	t_R	$I_F=50\text{mA}$		30		ns
Fall Time	t_F	$I_F=50\text{mA}$		70		ns

*1 measured by G8370-85

*2 measured by Ando Optical Multi Meter AQ2140 & AQ2742

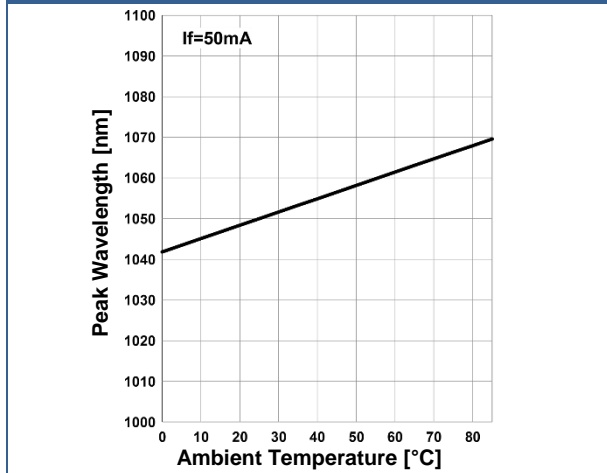


Typical Performance Curves

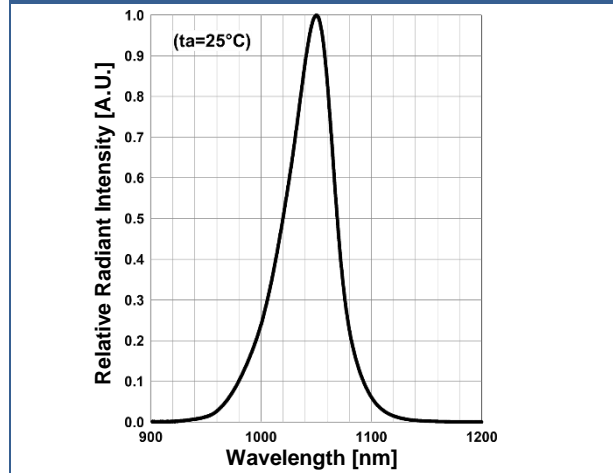




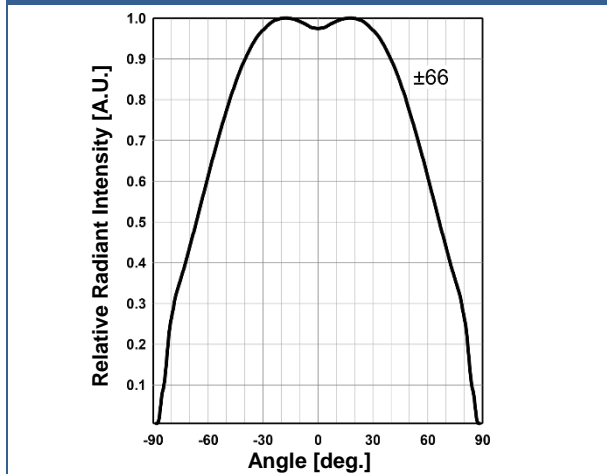
Peak Wavelength vs. Ambient Temperature



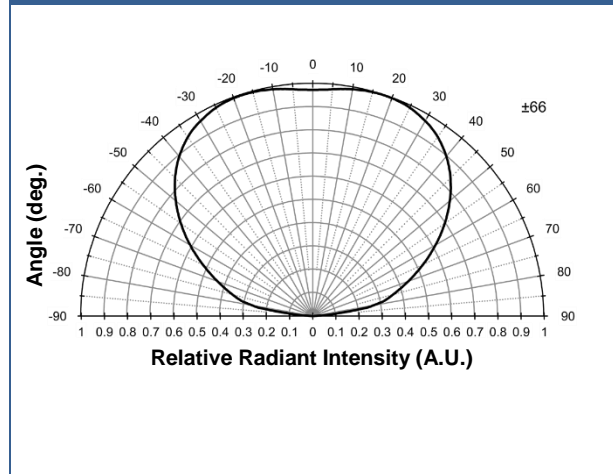
Relative Spectral Emission



Radiation Characteristics



Radiation Characteristics



Outline Dimensions

SMC1050S
SMD

Technical drawing of the SMC1050S LED package showing dimensions in mm. Dimensions include: cathode mark width 1.1±0.15, cathode width 0.65 typ., anode width 0.65 typ., package width 2±0.2, package height 1.5±0.2, and distances of 2±0.2 and 3±0.2 from the cathode mark to the anode.

Lead	Description
mark	LED Anode

All Dimensions in mm

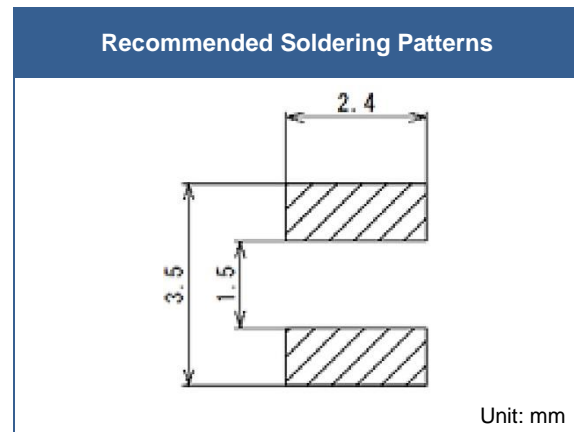
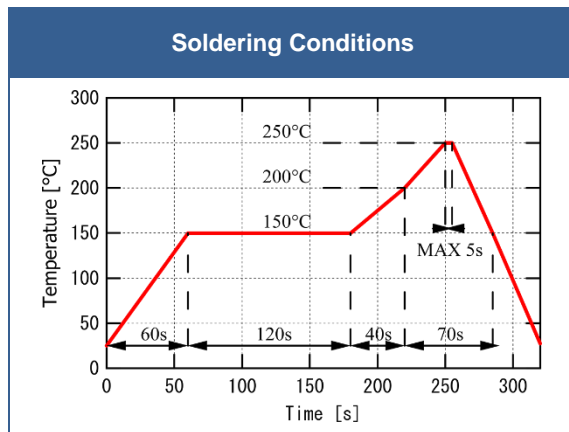


Precautions

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

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.



Revisions History

Rel.	Rel. Date	Chapter	Modification	Page
A1	2020-03	-	Initial release	-

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The above specifications are for reference purpose only and subjected to change without prior notice