

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

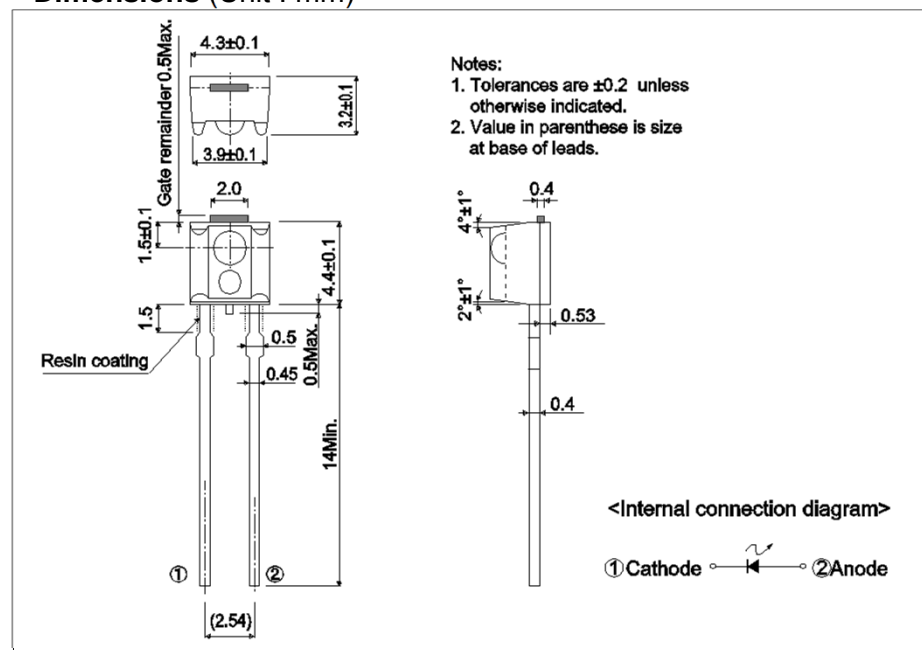
### ●Features

- 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.

### ●Outline



### ●Dimensions (Unit : mm)



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

Parameter	Symbol	Value	Unit
Forward current	$I_F$	50	mA
Reverse voltage	$V_R$	5	V
Power dissipation	$P_D$	80	mW
Pulse forward current	$I_{FP}^*$	500	mA
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<sub>a</sub> = 25°C)**

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Emitting strength	I <sub>E</sub>	I <sub>F</sub> = 50mA	-	7.5	-	mW/sr
Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 50mA	-	1.3	1.6	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> = 3V	-	-	10	μA
Peak light emitting wavelength	λ <sub>p</sub>	I <sub>F</sub> = 50mA	-	950	-	nm
Spectral line half width	Δλ	I <sub>F</sub> = 50mA	-	40	-	nm
Half-viewing angle	θ <sub>1/2</sub>	I <sub>F</sub> = 50mA	-	±15	-	deg
Response time	tr·tf	I <sub>F</sub> = 50mA	-	1.0	-	μs
Cut-off frequency	f <sub>C</sub>	I <sub>F</sub> = 50mA	-	1.0	-	MHz

**●Classified table of rank**

Item	Emitting Strength : I <sub>E</sub>	Unit
K	3.2 to 6.6	mW / sr
L	4.4 to 9.3	mW / sr
M	6.1 to 13.0	mW / sr

 ◎ Condition I<sub>F</sub> = 10mA

●Electrical and optical characteristics curves

Fig.1 Forward Current Falloff

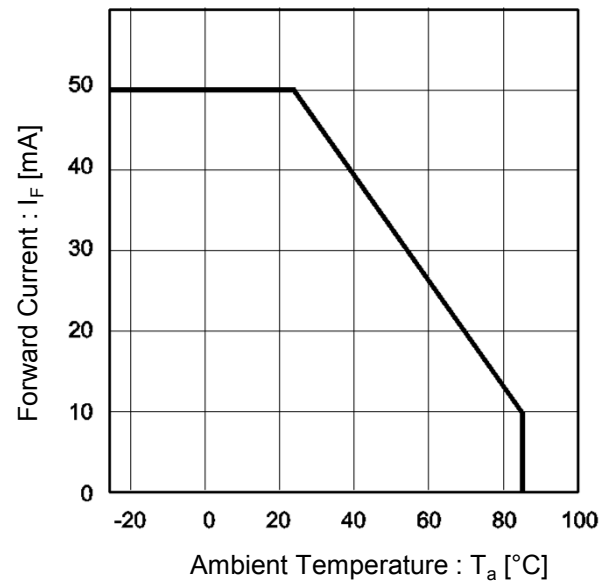


Fig.2 Forward Current vs. Forward Voltage

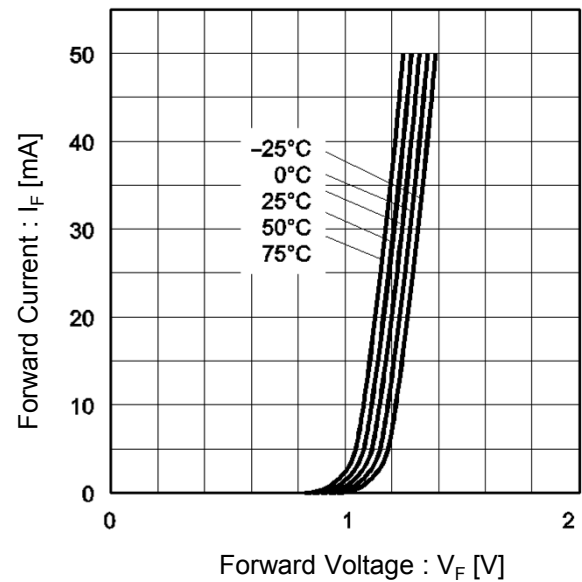


Fig.3 Emitter Strength vs. Forward Current

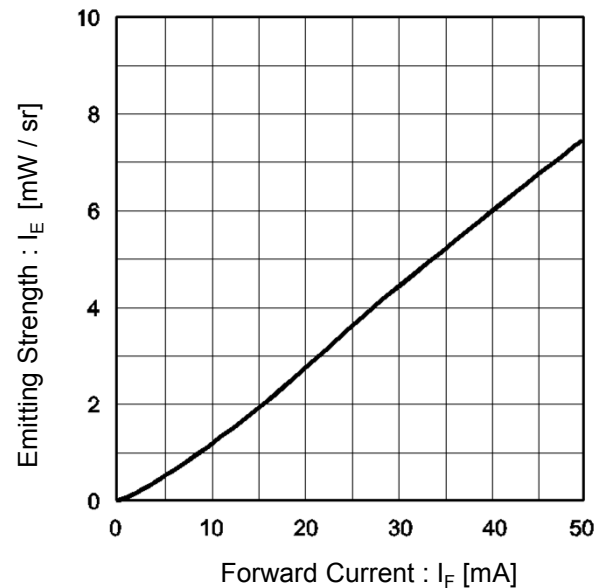
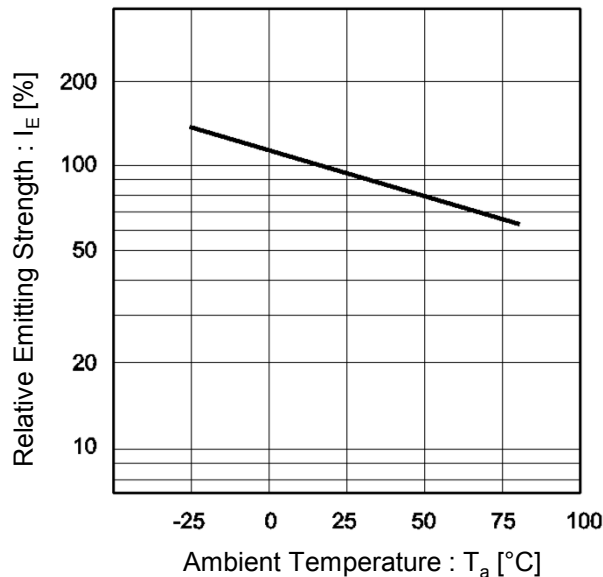


Fig.4 Relative Emitter Strength vs. Ambient Temperature



●Electrical and optical characteristics curves

Fig.5 Wavelength

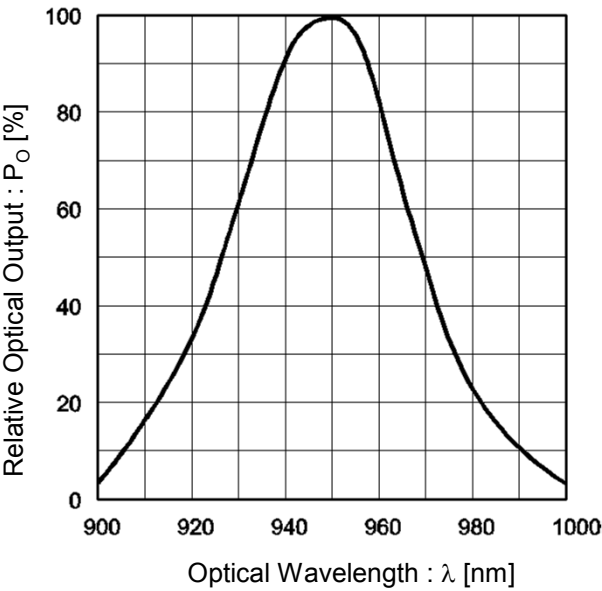
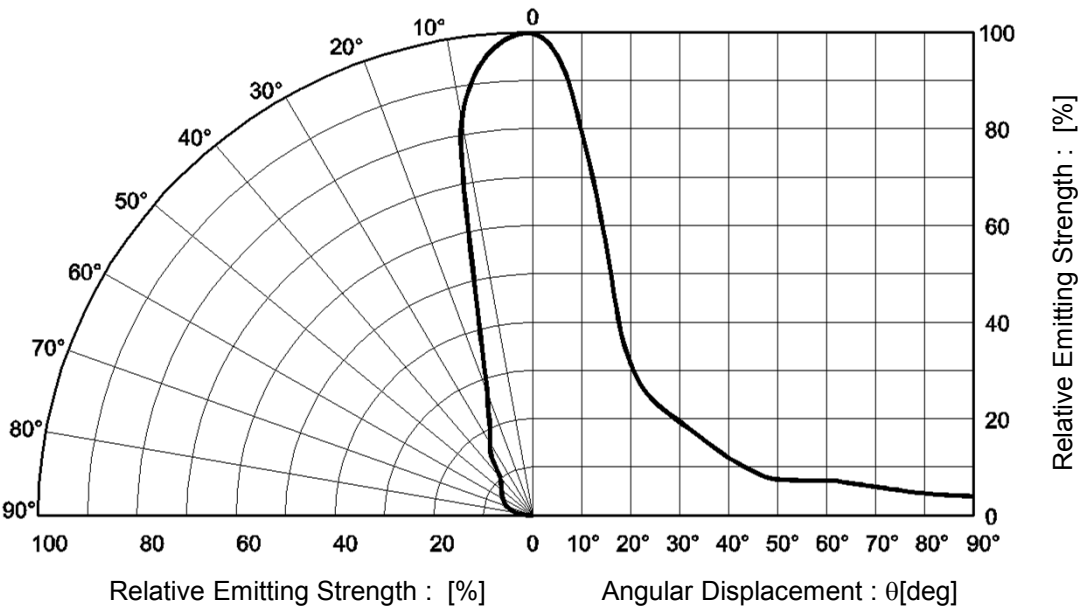


Fig.6 Directional Pattern



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