

# 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 950nm 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.

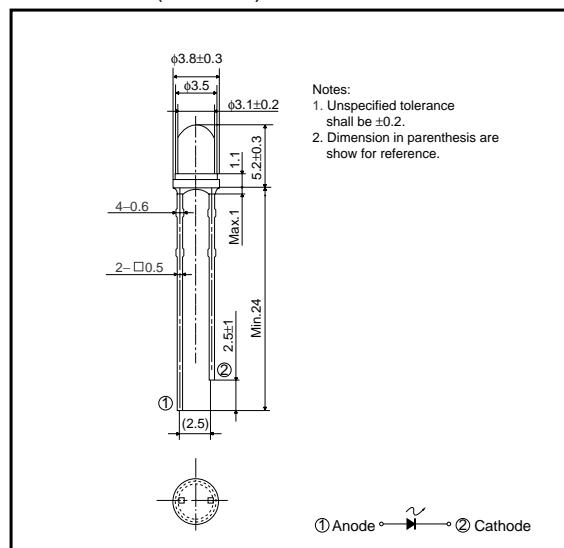
### ●Applications

Optical control equipment  
Light source for remote control devices

### ●Features

- 1) Compact ( $\phi 3.1\text{mm}$ ).
- 2) High efficiency, high output  $P_o=8.0\text{mW}$  ( $I_F=50\text{mA}$ ).
- 3) Wide radiation angle  $\theta=27^\circ$ .
- 4) Emission spectrum well suited to silicon detectors ( $\lambda_P=950\text{nm}$ ).
- 5) Good current-optical output linearity.
- 6) Long life, high reliability.

### ●Dimensions (Unit : mm)



### ●Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Forward current	$I_F$	100	mA
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	160	mW
Pulse forward current	$I_{FP}^*$	0.5	A
Operating temperature	$T_{opr}$	-25 to +85	°C
Storage temperature	$T_{stg}$	-40 to +85	°C

\* Pulse width=0.1msec, duty ratio 1%

## Sensors

●Electrical and optical characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical output	$P_o$	—	8.0	—	mW	$I_F=50\text{mA}$
Emitting strength	$I_E$	3.5	—	17.6	mW/sr	$I_F=50\text{mA}$
Forward voltage	$V_F$	—	1.3	1.6	V	$I_F=100\text{mA}$
Reverse current	$I_R$	—	—	10	$\mu\text{A}$	$V_R=3\text{V}$
Peak light emitting wavelength	$\lambda_P$	—	950	—	nm	$I_F=50\text{mA}$
Spectral line half width	$\Delta\lambda$	—	40	—	nm	$I_F=50\text{mA}$
Half-viewing angle	$\theta_{1/2}$	—	$\pm 27$	—	deg	$I_F=50\text{mA}$
Response time	$t_{r\cdot tf}$	—	1.0	—	$\mu\text{s}$	$I_F=50\text{mA}$
Cut-off frequency	$f_c$	—	1.0	—	MHz	$I_F=50\text{mA}$

## ●Electrical and optical characteristic curves

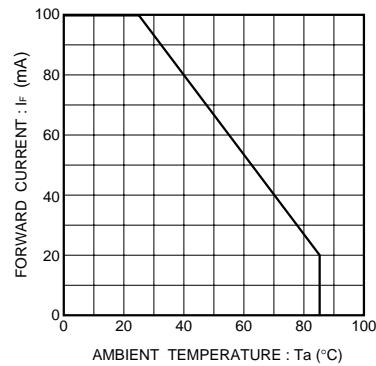


Fig.1 Forward current falloff

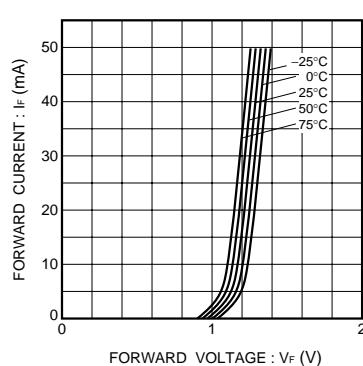


Fig.2 Forward current vs. forward voltage

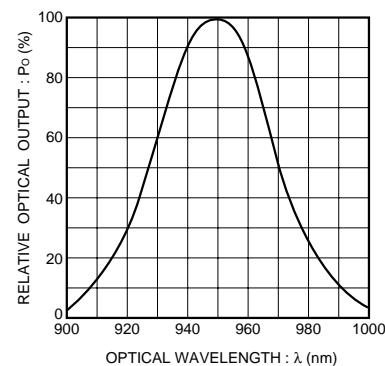


Fig.3 Wavelength

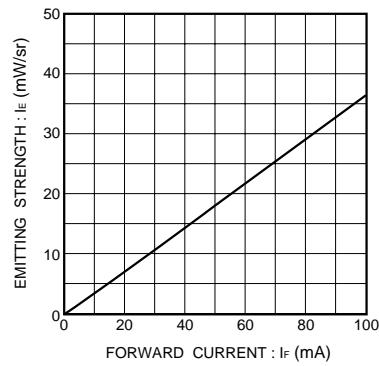


Fig.4 Emitting strength vs. forward current

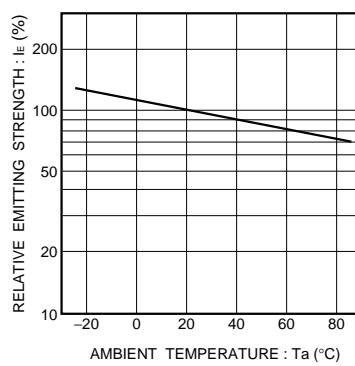


Fig.5 Relative emitting strength vs. ambient temperature

Sensors

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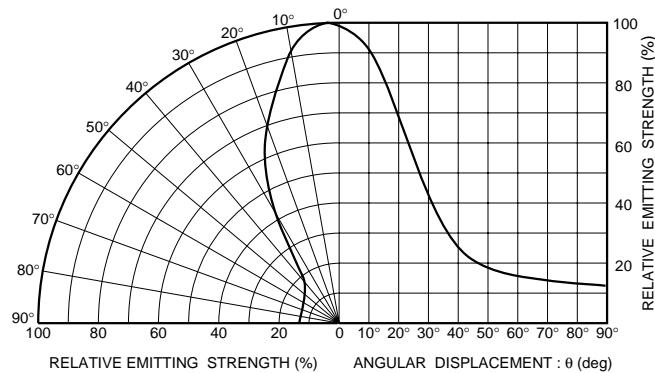


Fig.6 Directional pattern

## Appendix

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