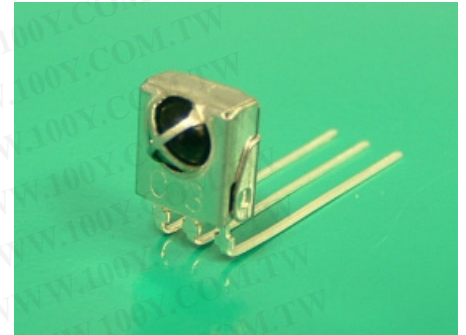


IR Receiver Modules for Remote Control Systems

Description

The **FM-6038TM2-5CN** is a Bi-CMOS IC for use in infrared remote control system. Small-sized, light-weight, and low current consumption. modules have been achieved by using resin mold. The demodulated output signal can directly be decoded by a microprocessor. The main benefit is the reliable function even in disturbed ambient and the protection against uncontrolled output pulses.

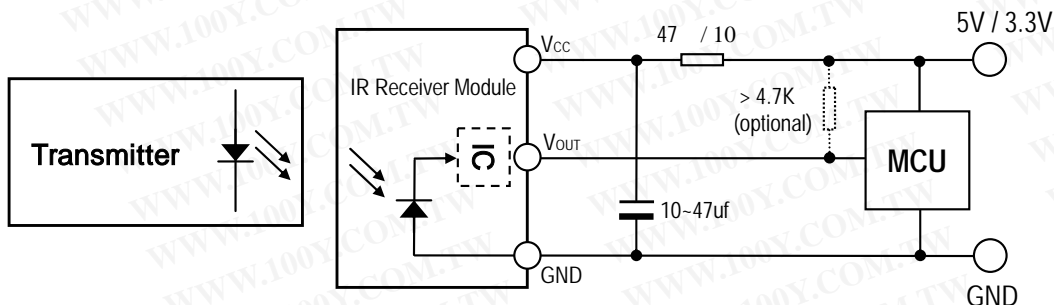


Features

- Supply Voltage Range: 2.7V to 6 V
- TTL and CMOS compatibility
- Photo detector and preamplifier in one package.
- Internal filter for PCM frequency
- Open collector output [built-in Pull-up resistor(40K)]
- Output active low
- Enhanced Immunity against all kinds of disturbance light
- No occurrence of disturbance pulses at output pin within nominal conditions.
- Short settling time after power On.(below 1msec)
- Meet RoHS

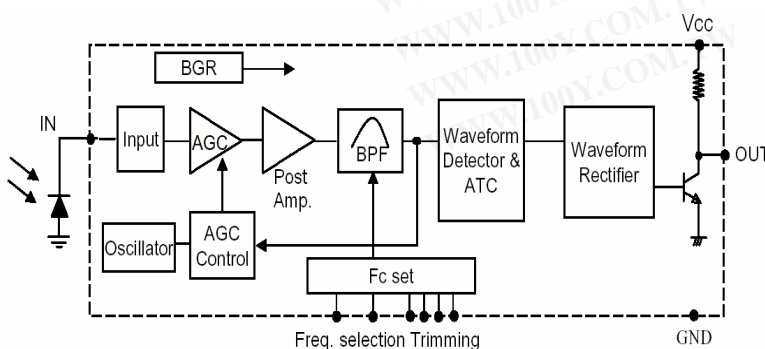
勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

Application Circuit



R-C filter recommended to suppress power supply disturbances.
R-C filter should be connected closely between Vcc pin and GND pin.

Block Diagram



Ordering Info.(carrier frequencies)

Type	Carrier Frequency (fo)
FM-6032TM2-5CN	32.7 K
FM-6036TM2-5CN	36.0 K
FM-6038TM2-5CN	37.9 K
FM-6040TM2-5CN	40.0 K
FM-6056TM2-5CN	56.0 K



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
 Http://www.100y.com.tw

FM-6038TM2-5CN



Suitable Data Format

NEC code		Sony 15bit		RCS-80 code	
RC5 code		RCMM code		Sony 20-bit code	
RC6 code		RCA code		High data rate code	
Sony 12 bit		Sharp code		Disturbance suppression	

Note : : Suitable for this IR code ; : Not recommended

Absolute Maximum Ratings

(Ta = 25)

Parameter	Symbol	Ratings	Unit
Supply Voltage	V _{cc}	7.0	V
Supply Current	I _{cc}	3.0	mA
Output Current	I _{sink}	2.5	mA
Operating Temperature	T _{opr}	-20 ~ +80	
Storage Temperature	T _{stg}	-30 ~ +85	
Soldering Temperature	T _{sd}	260 , Max 10 sec	

Electro-optical Characteristics

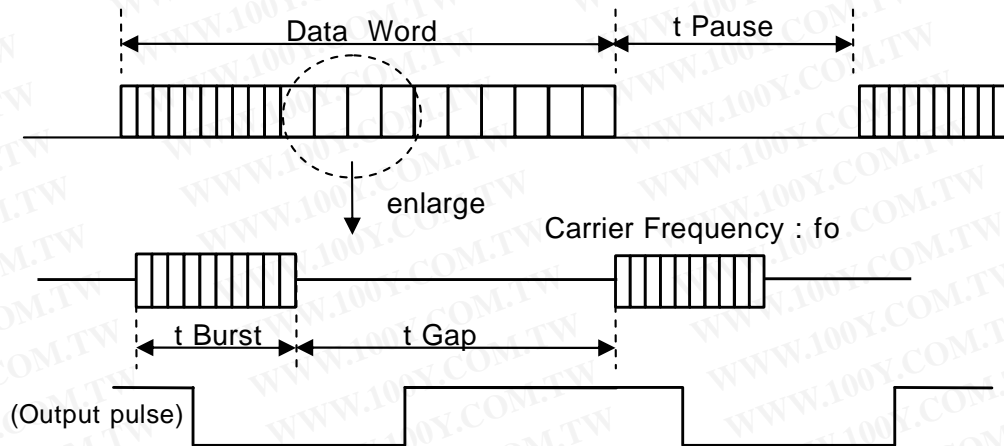
(Ta = 25)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Supply Current	ICC	0.7	1	1.3	mA	No signal	
Output Voltage	V _{oh}	V _{cc} -0.5	-	-	V	No external pull-up resistor (I _{sink} < 1mA)	
	V _{ol}	-	0.2	0.4	V		
Peak Wave Length	p	-	940	-	nm		
Internal Pull-up Resistor	R _{pul}	-	42	-	kΩ		
BPF frequency	f _c	-3.5	f _o	+3.5	%		
Arrival Distance	L	±0°	-	15	-	m	Refer to Fig 1,2,3 and Note 1.
		±30°	-	10	-	m	
		±45°	-	7	-	m	
Output Pulse width	T _{pw}	400	600	800	us	Burst Wave =600us Period = 1.2ms	

Note :

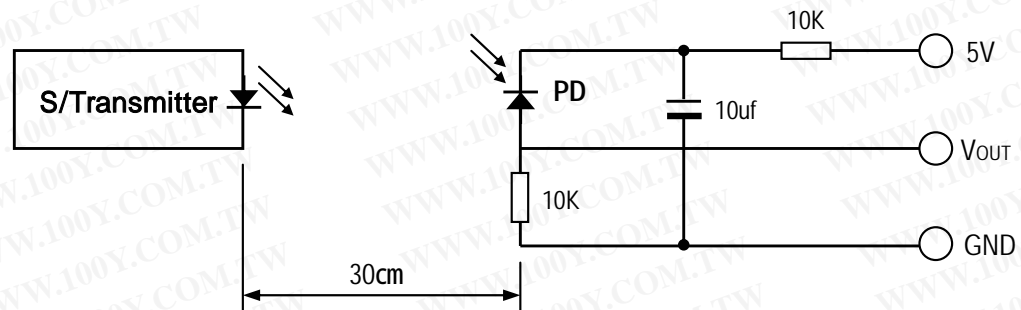
- 1) Arrival Distance Effected by Environment
- 2) While the device is operational across the temperature range, functionality will vary with temperature. Specifications are stated only at 25°C unless otherwise noted.
- 3) Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

[Fig.1] Data Signal diagram



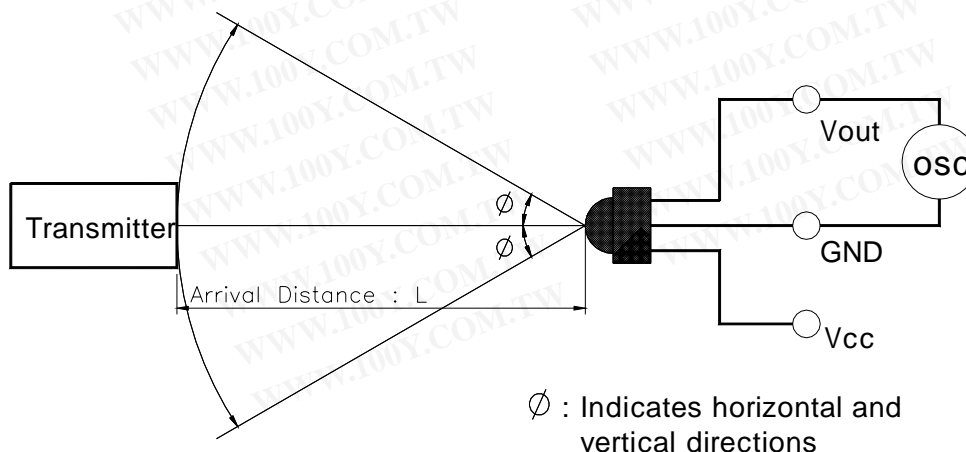
- t_{Gap} : Signal gap time between two burst in pulses of carrier. Minimum Gap Time 300us
- t_{Burst} : Length of a burst in pulses of the carrier frequency. Minimum Burst 300us
- t_{pause} : Data pause between two data words. Minimum Data PauseTime 20ms

[Fig.2] Transmitter



The specifications shall be satisfied under the following conditions. The standard transmitter shall be specified of the burst wave form adjusted to V_{out} 200mVp-p upon P_o measuring circuit Standard Transmitter

[Fig.3] Test condition of arrival distance

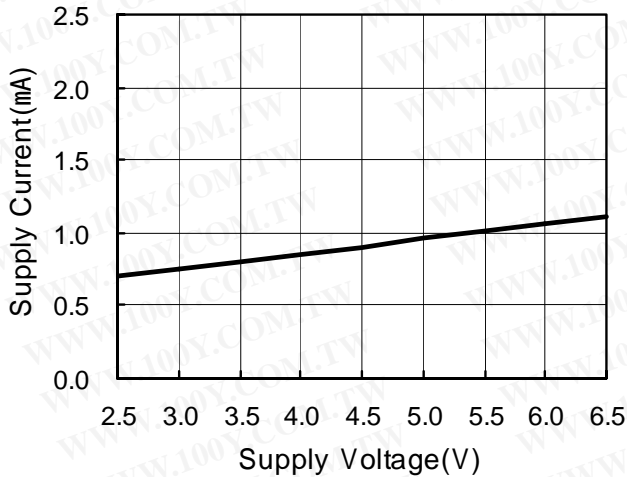


[Measurement condition for arrival distance]

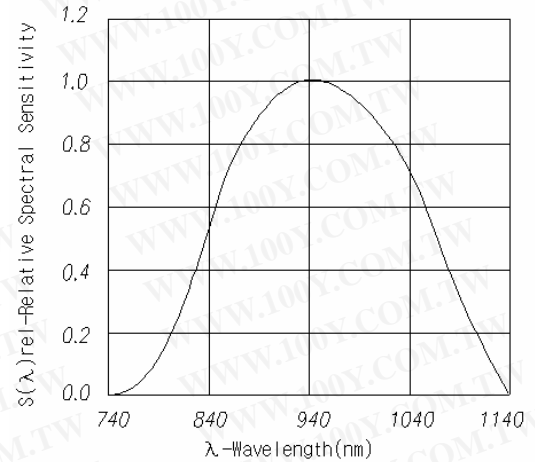
Ambient light source : Detecting surface illumination shall be irradiate 200 ± 50 Lux under ordinary white fluorescence lamp without high frequency lighting

Electrical/Optical Characteristics

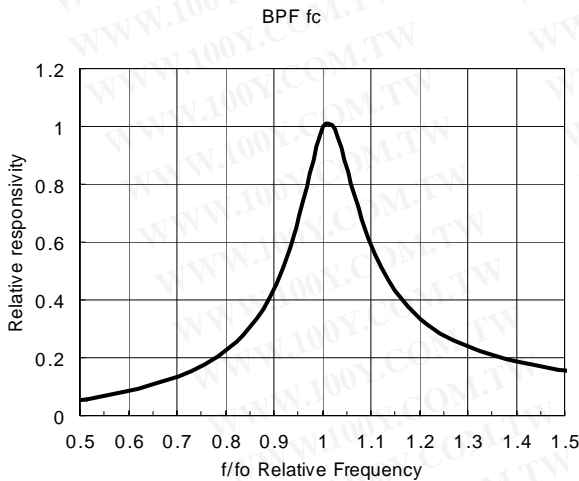
[Fig.4] Supply Current vs. Voltage



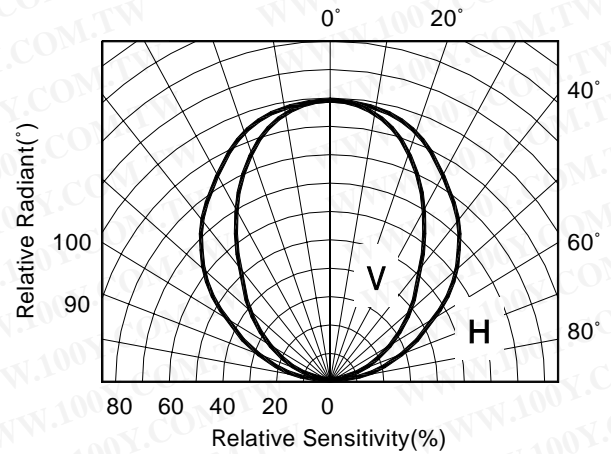
[Fig.5] Relative Spectral Sensitivity vs. Wavelength



[Fig.6] BPF Fc Curve



[Fig.7] Directivity (Horizontal/Vertical)

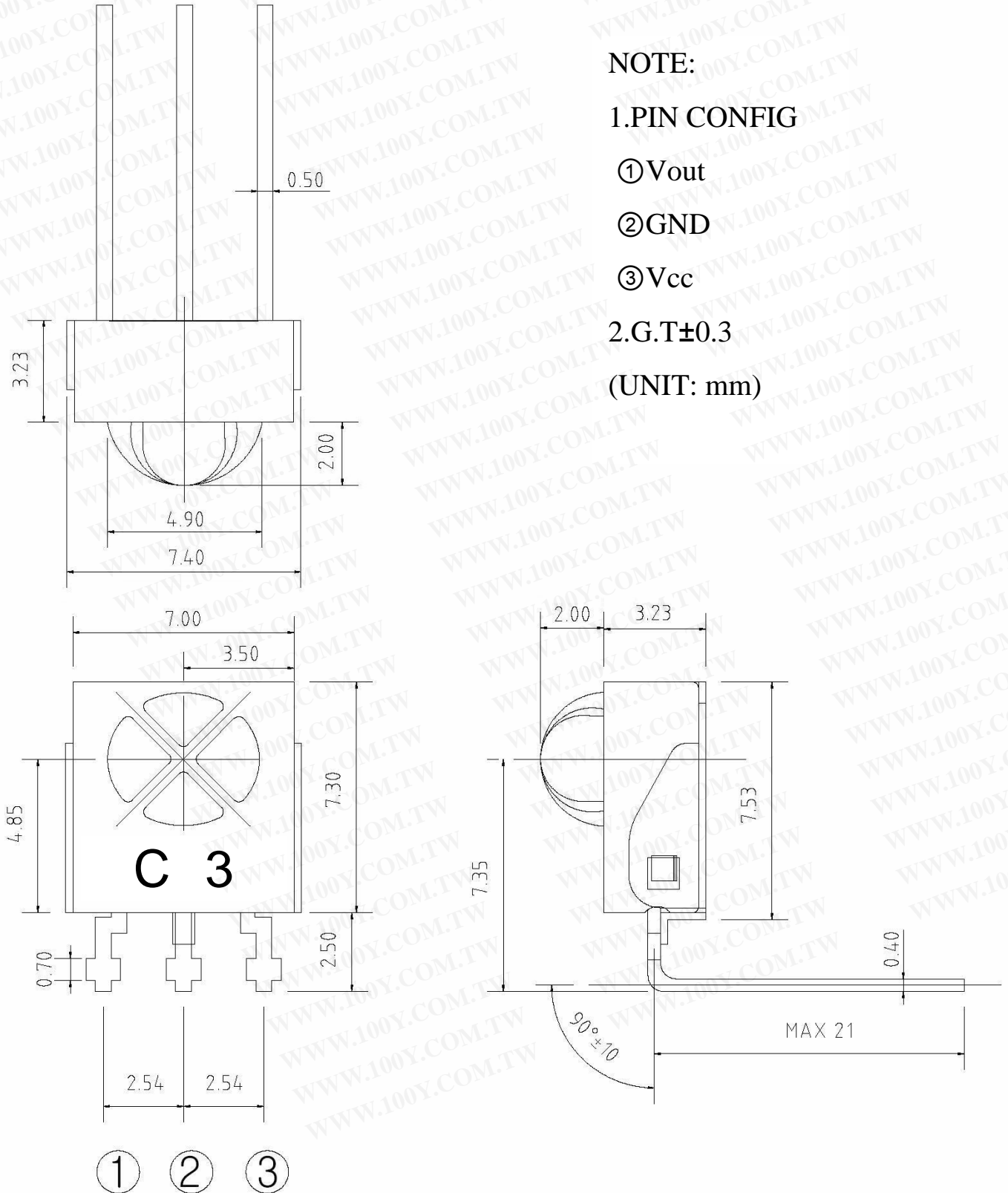


ESD Test Results

Parameter	Conditions	Specification	Results
Machine Model	C=200pF, R=0	Min ±200V	>±200V
Human Body Model	C=100pF, R=1.5kΩ	Min ±2000V	>±2000V

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

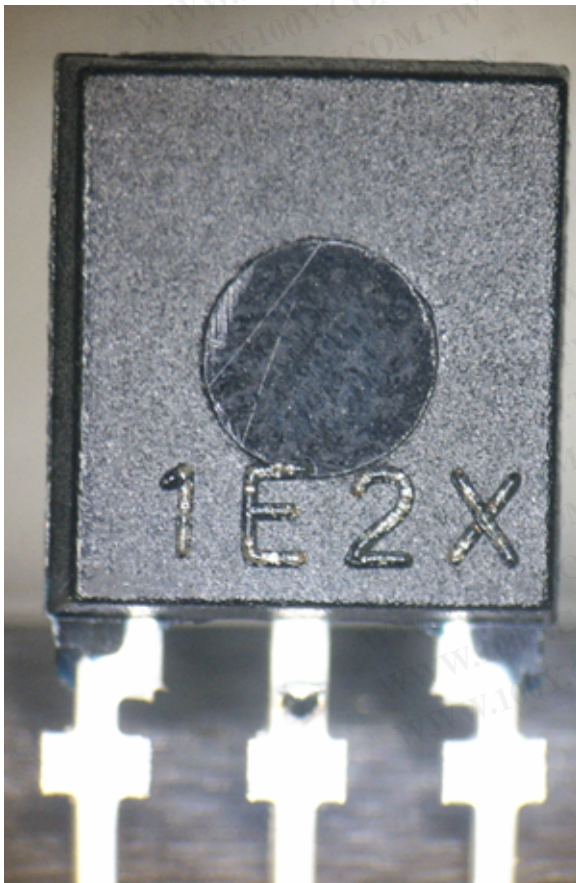


勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)



*** Laser Marking ***

year		month		week		frequency	
2010	0	JAN	A	1W	1	20Khz	T
2011	1	FEB	B	2W	2	25Khz	U
2012	2	MAR	C	3W	3	36Khz	W
2013	3	APR	D	4W	4	38Khz	X
2014	4	MAY	E	5W	5	40Khz	Y
2015	5	JUN	F			56Khz	Z
2016	6	JUL	G				
2017	7	AUG	H				
2018	8	SEP	I				
2019	9	OCT	J				
		NOV	K				
		DEC	L				

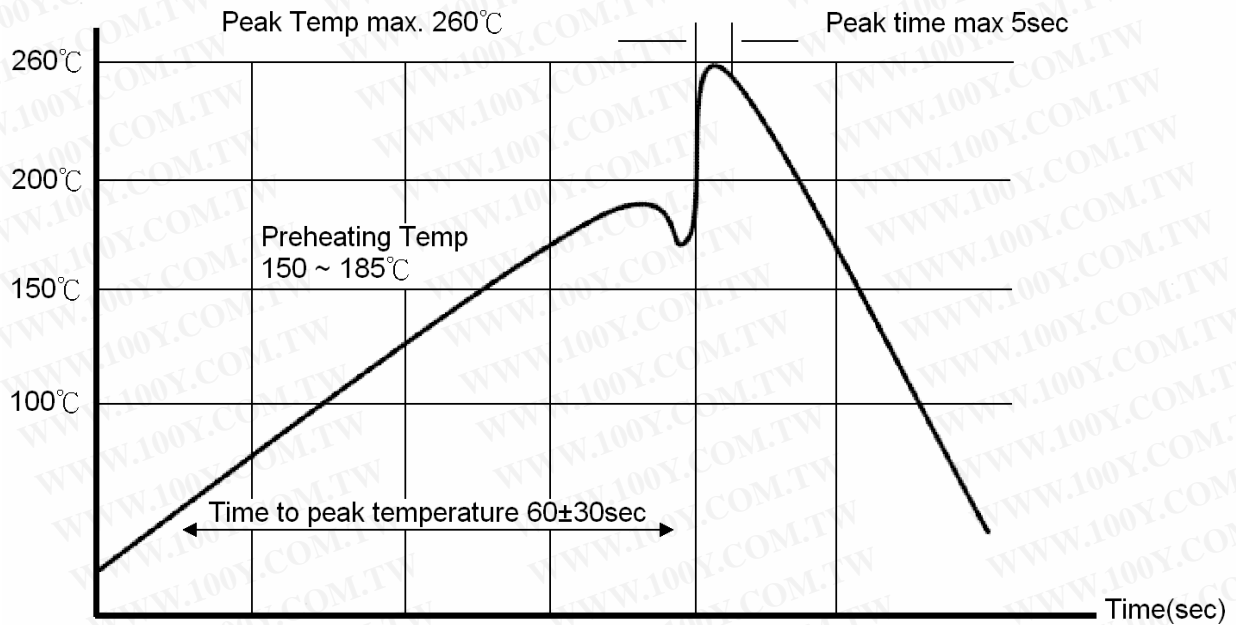


Year	Month	Week	Frequency
------	-------	------	-----------

Recommended Soldering Condition

Flow Soldering Condition

Recommendation Flow Soldering condition Temp & Time



勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-34970699
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

1. Packing unit for Remote control module

Package	Device	Packing Method	Units / Tubs	Poly Bag / Inner Box	Max Devices / Inner Box	Max Inner Box / Outer Box	Partial Shipment of Outer Box
Transfer mold Type		Poly Bag	200	5	1000	10	
				(Inner Box #1)	(Inner Box #1)	(Outer Box #2)	(Outer Box #3)

(Unit : mm)

Inner Box #1 with Opto-Sensor Logo (170*240*65)

Outer Box #2 with Opto-Sensor Logo (365*360*270)

Outer Box #3 with Opto-Sensor Logo (385*750*300)

2. Packing method

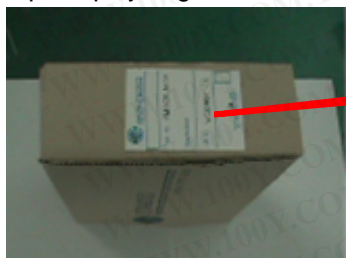
- 1) Input max 200 units to one Poly bag and label should be attached middle of it.



Antistatic Vinyl

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

- 2) Input 5 poly bags to one inner box and label should be attached as below.

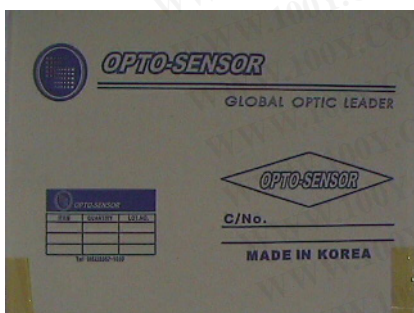


<Inner Box # 1>

Label #1



- 3) Input 10 inner boxes to outer box.



<Outer Box # 2>

- 4) Input 2 outer boxes into Box #3.



<Outer Box # 3>