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

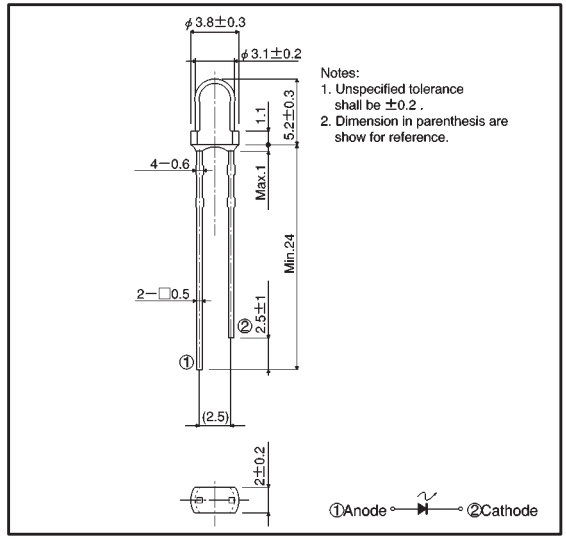
Optical control equipment

Light source for remote control devices

●Features

1) Compact (ϕ3.1 mm).
2) High efficiency, high output P_O = 9.0 mW (I_F = 50 mA).
3) Wide radiation angle θ = ±18°.
4) Emission spectrum well suited to silicon detectors (λ_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 (Ta = 25°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	Topr	−25～+85	℃
Storage temperature	Tstg	−40～+85	℃

* 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	$\Delta\lambda$	—	40	—	nm	I_F=50mA
Half-viewing angle	$\theta_{1/2}$	—	±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

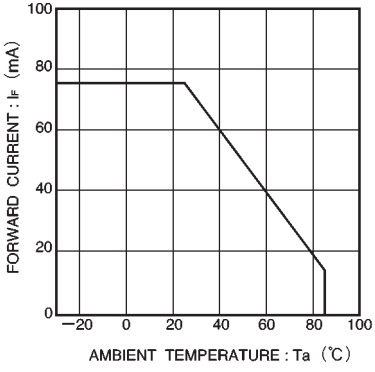


FIg. 1 Forward current falloff

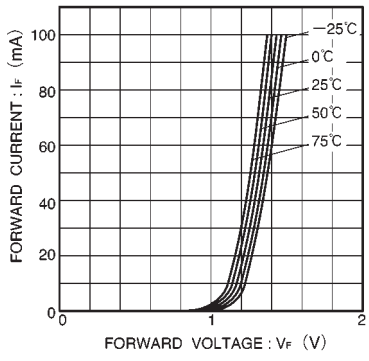


Fig. 2 Forward current vs. forward voltage

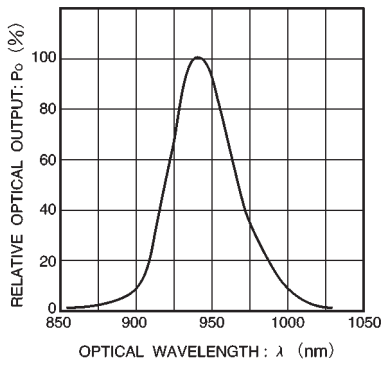


Fig. 3 Wavelength

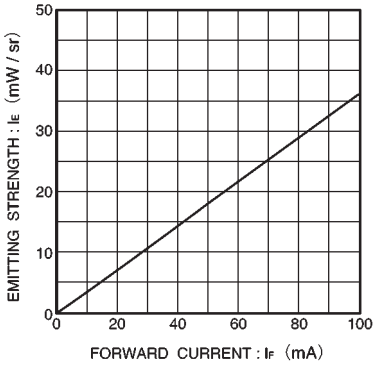


Fig. 4 Emitting strength vs. forward current

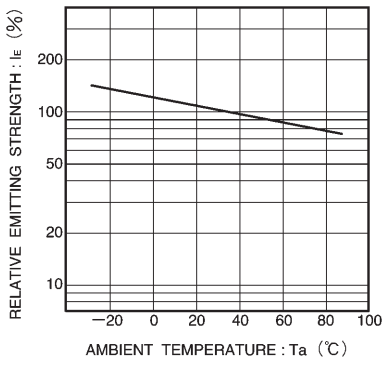


Fig. 5 Radiant intensity vs. ambient temperature

●Directional pattern

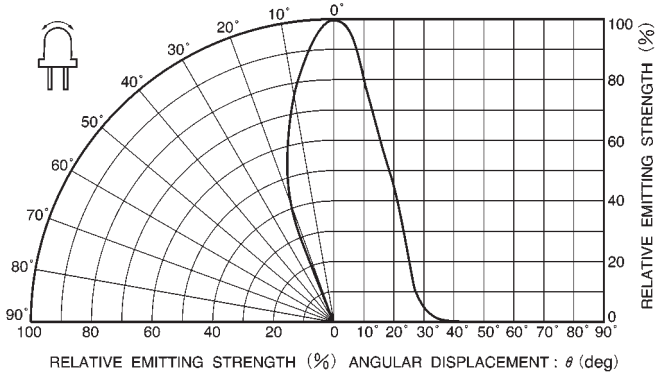


Fig. 6 Directional pattern

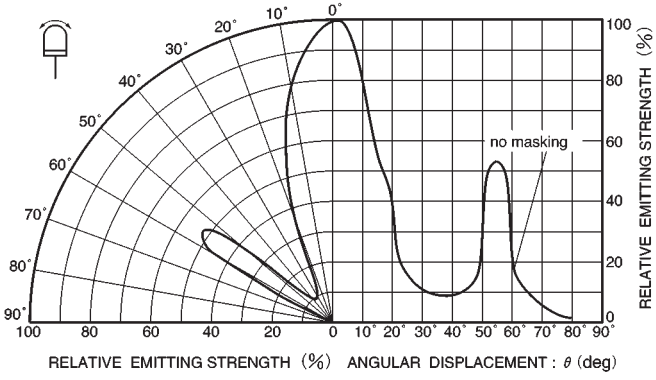


Fig. 7 Directional pattern