

## Technical Data Sheet

# 1.9mm Round Subminiature “Gull Wing” Lead Infrared LED

### HIR95-21C/L11/TR7

#### Features

- High radiant intensity
- High reliability
- Low forward voltage
- Good spectral matching to Si photodetector



#### Descriptions

HIR95-21C/L11/TR7 is an infrared emitting diode in miniature SMD package which is in a water clear plastic with spherical top view lens. The spectrally device is matched silicon with Photodiode and phototransistor.

#### Applications

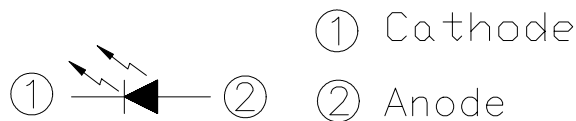
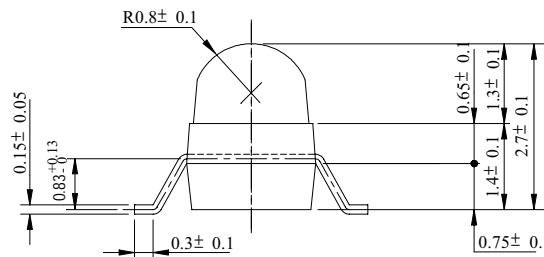
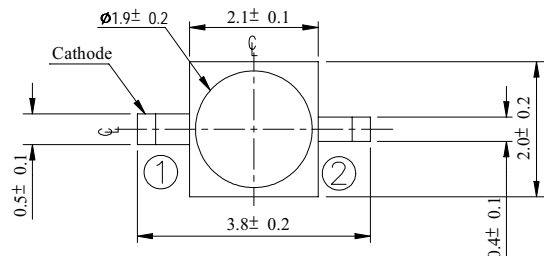
- Smoke detector
- VCR ,Video
- Floppy disk drive
- Optoelectronic switch
- Smoke detector

#### Device Selection Guide

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

Device No:DTH-095-004

## Package Dimensions



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

## Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

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	$T_{opr}$	$-25 \sim +85$	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-40 \sim +85$	$^\circ\text{C}$
Soldering Temperature	$T_{sol}$	260	$^\circ\text{C}$
Power Dissipation at(or below) 25 $^\circ\text{C}$ Free Air Temperature	$P_d$	130	mW

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

\*2:Soldering time  $\leq 5$  seconds.

Device No:DTH-095-004

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	Ee	I <sub>F</sub> =20mA	5.0	10	--	mW/sr
Peak Wavelength	$\lambda_p$	I <sub>F</sub> =20mA	--	850	--	nm
Spectral Bandwidth	$\Delta \lambda$	I <sub>F</sub> =20mA	--	45	--	nm
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	--	1.45	1.65	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	--	--	10	$\mu$ A
View Angle	2 $\theta$ 1/2	I <sub>F</sub> =20mA	--	25	--	deg

## Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

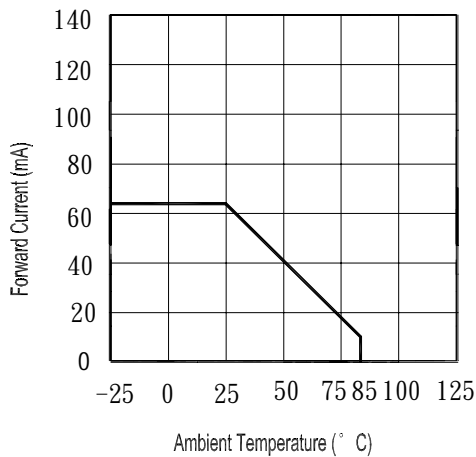


Fig.2 Spectral Distribution

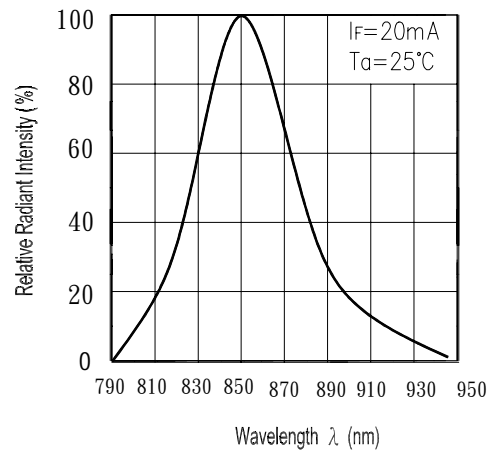


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

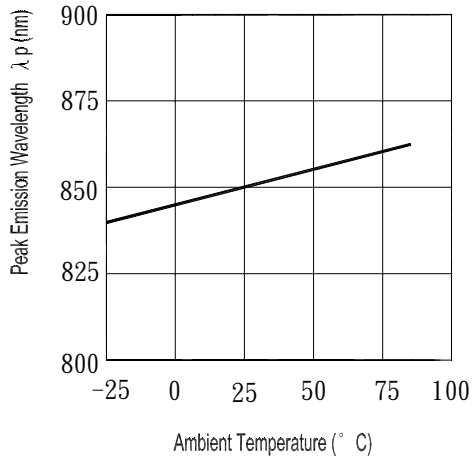
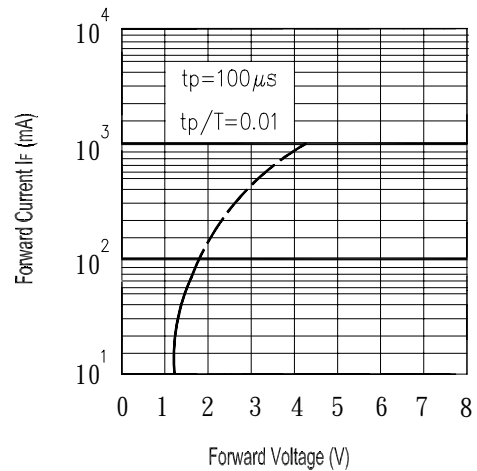


Fig.4 Forward Current vs. Forward Voltage



**Typical Electro-Optical Characteristics Curves**

Fig. 5 Relative Intensity vs.  
Forward Current

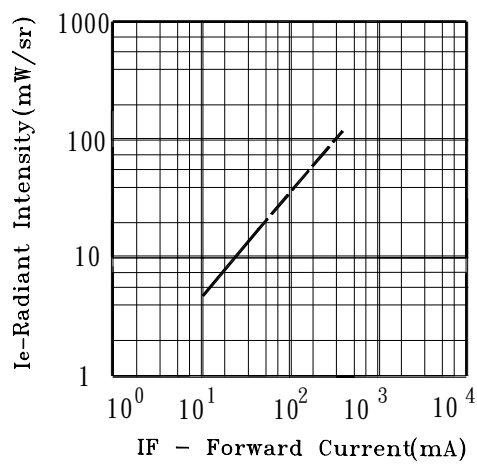


Fig. 6 Relative Radiant Intensity  
Angular Displacement

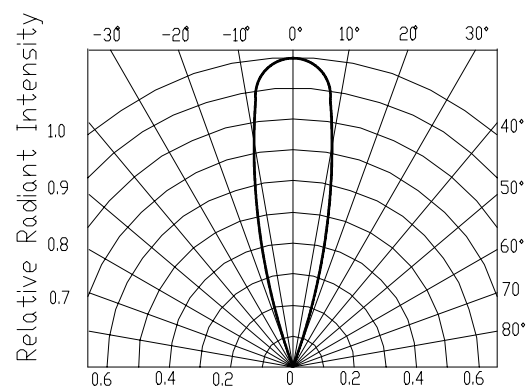


Fig. 7 Relative Intensity vs.  
Ambient Temperature (°C)

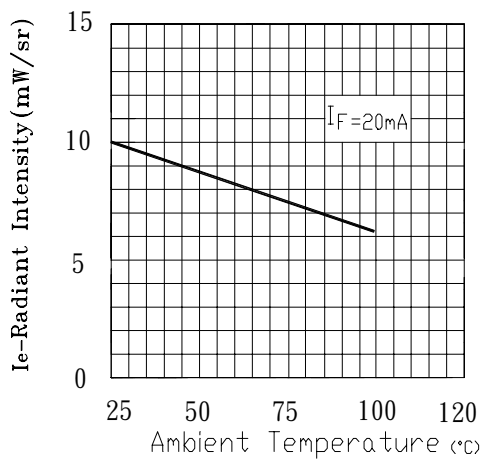
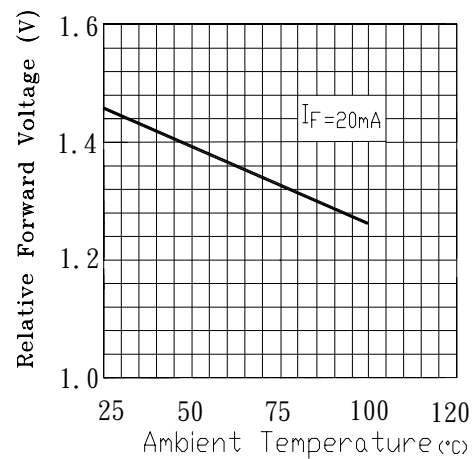
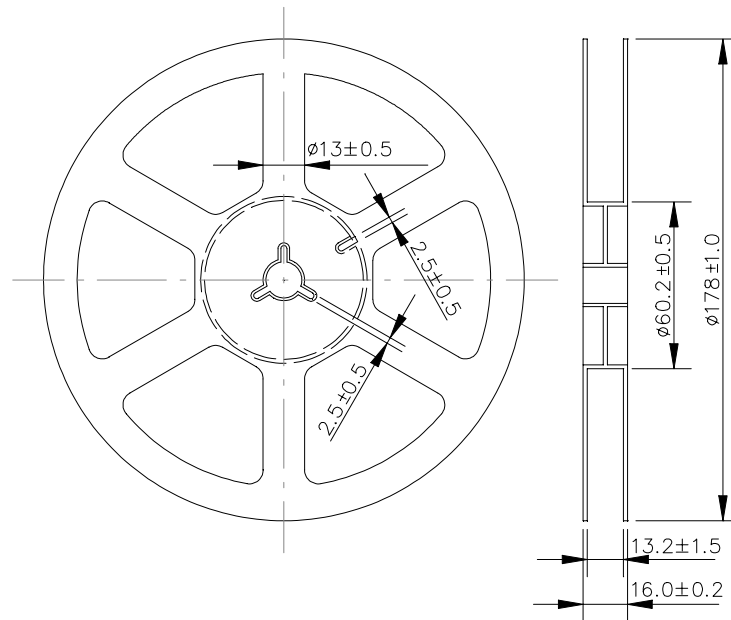


Fig. 8 Forward Current vs.  
Ambient Temperature (°C)

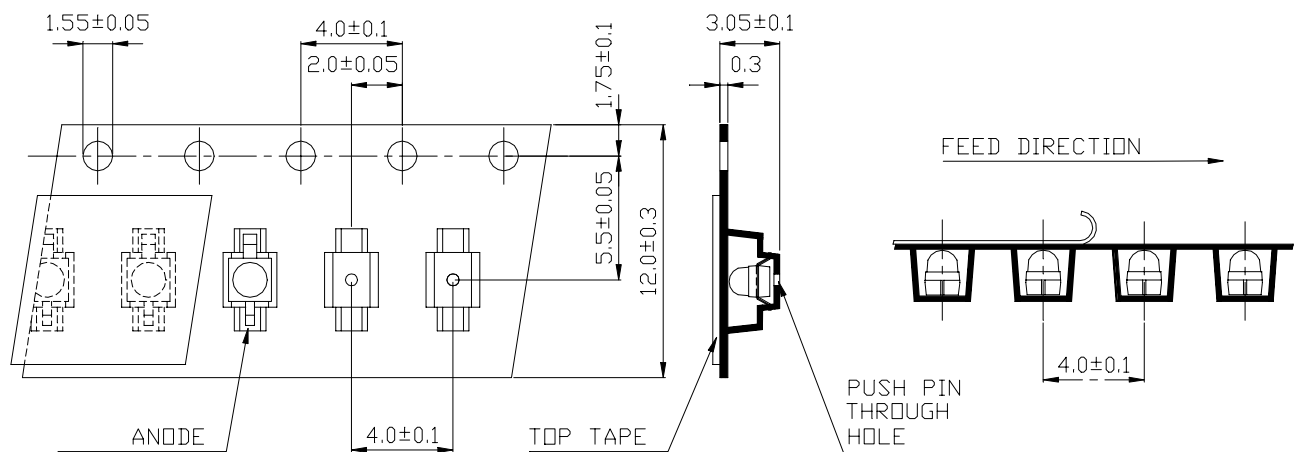


Device No:DTH-095-004

**Package Dimensions**



**Loaded Quantity Per Reel 1000PCS/Reel**



Unit : mm

Device No:DTH-095-004

**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 : $-55^{\circ}\text{C}$ 30mins	50Cycles	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 : $-10^{\circ}\text{C}$ 5mins	50Cycles	22pcs	$V_F \geq U \times 1.2$  U : Upper	0/1
4	High Temperature Storage	TEMP. : $+100^{\circ}\text{C}$	1000hrs	22pcs	Specification Limit	0/1
5	Low Temperature Storage	TEMP. : $-55^{\circ}\text{C}$	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% R.H	1000hrs	22pcs		0/1

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**Device No:DTH-095-004**