



Technical Data Sheet

5mm Infrared LED, T-1 3/4

SIR333C-23

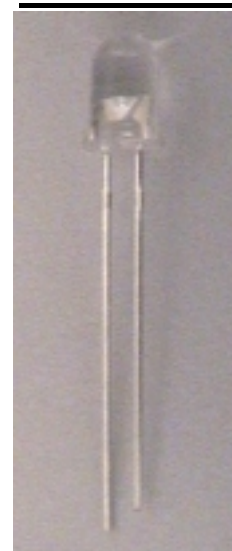
Features

- High reliability
- 2.54mm lead spacing
- Low forward voltage
- Good spectral matching to Si photodetector

Descriptions

EVERLIGHT's infrared emitting diode (SIR333C-23) is a high intensity diode, molded in a water clear plastic package.

The device is spectrally matched with phototransistor, photodiode and infrared receiver module.



Applications

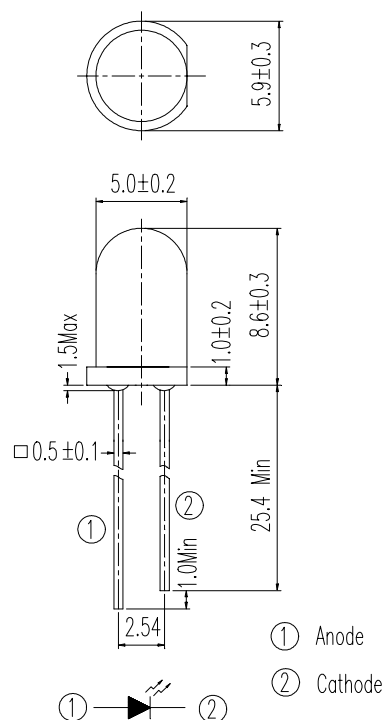
- Free air transmission system
- Optoelectronic switch
- Floppy disk drive
- Infrared applied system
- Smoke detector

Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
SIR	GaAlAs	Water clear

Device No:DIS-033-081

Package Dimensions



Notes: 1.All dimensions are in millimeters
2.Tolerances unless dimensions $\pm 0.25\text{mm}$

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Continuous Forward Current	I_F	100	mA
Peak Forward Current	I_{FP}	1.0	A
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +85	°C
Soldering Temperature	T_{sol}	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	P_d	150	mW

Notes: *1: I_{FP} Conditions--Pulse Width $\leq 100 \mu\text{s}$ and Duty $\leq 1\%$.

*2:Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	E_e	$I_F=20\text{mA}$	15	20	--	mW/sr
		$I_F=100\text{mA}$ Pulse Width $\leq 100\ \mu\text{s}$ and Duty $\leq 1\%$	--	90	--	
		$I_F=1\text{A}$ Pulse Width $\leq 100\ \mu\text{s}$ and Duty $\leq 1\%$	--	900	--	
Peak Wavelength	λ_p	$I_F=20\text{mA}$	--	875	--	nm
Spectral Bandwidth	$\Delta\lambda$	$I_F=20\text{mA}$	--	80	--	nm
Forward Voltage	V_F	$I_F=20\text{mA}$	--	1.3	1.6	V
		$I_F=100\text{mA}$ Pulse Width $\leq 100\ \mu\text{s}$ and Duty $\leq 1\%$	--	1.4	1.8	
		$I_F=1\text{A}$ Pulse Width $\leq 100\ \mu\text{s}$ and Duty $\leq 1\%$	--	2.6	4.0	
Reverse Current	I_R	$V_R=5\text{V}$	--	--	10	μA
View Angle	$2\theta_{1/2}$	$I_F=20\text{mA}$	--	20	--	deg

Intensity Specifications for Bin Grading

Rank	Test Condition	Min	Max	Unit
P	$I_F=20\text{mA}$	15.0	24.0	mW/sr
Q		21.0	34.0	

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

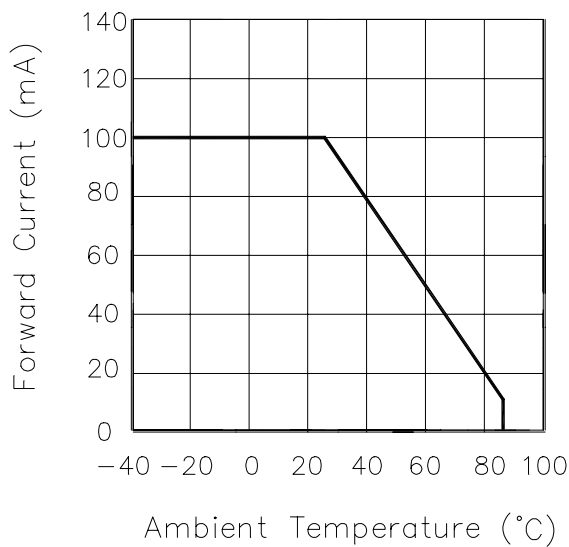


Fig.2 Spectral Distribution

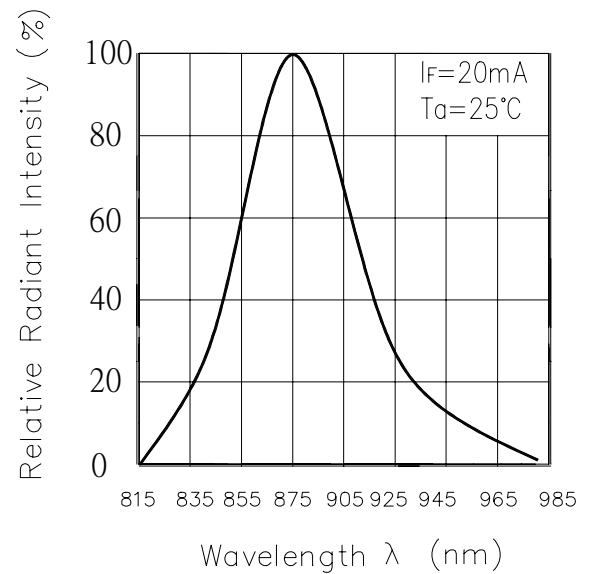


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

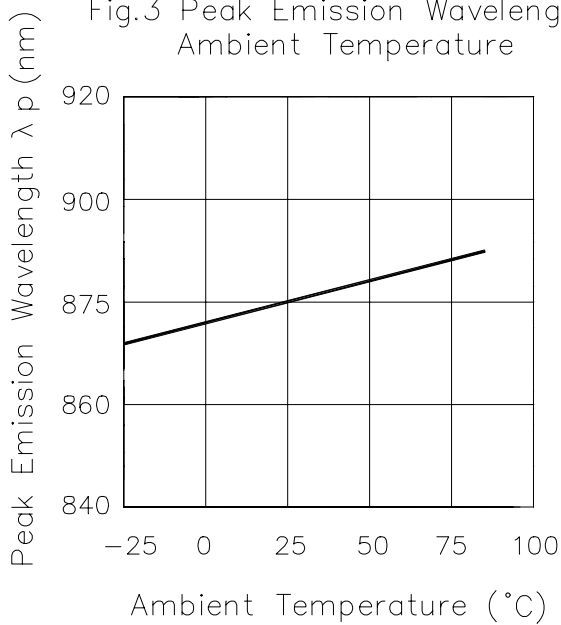
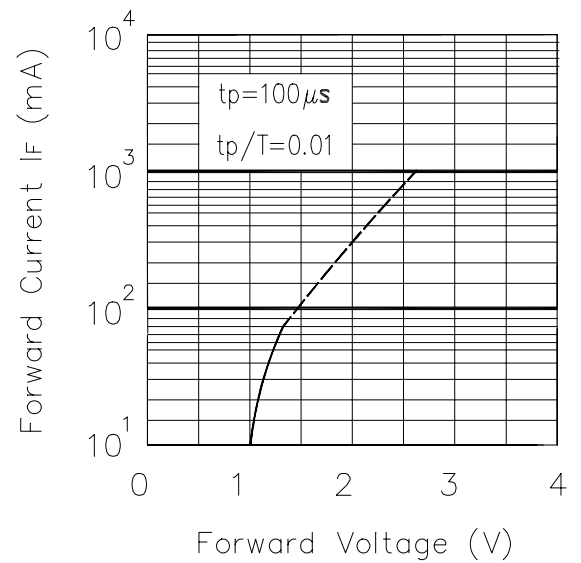


Fig.4 Forward Current vs. Forward Voltage



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Typical Electro-Optical Characteristics Curves

Fig.5 Relative Intensity vs. Forward Current

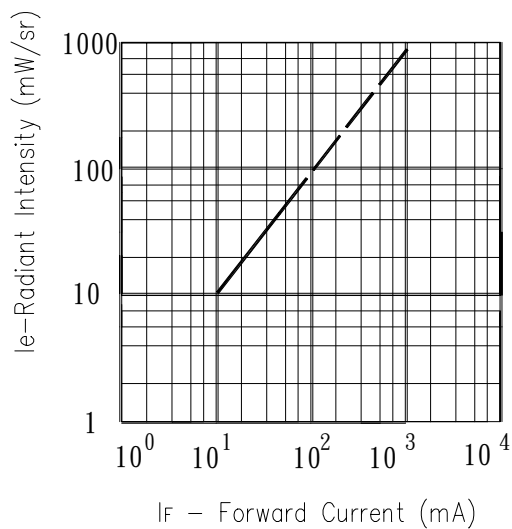


Fig.6 Relative Radiant Intensity vs. Angular Displacement

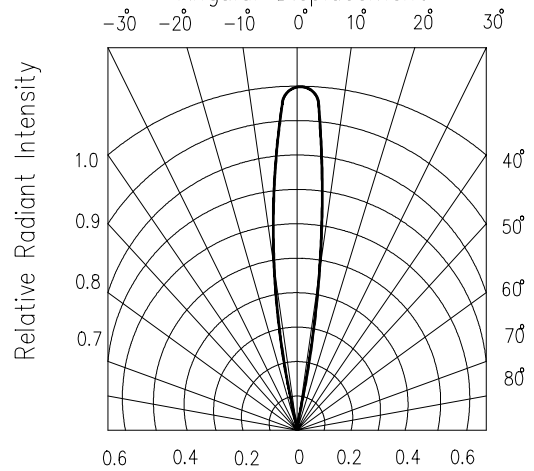


Fig.7 Relative Intensity vs. Ambient Temperature ($^\circ\text{C}$)

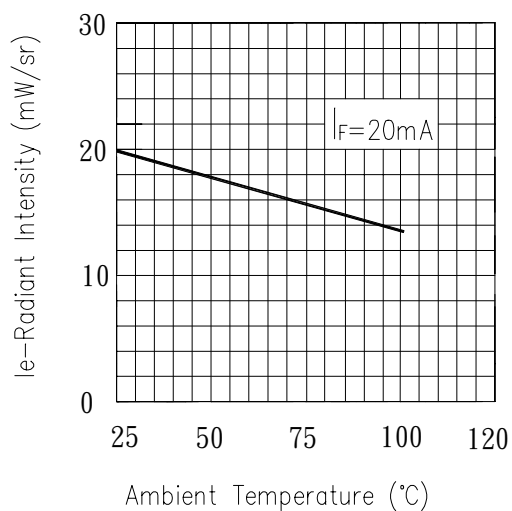
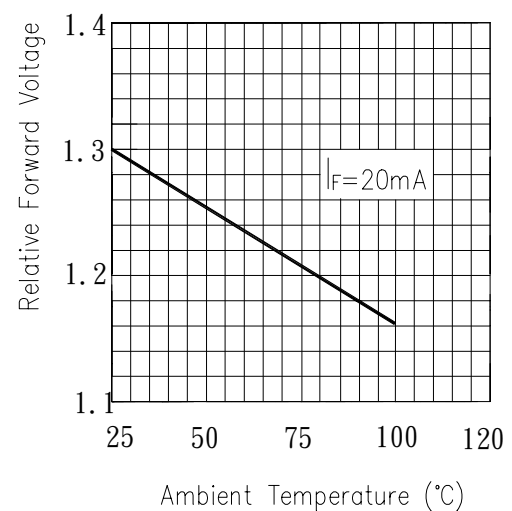


Fig.8 Forward Current vs. Ambient Temperature ($^\circ\text{C}$)



Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP. : $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$	10 secs	22pcs		0/1
2	Temperature Cycle	$\begin{array}{l} \text{H : } +85^{\circ}\text{C} \quad 30\text{mins} \\ \updownarrow \quad 5\text{mins} \\ \text{L : } -55^{\circ}\text{C} \quad 30\text{mins} \end{array}$	50 Cycles	22pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$	0/1
3	Thermal Shock	$\begin{array}{l} \text{H : } +100^{\circ}\text{C} \quad 5\text{mins} \\ \updownarrow \quad 10\text{secs} \\ \text{L : } -10^{\circ}\text{C} \quad 5\text{mins} \end{array}$	50 Cycles	22pcs	U : Upper Specification	0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs	Limit	0/1
5	Low Temperature Storage	TEMP. : -55°C	1000hrs	22pcs	L : Lower Specification	0/1
6	DC Operating Life	$I_F = 20\text{mA}$	1000hrs	22pcs	Limit	0/1
7	High Temperature/ High Humidity	$85^{\circ}\text{C} / 85\% \text{ R.H}$	1000hrs	22pcs		0/1

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Device No:DIS-033-081