

# Infrared light emitting diode, side-view type

## SIM-22ST

The SIM-22ST is a GaAs infrared light emitting diode housed in side emission. High output with  $\phi 1.5$  lens.

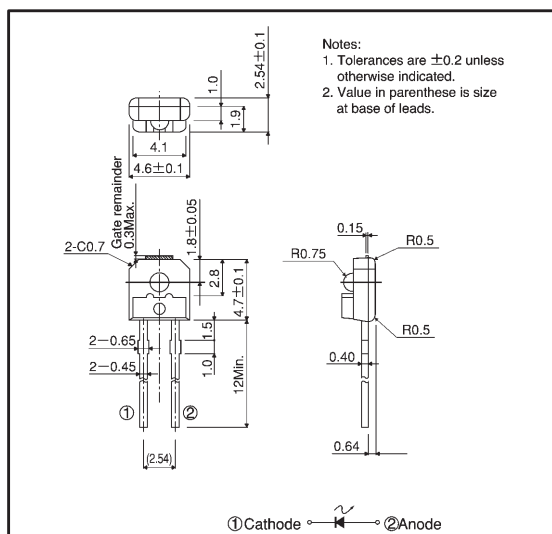
### ●Applications

Light source for sensors

### ●Features

- 1) Compact package ( $4.7 \times 4.6$  mm) with lens.
- 2) High efficiency, high output.
- 3) Emission spectrum well suited to silicon detectors ( $\lambda_P = 950$  nm).
- 4) Good current-optical output linearity.
- 5) Long life, high reliability.

### ●External dimensions (Units: mm)



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

Parameter	Symbol	Limits	Unit
Forward current	$I_F$	50	mA
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	80	mW
Pulse forward current	$I_{FP}^*$	1.0	A
Operating temperature	$T_{opr}$	$-25 \sim +85$	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-30 \sim +100$	$^\circ\text{C}$

\* Pulse width=0.1 msec, duty ratio 1%

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Emitting strength I	$I_{E I}$	—	0.8	—	mW/sr	$I_F=10\text{mA}$
Emitting strength II	$I_{E II}$	0.5	1.3	2.08	mA	$I_F=10\text{mA}^*$
Forward voltage	$V_F$	—	1.3	1.6	V	$I_F=50\text{mA}$
Reverse current	$I_R$	—	—	10	$\mu\text{A}$	$V_R=5\text{V}$
Peak light emitting wavelength	$\lambda_P$	—	950	—	nm	$I_F=10\text{mA}$
Spectral line half width	$\Delta \lambda$	—	40	—	nm	$I_F=20\text{mA}$
Half-viewing angle	$\theta_{1/2}$	—	$\pm 30$	—	deg	$I_F=50\text{mA}$
Response time	$t_r \cdot t_f$	—	1	—	$\mu\text{s}$	$I_F=50\text{mA}$
Cut-off frequency	$f_c$	—	1.0	—	MHz	$I_F=50\text{mA}$

\* According to our measurement procedures.

## ●Electrical and optical characteristic curves

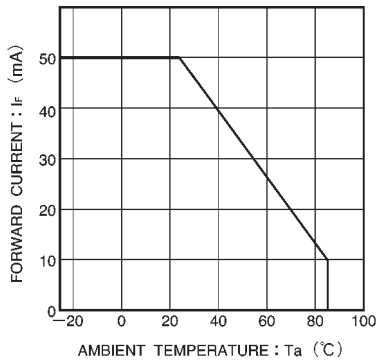


Fig.1 Forward current falloff

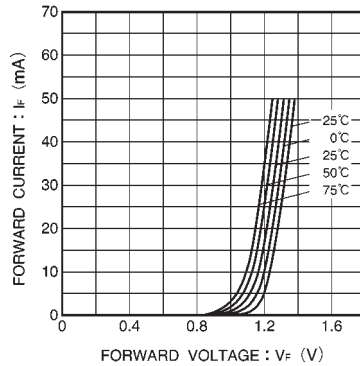


Fig.2 Forward current vs. forward voltage

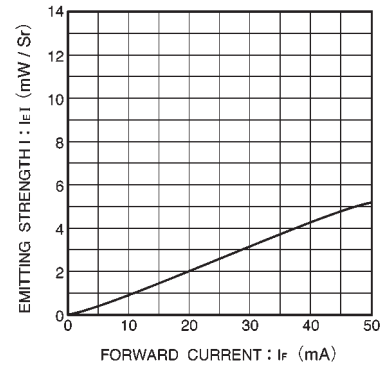


Fig.3 Emitting strength I vs. forward current

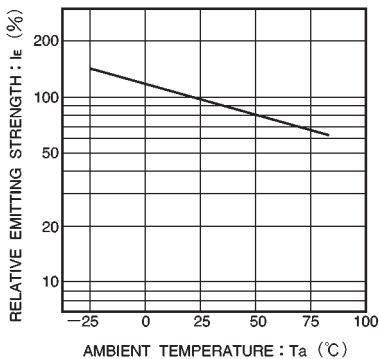


Fig.4 Relative emitting strength vs. ambient temperature

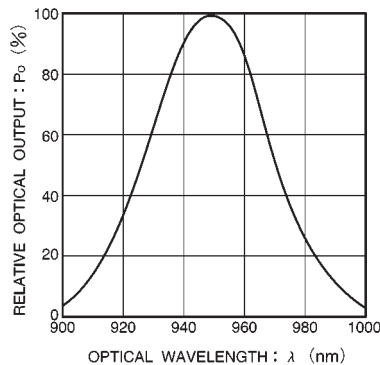


Fig.5 Wavelength

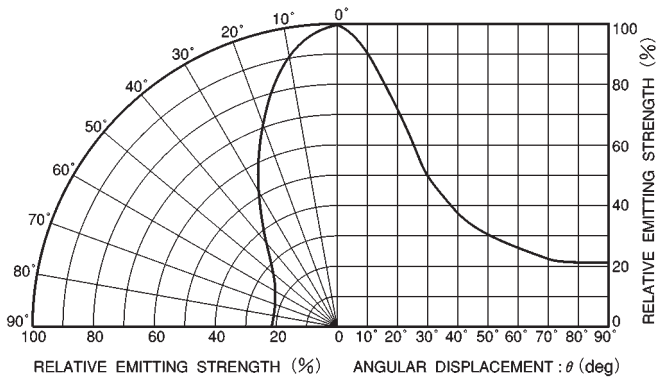


Fig. 6 Directional pattern