

Infrared light emitting diode, top view type

SIR-341ST3F

The SIR-341ST3F is a GaAs infrared light emitting diode housed in clear plastic. This device has a high luminous efficiency and a 940 nm peak wavelength suitable for silicon detectors. It is small and at the same time has a wide radiation angle, making it ideal for compact optical control equipment.

●Applications

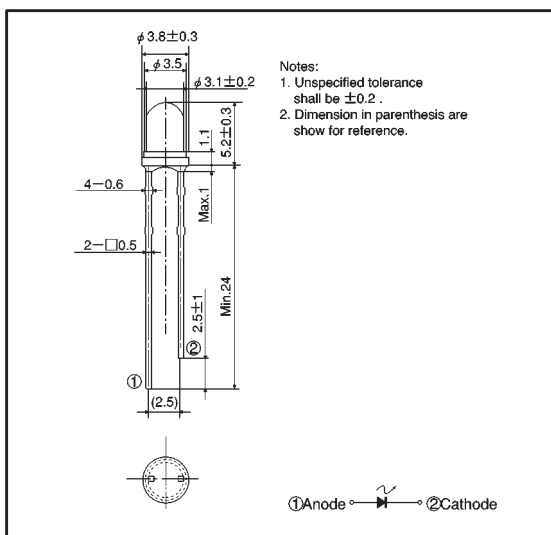
Optical control equipment

Light source for remote control devices

●Features

- 1) Compact ($\phi 3.1$ mm).
- 2) High efficiency, high output $P_O = 8.4$ mW ($I_F = 50$ mA).
- 3) Wide radiation angle $\theta_{1/2} = \pm 16$ deg.
- 4) Peak wavelength well suited to silicon detectors ($\lambda_P = 940$ nm).
- 5) Good current-optical output linearity.
- 6) Long life, high reliability.
- 7) Low cost, clear epoxy resin package.

●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 = 0.1 msec, duty ratio 1%

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------|------------------|------|------|------|-------|----------------------|
| Optical output | P _O | — | 8.4 | — | mW | I _F =50mA |
| Emitting strength | I _E | 5.6 | 18.1 | — | mW/sr | I _F =50mA |
| Forward voltage | V _F | — | 1.3 | 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 | Δλ | — | 40 | — | nm | I _F =50mA |
| Half-viewing angle | θ _{1/2} | — | ±16 | — | deg | I _F =50mA |
| Response time | tr · tf | — | 1.0 | — | μs | I _F =50mA |
| Cut-off frequency | fc | — | 1.0 | — | MHz | I _F =50mA |

●Electrical and optical characteristic curves

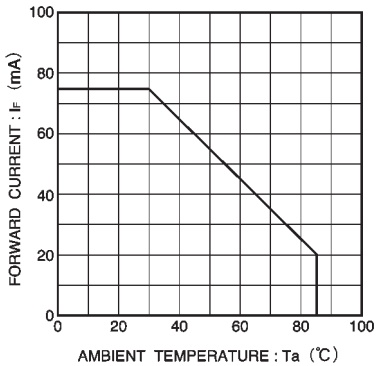


Fig.1 Forward current falloff

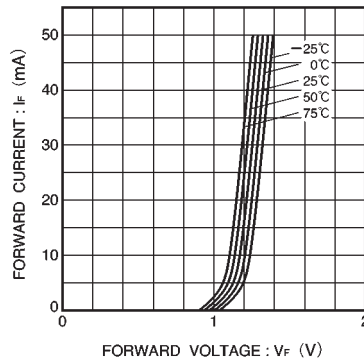


Fig.2 Forward current vs. forward voltage

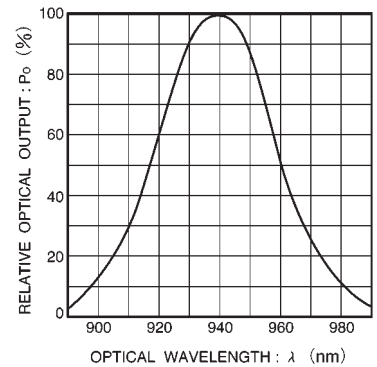


Fig.3 Wavelength

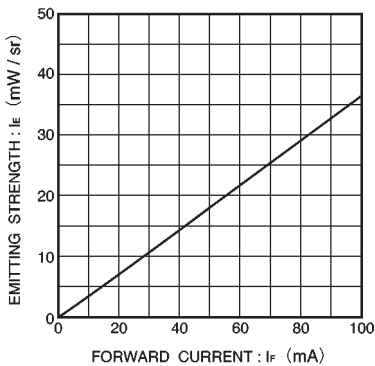


Fig. 4 Emitting strength vs. forward current

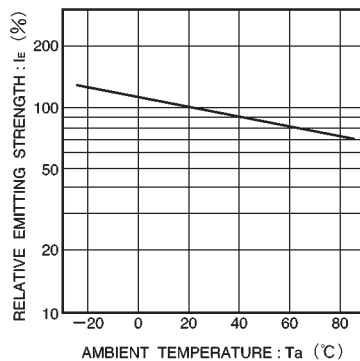


Fig. 5 Relative emitting strength vs. ambient temperature

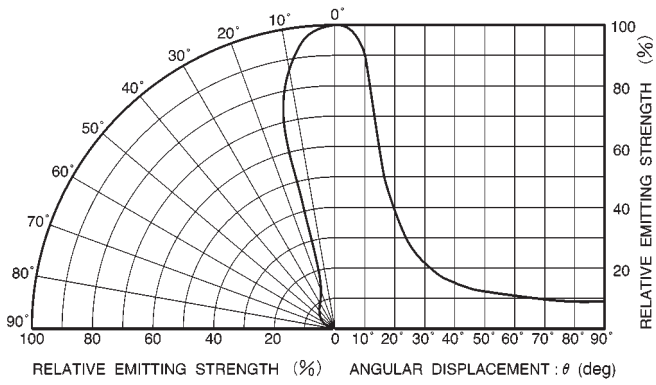


Fig. 6 Directional pattern