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 940nm spectrum suitable for silicon detectors. It is small and at the same time has a wide radiation angle, marking it ideal for compact optical control equipment.

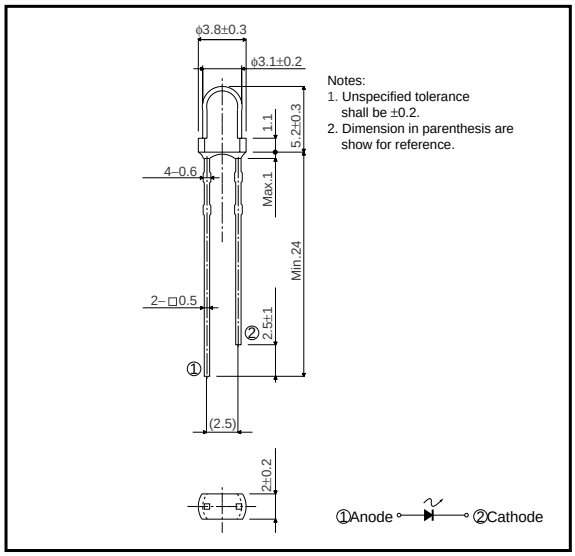
●Applications

Optical control equipment
Light source for remote control devices

●Features

1) Compact (ϕ3.1mm).
2) High efficiency, high output P_O=9.0mW (I_F=50mA).
3) Wide radiation angle θ=±18deg.
4) Emission spectrum well suited to silicon detectors (λ_P=940nm).
5) Good current-optical output linearity.
6) Long life, high reliability.

●Dimensions (Unit : 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}*	0.5	A
Operating temperature	Topr	−25 to +85	°C
Storage temperature	Tstg	−40 to +85	°C

* Pulse width=0.1msec, duty ratio 1%

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical output	P_O	–	9	–	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
Pesponse time	tr·tf	–	1.0	–	μs	I_F=50mA
Cut-off frequency	f_C	–	1.0	–	MHz	I_F=50mA

●**Electrical and optical characteristic curves**

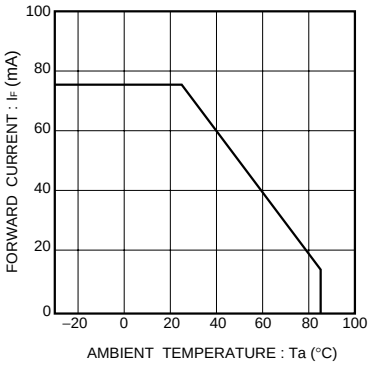


FIg.1 Forward current falloff

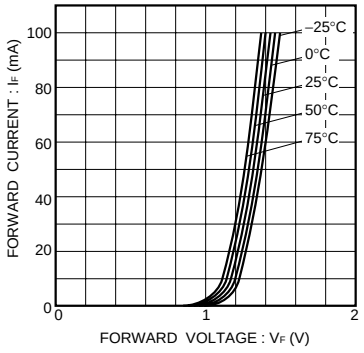


Fig.2 Forward current vs. forward voltage

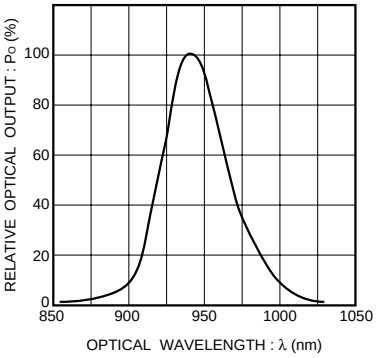


Fig.3 Wavelength

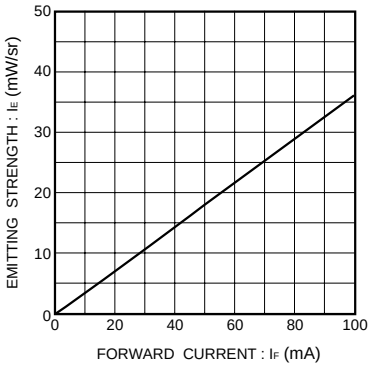


Fig.4 Emitting strength vs. forward current

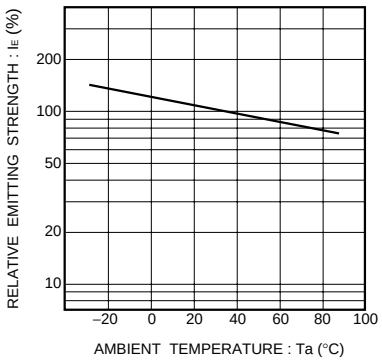


Fig.5 Radiant intensity vs. ambient temperature

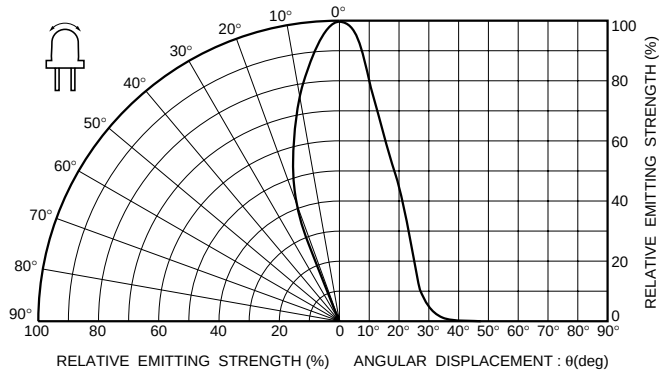


Fig.6 Directional pattern

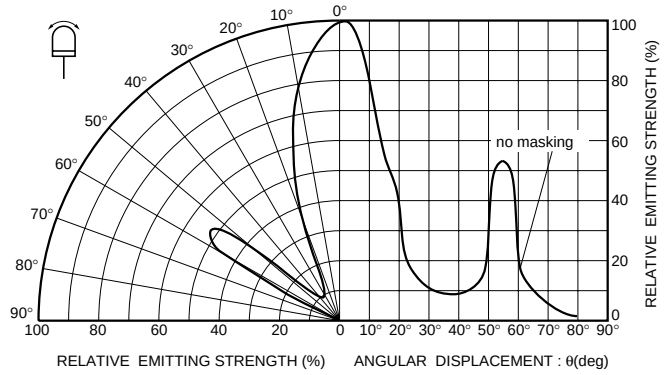


Fig.7 Directional pattern

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