



Technical Data Sheet

1.8mm Round Subminiature Infrared LED

HIR42-21C/L80/TR8

Features

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



Descriptions

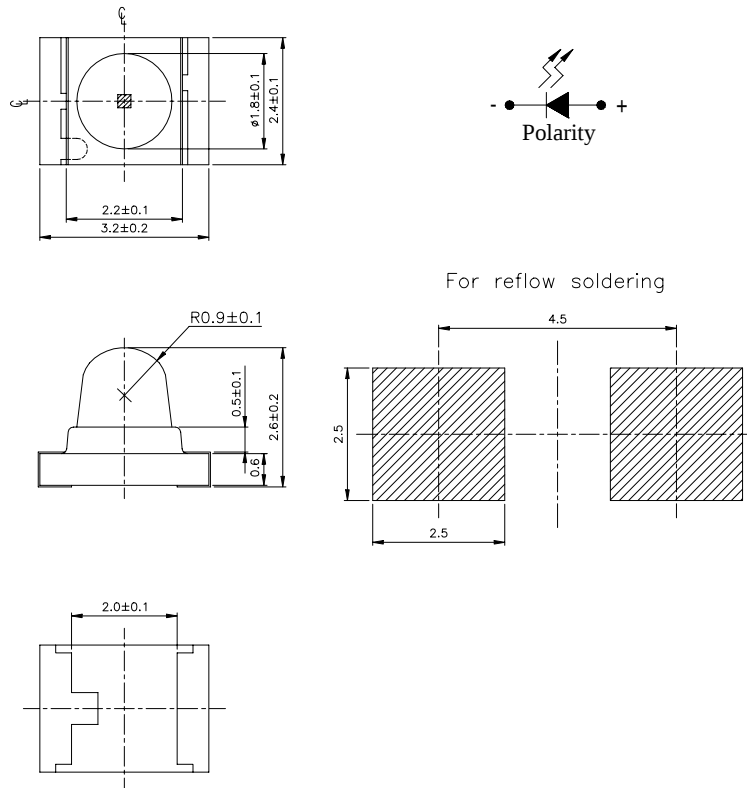
HIR42-21C/L80/TR8 is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic with spherical top view lens. The device is spectrally matched with silicon photodiode and phototransistor.

Applications

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

Device Selection Guide

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

Package Dimensions


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

Absolute Maximum Ratings (Ta=25)

Parameter	Symbol	Rating	Units
Continuous Forward Current	I_F	65	mA
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: * Soldering time 5 seconds.

Electro-Optical Characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	Ee	I _F =20mA	4.0	10	--	mW /sr
		. I _F =100mA Pulse Width 100 μs ,Duty 1%	--	50	--	
Peak Wavelength	λ _p	I _F =20mA	--	850	--	nm
Spectral Bandwidth	Δλ	I _F =20mA	--	45	--	nm
Forward Voltage	V _F	I _F =20mA	--	1.45	1.65	V
		. I _F =100mA Pulse Width 100 μs ,Duty 1%	--	1.80	2.40	
Reverse Current	I _R	V _R =5V	--	--	10	μA
View Angle	2θ _{1/2}	I _F =20mA	--	15	--	deg

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

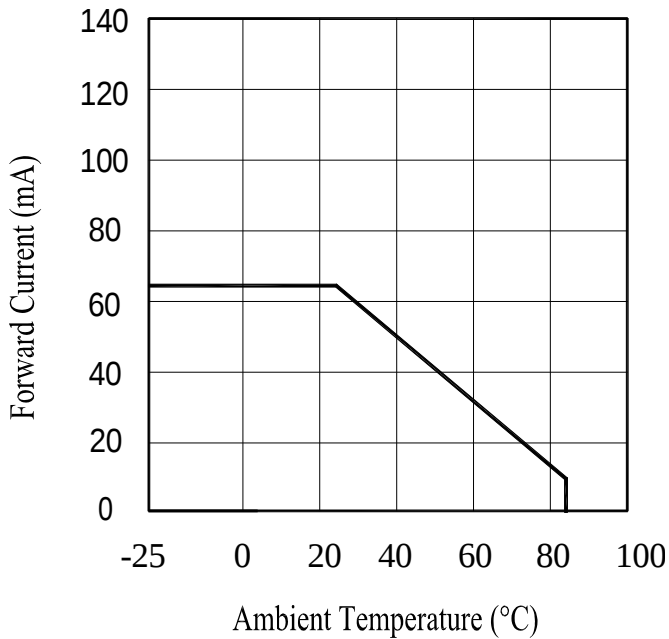


Fig.2 Spectral Distribution

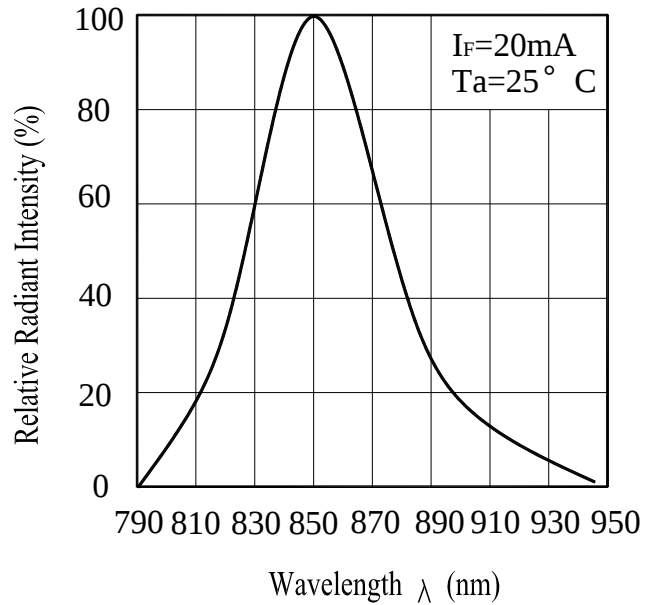


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

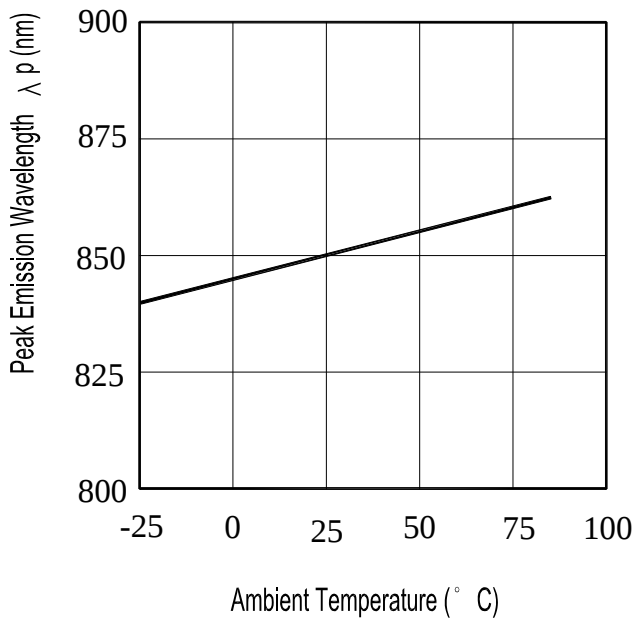
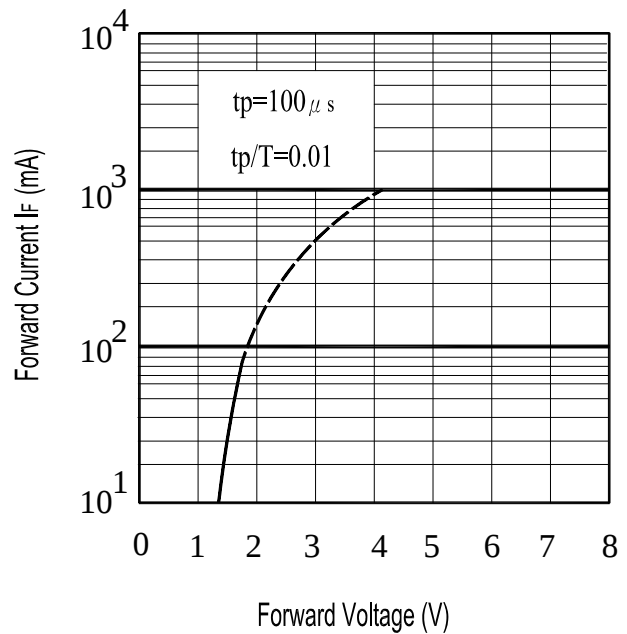


Fig.4 Forward Current vs. Forward Voltage



Typical Electro-Optical Characteristics Curves

Fig.5 Relative Intensity vs.

Forward Current

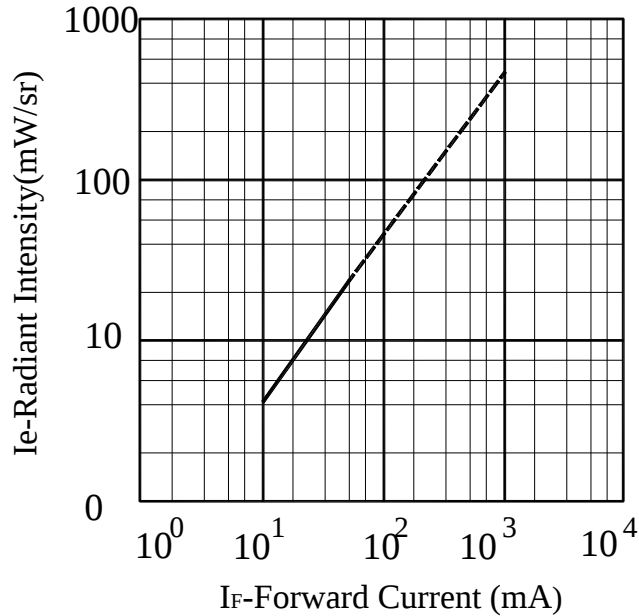


Fig.6 Relative Radiant Intensity vs.

Angular Displacement

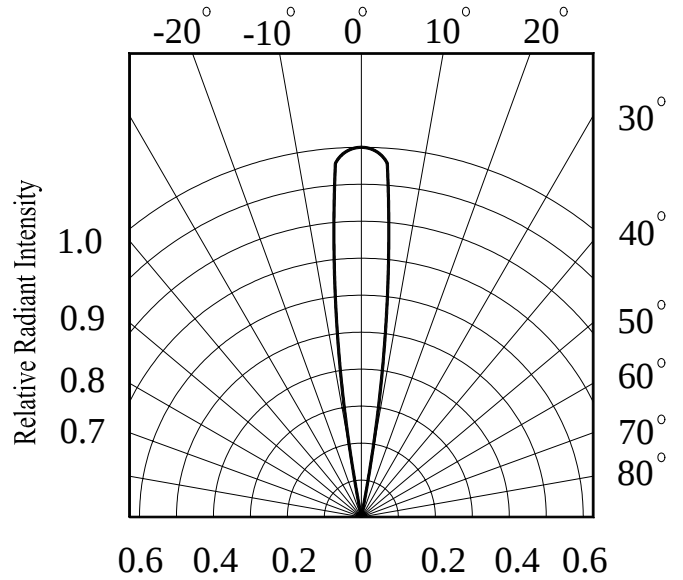


Fig.7 Relative Intensity vs.

Ambient Temperature(° C)

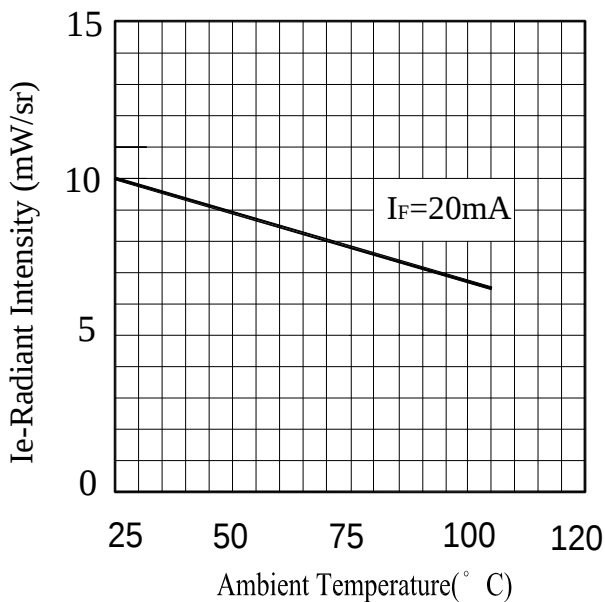
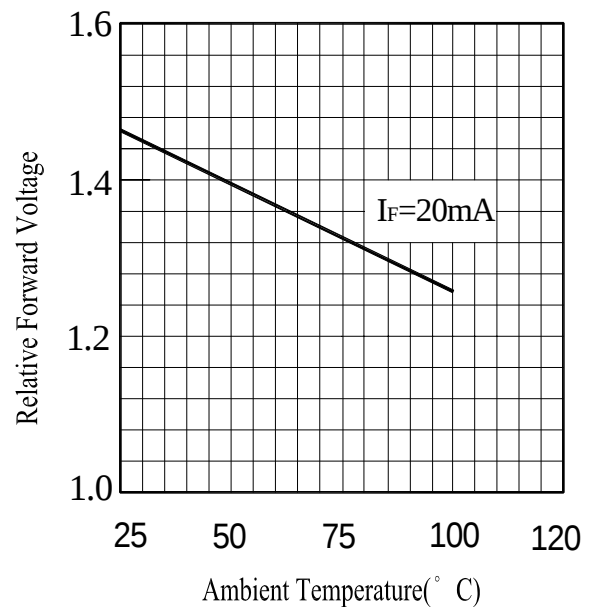
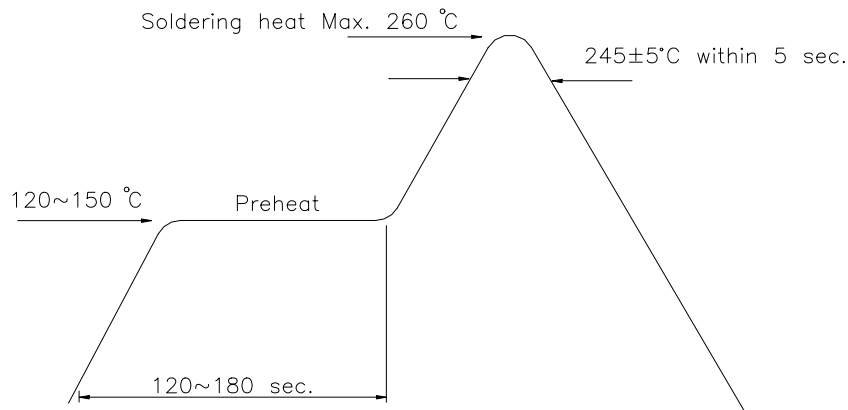


Fig.8 Forward Current vs.

Ambient Temperature(° C)



Soldering heat

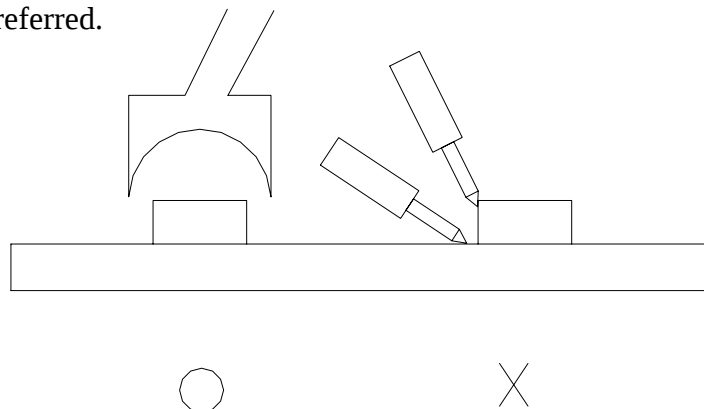


Soldering Iron

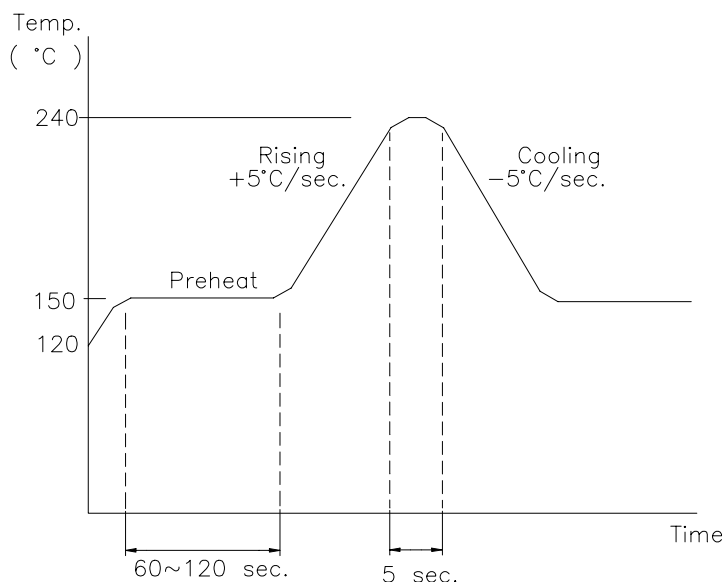
Basic spec is 5 sec when 260 . If temperature is higher , time should be shorter (+10 —→ -1sec).Power dissipation of Iron should be smaller than 15W ,and temperature should be controllable. Surface temperature of the device should be under 230 .

Rework

- 1.Customer must finish rework within 5 sec under 260
- 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 desiccation anent.

Considering the tape life , we suggest our customers to use 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 as 2.3

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	$I_R \quad U \times 2$ $E_e \quad L \times 0.8$ $V_F \quad U \times 1.2$ U : Upper Specification Limit L : Lower Specification Limit	0/1
2	Temperature Cycle	H : +85 30mins ↑ 5mins ↓ L : -55 30mins	50Cycles	22pcs		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

Progressive direction →

2.0 ± 0.05 4.0 $\phi 1.55 \pm 0.05$

1.75 12.0 5.5 ± 0.05

4.0 2.6

0.23 ± 0.1 3.4 ± 0.1 2.75 ± 0.1

+

−

Polarity

TOLERANCES UNLESS DIMENSION ± 0.1
ANGLE ± 0.5

Rev 1.0 Page: 9 of 10
Prepared by : Grace Shen

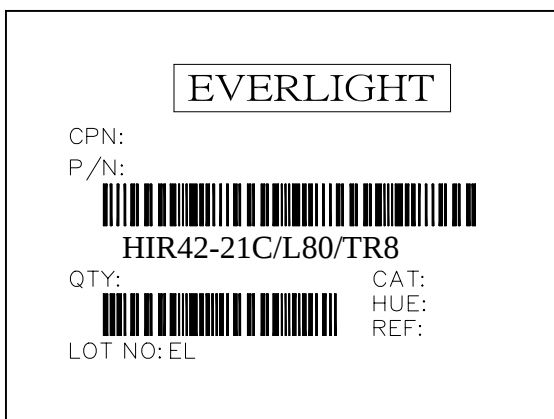


HIR42-21C/L80/TR8

Packing Quantity Specification

- 1.1000Pcs/1Volume , 1Volume/1Bag
- 2.10Boxes/1Carton

Label Form Specification



CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

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