



Technical Data Sheet

1.9mm Round Subminiature “Yoke” Lead Infrared LED

IR95-21C/TR9

Features

- Small double-end package
- High reliability
- Low forward voltage
- Good spectral matching to Si photo-detector



Descriptions

IR95-21C/TR9 is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with spherical top view lens. The device is spectrally matched with silicon photodiode and phototransistor.

Applications

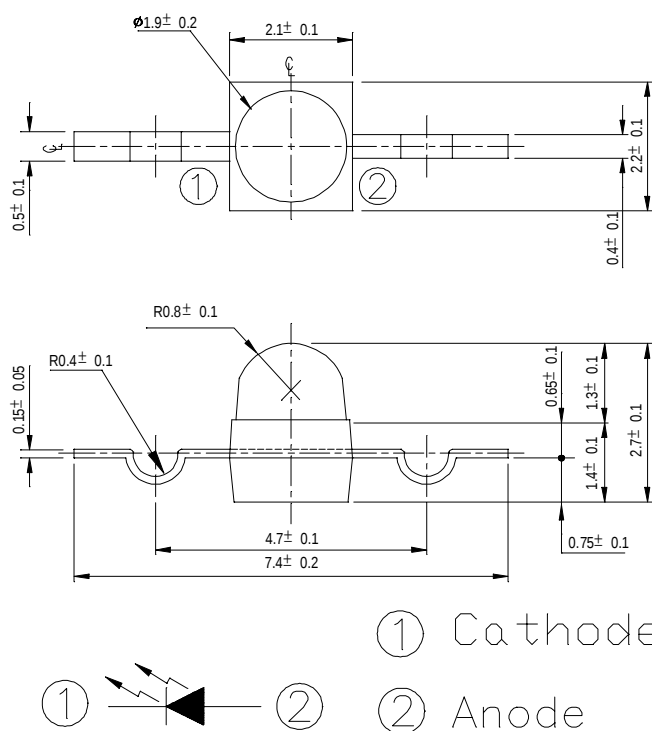
- PCB mounted infrared sensor
- Infrared emitting for miniature light barrier
- Floppy disk drive
- Printer

Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
IR	GaAlAs	Water Clear

Device No:DTR-095-054

Package Dimensions



- Notes:** 1.All dimensions are in millimeters
2.Tolerances unless dimensions $\pm 0.1\text{mm}$

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Continuous Forward Current	I_F	65	mA
Peak Forward Current	I_{FP}	1.0	A
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-25 ~ +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	130	mW

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

*2:Soldering time ≤ 5 seconds.

Device No:DTR-095-054

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	E_e	$I_F=20\text{mA}$	3.0	5.0	--	mW/sr
		$I_F=100\text{mA}$ Pulse Width $\leq 100\ \mu\text{s}$ and Duty $\leq 1\%$	--	25	--	
		$I_F=1\text{A}$ Pulse Width $\leq 100\ \mu\text{s}$ and Duty $\leq 1\%$	--	250	--	
Peak Wavelength	λ_p	$I_F=20\text{mA}$	--	940	--	nm
Spectral Bandwidth	$\Delta\lambda$	$I_F=20\text{mA}$	--	45	--	nm
Forward Voltage	V_F	$I_F=20\text{mA}$	--	1.2	1.5	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	$2\theta_{1/2}$	$I_F=20\text{mA}$	--	25	--	deg

Intensity Specifications for Bin Grading

Rank	Test Condition	Min	Max	Unit
J	$I_F=20\text{mA}$	3.0	4.5	mW/sr
K		4.0	6.0	
L		5.0	7.5	
M		6.0	9.0	
N		7.0	10.5	
P		8.0	12.0	
Q		9.0	13.5	
R		10.0	15.0	
S		11.0	16.5	
T		12.0	18.0	

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

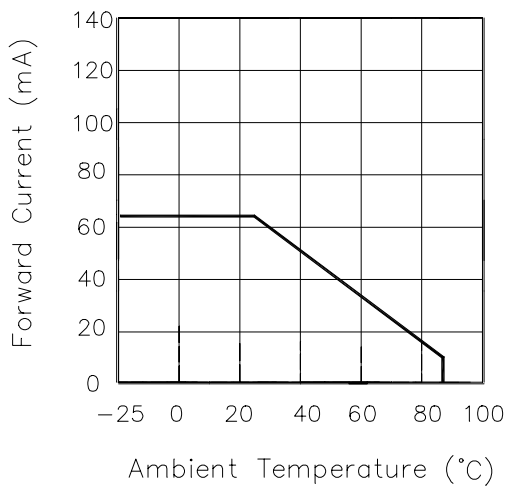


Fig.2 Spectral Distribution

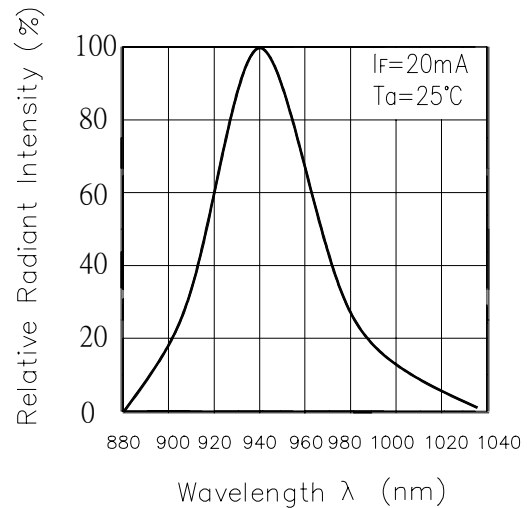


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

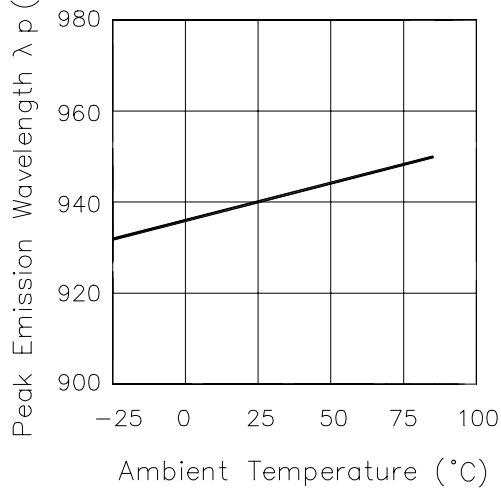
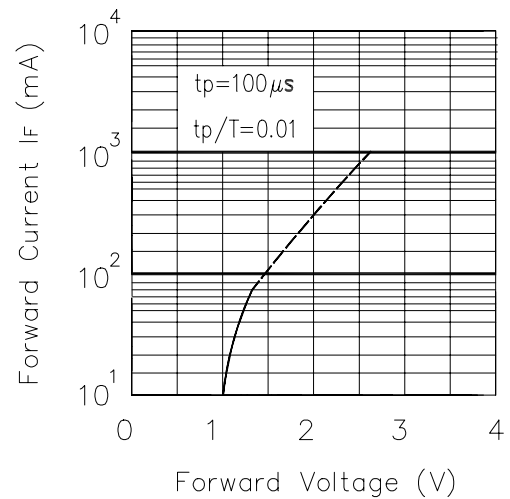


Fig.4 Forward Current vs. Forward Voltage



Device No:DTR-095-054

Typical Electro-Optical Characteristics Curves

Fig.5 Relative Intensity vs. Forward Current

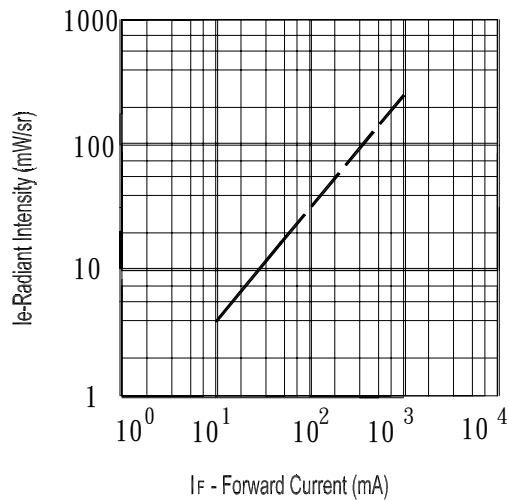


Fig.7 Relative Intensity vs. Ambient Temperature ($^{\circ}$ C)

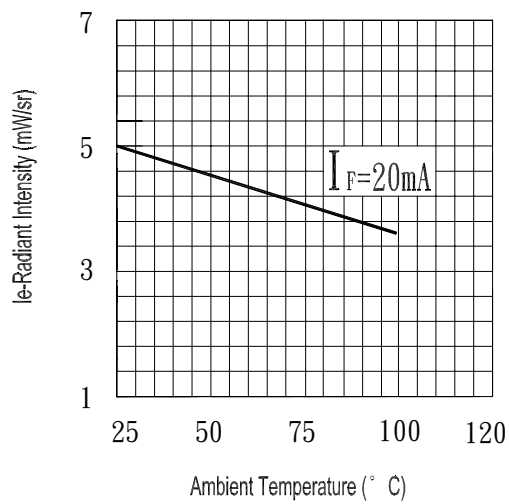


Fig.6 Relative Radiant Intensity vs. Angular Displacement

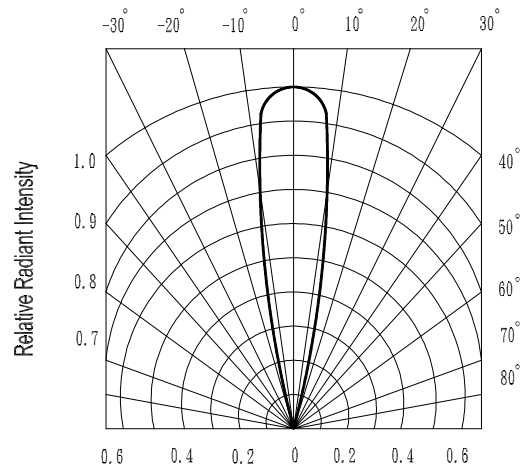
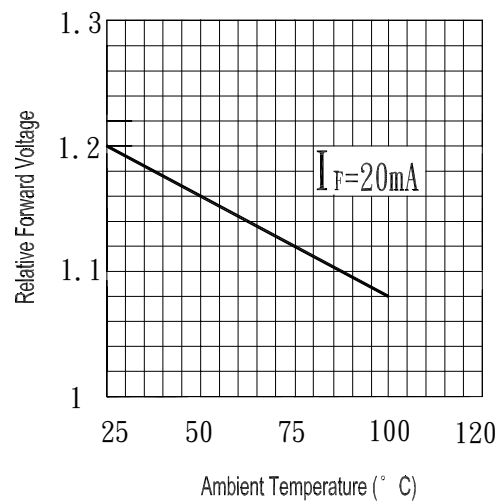
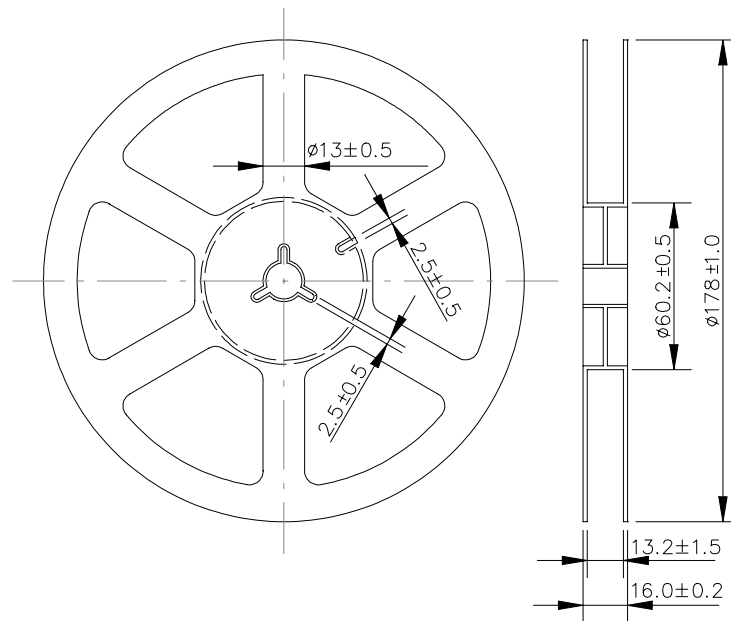


Fig.8 Forward Current vs. Ambient Temperature ($^{\circ}$ C)

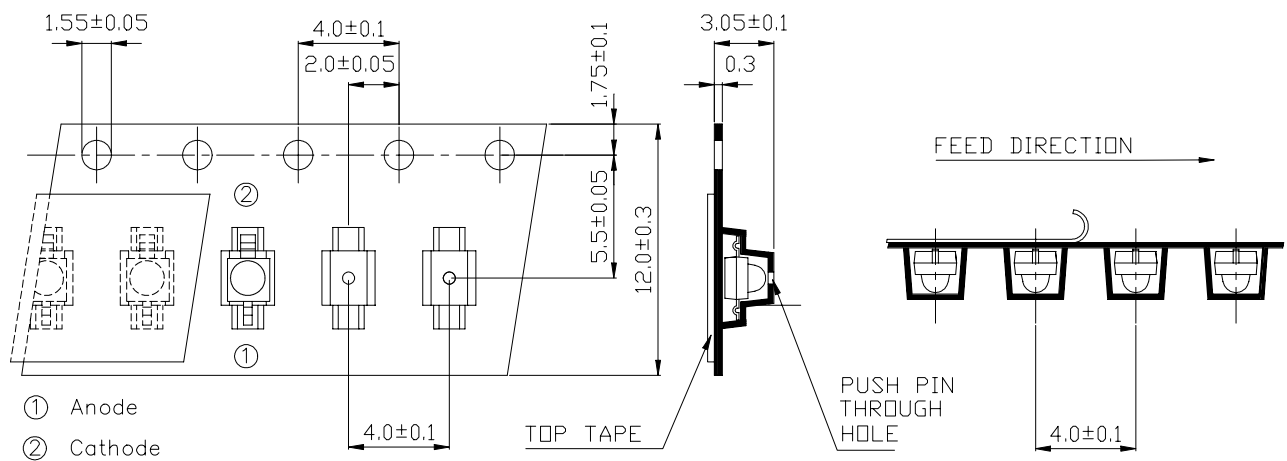


Device No:DTR-095-054

Package Dimensions



Loaded Quantity Per Reel 1000PCS/Reel



Unit : mm

Device No:DTR-095-054

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	REFLOW	TEMP. : $240^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 5secs	6mins	22pcs	More than 90% of lead to be covered by soldering	0/1
2	Temperature Cycle	H : $+85^{\circ}\text{C}$ 30mins ↕ 5mins L : -55°C 30mins	50Cycle	22pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$	0/1
3	Thermal Shock	H : $+100^{\circ}\text{C}$ 5mins ↕ 10secs L : -10°C 5mins	50Cycle	22pcs	$V_F \geq U \times 1.2$	0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs	Specification 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°C / 85% R.H	1000hrs	22pcs		0/1

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