

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.

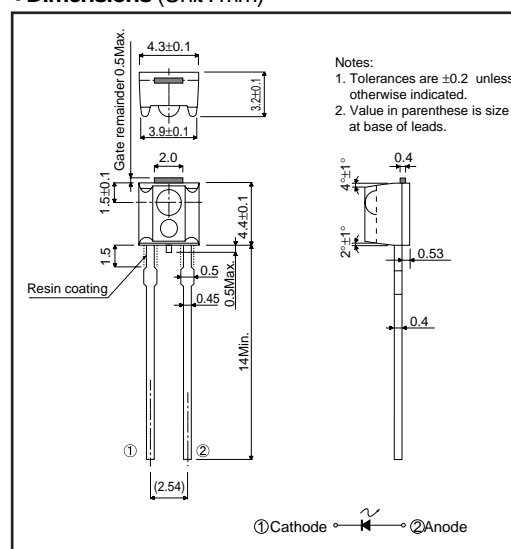
●Applications

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_{op}	-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

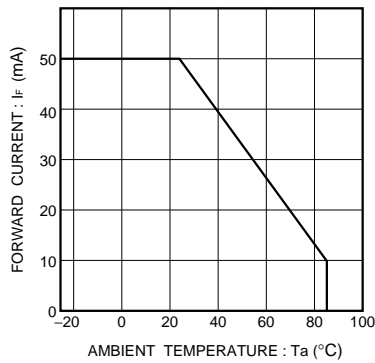


Fig.1 Forward current falloff

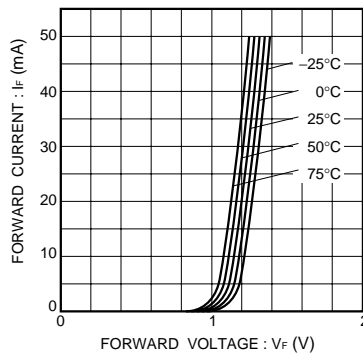


Fig.2 Forward current vs. forward voltage

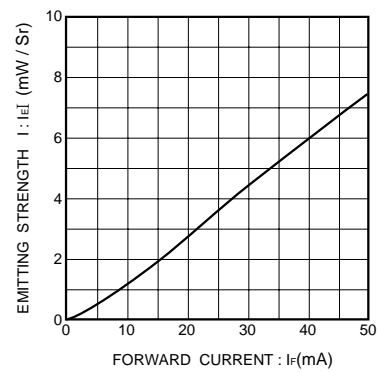


Fig.3 Emitting strength vs. forward current

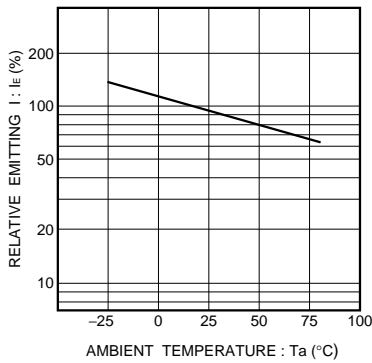


Fig. 4 Relative emitting strength vs. ambient temperature

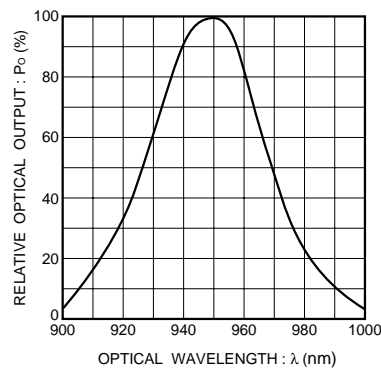


Fig.5 Wavelength

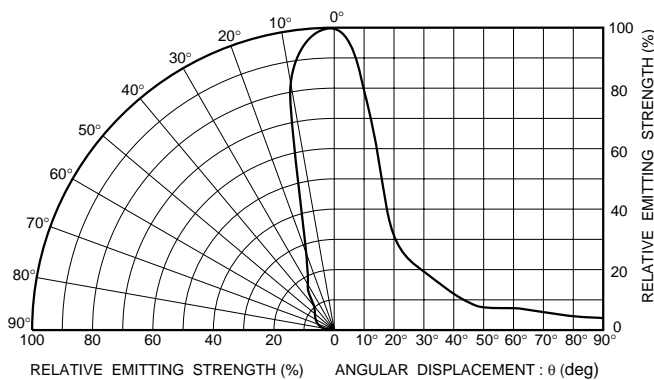


Fig. 6 Directional pattern

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