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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.

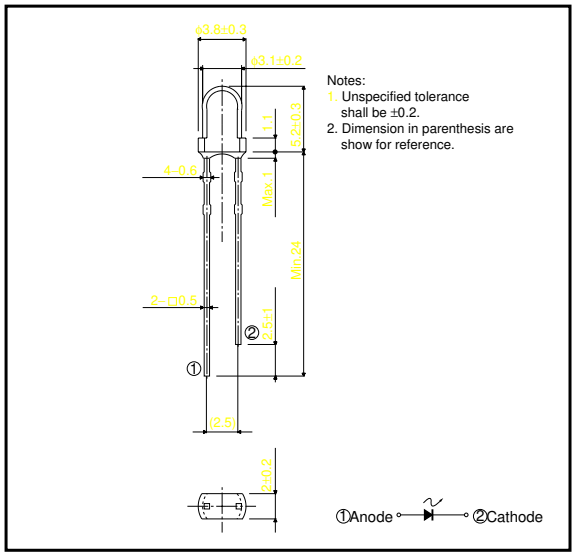
●Applications

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.

●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	°C
Storage temperature	Tstg	−40~+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=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	$\Delta\lambda$	–	40	–	nm	I_F=5mA
Half-viewing angle	$\theta_{1/2}$	–	±18	–	deg	I_F=5mA
Pesponse 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

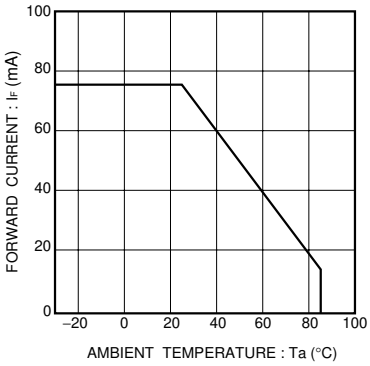


FIg.1 Forward current falloff

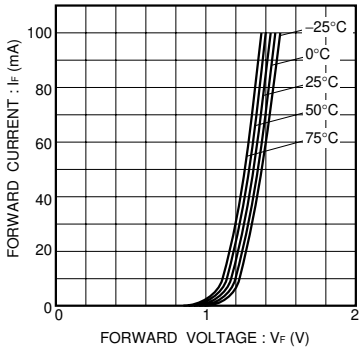


Fig.2 Forward current vs. forward voltage

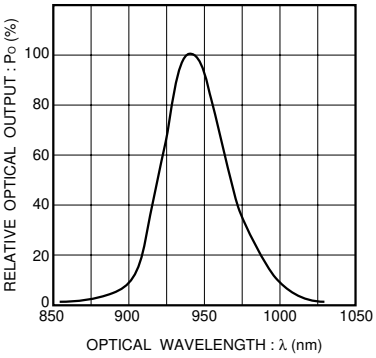


Fig.3 Wavelength

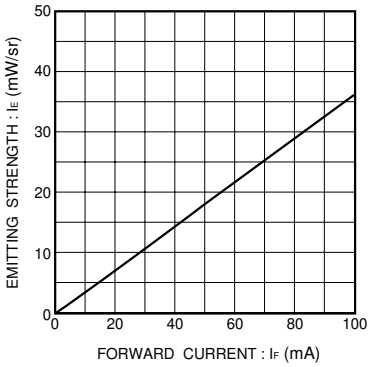


Fig.4 Emitting strength vs. forward current

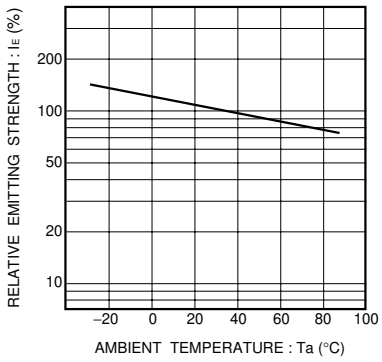


Fig.5 Radiant intensity vs. ambient temperature

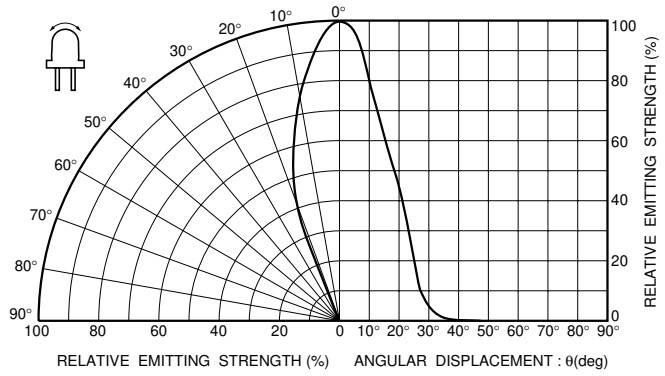


Fig.6 Directional pattern

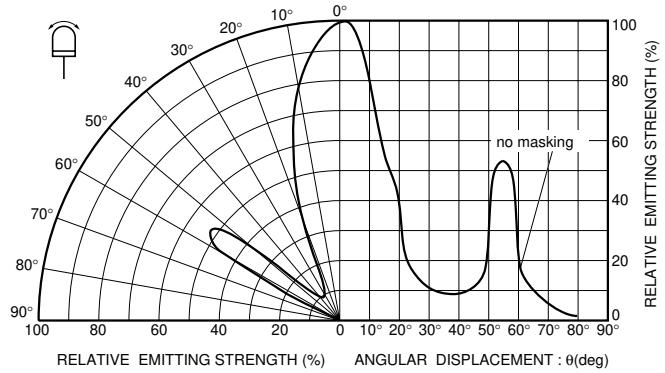


Fig.7 Directional pattern

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