

Infrared light emitting diode, side-view type

SIM-012SB

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

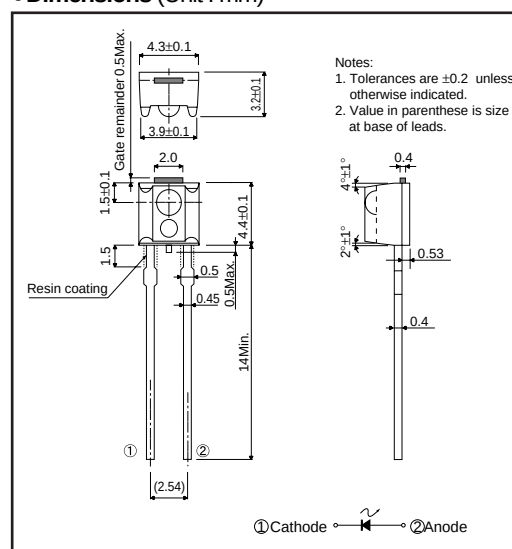
●Applications

Light source for sensors

●Features

- 1) Compact package (4.4x4.3 mm) with lens.
- 2) High efficiency, high output $P_O = 7\text{mW}$ ($I_F = 50\text{ mA}$).
- 3) Emission spectrum well suited to silicon detectors ($\lambda_P = 950\text{ nm}$).
- 4) Good current-optical output linearity.
- 5) Long life, high reliability.

●Dimensions (Unit : 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}^*	0.5	A
Operating temperature	T_{opr}	-25 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}	-30 to +100	$^\circ\text{C}$

* Pulse width = 0.1 ms, duty ratio 1%

●Electrical and optical characteristics ($T_a = 25^\circ\text{C}$)

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	$I_F = 50\text{mA}$

Sensors

●Electrical and optical characteristic curves

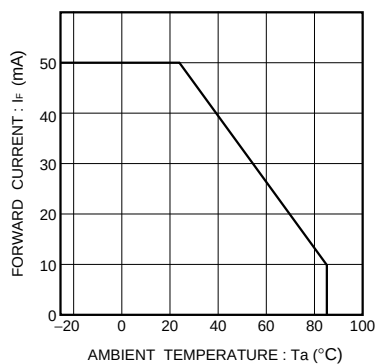


Fig.1 Forward current falloff

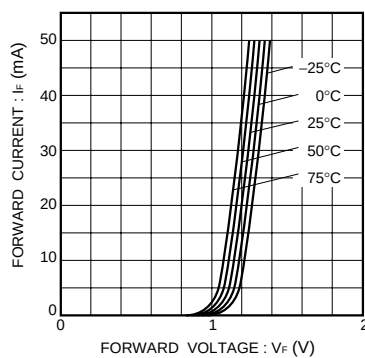


Fig.2 Forward current vs. forward voltage

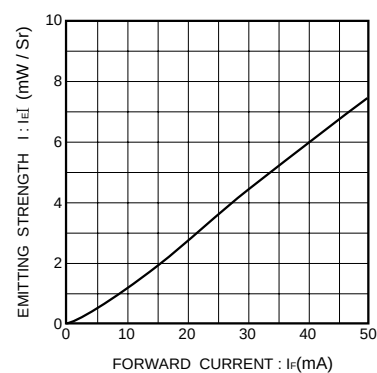


Fig.3 Emitting strength vs. forward current

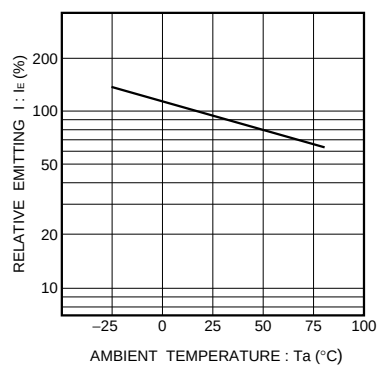


Fig.4 Relative emitting strength vs. ambient temperature

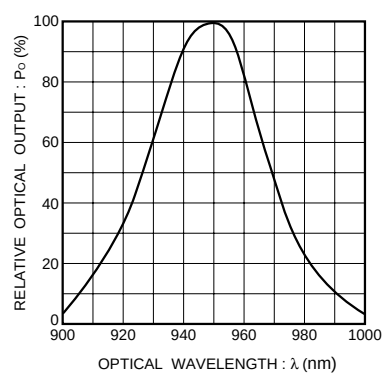


Fig.5 Wavelength

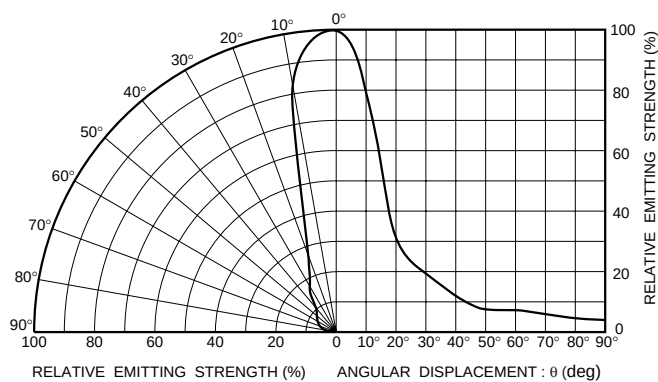


Fig.6 Directional pattern

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