Infrared light emitting diode, top view type

SIR-34ST3F Datasheet

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

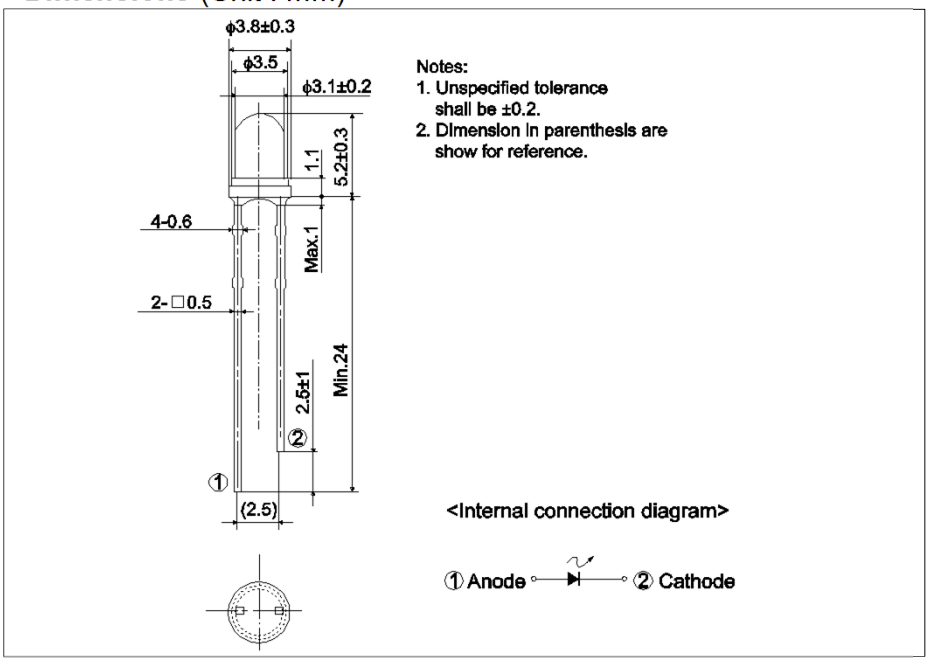
- Optical control equipment
- Light source for remote control devices

●Outline

●Features

1) Compact (ϕ3.1mm).
2) High efficiency, high output P_O=8.0mW (I_F=50mA).
3) Wide radiation angle θ=27°.
4) Emission spectrum well suited to silicon detectors (λP=950nm).
5) Good current-optical output linearity.
6) Long life, high reliability.

●Dimensions (Unit : mm)



●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Value	Unit
Forward current	I_F	100	mA
Reverse voltage	V_R	5	V
Power dissipation	P_D	160	mW
Pulse forward current	I_{FP}*	500	mA
Operating temperature	T_{opr}	−25 to +85	°C
Storage temperature	T_{stg}	−40 to +85	°C

*Pulse width = 0.1 ms, duty ratio 1%

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Optical output	P_O	I_F =50mA	-	8.0	-	mW
Emitting strength	I_E	I_F =50mA	3.5	-	17.6	mW/sr
Forward voltage	V_F	I_F =100mA	-	1.3	1.6	V
Reverse current	I_R	V_R =3V	-	-	10	μA
Peak light emitting wavelength	λ_p	I_F =50mA	-	950	-	nm
Spectral line half width	$\Delta\lambda$	I_F =50mA	-	40	-	nm
Half-viewing angle	$\theta_{1/2}$	I_F =50mA	-	±27	-	deg
Response time	tr·tf	I_F =50mA	-	1.0	-	μs
Cut-off frequency	f_C	I_F =50mA	-	1.0	-	MHz

●Classified table of rank

Item	Emitting Strength : I_E			Unit
J	3.5	to	5.4	mW / sr
K	3.9	to	7.9	mW / sr
L	5.6	to	11.7	mW / sr
M	8.2	to	17.6	mW / sr

◎ Condition I_F=50mA

●Electrical and optical characteristics curves

Fig.1 Forward Current Falloff

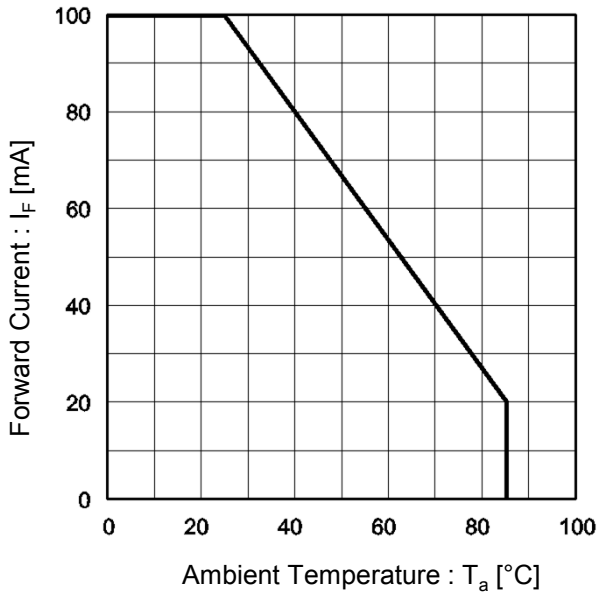


Fig.2 Forward Current vs. Forward Voltage

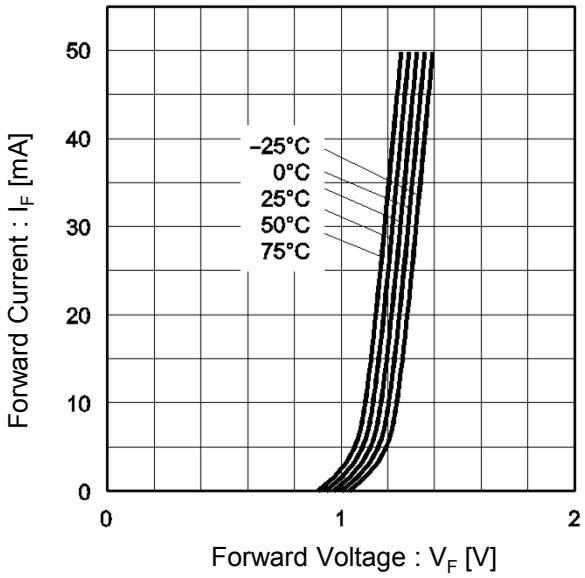


Fig.3 Wavelength

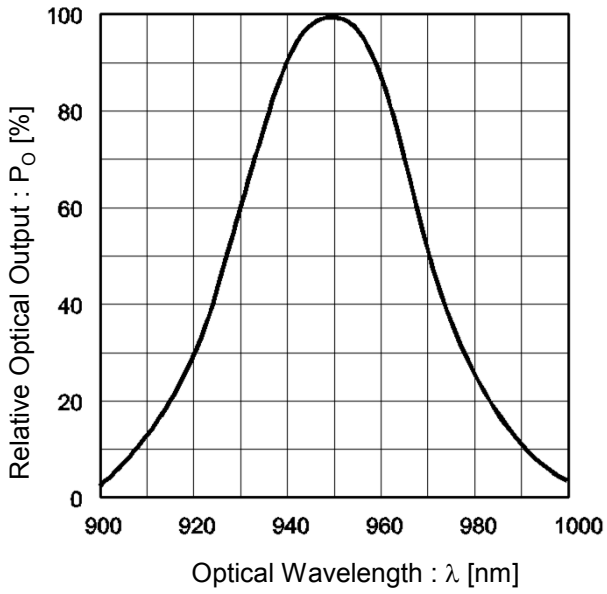
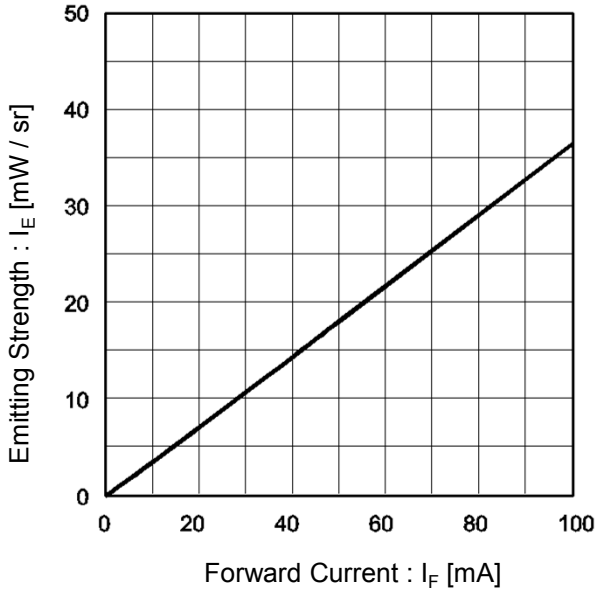


Fig.4 Emitting Strength vs. Forward Current



●Electrical and optical characteristics curves

Fig.5 Relative Emitter Strength
vs. Ambient Temperature

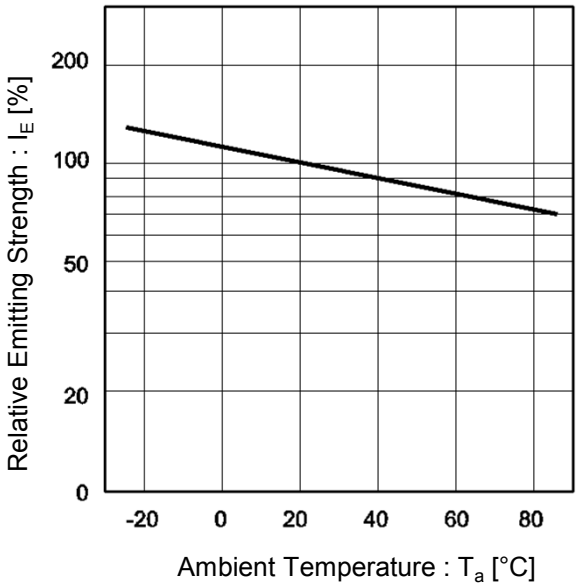
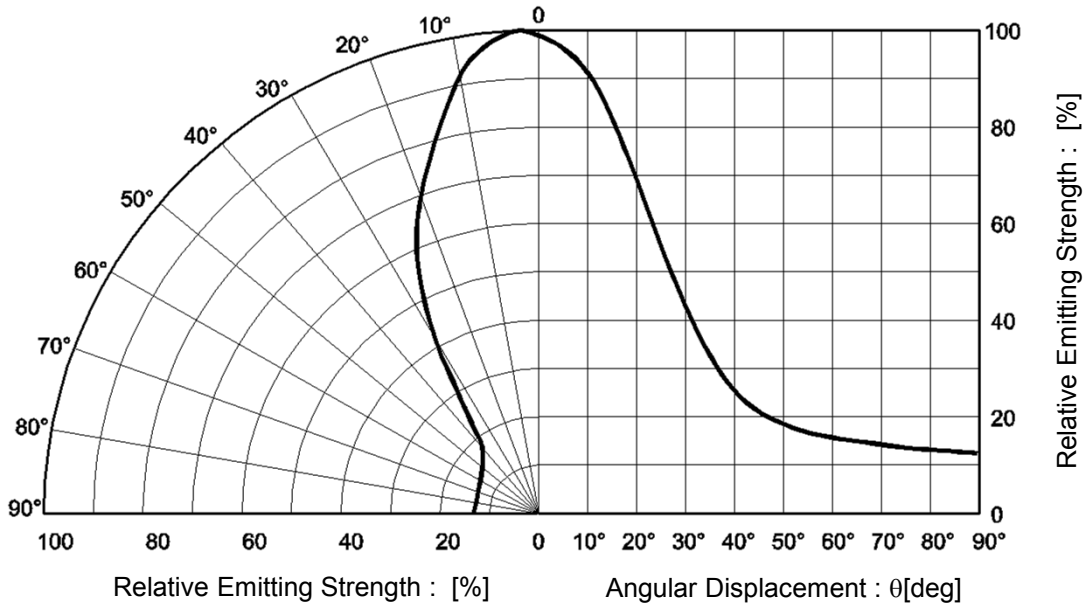


Fig.6 Directional Pattern



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