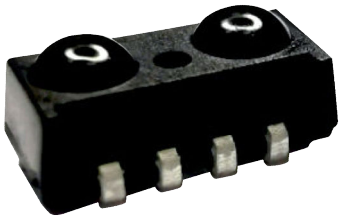
SM7338-TR1

Infrared Remote-control Receiver Module

38kHz Carrier Frequency

Technical Data Sheet



Features

- External dimensions 6.80 (L) × 3.00 (W) × 3.20 (H) mm.
- Wide operating supply voltage 2.7 - 5.5V.
- Low current consumption (Typ. 500μA @3V).
- Maximum interference safety against VCC noise & light noise.
- No external components necessary.
- Internal filter for a high frequency lighting fluorescent lamp.
- Output active low.
- High ESD level up to 12KV for HBM.
- Carrier frequency 38kHz.
- Compliance with EU REACH.
- The product itself will remain within RoHS compliant Version.

Descriptions

- The device is a miniature SMD type infrared remote control system receiver that has been developed and designed by utilizing the most updated IC technology.
- The PIN diode and preamplifier are assembled on PCB, the epoxy package is designed as an IR filter.
- The demodulated output signal can directly be decoded by a microprocessor.
- The SM7338-TR1 is the standard IR remote control receiver series, supporting all major transmission codes.

Applications

- Infrared applied system.
- Light detecting portion of remote control.
- AV instruments such as Audio, TV, VCR, CD, MD, etc.
- CATV set top boxes.
- The other equipments with wireless remote control.
- Home appliances such as Air-conditioner, Fan, etc.
- Multi-media Equipment.

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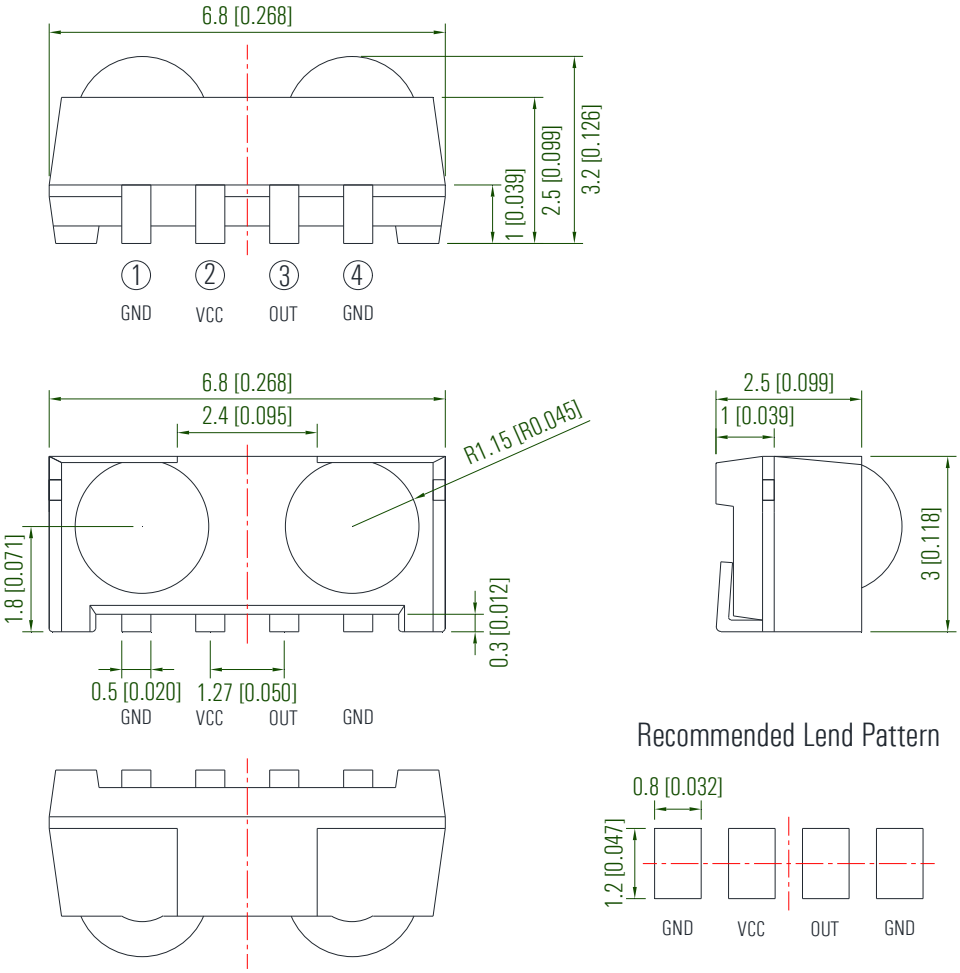
Device Selection Guide

Part No.	Carrier Frequency
SM7338-TR1	38kHz

Package Dimension



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.3mm (.012”) unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

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Luckylight

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Absolute Maximum Ratings at T_A = 25℃

Parameters	Symbol	Value	Unit
Supply Voltage	V_{CC}	6.00	V
Supply Current	Icc	2.50	mA
Operating Temperature	T_{OPR}	-20~ + 80	℃
Storage Temperature	T_{STG}	-40~ + 85	℃
Soldering Temperature	T_{SOL}	260℃ for 5 Seconds	℃

Electrical Optical Characteristics T_A = 25℃

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test condition
DC Supply Voltage	V_{CC}	2.70	---	5.50	V	
Supply Current	Icc	---	0.2	0.3	mA	Vcc=5V No signal input
B.P.F Center Frequency	Fo	---	38	---	KHz	
Peak Wavelength	λ_p	---	940	---	nm	
Reception Distance	L_0	20	---	---	m	At the ray axis*1
	L_{45}	10	---	---		
Half Angle (Horizontal)	θ_h	---	45	---	Deg	
Half Angle (Vertical)	θ_v	---	45	---		
High Level Pulse Width	T_H	400	---	800	μs	At the ray axis*2
Low Level Pulse Width	T_L	400	---	800		
High Level Output Voltage	V_H	4.70	---	---	V	Vcc=5V
		2.70	---	---		Vcc=3V
Low Level Output Voltage	V_L	-0.20	---	0.40	V	

Notes:

1. The ray receiving surface at a vertex and relation to the ray axis in the range of θ=0° and θ=45°.
2. A range from 30cm to the arrival distance. Average value of 50 pulses.

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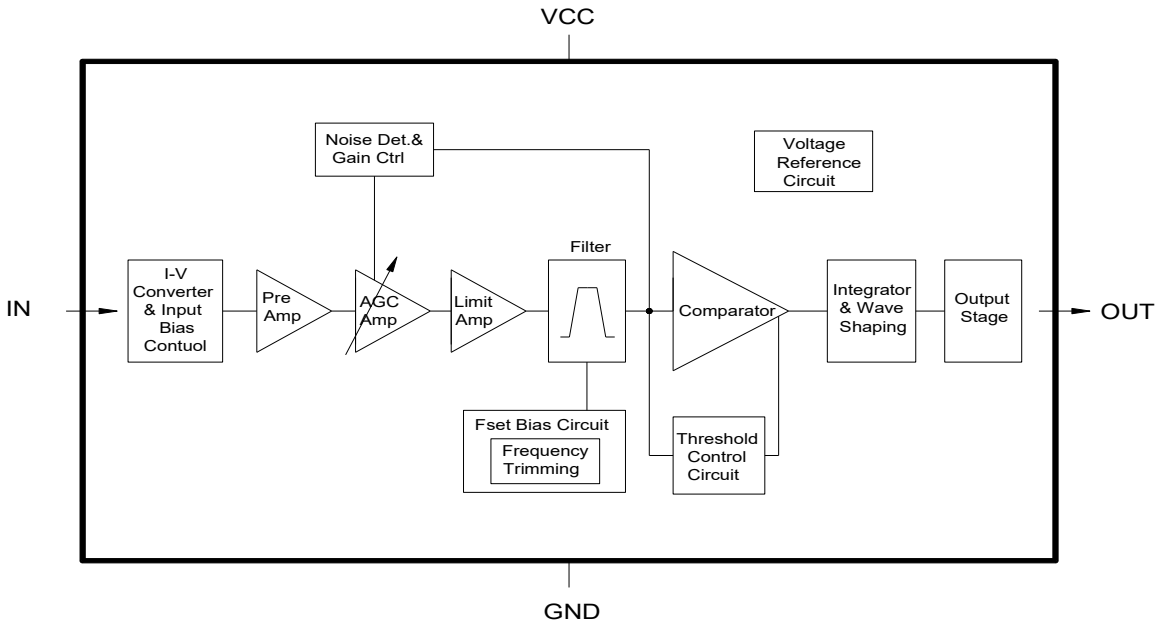
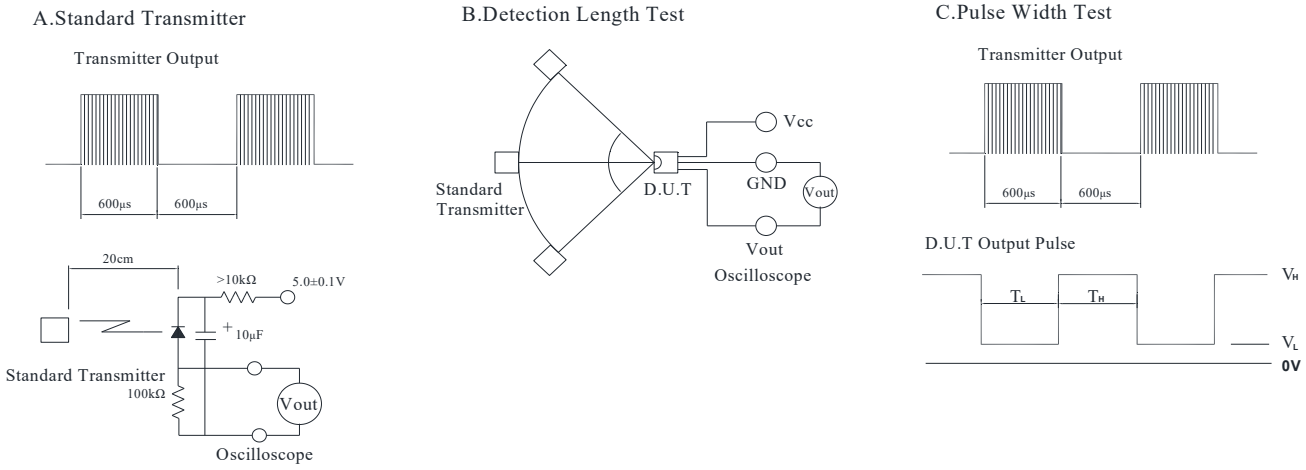
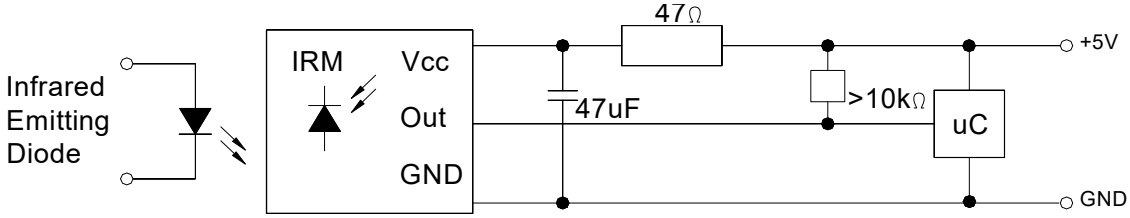
Function Block Diagram



Test Method



Application Circuit



Technical Data Sheet

Typical Electrical/Optical Characteristic Curves at TA = 25℃

Fig.1 Relative Spectral Sensitivity vs. Wavelength

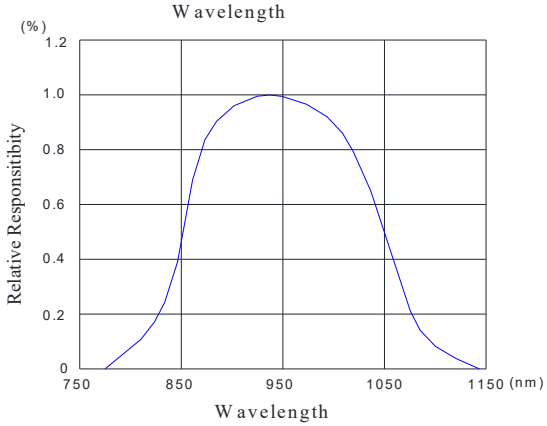


Fig.2 Relative Transmission Distance Vs. Direction

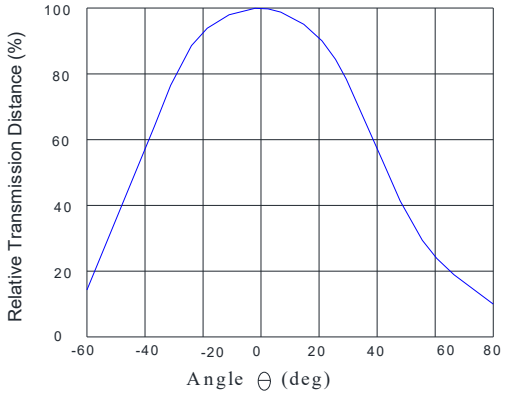


Fig.3 Frequency Dependence of Responsivity

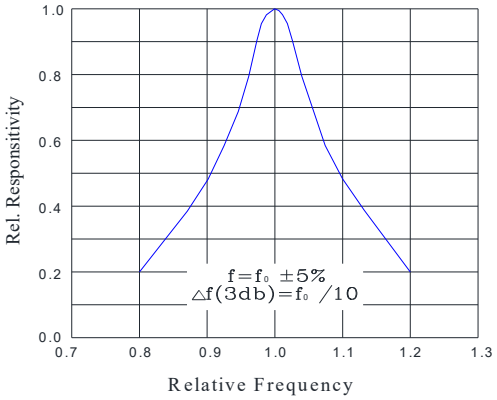


Fig.4 Supply Current vs. Ambient Temperature

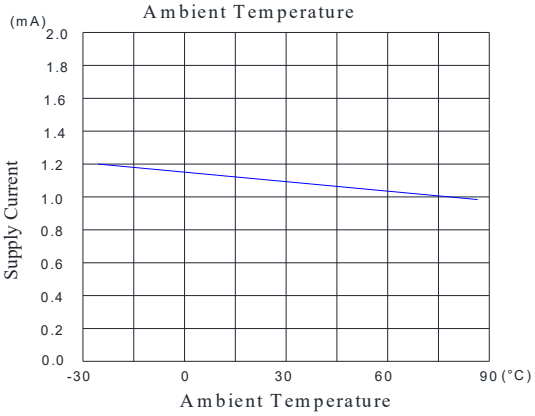
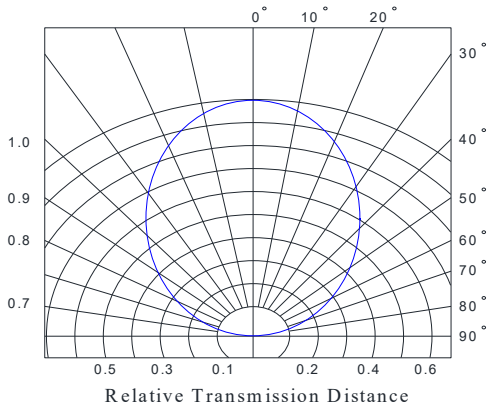


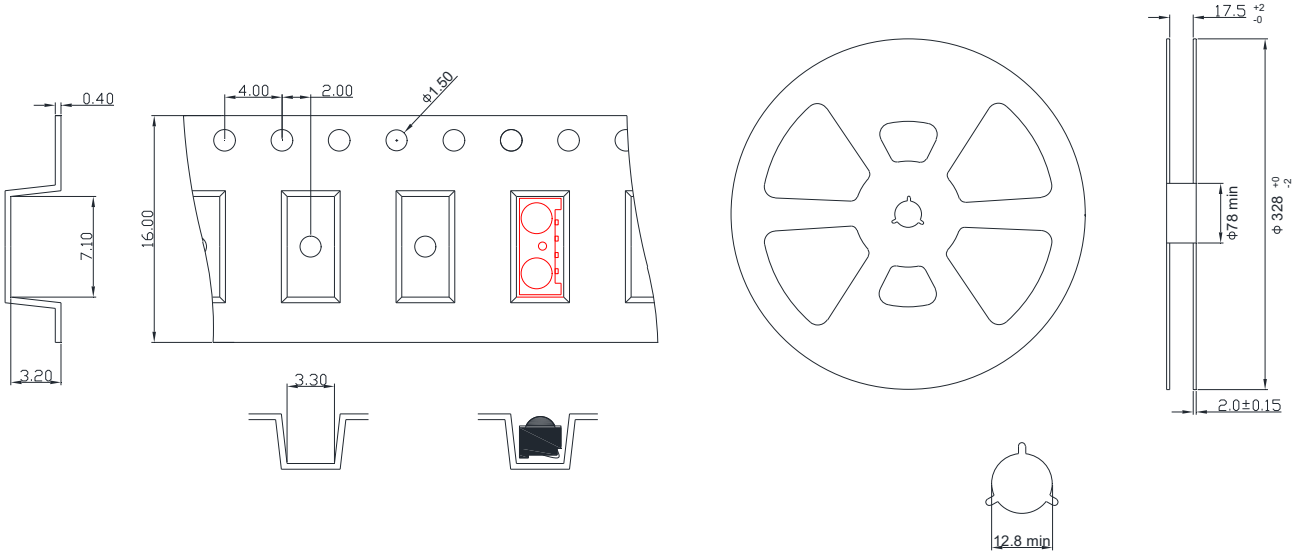
Fig.5 Relative Transmission Distance vs. Direction



Acceptable Code List

Data format	Code acceptable
NEC	O
RC5_Philips	O
RC6_Philips	O
RCA_Thomson	X
Toshiba	O
Sharp	O
Sony 12 Bit	O
Sony 15 Bit	X
Sony 20 Bit	X
Matsushita	O
Mitsubishi	O
Zenith	O
JVC	O
Continuous Code	X
High Data Rate Code	X

Taping and Reel Dimensions in Millimeters

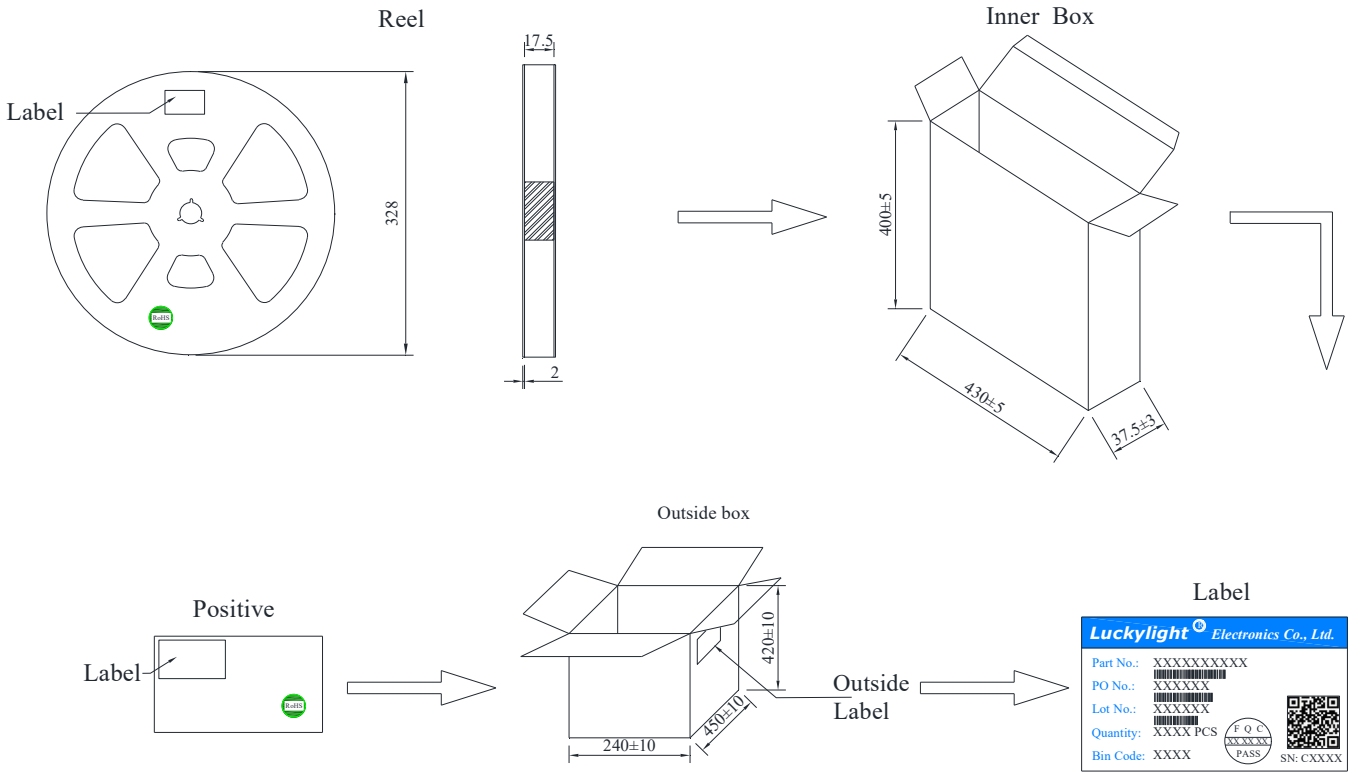


Notes:

1. 2500PCS per reel.

Technical Data Sheet

Packing & Label Specifications



Notes:

1 2500PCS per reel, 2 reels per box, 6 boxes per carton.

CAUTIONS

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 Infrared Receiver Module should be kept at 30℃ or less and 90%RH or less.

2.3 The Infrared Receiver Module should be used within a year.

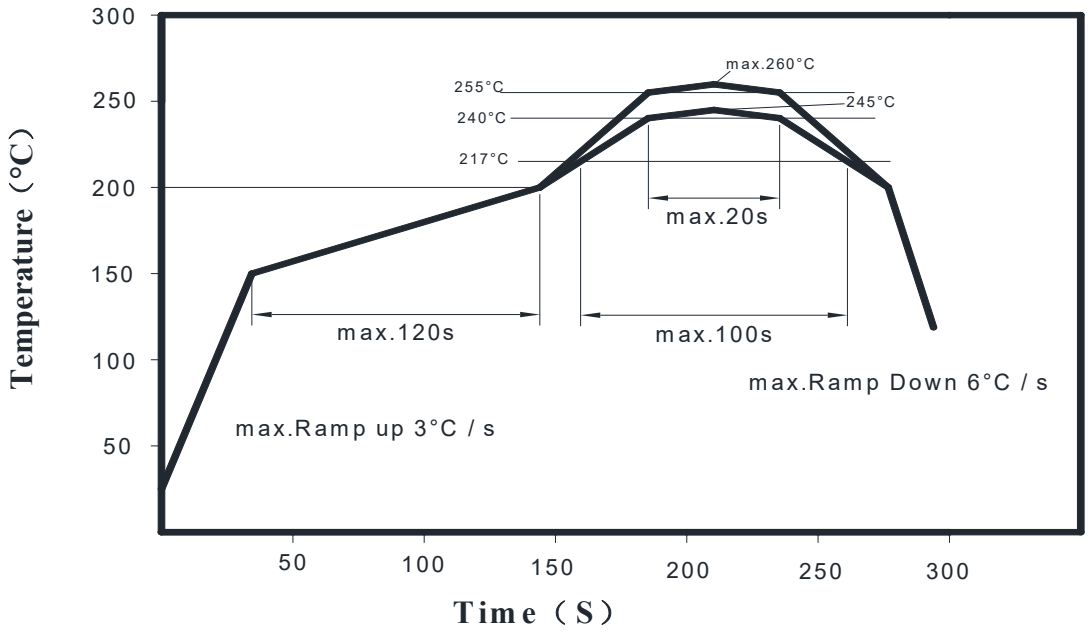
2.4 After opening the package, the Infrared Receiver Module should be kept at 30℃ or less and 70%RH or less.

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

2.6 If the moisture adsorbent material (silica gel) has fabled away or the Infrared Receiver Module have exceeded the storage time, baking treatment should be performed using the following conditions: Baking treatment: 60±5℃ 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 Infrared Receiver Module during heating.

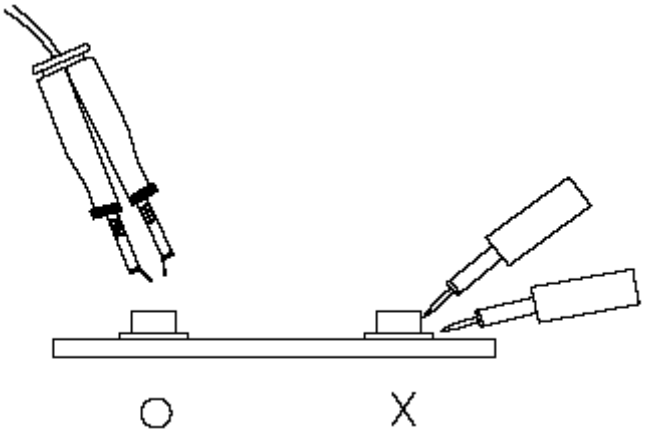
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 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 Infrared Receiver Module 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 Infrared Receiver Module will or will not be damaged by repairing.



6. Caution in ESD

Static Electricity and surge damages the Infrared Receiver Module. It is recommended to use a wrist band or anti-electrostatic glove when handling the Infrared Receiver Module. All devices, equipment and machinery must be properly grounded.