

Infrared light emitting diode, top view type

SIR-320ST3F

The SIR-320ST3F is a GaAs infrared light emitting diode housed in clear plastic. This device has a high luminous efficiency and a 940 nm spectrum suitable for silicon detectors. It is small and at the same time has a wide radiation angle, making it ideal for compact optical control equipment.

●Applications

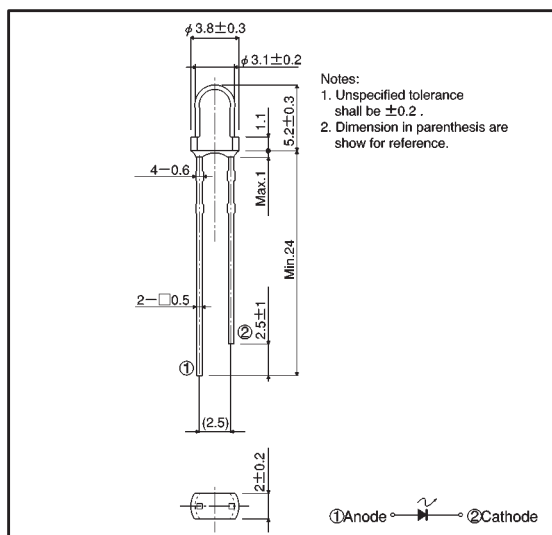
Optical control equipment

Light source for remote control devices

●Features

- 1) Compact ($\phi 3.1$ mm).
- 2) High efficiency, high output $P_o = 9.0$ mW ($I_F = 50$ mA).
- 3) Wide radiation angle $\theta = \pm 18^\circ$.
- 4) Emission spectrum well suited to silicon detectors ($\lambda_P = 940$ nm).
- 5) Good current-optical output linearity.
- 6) Long life, high reliability.
- 7) 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	75	mA
Reverse voltage	V_R	5	V
Power dissipation	P_D	100	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 _o	—	9.0	—	mW	I _F =50mA
Emitting strength	I _E	5.6	—	—	mW/sr	I _F =50mA
Forward voltage	V _F	—	1.2	1.5	V	I _F =50mA
Reverse current	I _R	—	—	10	μA	V _R =3V
Peak light emitting wavelength	λ _P	—	940	—	nm	I _F =50mA
Spectral line half width	Δλ	—	40	—	nm	I _F =50mA
Half-viewing angle	θ _{1/2}	—	±18	—	deg	I _F =50mA
Response time	tr · tf	—	1.0	—	μs	I _F =50mA
Cut-off frequency	fc	—	1.0	—	MHz	I _F =50mA

●Electrical and optical characteristic curves

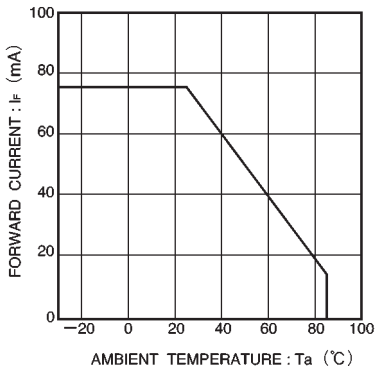


Fig. 1 Forward current falloff

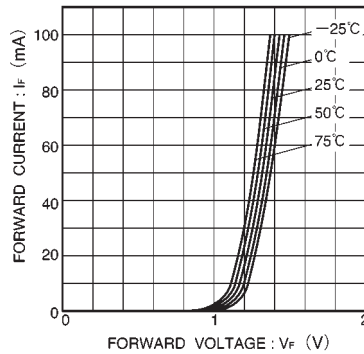


Fig. 2 Forward current vs. forward voltage

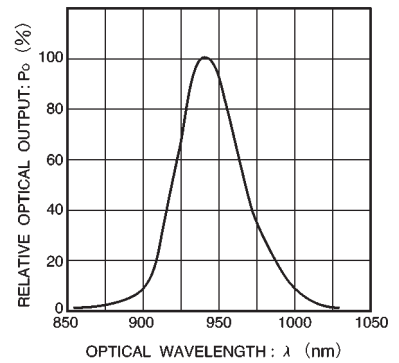


Fig. 3 Wavelength

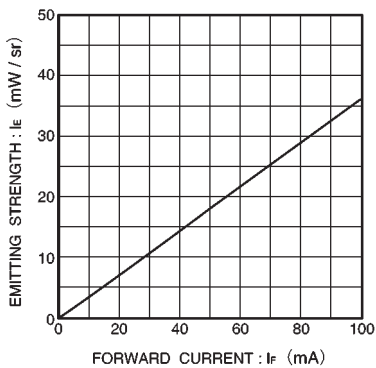


Fig. 4 Emitting strength vs. forward current

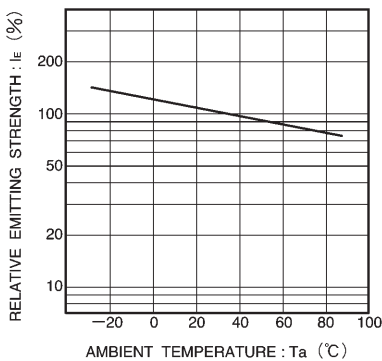


Fig. 5 Radiant intensity vs. ambient temperature

● Directional pattern

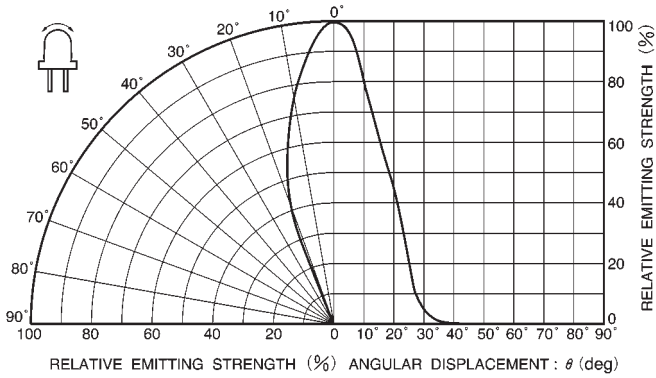


Fig. 6 Directional pattern

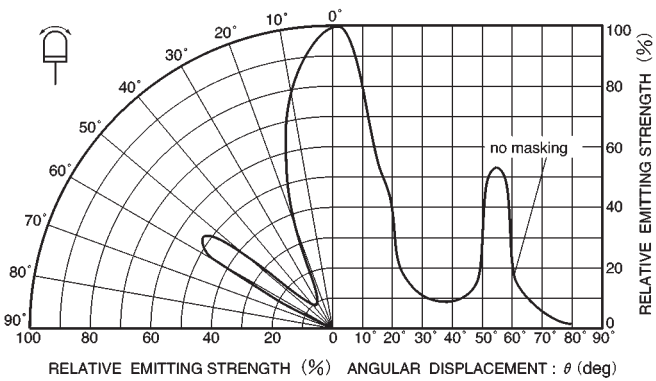


Fig. 7 Directional pattern