

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.

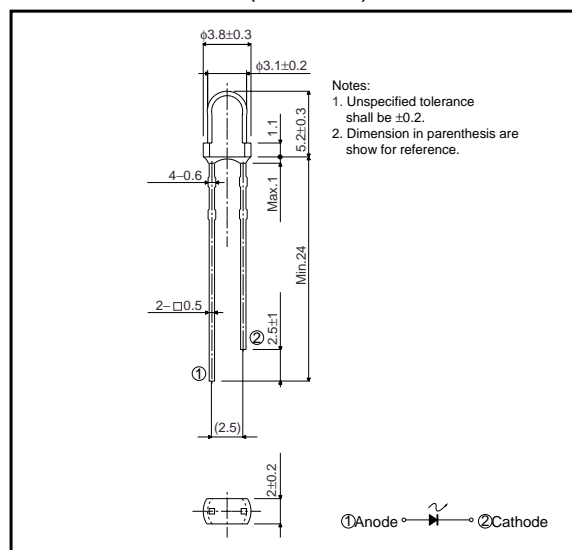
●Applications

Optical control equipment
Light source for remote control devices

●Features

- 1) Compact ($\phi 3.1\text{mm}$).
- 2) High efficiency, high output $P_o=9.0\text{mW}$ ($I_F=50\text{mA}$).
- 3) Wide radiation angle $\theta=\pm 18\text{deg}$.
- 4) Emission spectrum well suited to silicon detectors ($\lambda_P=940\text{nm}$).
- 5) Good current-optical output linearity.
- 6) 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	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=0.1msec, duty ratio 1%

Sensors

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical output	P _o	–	9	–	mW	I _F =5mA
Emitting strength	I _E	5.6	–	–	mW/sr	I _F =5mA
Forward voltage	V _F	–	1.2	1.5	V	I _F =5mA
Reverse current	I _R	–	–	10	μA	V _R =3V
Peak light emitting wavelength	λ _P	–	940	–	nm	I _F =5mA
Spectral line half width	Δλ	–	40	–	nm	I _F =5mA
Half-viewing angle	θ _{1/2}	–	±18	–	deg	I _F =5mA
Response time	tr·tf	–	1.0	–	μs	I _F =5mA
Cut-off frequency	f _c	–	1.0	–	MHz	I _F =5mA

●Electrical and optical characteristic curves

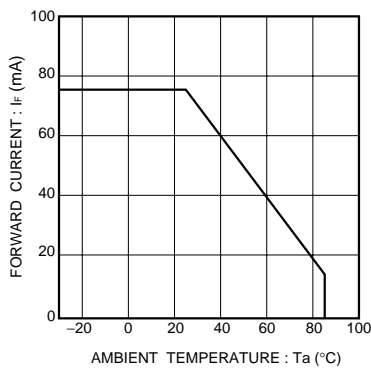


Fig.1 Forward current falloff

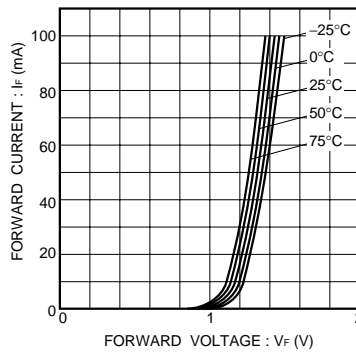


Fig.2 Forward current vs. forward voltage

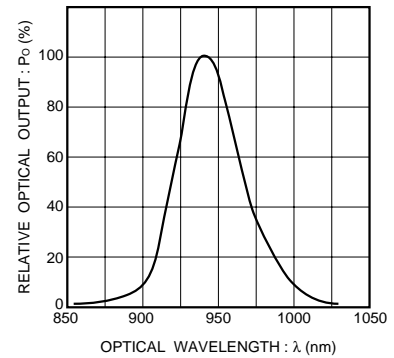


Fig.3 Wavelength

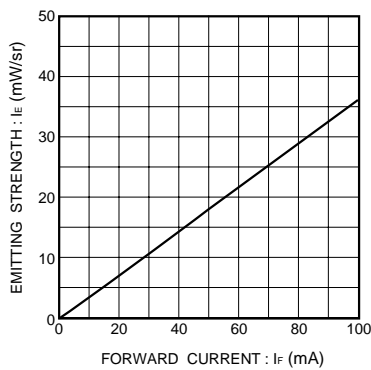


Fig.4 Emitting strength vs. forward current

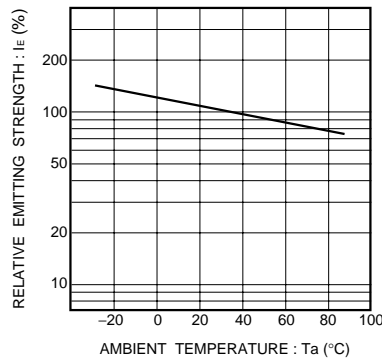


Fig.5 Radiant intensity vs. ambient temperature

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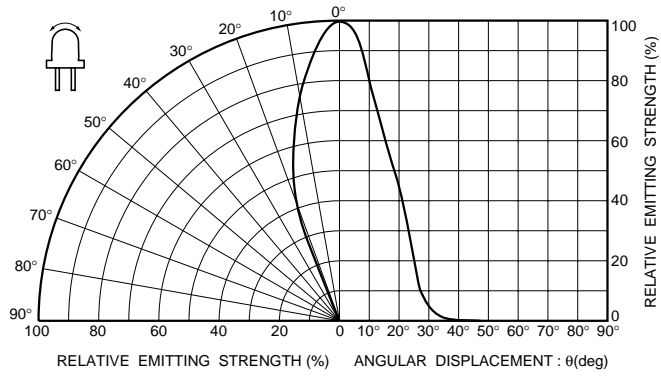


Fig.6 Directional pattern

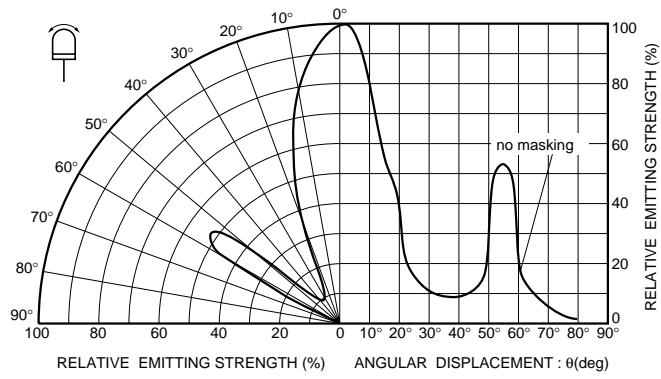


Fig.7 Directional pattern