

1.9mm Round Subminiature Axial Infrared LEDS IR91-21C



Features

- Small double-end package
- High reliability
- Low forward voltage
- Good spectral matching to Si photodetector
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Descriptions

IR91-21C 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

Part Category	Chip Material	Lens Color
IR	GaAlAs	Water Clear

Technical drawing of the 2N3638 JFET showing top and side views with dimensions and electrical symbol.

Top View Dimensions:

- Pin 1 diameter: $\varnothing 1.9 \pm 0.2$
- Pin 1 length: 2.5 ± 0.1
- Pin 2 length: 2.0 ± 0.2
- Pin 1 to Pin 2 distance: 0.4 ± 0.1
- Pin 1 to Pin 2 distance (center to center): 0.5 ± 0.1
- Color mark

Side View Dimensions:

- Pin 1 length: 7.0 min.
- Pin 1 to Pin 2 distance: 1.1 ± 0.1
- Pin 2 to Pin 3 distance: 1.4 ± 0.1
- Pin 3 to Pin 4 distance: 7.0 min.
- Pin 1 to Pin 2 distance (center to center): 0.15 ± 0.05
- Pin 2 to Pin 3 distance (center to center): 0.65 ± 0.1
- Pin 3 to Pin 4 distance (center to center): 1.3 ± 0.1
- Pin 4 to Pin 5 distance: 1.4 ± 0.1
- Pin 5 to Pin 6 distance: 0.75 ± 0.1
- Pin 6 to Pin 7 distance: 2.7 ± 0.1
- Pin 7 to Pin 8 distance: 1.4 ± 0.1
- Pin 8 to Pin 9 distance: 1.3 ± 0.1
- Pin 9 to Pin 10 distance: 0.65 ± 0.1
- Pin 10 to Pin 11 distance: 1.4 ± 0.1
- Pin 11 to Pin 12 distance: 1.3 ± 0.1
- Pin 12 to Pin 13 distance: 0.65 ± 0.1
- Pin 13 to Pin 14 distance: 1.4 ± 0.1
- Pin 14 to Pin 15 distance: 1.3 ± 0.1
- Pin 15 to Pin 16 distance: 0.65 ± 0.1
- Pin 16 to Pin 17 distance: 1.4 ± 0.1
- Pin 17 to Pin 18 distance: 1.3 ± 0.1
- Pin 18 to Pin 19 distance: 0.65 ± 0.1
- Pin 19 to Pin 20 distance: 1.4 ± 0.1
- Pin 20 to Pin 21 distance: 1.3 ± 0.1
- Pin 21 to Pin 22 distance: 0.65 ± 0.1
- Pin 22 to Pin 23 distance: 1.4 ± 0.1
- Pin 23 to Pin 24 distance: 1.3 ± 0.1
- Pin 24 to Pin 25 distance: 0.65 ± 0.1
- Pin 25 to Pin 26 distance: 1.4 ± 0.1
- Pin 26 to Pin 27 distance: 1.3 ± 0.1
- Pin 27 to Pin 28 distance: 0.65 ± 0.1
- Pin 28 to Pin 29 distance: 1.4 ± 0.1
- Pin 29 to Pin 30 distance: 1.3 ± 0.1
- Pin 30 to Pin 31 distance: 0.65 ± 0.1
- Pin 31 to Pin 32 distance: 1.4 ± 0.1
- Pin 32 to Pin 33 distance: 1.3 ± 0.1
- Pin 33 to Pin 34 distance: 0.65 ± 0.1
- Pin 34 to Pin 35 distance: 1.4 ± 0.1
- Pin 35 to Pin 36 distance: 1.3 ± 0.1
- Pin 36 to Pin 37 distance: 0.65 ± 0.1
- Pin 37 to Pin 38 distance: 1.4 ± 0.1
- Pin 38 to Pin 39 distance: 1.3 ± 0.1
- Pin 39 to Pin 40 distance: 0.65 ± 0.1
- Pin 40 to Pin 41 distance: 1.4 ± 0.1
- Pin 41 to Pin 42 distance: 1.3 ± 0.1
- Pin 42 to Pin 43 distance: 0.65 ± 0.1
- Pin 43 to Pin 44 distance: 1.4 ± 0.1
- Pin 44 to Pin 45 distance: 1.3 ± 0.1
- Pin 45 to Pin 46 distance: 0.65 ± 0.1
- Pin 46 to Pin 47 distance: 1.4 ± 0.1
- Pin 47 to Pin 48 distance: 1.3 ± 0.1
- Pin 48 to Pin 49 distance: 0.65 ± 0.1
- Pin 49 to Pin 50 distance: 1.4 ± 0.1
- Pin 50 to Pin 51 distance: 1.3 ± 0.1
- Pin 51 to Pin 52 distance: 0.65 ± 0.1
- Pin 52 to Pin 53 distance: 1.4 ± 0.1
- Pin 53 to Pin 54 distance: 1.3 ± 0.1
- Pin 54 to Pin 55 distance: 0.65 ± 0.1
- Pin 55 to Pin 56 distance: 1.4 ± 0.1
- Pin 56 to Pin 57 distance: 1.3 ± 0.1
- Pin 57 to Pin 58 distance: 0.65 ± 0.1
- Pin 58 to Pin 59 distance: 1.4 ± 0.1
- Pin 59 to Pin 60 distance: 1.3 ± 0.1
- Pin 60 to Pin 61 distance: 0.65 ± 0.1
- Pin 61 to Pin 62 distance: 1.4 ± 0.1
- Pin 62 to Pin 63 distance: 1.3 ± 0.1
- Pin 63 to Pin 64 distance: 0.65 ± 0.1
- Pin 64 to Pin 65 distance: 1.4 ± 0.1
- Pin 65 to Pin 66 distance: 1.3 ± 0.1
- Pin 66 to Pin 67 distance: 0.65 ± 0.1
- Pin 67 to Pin 68 distance: 1.4 ± 0.1
- Pin 68 to Pin 69 distance: 1.3 ± 0.1
- Pin 69 to Pin 70 distance: 0.65 ± 0.1
- Pin 70 to Pin 71 distance: 1.4 ± 0.1
- Pin 71 to Pin 72 distance: 1.3 ± 0.1
- Pin 72 to Pin 73 distance: 0.65 ± 0.1
- Pin 73 to Pin 74 distance: 1.4 ± 0.1
- Pin 74 to Pin 75 distance: 1.3 ± 0.1
- Pin 75 to Pin 76 distance: 0.65 ± 0.1
- Pin 76 to Pin 77 distance: 1.4 ± 0.1
- Pin 77 to Pin 78 distance: 1.3 ± 0.1
- Pin 78 to Pin 79 distance: 0.65 ± 0.1
- Pin 79 to Pin 80 distance: 1.4 ± 0.1
- Pin 80 to Pin 81 distance: 1.3 ± 0.1
- Pin 81 to Pin 82 distance: 0.65 ± 0.1
- Pin 82 to Pin 83 distance: 1.4 ± 0.1
- Pin 83 to Pin 84 distance: 1.3 ± 0.1
- Pin 84 to Pin 85 distance: 0.65 ± 0.1
- Pin 85 to Pin 86 distance: 1.4 ± 0.1
- Pin 86 to Pin 87 distance: 1.3 ± 0.1
- Pin 87 to Pin 88 distance: 0.65 ± 0.1
- Pin 88 to Pin 89 distance: 1.4 ± 0.1
- Pin 89 to Pin 90 distance: 1.3 ± 0.1
- Pin 90 to Pin 91 distance: 0.65 ± 0.1
- Pin 91 to Pin 92 distance: 1.4 ± 0.1
- Pin 92 to Pin 93 distance: 1.3 ± 0.1
- Pin 93 to Pin 94 distance: 0.65 ± 0.1
- Pin 94 to Pin 95 distance: 1.4 ± 0.1
- Pin 95 to Pin 96 distance: 1.3 ± 0.1
- Pin 96 to Pin 97 distance: 0.65 ± 0.1
- Pin 97 to Pin 98 distance: 1.4 ± 0.1
- Pin 98 to Pin 99 distance: 1.3 ± 0.1
- Pin 99 to Pin 100 distance: 0.65 ± 0.1

Electrical Symbol:

- Pin 1: Cathode
- Pin 2: Anode

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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 *1	T _{sol}	260	°C
Power Dissipation at(or below) 25°C Free Air Temperature	P _d	130	mW

Notes: *1: Soldering time ≤ 5 seconds.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	I _e	I _F =20mA	3.0	5.0		mW /sr
Peak Wavelength	λ _p	I _F =20mA	--	940	--	nm
Spectral Bandwidth	Δ λ	I _F =20mA	--	45	--	nm
Forward Voltage	V _F	I _F =20mA	--	1.2	1.5	V
Reverse Current	I _R	V _R =5V	--	--	10	μ A
View Angle	2 θ 1/2	I _F =20mA	--	25	--	deg

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs.
Ambient Temperature

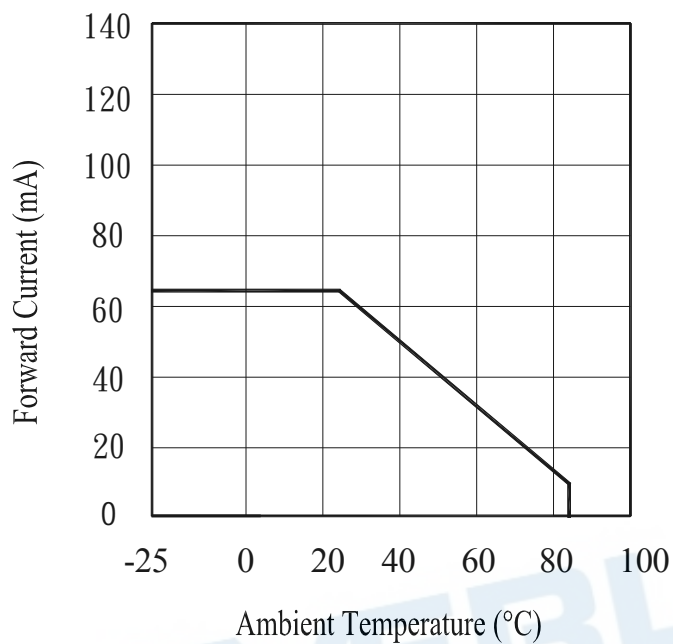


Fig.2 Spectral Distribution

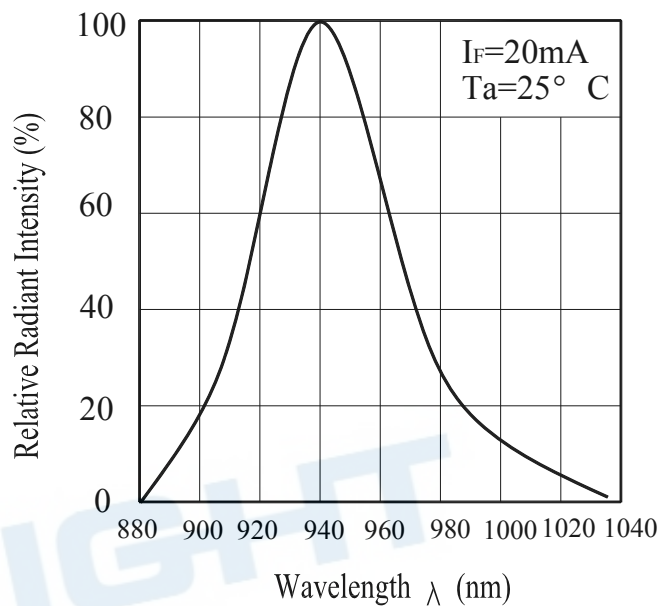


Fig.3 Forward Current vs. Forward Voltage

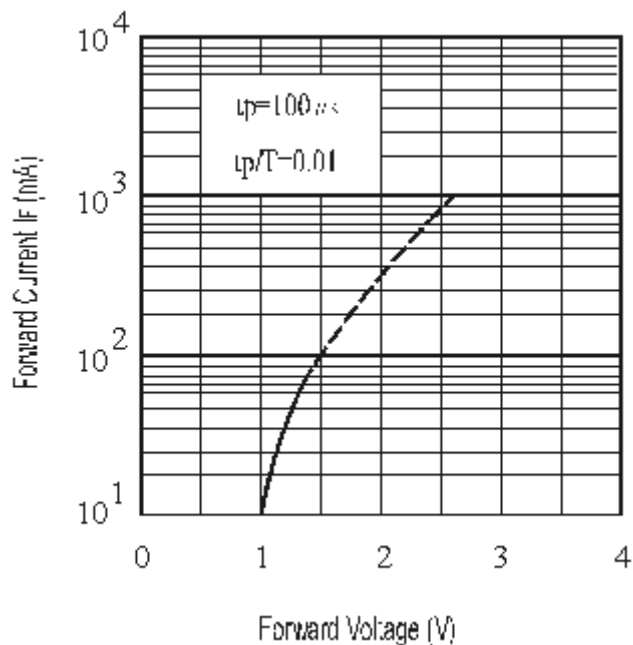
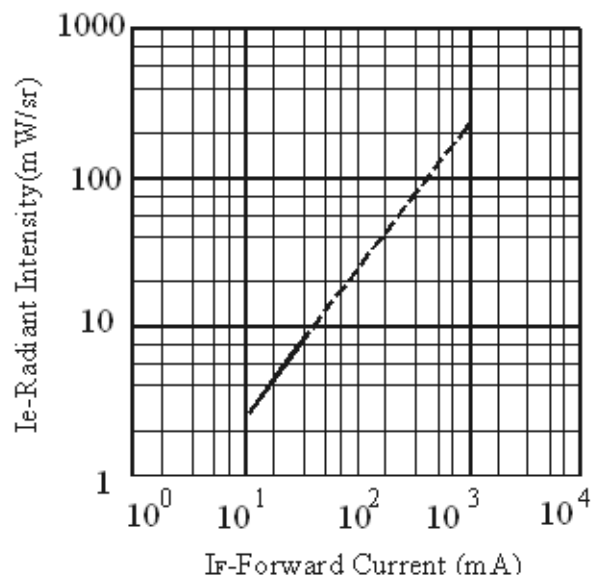
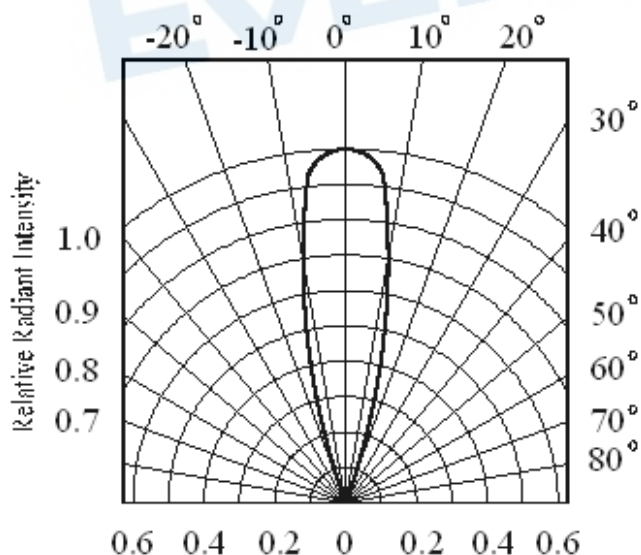


Fig.4 Relative Intensity vs. Forward Current



Typical Electro-Optical Characteristics Curves

Fig.5 Relative Radiant Intensity vs. Angular Displacement



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 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDss should be kept at 30°C or less and 90%RH or less.

2.3 The LEDss should be used within a year.

2.4 After opening the package, the LEDss should be kept at 30°C or less and 70%RH or less.

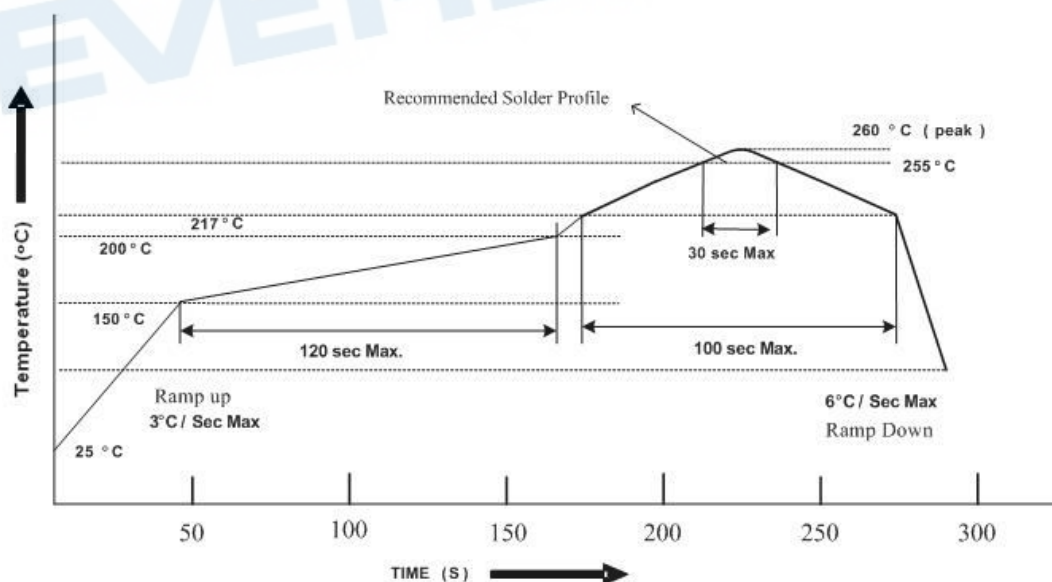
2.5 The LEDss should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture absorbent material (silica gel) has faded away or the LEDss have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : $60\pm5^{\circ}\text{C}$ for 24 hours.

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDss during heating.

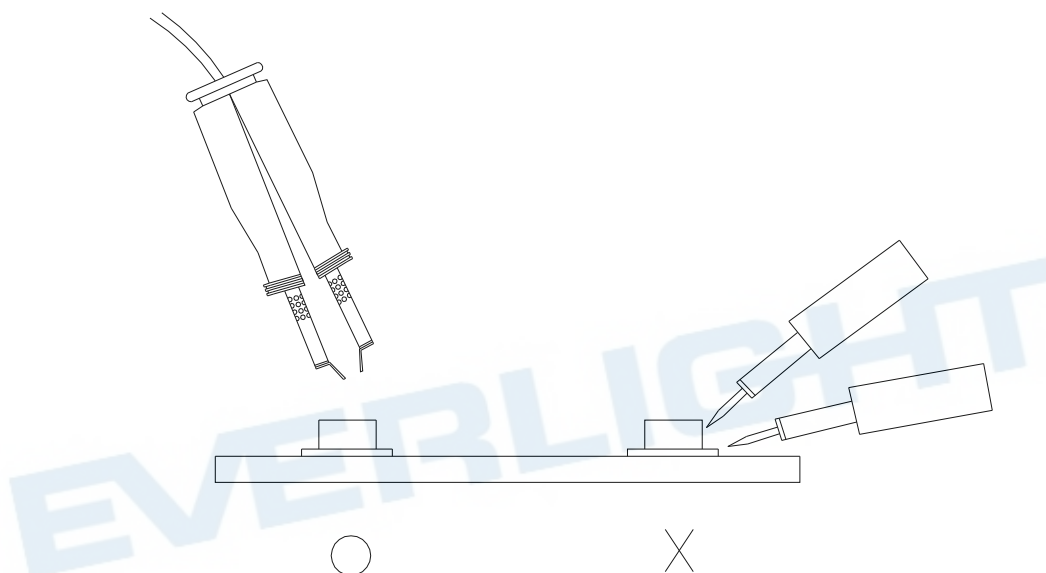
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDSs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDSs will or will not be damaged by repairing.



Packing Quantity Specification

1000PCS/1Bag

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

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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