

The SIR-563ST3F 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 has a wide radiation angle and is ideal for compact optical control equipment.

●Applications

- Optical control equipment
- Light source for remote control devices

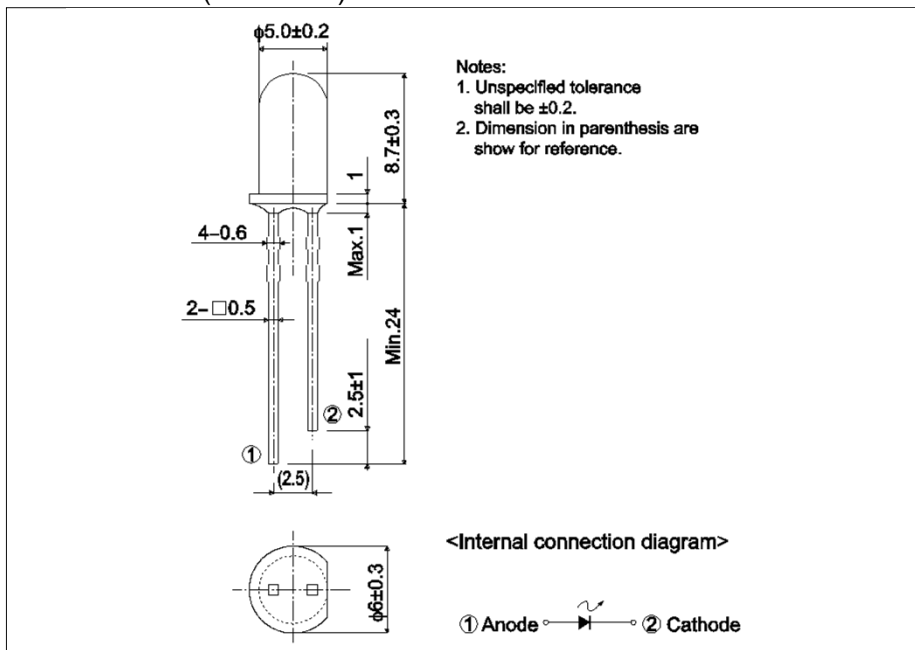
●Features

- 1) High efficiency, high output $P_O=11.0\text{mW}$ ($I_F=50\text{mA}$).
- 2) Wide radiation angle $\theta_{1/2}=15\text{deg}$.
- 3) Emission spectrum well suited to silicon detectors ($\lambda_p=940\text{nm}$).
- 4) Good current-optical output linearity.
- 5) Long life, high reliability.

●Outline



●Dimensions (Unit : mm)



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

| Parameter | Symbol | Value | Unit |
|-----------------------|------------|------------|------------------|
| Forward current | I_F | 100 | mA |
| Reverse voltage | V_R | 5.0 | V |
| Power dissipation | P_D | 160 | mW |
| Pulse forward current | I_{FP}^* | 500 | mA |
| Operating temperature | T_{opr} | -25 to +85 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -40 to +85 | $^\circ\text{C}$ |

*Pulse width = 0.1 msec, duty ratio 1%

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

| Parameter | Symbol | Conditions | Values | | | Unit |
|--------------------------------|-----------------|---------------------|--------|----------|------|---------------|
| | | | Min. | Typ. | Max. | |
| Optical output | P_O | $I_F = 50\text{mA}$ | - | 11 | - | mW |
| Emitting strength | I_E | $I_F = 50\text{mA}$ | 8.2 | 21 | - | mW/sr |
| Forward voltage | V_F | $I_F = 50\text{mA}$ | - | 1.34 | 1.6 | V |
| Reverse current | I_R | $V_R = 3\text{V}$ | - | - | 10 | μA |
| Peak light emitting wavelength | λ_p | $I_F = 50\text{mA}$ | - | 940 | - | nm |
| Spectral line half width | $\Delta\lambda$ | $I_F = 50\text{mA}$ | - | 40 | - | nm |
| Half-viewing angle | $\theta_{1/2}$ | $I_F = 50\text{mA}$ | - | ± 15 | - | deg |
| Response time | tr·tf | $I_F = 50\text{mA}$ | - | 1.0 | - | μs |
| Cut-off frequency | f_C | $I_F = 50\text{mA}$ | - | 1.0 | - | MHz |

●Electrical and optical characteristics curves

Fig.1 Forward Current Falloff

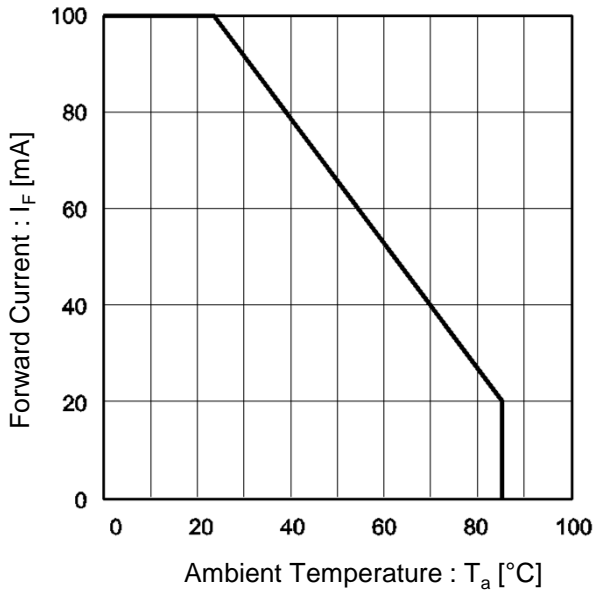


Fig.2 Forward Current vs. Forward Voltage

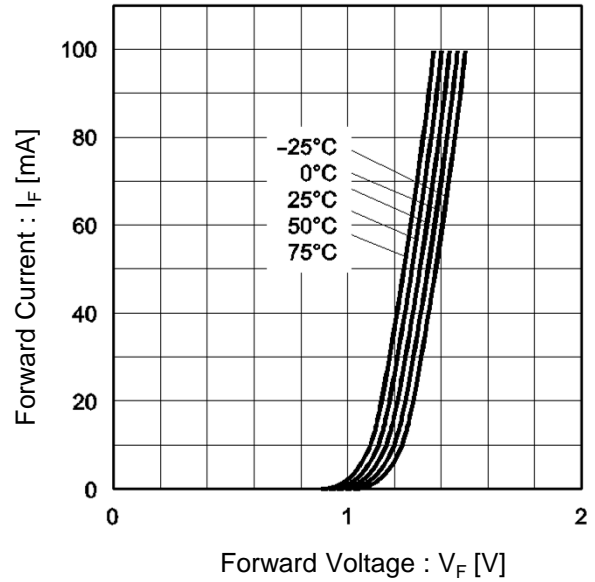


Fig.3 Wavelength

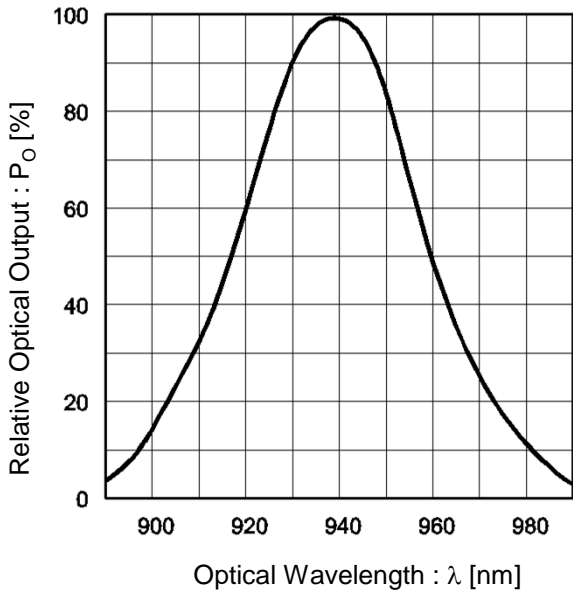
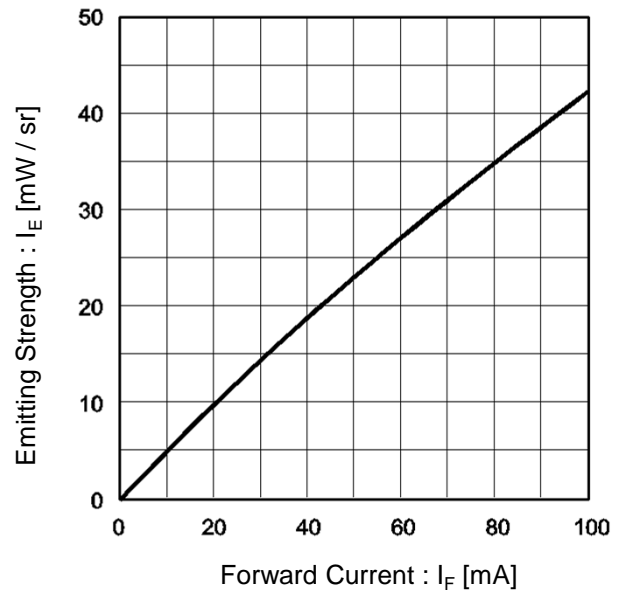


Fig.4 Emitting Strength vs. Forward Current



●Electrical and optical characteristics curves

Fig.5 Relative Emitter Strength vs. Ambient Temperature

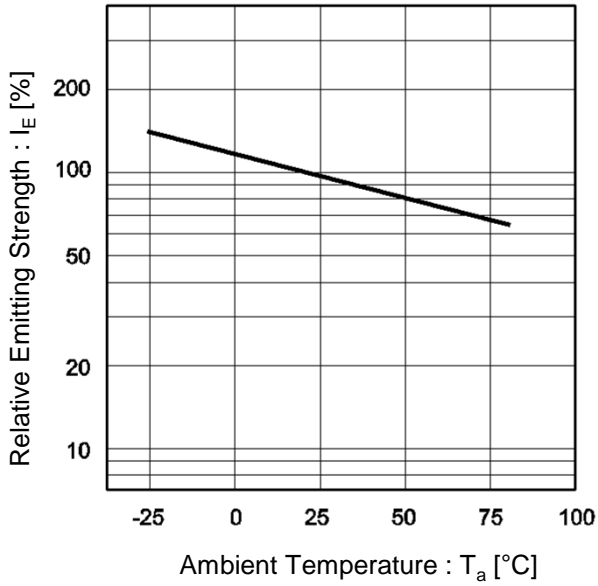
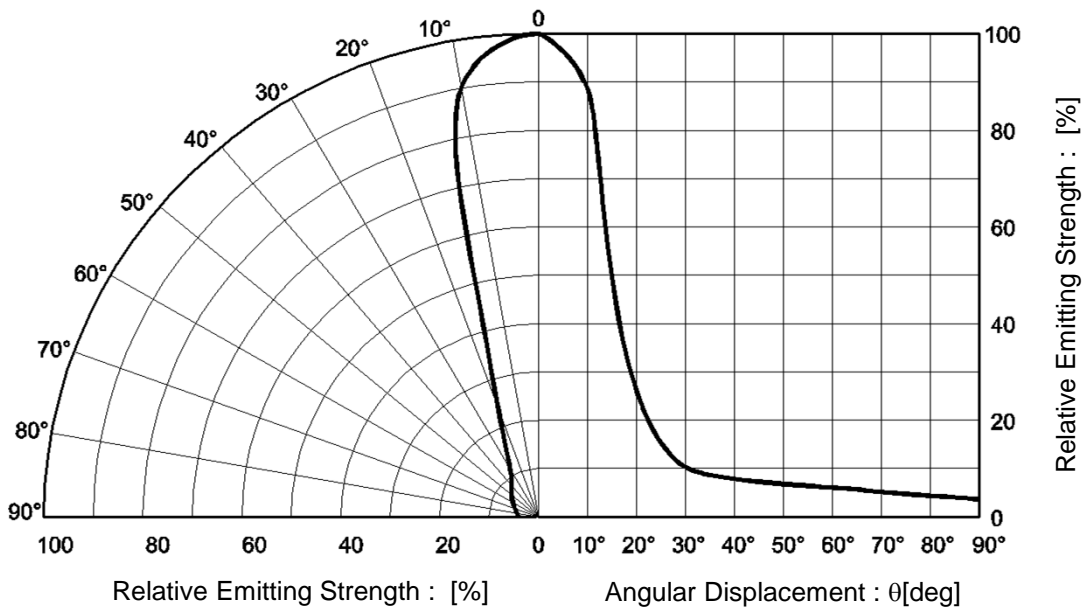


Fig.6 Directional Pattern



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