Infrared light emitting diode, top view type

SIR-34ST3F

The SIR-34ST3F is a GaAs infrared light emitting diode housed in clear plastic. This device has a high luminous efficiency and a 950 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

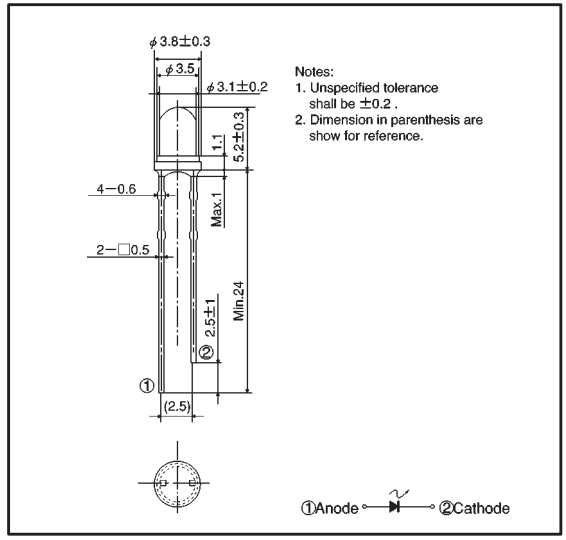
Optical control equipment

Light source for remote control devices

●Features

1) Compact (ϕ3.1 mm).
2) High efficiency, high output P_O = 8.0 mW (I_F = 50 mA).
3) Wide radiation angle θ = 27°.
4) Emission spectrum well suited to silicon detectors (λ_P = 950 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	100	mA
Reverse voltage	V_R	5	V
Power dissipationt	P_D	160	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	—	8.0	—	mW	I_F=50mA
Emitting strength	I_E	3.5	—	28.0	mW/sr	I_F=50mA
Forward voltage	V_F	—	1.3	1.6	V	I_F=100mA
Reverse current	I_R	—	—	10	μA	V_R=3V
Peak light emitting wavelength	λ_P	—	950	—	nm	I_F=50mA
Spectral line half width	$\Delta\lambda$	—	40	—	nm	I_F=50mA
Harf-viewing angle	$\theta_{1/2}$	—	±27	—	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 pattern curves

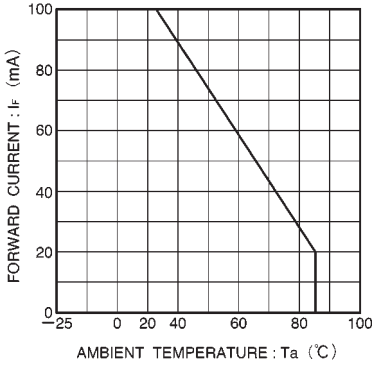


Fig.1 Forward current falloff

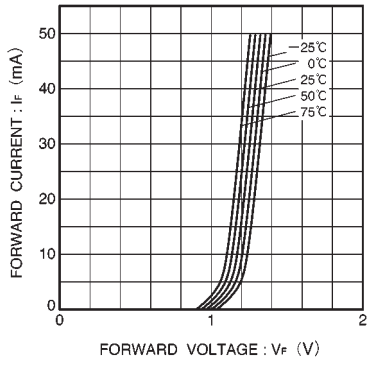


Fig. 2 Forward current vs. forward voltage

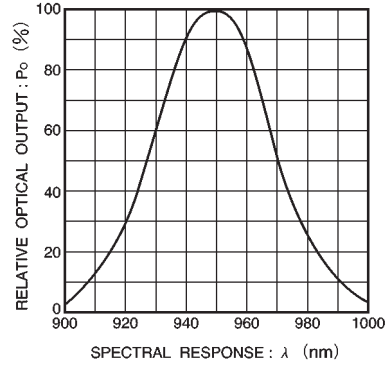


Fig. 3 Wavelength

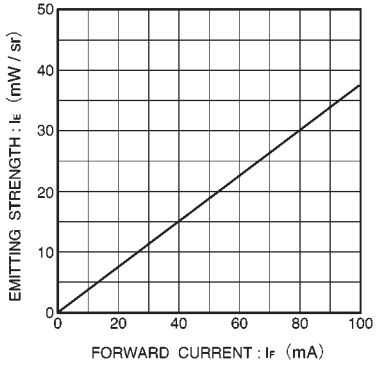


Fig.4 Emitting strength vs. forward current

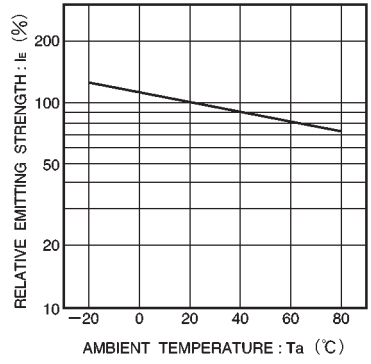


Fig.5 Relative emitting strength vs. ambient temperature

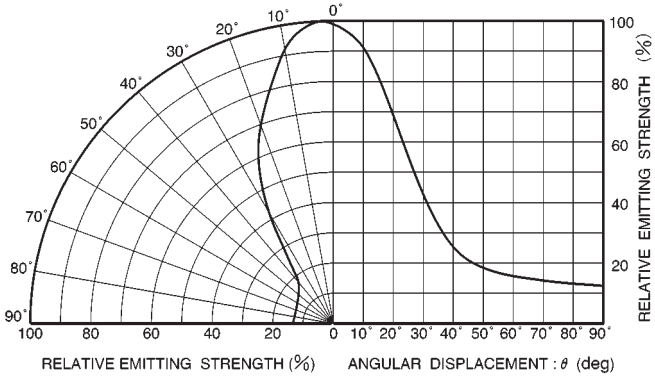


Fig.6 Directional pattern