

# Infrared light emitting diode, top view type

## SIR-568ST3F

The SIR-568ST3F has the response speed and luminous output necessary for image transmission in audio-visual applications. It can support almost all types of optical transmission through air, including audio and data transmission. The luminous output is 13 mW and the cutoff frequency is 50 MHz.

### ●Applications

Transmission of images from a video cassette recorder to a television.

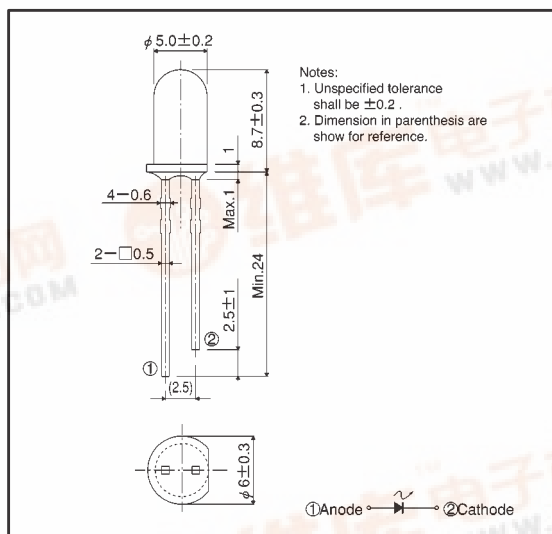
Transmission of audio signals between audio devices.

High speed data transmission.

### ●Features

- 1) High luminous output 13 mW.
- 2) Fast response is possible 50 MHz cutoff frequency.

### ●External dimensions (Units: mm)



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

| Parameter             | Symbol     | Limits         | Unit             |
|-----------------------|------------|----------------|------------------|
| Forward current       | $I_F$      | 100            | mA               |
| Reverse voltage       | $V_R$      | 4.0            | V                |
| Power dissipation     | $P_D$      | 230            | 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  $\leq 0.1$  msec, duty ratio 1%



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

| Parameter                      |           | Symbol           | Min. | Typ. | Max. | Unit  | Conditions                       |
|--------------------------------|-----------|------------------|------|------|------|-------|----------------------------------|
| Optical output                 |           | P <sub>o</sub>   | —    | 13   | —    | mW    | I <sub>F</sub> =50mA             |
| Emitting strength              |           | I <sub>E</sub>   | 18   | 38   | —    | mW/sr | I <sub>F</sub> =50mA             |
| Forward voltage                |           | V <sub>F</sub>   | —    | 1.6  | 2.1  | V     | I <sub>F</sub> =50mA             |
| Reverse current                |           | I <sub>R</sub>   | —    | —    | 10   | μA    | V <sub>R</sub> =2V               |
| Peak light emitting wavelength |           | λ <sub>P</sub>   | —    | 850  | —    | nm    | I <sub>F</sub> =20mA             |
| Spectral line half width       |           | Δλ               | —    | 40   | —    | nm    | I <sub>F</sub> =20mA             |
| Half-viewing angle             |           | θ <sub>1/2</sub> | —    | ±13  | —    | deg   | I <sub>F</sub> =50mA             |
| Response time                  | Rise time | t <sub>r</sub>   | —    | 8.0  | —    | ns    | I <sub>F</sub> =50mA             |
|                                | Fall time | t <sub>f</sub>   | —    | 6.0  | —    | ns    | I <sub>F</sub> =50mA             |
| Cut-off frequency              |           | f <sub>c</sub>   | —    | 50   | —    | MHz   | I <sub>F</sub> =30mA DC+20mA p-p |

●Electrical and optical characteristic curves

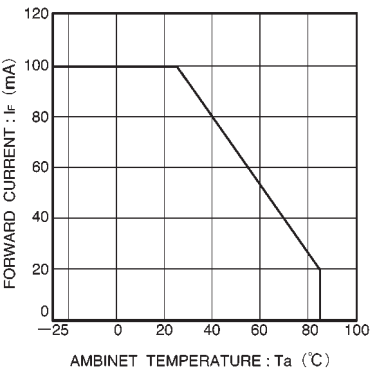


Fig. 1 Forward current falloff

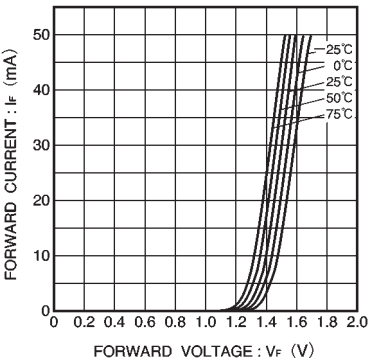


Fig. 2 Forward current vs. forward voltage

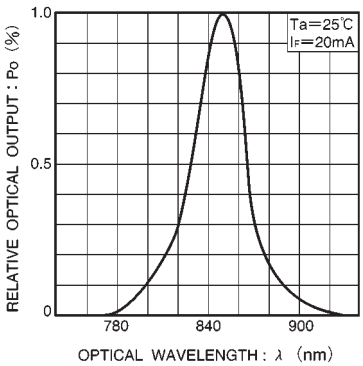


Fig. 3 Wavelength characteristics

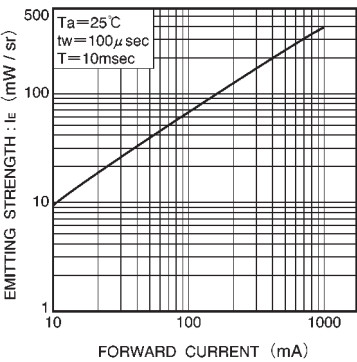


Fig. 4 Emitting strength vs. forward current

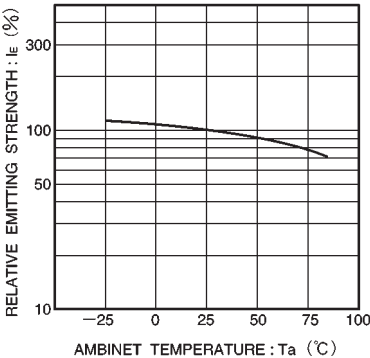


Fig. 5 Relative emitting strength vs. ambient temperature

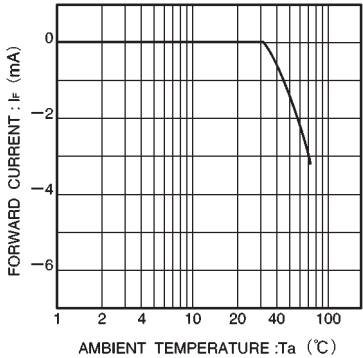


Fig. 6 Frequency characteristics

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