# Infrared light emitting diode, top view type

## SIR-320ST3F

The SIR-320ST3F is a GaAs infrared light emitting diode housed in clear plastic. This device has a high luminous efficiency and a 940nm spectrum 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.

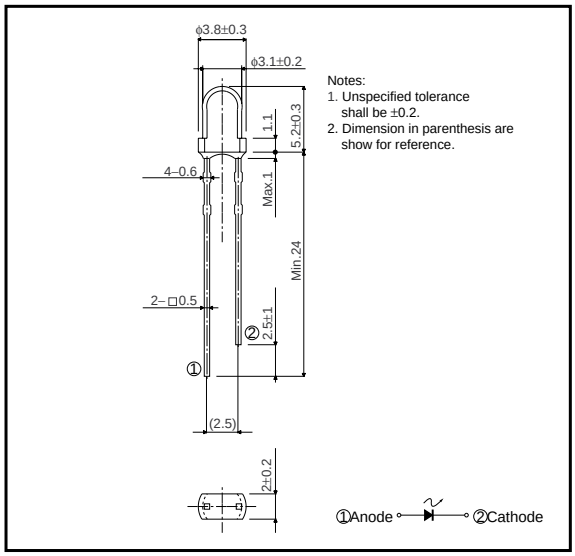
**●Applications**

Optical control equipment
Light source for remote control devices

**●Features**

1) Compact (ϕ3.1mm).
2) High efficiency, high output $P_O$=9.0mW ($I_F$=50mA).
3) Wide radiation angle θ=±18deg.
4) Emission spectrum 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** (Ta = 25°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 | $I_{FP}$* | 0.5 | A |
| Operating temperature | Topr | −25 to +85 | °C |
| Storage temperature | Tstg | −40 to +85 | °C |

* Pulse width=0.1msec, duty ratio 1%

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Optical output | $P_O$ | – | 9 | – | mW | $I_F$=50mA |
| Emitting strength | $I_E$ | 5.6 | – | – | mW/sr | $I_F$=50mA |
| Forward voltage | $V_F$ | – | 1.2 | 1.5 | V | $I_F$=50mA |
| Reverse current | $I_R$ | – | – | 10 | μA | $V_R$=3V |
| Peak light emitting wavelength | $\lambda_P$ | – | 940 | – | nm | $I_F$=50mA |
| Spectral line half width | $\Delta\lambda$ | – | 40 | – | nm | $I_F$=50mA |
| Half-viewing angle | $\theta_{1/2}$ | – | ±18 | – | deg | $I_F$=50mA |
| Pesponse time | tr·tf | – | 1.0 | – | μs | $I_F$=50mA |
| Cut-off frequency | $f_C$ | – | 1.0 | – | MHz | $I_F$=50mA |

●**Electrical and optical characteristic curves**

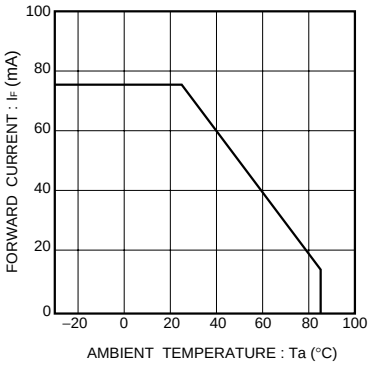



FIg.1 Forward current falloff

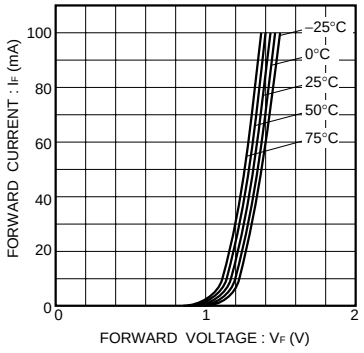



Fig.2 Forward current vs. forward voltage

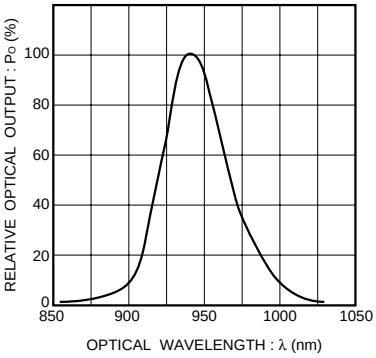



Fig.3 Wavelength

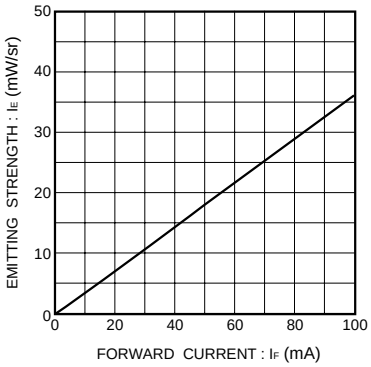



Fig.4 Emitting strength vs. forward current

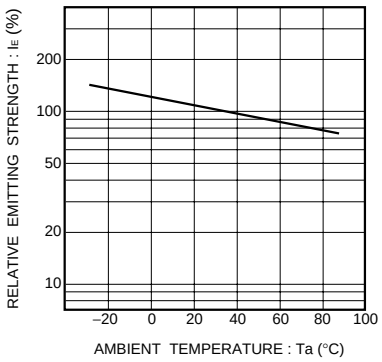



Fig.5 Radiant intensity vs. ambient temperature

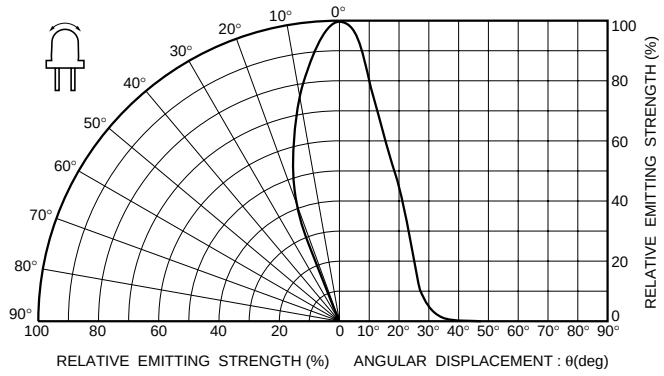



Fig.6 Directional pattern

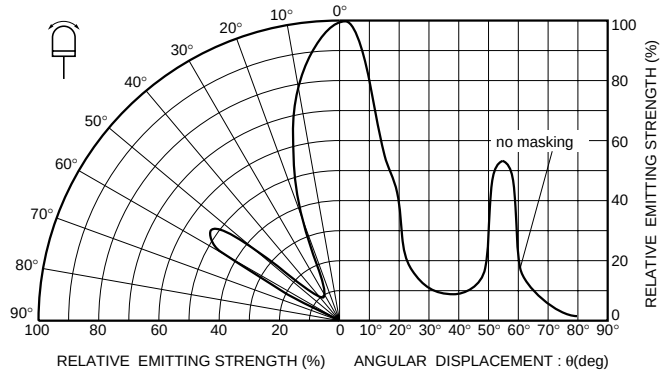



Fig.7 Directional pattern

## Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).
Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.
In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.