

Infrared light emitting diode, side-view type

SIM-20ST

The SIM-20ST is a GaAs infrared light emitting diode with a side-facing detector. High output with $\phi 1.85$ lens.

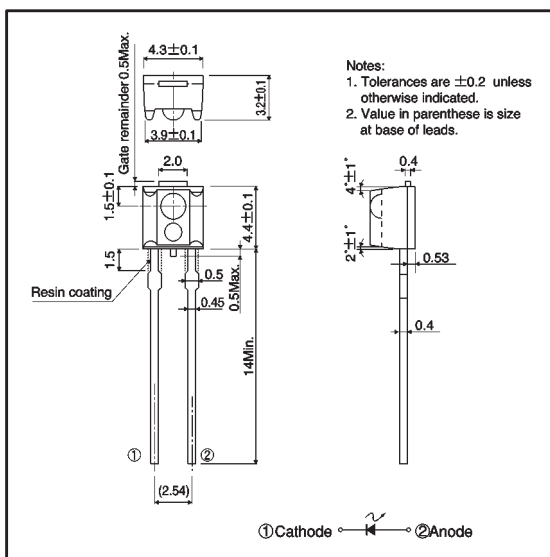
●Applications

Light source for sensors

●Features

- 1) Compact package (4.4×4.3 mm) with lens.
- 2) High efficiency, high output $P_o = 7$ mW ($I_F = 50$ mA).
- 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_E	—	7.5	—	mW/sr	$I_F=50\text{mA}$
Forward voltage	V_F	—	1.3	1.6	V	$I_F=50\text{mA}$
Reverse current	I_R	—	—	10	μA	$V_R=3\text{V}$
Peak light emitting wavelength	λ_P	—	950	—	nm	$I_F=50\text{mA}$
Spectral line half width	$\Delta\lambda$	—	40	—	nm	$I_F=50\text{mA}$
Half-viewing angle	$\theta_{1/2}$	—	± 15	—	deg	$I_F=50\text{mA}$
Response time	$t_r \cdot t_f$	—	1.0	—	μs	$I_F=50\text{mA}$
Cut-off frequency	f_c	—	1.0	—	MHz	$I_F=50\text{mA}$

●Electrical and optical characteristic curves

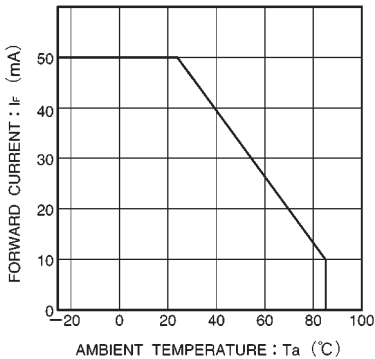


Fig.1 Forward current falloff

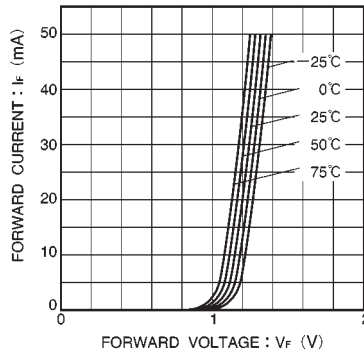


Fig.2 Forward current vs. forward voltage

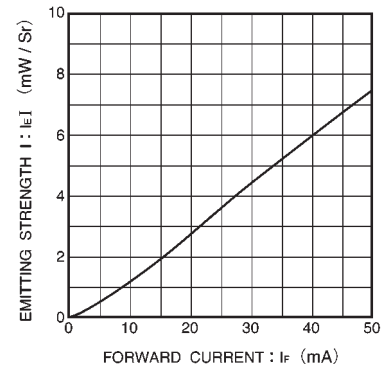


Fig.3 Emitting strength vs. forward current

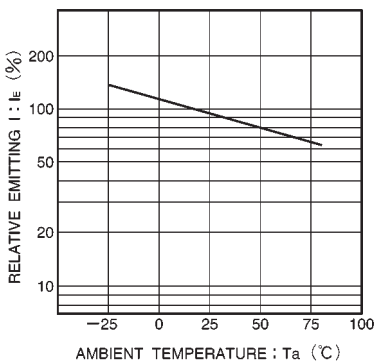


Fig. 4 Relative emitting strength vs. ambient temperature

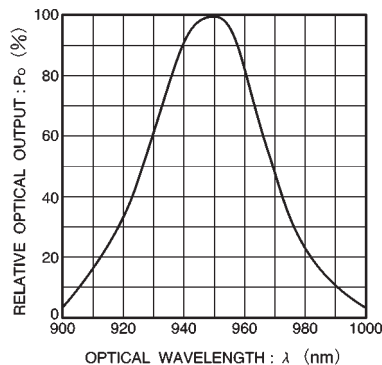


Fig.5 Wavelength

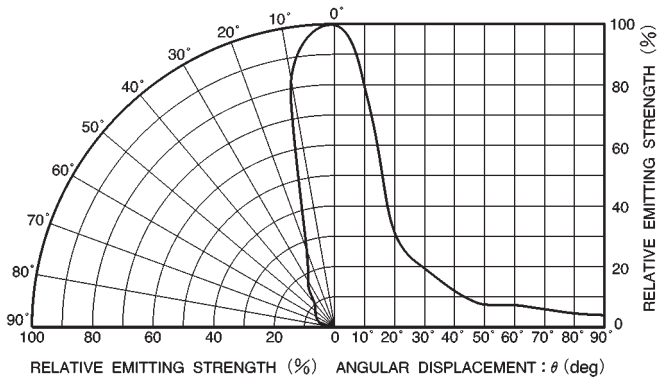


Fig. 6 Directional pattern