# Infrared light emitting diode, top view type

**SIR-341ST3F** Datasheet

The SIR-341ST3F is a GaAs infrared light emitting diode housed in clear plastic.
This device has a high luminous efficiency and a 940nm peak wavelength 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

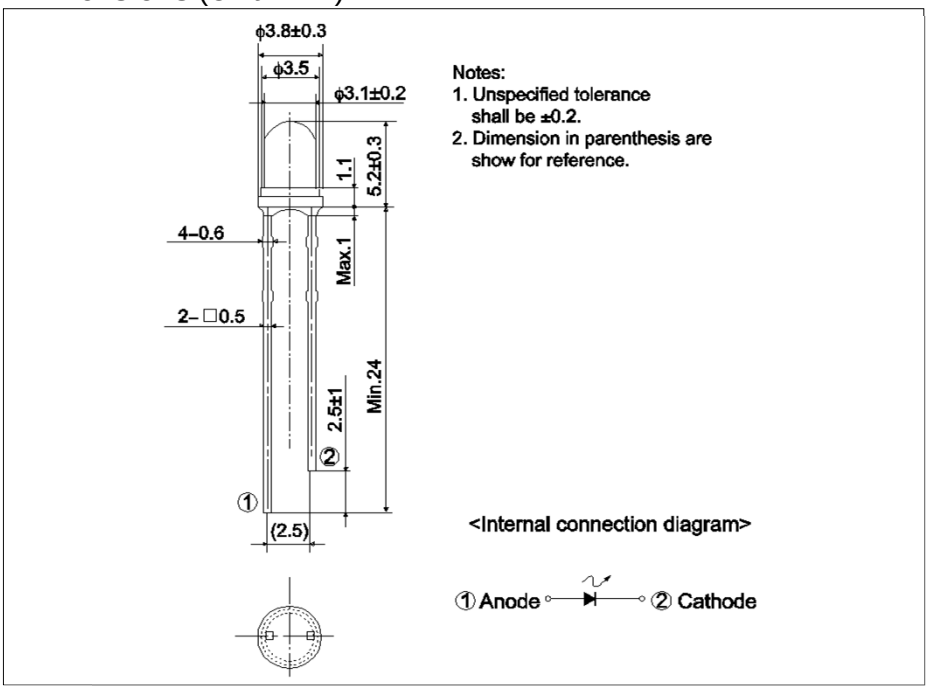
- Optical control equipment
- Light source for remote control devices

## ●Outline

## ●Features

1) Compact (ϕ3.1mm).
2) High efficiency, high output $P_O$=8.4mW ($I_F$=50mA).
3) Wide radiation angle θ1/2=1±16deg.
4) Peak wavelength well suited to silicon detectors ($\lambda_P$=940nm).
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 | $I_F$ | 75 | mA |
| Reverse voltage | $V_R$ | 5 | V |
| Power dissipation | $P_D$ | 100 | 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 msec, 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 | - | 8.4 | - | mW |
| Emitting strength | $I_E$ | $I_F$ =50mA | 5.6 | 18.1 | - | mW/sr |
| Forward voltage | $V_F$ | $I_F$ =50mA | - | 1.3 | 1.5 | V |
| Reverse current | $I_R$ | $V_R$ =3V | - | - | 10 | μA |
| Peak light emitting wavelength | $\lambda_p$ | $I_F$ =50mA | - | 940 | - | nm |
| Spectral line half width | $\Delta\lambda$ | $I_F$ =50mA | - | 40 | - | nm |
| Half-viewing angle | $\theta_{1/2}$ | $I_F$ =50mA | - | ±16 | - | 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 |
|---|---|---|---|---|
| L | 5.6 | to | 11.7 | mW / sr |
| M | 8.2 | to | 17.6 | mW / sr |
| N | 12.3 | to | 25.8 | mW / sr |
| P | 18.0 | to | 38.8 | mW / sr |

◎ Condition $I_F$=50mA

## ●Electrical and optical characteristics curves

Fig.1 Forward Current Falloff

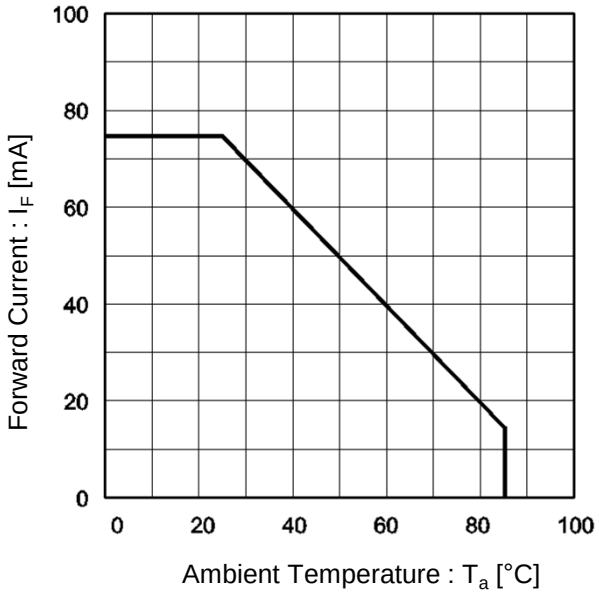



Fig.2 Forward Current vs. Forward Voltage

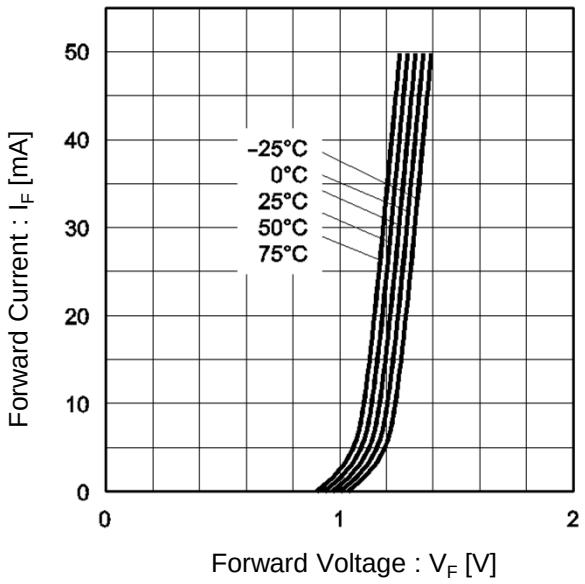



Fig.3 Wavelength

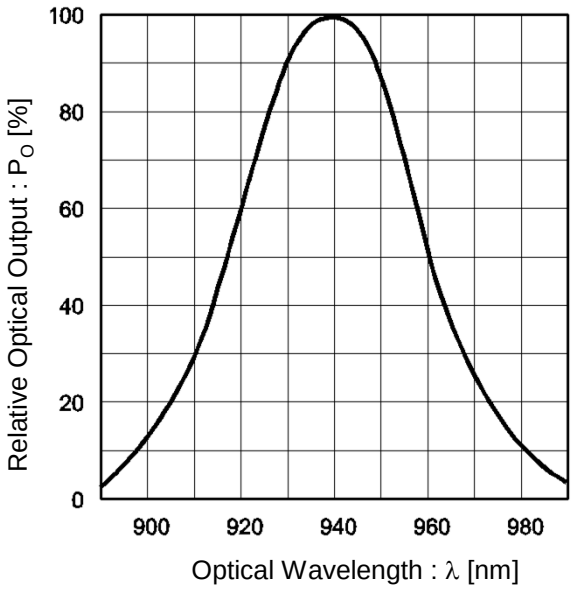
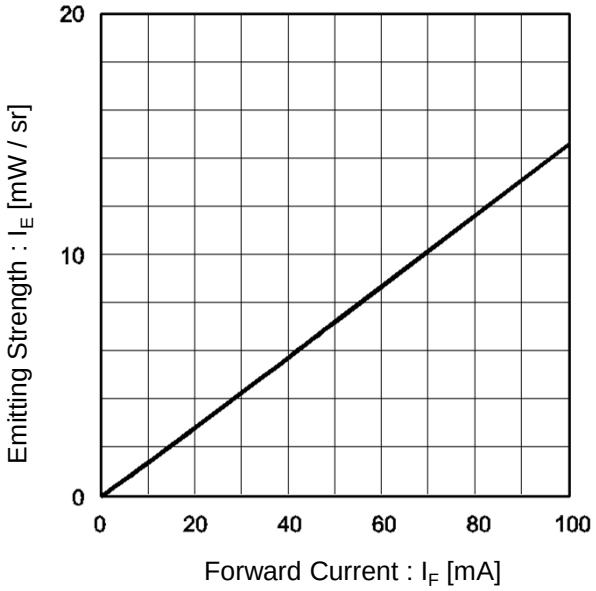



Fig.4 Emitting Strength vs. Forward Current



## ●Electrical and optical characteristics curves

Fig.5 Relative Emitter Strength vs. Ambient Temperature

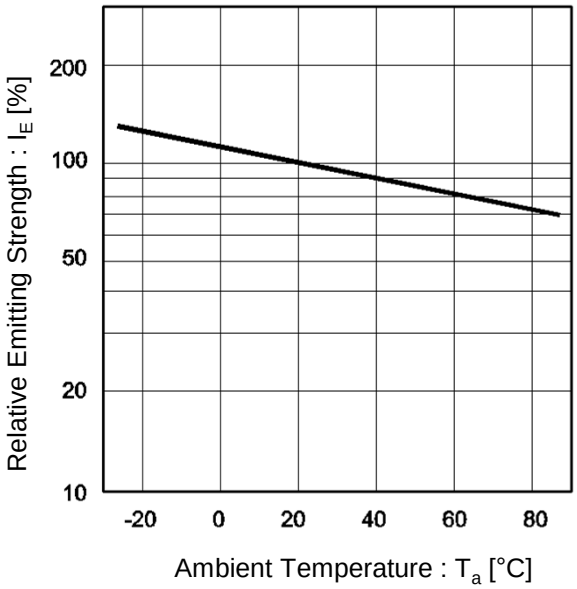
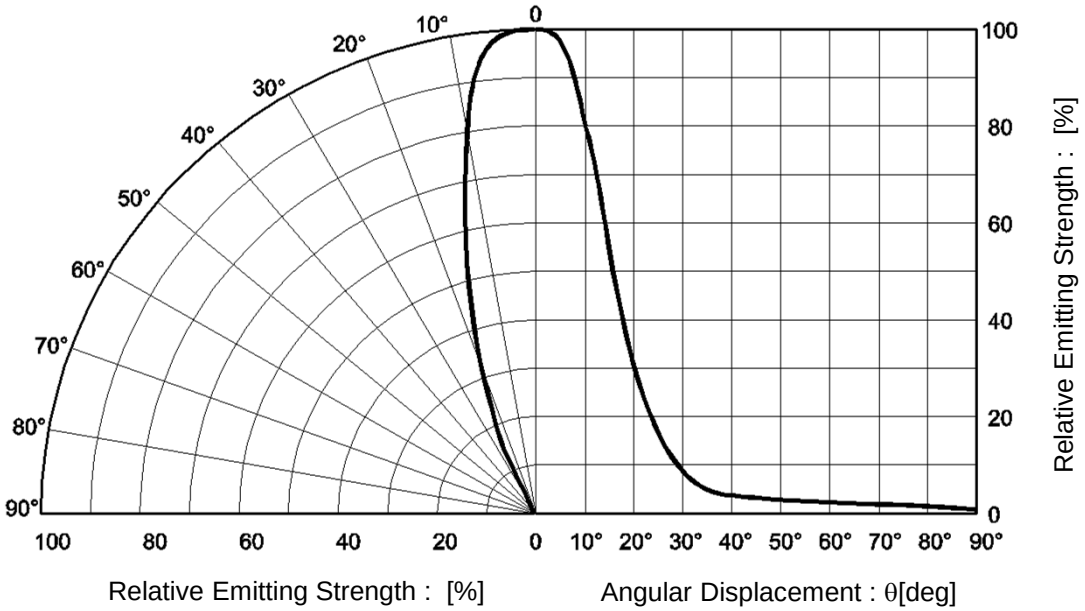



Fig.6 Directional Pattern



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