Technical Data Sheet

1206 Package Infrared Chip LED

HIR15-21C/TR8

Features

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

Descriptions

HIR15-21C/TR8 is an infrared emitting diode in miniature SMD package molded in a water clear plastic with flat top view lens. The spectrally device is matched silicon with photodiode and phototransistor.

Applications

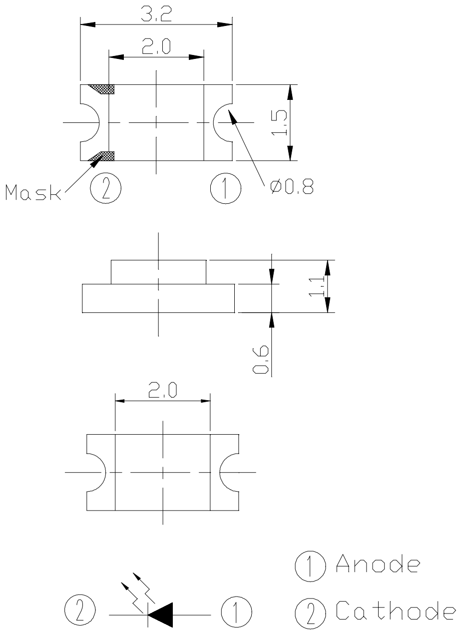
- PCB mounted infrared sensor
- Infrared emitting for miniature light barrier
- Floppy disk drive
- Optoelectronic switch
- Smoke detector

Device Selection Guide

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

Device No:DTH-.015-001

Package Dimensions



Notes: 1.All dimensions are in millimeters

2.Tolerances unless dimensions ± 0.1mm

Absolute Maximum Ratings (Ta=25℃)

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	℃
Storage Temperature	T_{stg}	-40 ~ +85	℃
Soldering Temperature	T_{sol}	260	℃
Power Dissipation at(or below) 25℃ Free Air Temperature	P_d	130	mW

Notes: *1:I_{FP} Conditions--Pulse Width≦100 μs and Duty≦1%.

*2:Soldering time≦5 seconds.

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	Ee	I_F=20mA	0.5	1.5	--	mW/sr
Peak Wavelength	λp	I_F=20mA	--	850	--	nm
Spectral Bandwidth	$\Delta\lambda$	I_F=20mA	--	45	--	nm
Forward Voltage	V_F	I_F=20mA	--	1.45	1.65	V
Reverse Current	I_R	V_R=5V	--	--	10	μA
View Angle	$2\theta 1/2$	I_F=20mA	--	150	--	deg

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

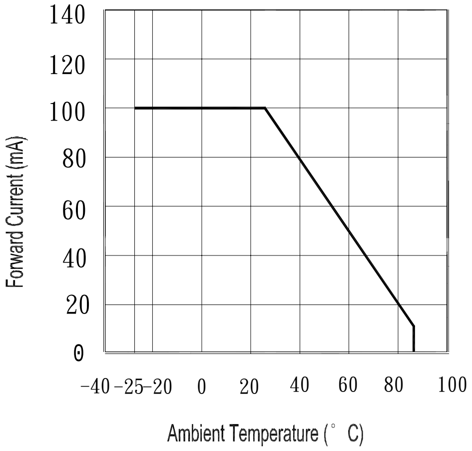


Fig.2 Spectral Distribution

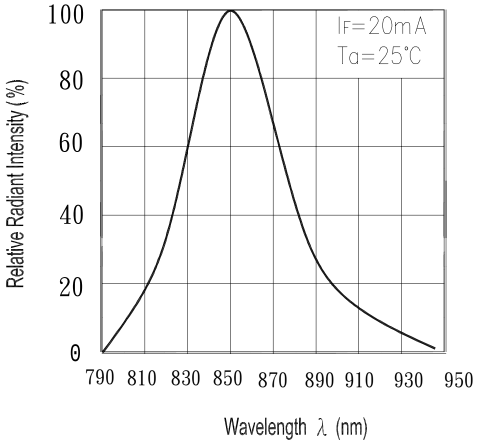


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

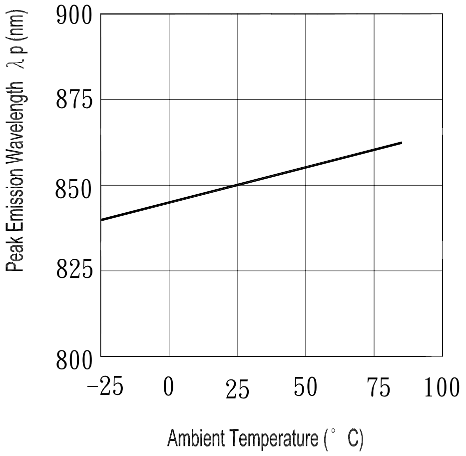
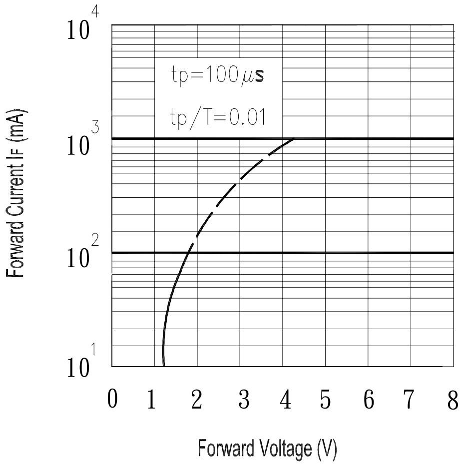


Fig.4 Forward Current vs. Forward Voltage



Typical Electro-Optical Characteristics Curves

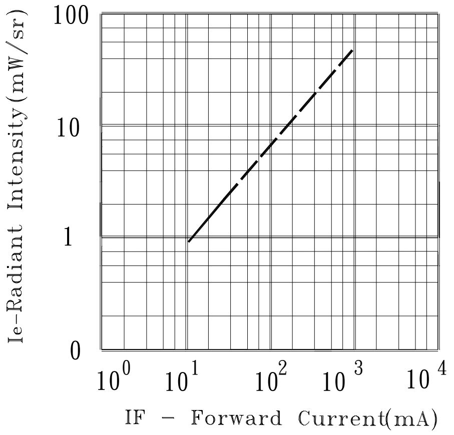


Fig. 5 Relative Intensity vs. Forward Current

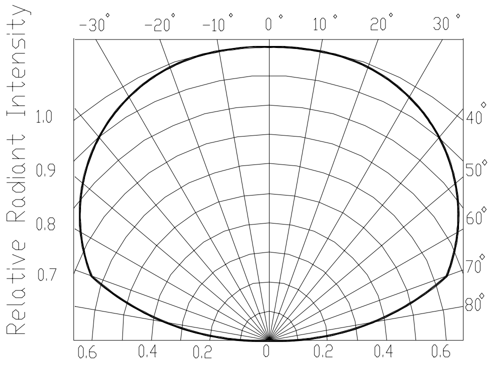


Fig. 6 Relative Radiant Intensity vs. Angular Displacement

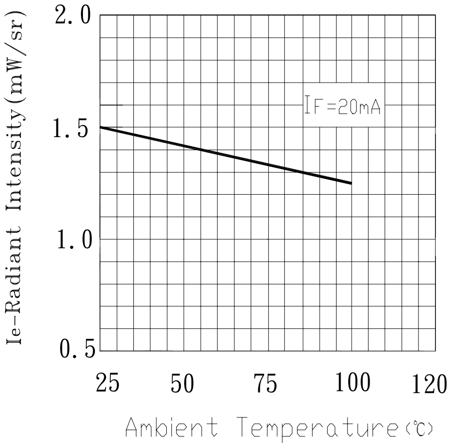


Fig. 7 Relative Intensity vs. Ambient Temperature(℃)

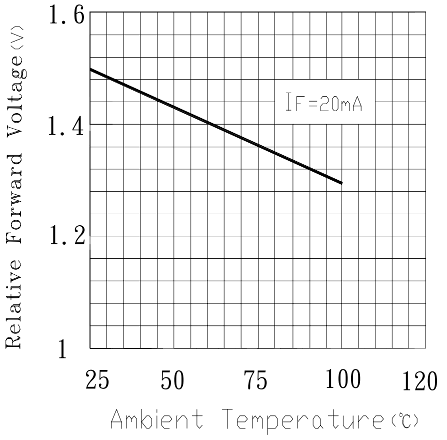
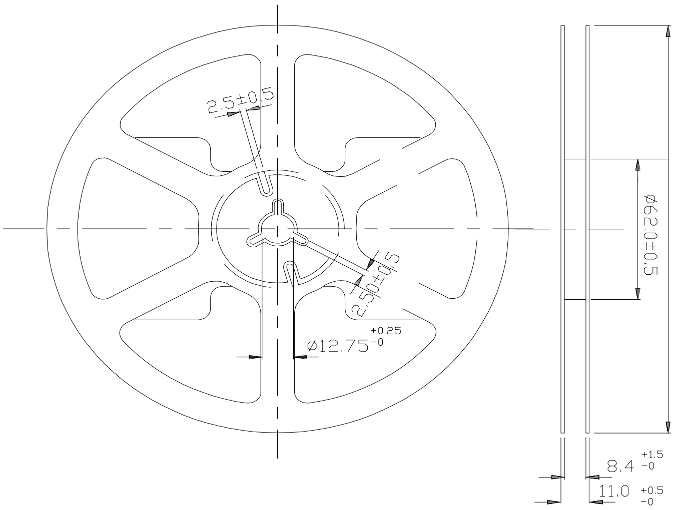
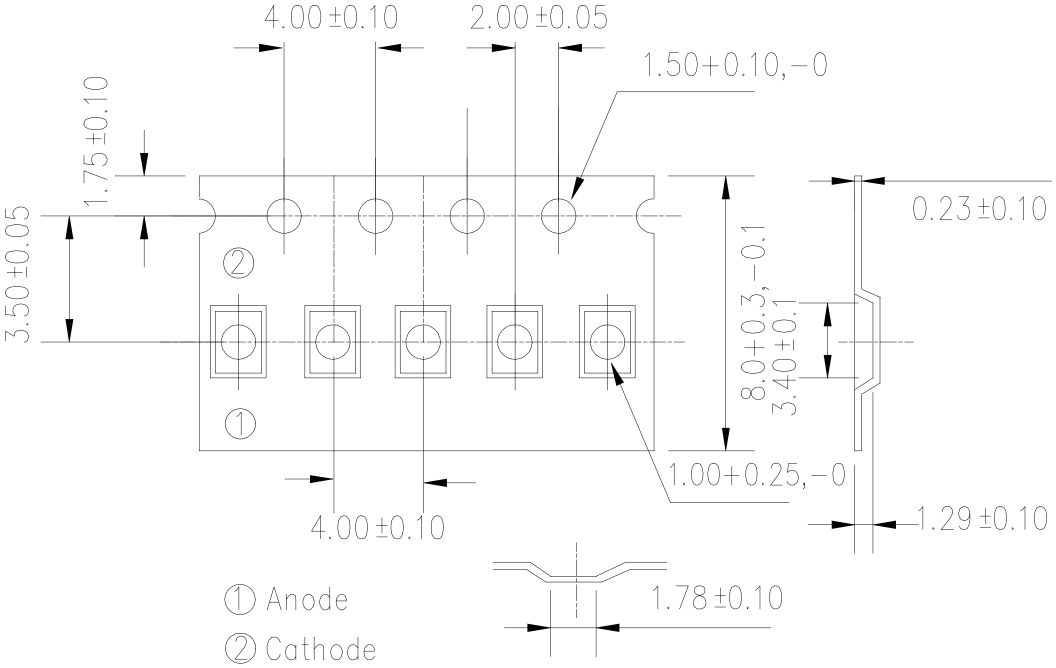


Fig. 8 Forward Voltage vs. Ambient Temperature(℃)

Package Dimensions



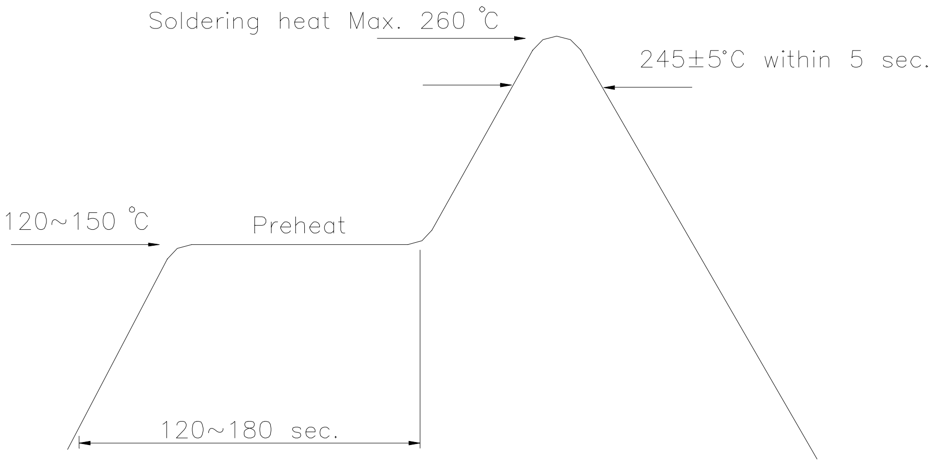
Loaded Quantity Per Reel 3000PCS/Reel



Unit：mm

Soldering heat reliability(DIP)

Please refer to the following figure



Soldering Iron

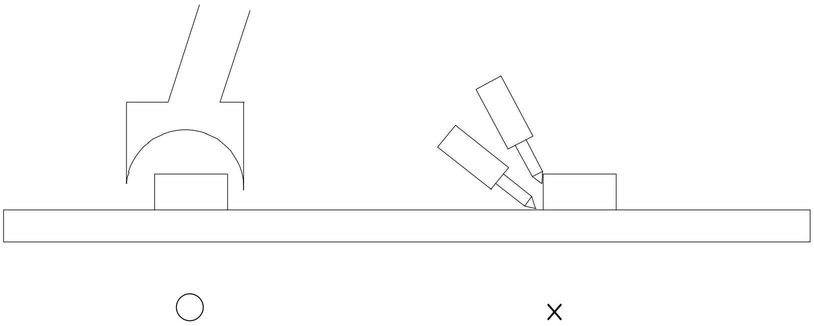
Basic spec is ≦5 sec when 260℃. If temperature is higher, time should be shorter (+10℃ → -1sec). Power dissipation of Iron should be smaller than 15W , and temperature should be controllable. Surface temperature of the device should be under 230℃.

Rework

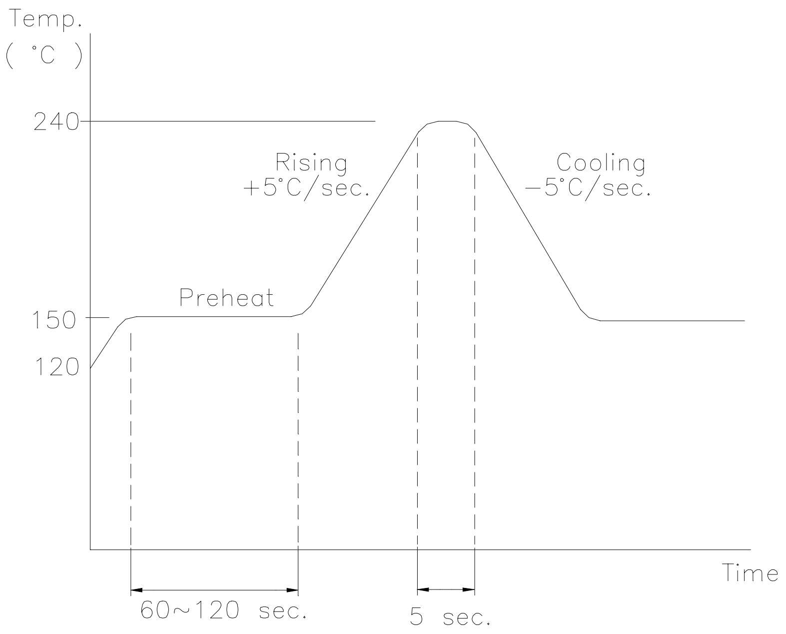
1.Customer must finish rework within 5 sec under 245℃.

2.The head of iron can not touch copper foil.

3.Twin-head type is preferred.



Reflow Temp./Time



Precautions For Use

1.Over-current-proof

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change(Burn out will happen).

2.Storage

2.1 The operation of temperature and R.H are ：5℃~35℃，R.H.60%.

2.2 Once the package is opened , the products be should be used within a week. Otherwise , they should be keep in a damp proof box with desiccating anent. Considering the tape life , we suggest our customers to use our products within a year (from production date).

2.3 If opened more than one week in an atmosphere 5℃~35℃，R.H.60%. , they should be treated at 60℃± 5℃ for 15hrs.

2.4 When you discover that the desiccant in the package has a pink color(normal=blue), you should treat them in the same conditions as2.3

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℃± 5℃ 5secs	6mins	22pcs	More than 90% of lead to be covered by soldering	0/1
2	Temperature Cycle	H : +85℃ 30mins ↕ 5mins L : -55℃ 30mins	50Cycles	22pcs	I_R≧U× 2 Ee≦L× 0.8 V_F≧U× 1.2 U：Upper Specification Limit L：Lower Specification Limit	0/1
3	Thermal Shock	H :+100℃ 5mins ↕ 10secs L :-10℃ 5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP.：+100℃	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP.：-55℃	1000hrs	22pcs		0/1
6	DC Operating Life	I_F=20mA	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85℃ / 85% R.H	1000hrs	22pcs		0/1