



PARA LIGHT ELECTRONICS CO., LTD.

11F., No. 8, Jiankang Rd., Zhonghe Dist., New Taipei City 235, Taiwan,
Tel: 886-2-2225-3733 Fax: 886-2-2225-4800
E-mail: para@para.com.tw <http://www.para.com.tw>

DATA SHEET

PART NO.:PS-IRM3743-06K

REV: A/1

CUSTOMER'S APPROVAL: _____

DCC: _____

DRAWING NO.: DS-52-22-090

DATE:2023-10-09

PAGE 1

● Descriptions

- The PS-IRM3743-06K is a small SMD IR receiver module for infrared remote control systems. The PIN diode and preamplifier are assembled on the PCB, and the epoxy package includes an IR filter. The demodulated output signal can be connected directly to a microprocessor for decoding. When transmitted continuously, the data signal may be suppressed.

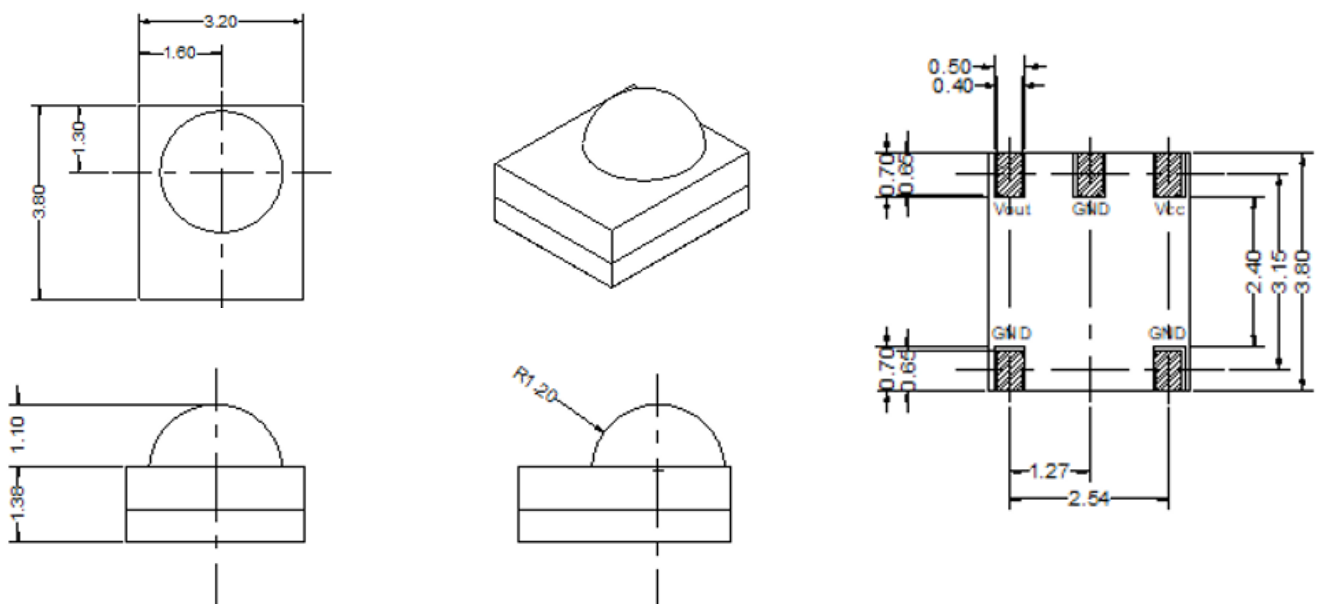
● Features

- Ultra-thin SMD type
- Wide operating voltage
- High pulse suppression
- Maximum safety margin against photoelectric interference
- The center frequency of the band-pass filter is 37.9KHz
- Low power consumption, 3V (0.33mA), 5V (0.39mA)

● Applications

- TV
- Stb
- air conditioning
- Car
- Computer
- Game
- IOT devices
- Other remote control devices.

● Package Dimensions

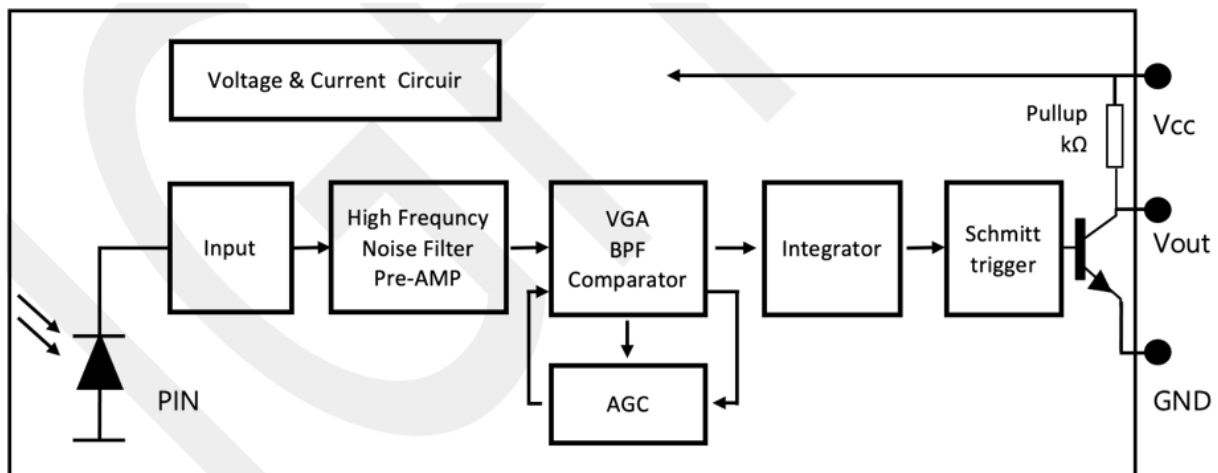


All dimensions in mm, tolerance is ± 0.2 mm unless otherwise noted

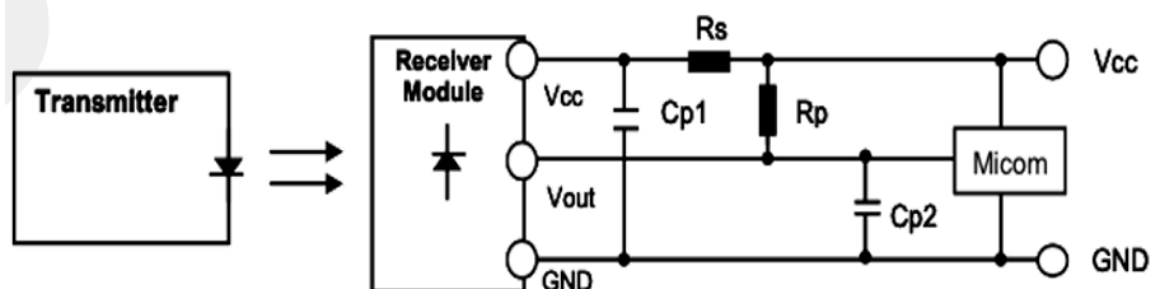
Data Code Reference

Decoding the description	Dedicated to continuous codes
Minimum Burst Length t_{burst} (number of pulses per burst)	12 pulses
Minimum Burst Gap time t_{burst_gap} (number of pulses per burst) between two burst t_{burst_Gap}	16 pulses
Minimum data pause time(for full frame repeat code)	1 msec

Functional block diagram



Application Circuits (Test Circuits)



- R_s (VCC protection resistance) : 100 Ω ~ 470 Ω
- C_{p1} (Vcc-GND capacitor): 47 μF ~ 100 μF
- R_p (Vcc-Vout pull-up resistor) : option, use 10k Ω or more.

When the R_p is lower than 10k Ω , the MCU cannot respond because the VoL value rises.

- C_{p2} (Vout-GND capacitor) : Option (below 100 pF when applicable)
- (R_p & C_{p2} is not recommended)

Acceptable code list

Toshiba	o	Sony 20 bit	o
NEC	o	Matsushita	o
RC5 Philips	o	Mitsubishi	o
RCA Thompson	o	Zenith	o
Sharp	o	JVC	o
Sony 12bit	o	Continuous code	o
Sony 16 bit	o		

Precautions

1. The product optimizes continuous codes.
2. Use at a distance of at least 20cm or more from the transmitter.
If it is too close to the transmitter, it may not be received.

Absolute maximum rating

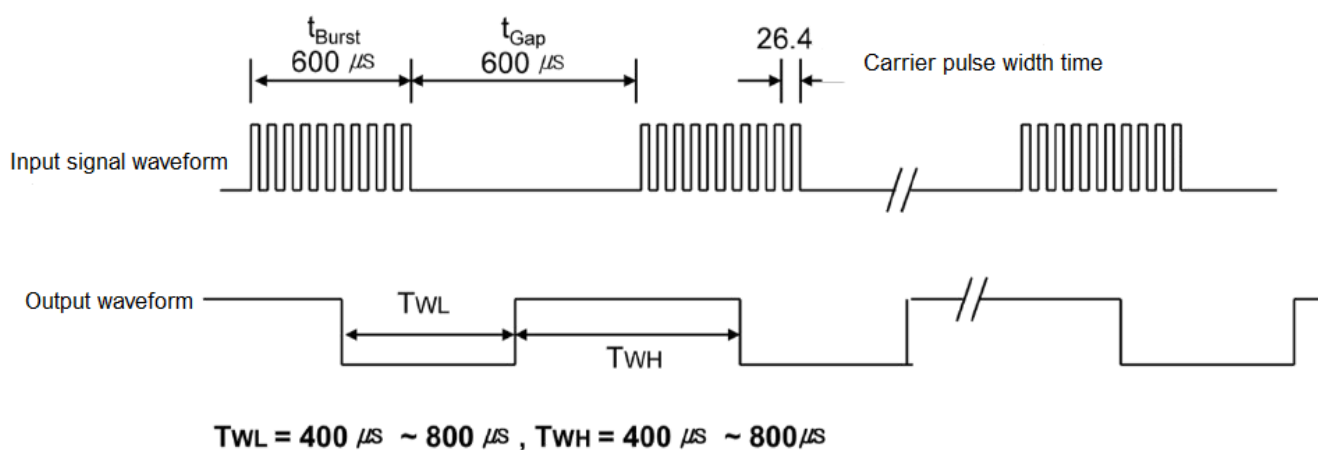
Parameter	Symbol	Rating	Unit
Supply voltage	Vcc.	7	V
Supply current	Iout.	2.5	mA
Operating temperature range	Topr.	-20°C~80°C	°C
Storage temperature range	Tstg.	-25°C~85°C	°C
Soldering temp.	Tsol.	260(Max 5 sec)	°C
(Pb Free)Reflow temp.	Tsol.	245(Max 10 sec)	°C
MSL	Level-4 (≤30°C / 60% RH 72hours)		
	JEDEC® standard J-STD-020 level 4		

Parameter	Symbol符号	Conditions条件	Min.	Typ.	Max.	Unit
Supply Voltage Range	Vcc		2.7	-	5.5	V
Current Consumption	Icc	No Signal	0.15	0.39	0.58	mA
				0.33		
Peak Wavelength *3	λ_p		-	940	-	nm
B.P.F Center Frequency	f _o		-	37.9	-	kHz
Arrival Distance	L	200LUX	0	-	-	m
			$\pm 75^\circ$	-	-	m
High Level Output Voltage	VOH	30cm over the ray axis	Vcc-0.5	Vcc-0.3	-	V
Low Level Output Voltage	VOL			0.2	0.5	V
High Level Output Pulse Width	TWH	f _{in} =37.9 kHz, 600us burst wave Vin=500 uVp-p	400	600	800	μ s
Low Level Output Pulse Width	TWL	Period = 1.2ms	400	600	800	μ s
Output Form	Active Low Output					

Note:

- 1) Test site: Measured in an indoor environment where light does not reflect
- 2) Peripheral light source: tested under white LED without high-frequency interference or under fluorescent lamp. Test ambient illumination: 200 \pm 50LUX
- 3) Standard signal transmitter: standard NEC code.

Test conditions



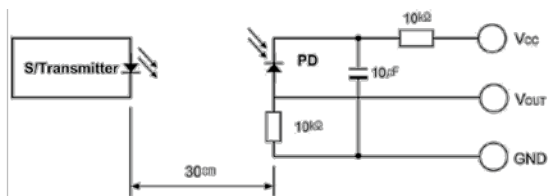
Note:

Carrier frequency : 37.9KHz

TYPICAL CHARACTERISTICS

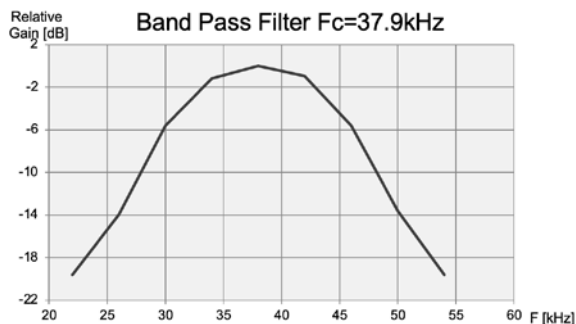
($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Remote control signal test

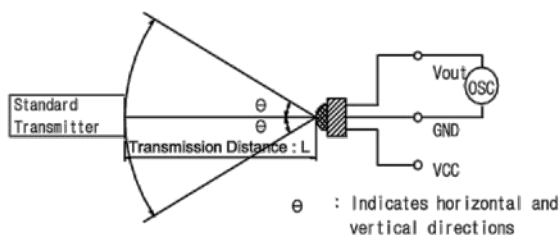


- Infrared emitting tube: 940nm, luminous intensity 50mW/Sr

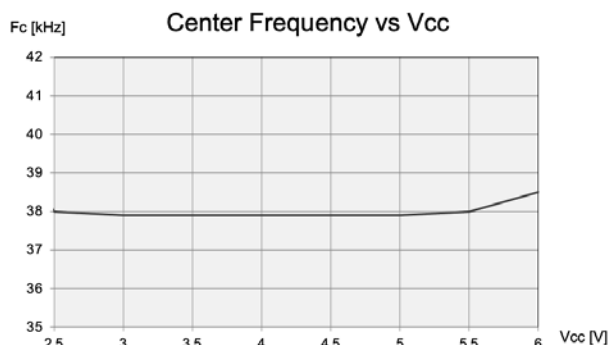
- Receiver tube: Photodiode (PIN Photo Diode) $ISC=32\mu\text{A}$ / 1000Lx reference



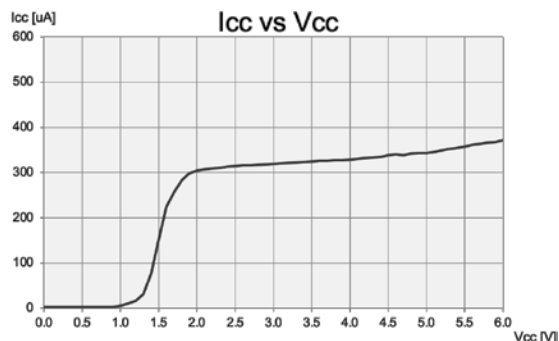
Distance test



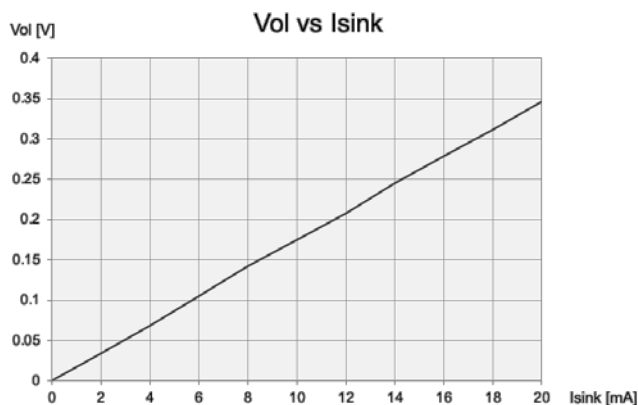
Band Pass Filter Curve $F_c=37.9\text{KHz}$



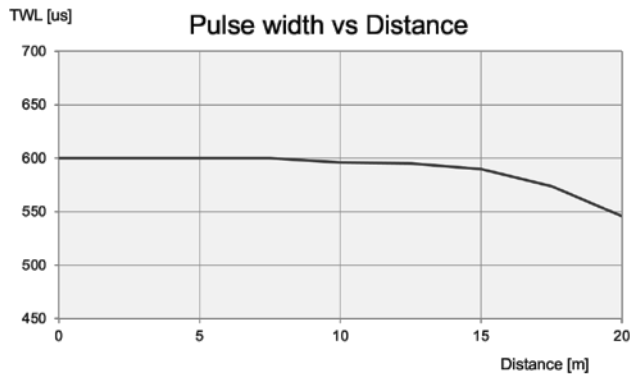
Power supply VS current



VOL (Output Low Voltage) Vs Isink



Pulse Width (Input burst = 600us) = 37.9kHz



Welding reference

Reflow soldering

- Reflow soldering must be performed within 72H, at a maximum temperature of 30°C, 60%RH after opening the dry packaging envelope.
- Set the preheating and furnace temperatures according to the reflow temperature distribution shown in the figure. Be especially careful to keep the maximum temperature below 245 degrees Celsius. The temperature shown in the profile represents the temperature of the surface of the device. Due to the temperature difference between the component and the board, verify that the temperature of the device is accurate
- Treatment after reflux should wait for the working face to cool down.

Hand welding

- Use a soldering iron of 25W or less. Adjust the temperature of the soldering iron to below 300 degrees Celsius
- Weld work in less than 3 seconds
- Only wait for the temperature to cool down before handling the product

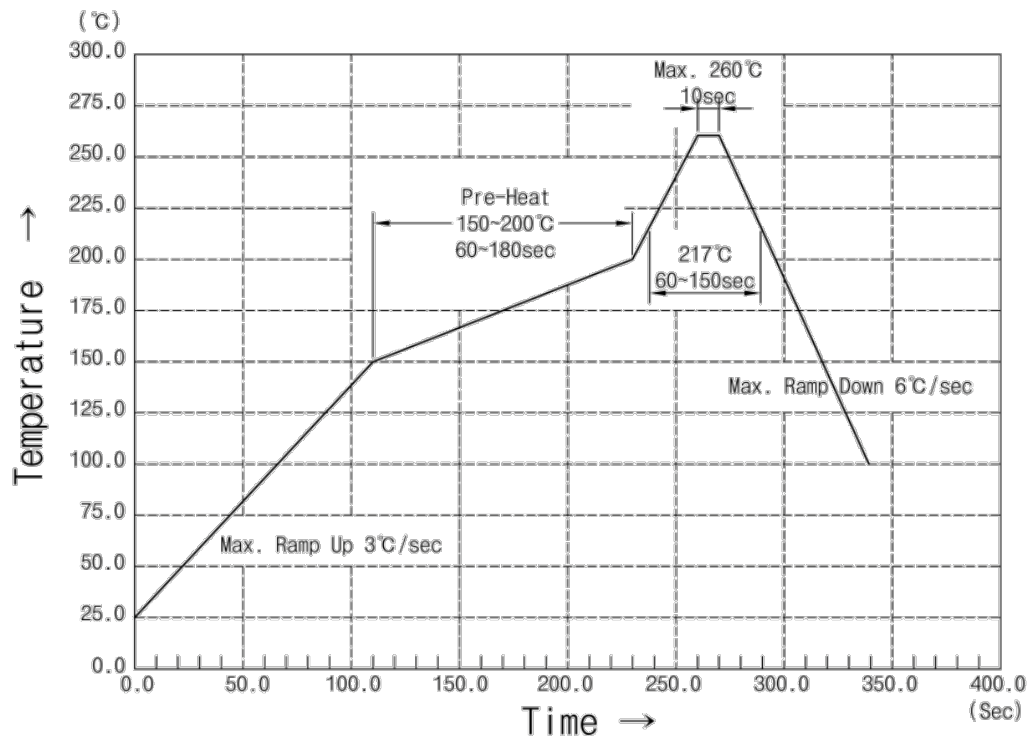
Product specifications

JEDEC	Moisture Sensitivity	Level 4
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FLOOR LIFE	Condition	Time
MBB(Moisture Barrier Bag)	≤30°C / 60% RH	72 Hour's

Reflow device management (SMT equipment temperature profile settings)

The following Lead-free reflow soldering temperature profile is recommended.



Product management (pay attention when manipulating)

(1) The maximum temperature of Reflow is $245 \pm 0/-5^{\circ}\text{C}$, the setting time is within 10 seconds, and the operation is carried out within 24 hours in an environment of $30^{\circ}\text{C}/60\%$ after the product is opened.

(2) It is recommended that the product work within 24 hours after opening in an environment of $30^{\circ}\text{C}/60\%$, temperature and humidity conditions or 24 hours after opening

Bake again (55°C / 168 hours or more)

(3) Do not stack the products when Reflowing.

(4) The second Reflow is carried out within 4 hours after the completion of the first Reflow.

The first and second Reflow works within 24 hours in a $30^{\circ}\text{C}/60\%$ environment.

If more than 4 hours the situation is carried out after baking again as follows.

- 80°C , 126 hours
- 100°C , 96 hours
- 125°C , 48 hours

It is not recommended to go above the third time, it will produce Rework when bad reasons, please pay attention when working.

(5) After Reflow, the surface is completely cool before moving.

