

# 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 940nm peak wavelength suitable for silicon detectors. It has a wide radiation angle and is ideal for compact optical control equipment.

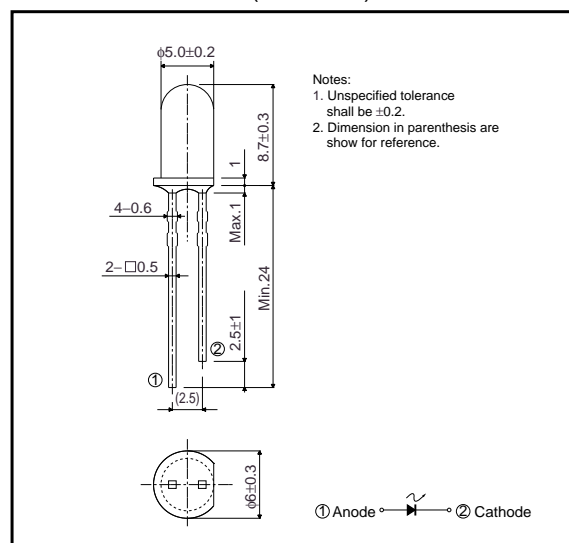
### ●Applications

Optical control equipment  
Light source for remote control devices

### ●Features

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

### ●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	$V_R$	5.0	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=0.1msec, duty ratio 1%

Sensors

●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	f <sub>c</sub>	–	1.0	–	MHz	I <sub>F</sub> =50mA

●Electrical and optical characteristic curves

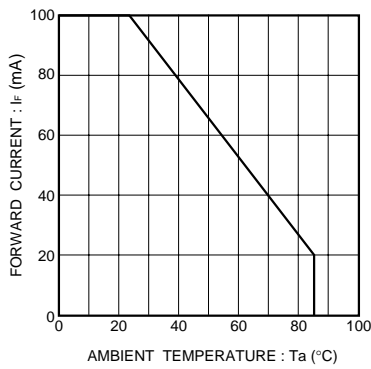


Fig.1 Forward current

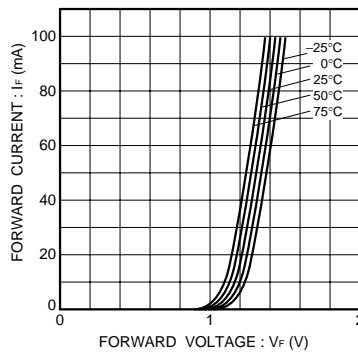


Fig.2 Forward current vs. forward voltage

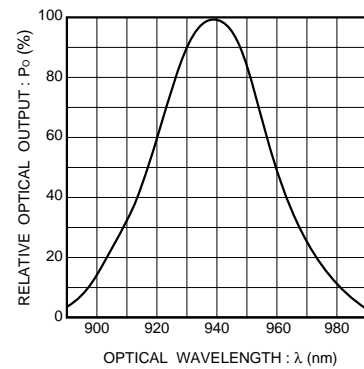


Fig.3 Wavelength

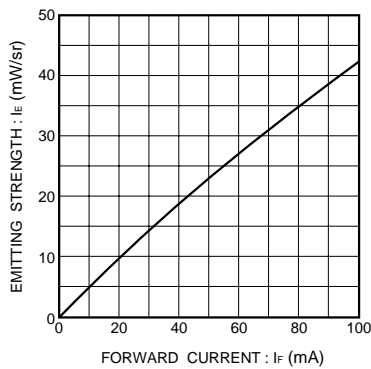


Fig.4 Emitting strength vs. forward current

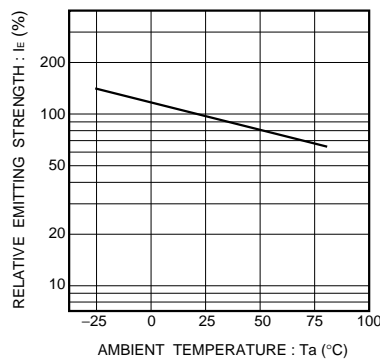


Fig.5 Relative emitting strength vs. ambient temperature

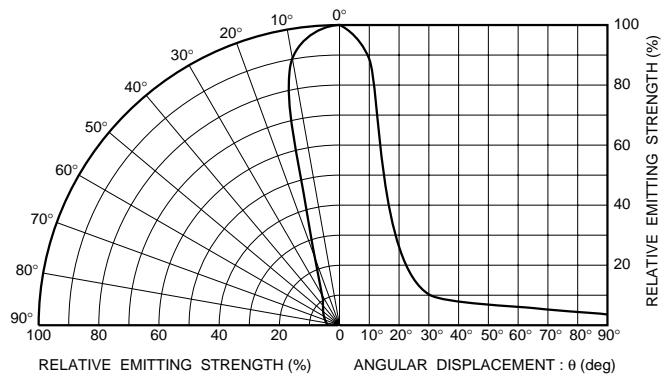


Fig.6 Directional pattern