

The SIR-56ST3F 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. Low cost make it an ideal light source for household remote control devices.

### ●Applications

- Optical control equipment
- Light source for remote control devices

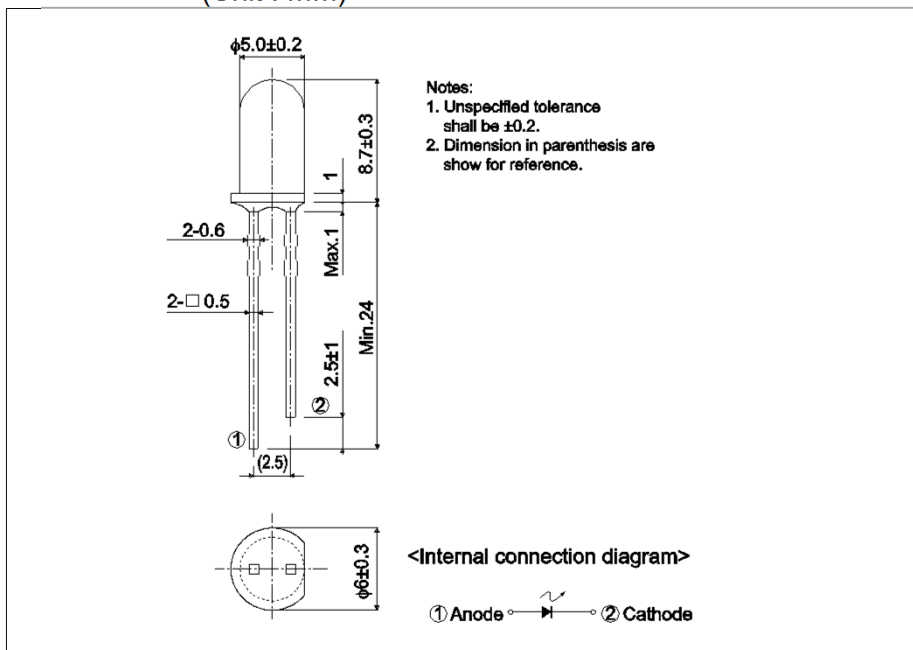
### ●Features

- 1) High efficiency, high output  $P_o=8.0\text{mW}$  ( $I_F=50\text{mA}$ ).
- 2) Emission spectrum well suited to silicon detectors
- 3) Good current-optical output linearity.
- 4) 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          | 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                 | $P_O$           | $I_F = 50\text{mA}$  | -      | 8.0      | -    | mW            |
| Emitting strength              | $I_E$           | $I_F = 50\text{mA}$  | 5.6    | -        | -    | mW/sr         |
| Forward voltage                | $V_F$           | $I_F = 100\text{mA}$ | -      | 1.3      | 1.6  | V             |
| Reverse current                | $I_R$           | $V_R = 3\text{V}$    | -      | -        | 10   | $\mu\text{A}$ |
| Peak light emitting wavelength | $\lambda_p$     | $I_F = 50\text{mA}$  | -      | 950      | -    | nm            |
| Spectral line half width       | $\Delta\lambda$ | $I_F = 50\text{mA}$  | -      | 40       | -    | nm            |
| Half-viewing angle             | $\theta_{1/2}$  | $I_F = 50\text{mA}$  | -      | $\pm 15$ | -    | deg           |
| Response time                  | tr·tf           | $I_F = 50\text{mA}$  | -      | 1.0      | -    | $\mu\text{s}$ |
| Cut-off frequency              | $f_C$           | $I_F = 50\text{mA}$  | -      | 1.0      | -    | MHz           |

●Electrical and optical characteristics curves

Fig.1 Forward Current Falloff

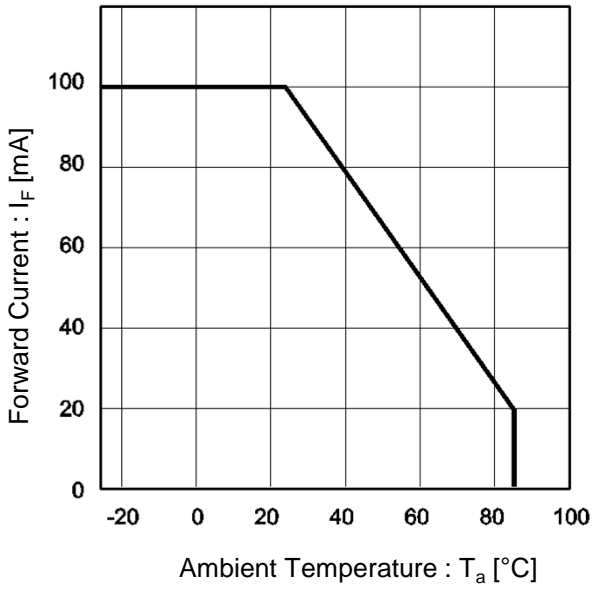


Fig.2 Forward Current vs. Forward Voltage

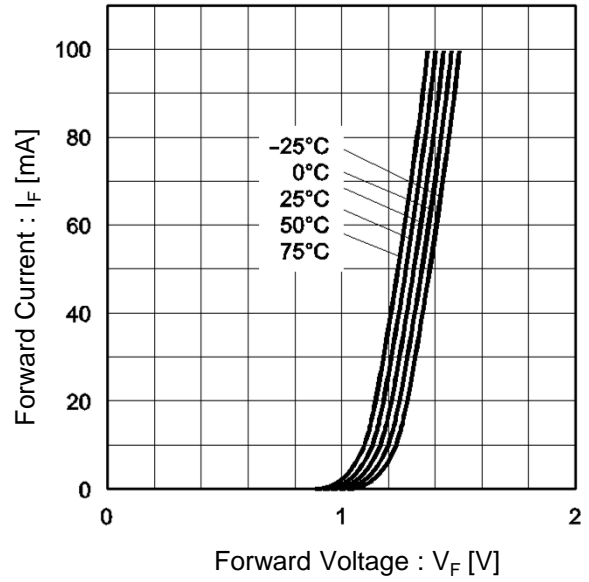


Fig.3 Wavelength

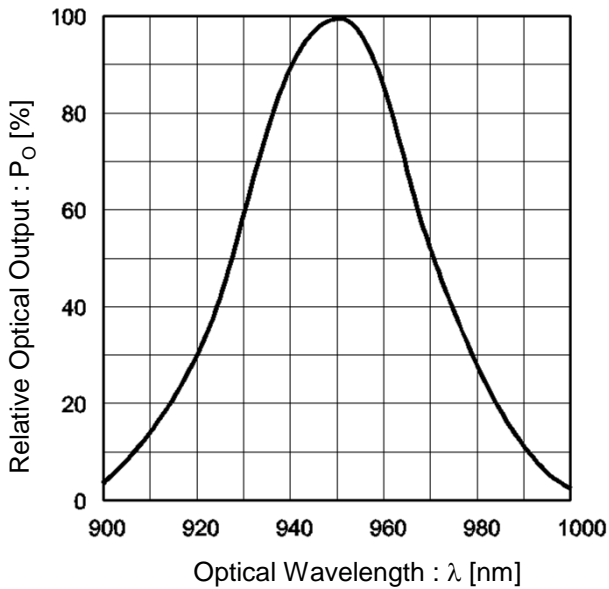
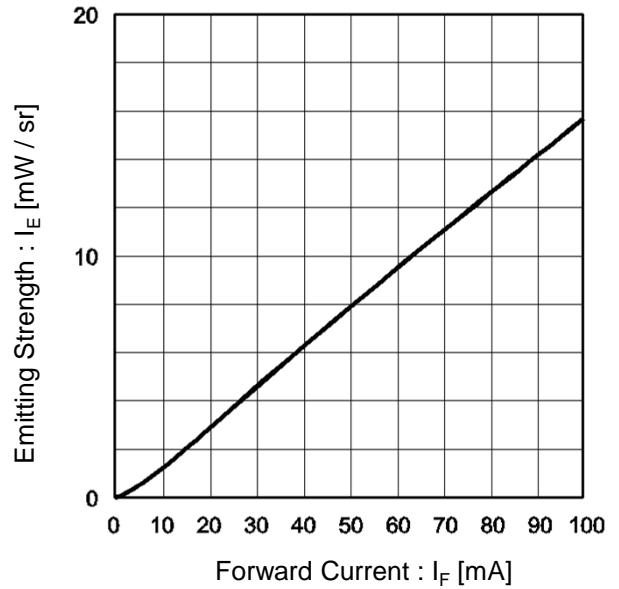


Fig.4 Emitting Strength vs. Forward Current



●Electrical and optical characteristics curves

Fig.5 Relative Emitter Strength vs. Ambient Temperature

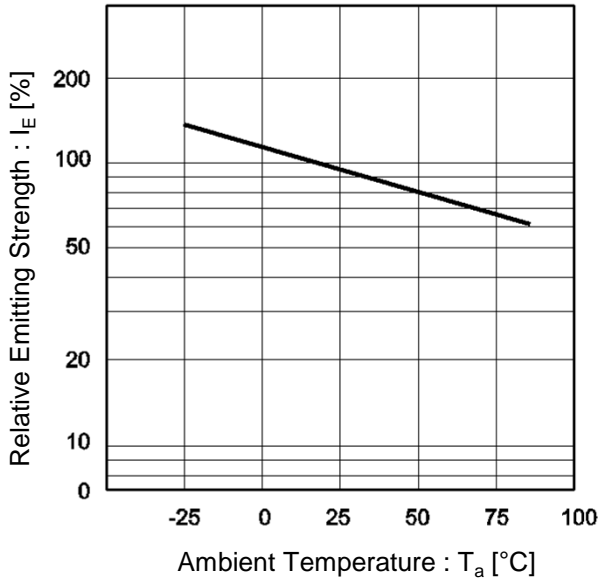
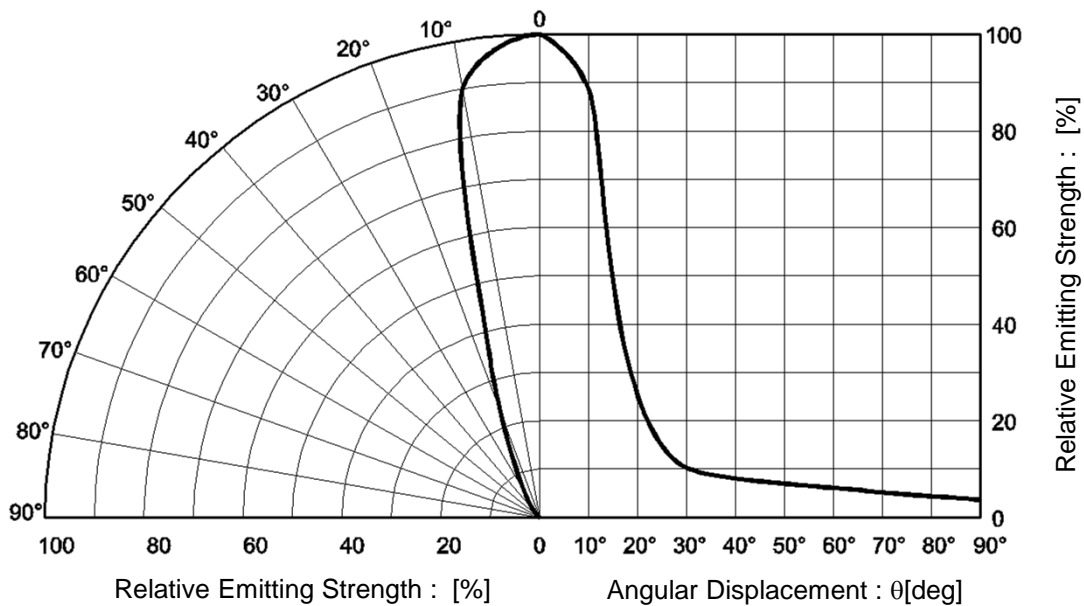


Fig.6 Directional Pattern



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