

# Infrared light emitting diode, top view type

## SIR-563ST3F

The SIR-563ST3F is a GaAs infrared light emitting diode housed in clear plastic. This device has a high luminous efficiency and a 940 nm peak wavelength suitable for silicon detectors. It has a wide radiation angle and is ideal for compact optical control equipment.

### ●Applications

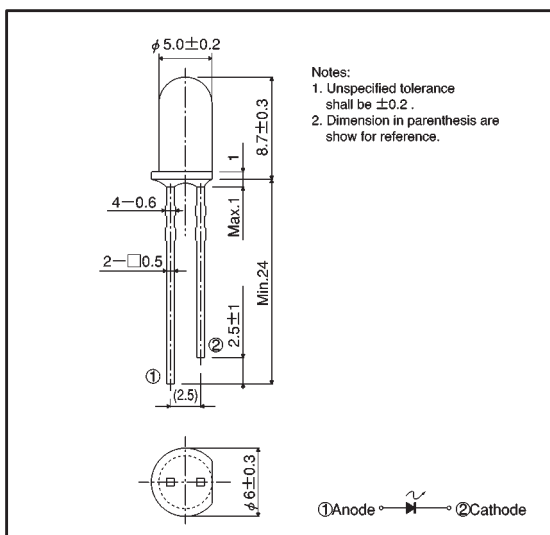
Optical control equipment

Light source for remote control devices

### ●Features

- 1) High efficiency, high output  $P_O = 11.0$  mW ( $I_F = 50$  mA).
- 2) Wide radiation angle  $\theta_{1/2} = 15$ deg.
- 3) Emission spectrum well suited to silicon detectors ( $\lambda_P = 940$  nm).
- 4) Good current-optical output linearity.
- 5) Long life, high reliability.
- 6) Low cost, clear epoxy resin package.

### ●External dimensions (Units: mm)



### ●Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Forward current	$I_F$	100	mA
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	160	mW
Pulse forward current	$I_{FP}^*$	1.0	A
Operating temperature	$T_{opr}$	$-25 \sim +85$	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-40 \sim +85$	$^\circ\text{C}$

\* Pulse width = 0.1 msec, duty ratio 1%

## ●Electrical and optical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical output	P <sub>O</sub>	—	11	—	mW	I <sub>F</sub> =50mA
Emitting strength	I <sub>E</sub>	9.0	21	—	mW/sr	I <sub>F</sub> =50mA
Forward voltage	V <sub>F</sub>	—	1.34	1.6	V	I <sub>F</sub> =50mA
Reverse current	I <sub>R</sub>	—	—	10	μA	V <sub>R</sub> =3V
Peak light emitting wavelength	λ <sub>P</sub>	—	940	—	nm	I <sub>F</sub> =50mA
Spectral line half width	Δλ	—	40	—	nm	I <sub>F</sub> =50mA
Half-viewing angle	θ <sub>1/2</sub>	—	±15	—	deg	I <sub>F</sub> =50mA
Response time	tr · tf	—	1.0	—	μs	I <sub>F</sub> =50mA
Cut-off frequency	fc	—	1.0	—	MHz	I <sub>F</sub> =50mA

## ●Electrical and optical characteristic curves

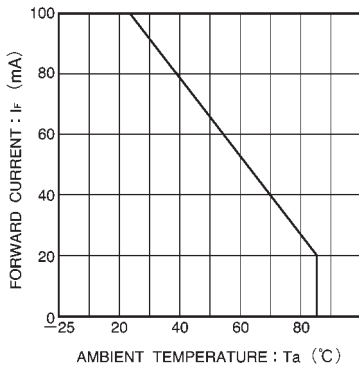


Fig. 1 Forward current

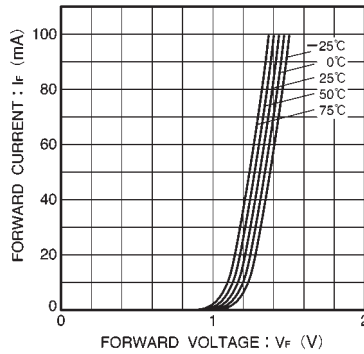


Fig.2 Forward current vs. forward voltage

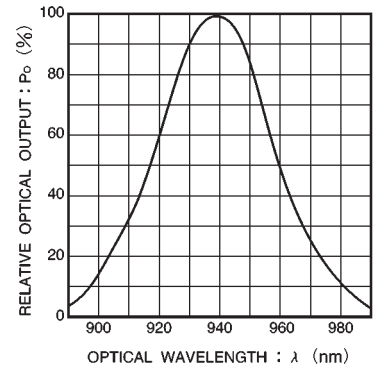


Fig.3 Wavelength

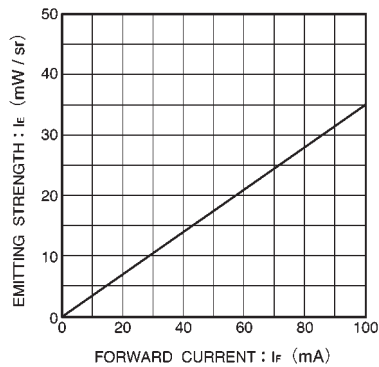


Fig. 4 Emitting strength vs. forward current

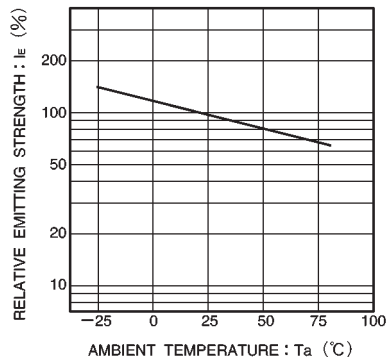


Fig.5 Relative emitting strength vs. ambient temperature

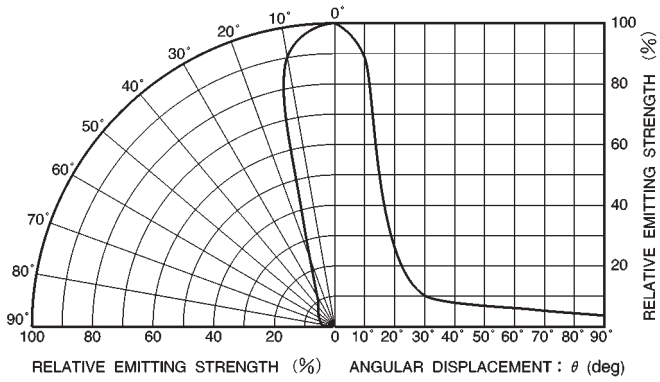


Fig. 6 Directional pattern