IR Receiver Module

RPM7238-R series

RPM7238-R series are remote control receiver module. Small-sized, light-weight, and low voltage operated (from 2.7V) modules have been achieved by using resin mold.

●Center frequency

37.9kHz

Applications

All household electric appliances such as TV, DVD, air conditioner and audio equipment.

● Features

- 1) Low voltage operation. (Vcc=2.7 to 3.6V)
- 2) Low current consumption. (Icc=0.3mA, Vcc=3V)
- 3) Superior anti Vcc noise characteristics.
- 4) 5 types of holders available to each set.

●RPM7238-R series

	SIDE VIEW		TOP VIEW			
	RSIP-A3 (H13)	RSIP-A3 (H5)	RSIP-A3 (H4)	RSIP-A3 (H8)	RSIP-A3 (H9)	
Height to lens	15.0mm	9.6mm	15.9mm	7.2mm	12.0mm	
Products No.	RPM7238-H13R	RPM7238-H5R	RPM7238-H4R	RPM7238-H8R	RPM7238-H9R	

● Absolute maximum ratings (Ta = 25°C)

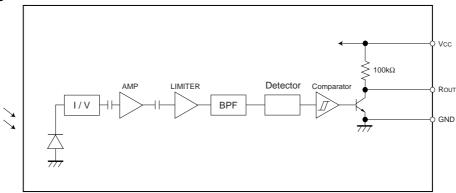
Parameter	Symbol	Limits	Unit
Supply Voltage	Vcc	6.3	V
Output current	lo	2.0	mA
Storage temperature	Tstg	-30 to +100	°C
Operating temperature voltage	Topr	-10 to +75	°C

● Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit
Supply voltage	Vcc	2.7	3.0	3.6	V



Block diagram



Terminal description

Pin No.	Pin name	Function
1	Vouт	OUTPUT TERMINAL
2	GND	GROUND
3	Vcc	POWER SUPPLY



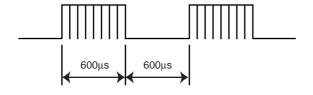
●Electrical, Optical characteristics (Unless otherwise noted, Ta = 25°C Vcc=3V)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Consumption Current	Icc	_	300	500	μА	No outside light, No signal input	
Effective Distance	L	8	15	_	m	Outer light condition Ee < 10 (Ix)	*1
High Level Output Voltage	Vн	2.5	_	-	V		*1
Low Level Output Voltage	VL	_	_	0.5	V	Isink≦200μA	*1
ON Pulse Width	Ton	400	600	800	μs	Outer light condition Ee < 10 (Ix)	*1
OFF Pulse Width	Toff	400	600	800	μs	Outer light condition Ee < 10 (Ix)	*1
Center frequency	fo	_	37.9	_	kHz		
Horizontal half angle	θ 1/2	_	45	_	deg		*2
Vertical half angle	θ 1/2	_	35	_	deg		*2

^{*1 600/600}µs burst wave is transmitted by standard transmitter. However, it must be measured after the initial transmission pulse is 10 pulse. *2 It is an angle when the linear arrival distance become half.

Measurement Conditions

(1) Transmit signal



Carrier frequency=fo, Duty=50%

Fig.1 Transmit signal



(2) Standard transmitter

 λ peak=940nm $\Delta\lambda$ =40nm

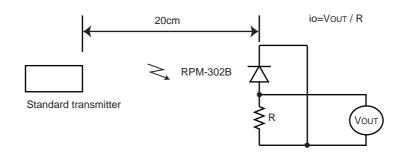


Fig.2 Measurement of standard transmitter proofreading

When standard transmitter output the signal at Fig.1 standard photodiode output become io= 5μ Ap-p under the measurement condition Fig.2.

(The radiant intensity of standard transmitter: 50mW/sr)

RPM-302B : standard photodiode has short current Isc=27 μ A at Ee=1000(Ix) (using CIE standard light source A)

(3) Measurement effective distance, horizontal & vertical half angle

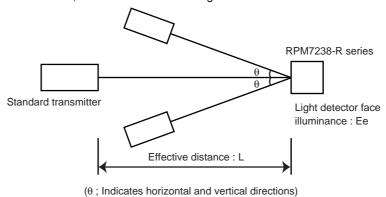
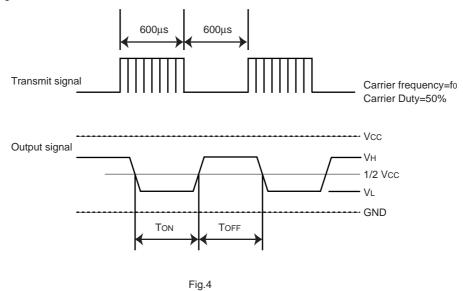


Fig.3 Measurement condition for effective distance

Effective distance L : Effective distance at θ =0° Fig.3

Horizontal & vertical half angle $\,\theta$: The angle which effective distance became 50% of L.

(4) Output signal



(5) Measurement circuit for the output voltage and the consumption current

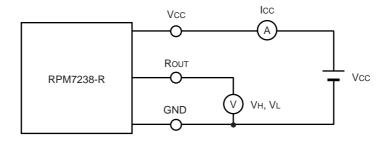
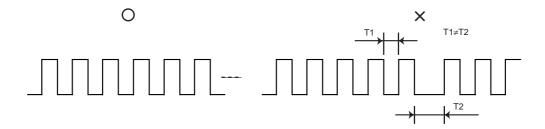


Fig.5

Notes

- (1) All characteristics of the receiver in this specification are specified by supplying burst wave form (Fig.1) with ROHM standard transmitter (Fig.2).
 - If in case of other burst wave form will be used, please check these spec. Carefully under the evaluations.
- (2) When the receiver will be used as the wire-less remote controller, please use the signal method the signal format which refer to "Measures to prevent mulfunctioning of IR remote-controlled electric home appliances". (Published July 1987 by Association of Electric Home Appliances)
 - If using other signal method, signal format, (ex: signal format which not including the leader signal) the receiver might have chances to miss-function.
- (3) Please set up transmitter's carrier frequency as same as the receiver's fo frequency. Otherwise error might be occurred.
- (4) If transmission signal has non-continues carrier, error might be occurred. Continuous carrier is necessary.



- (5) The receiver was designed to use as in-door use only.

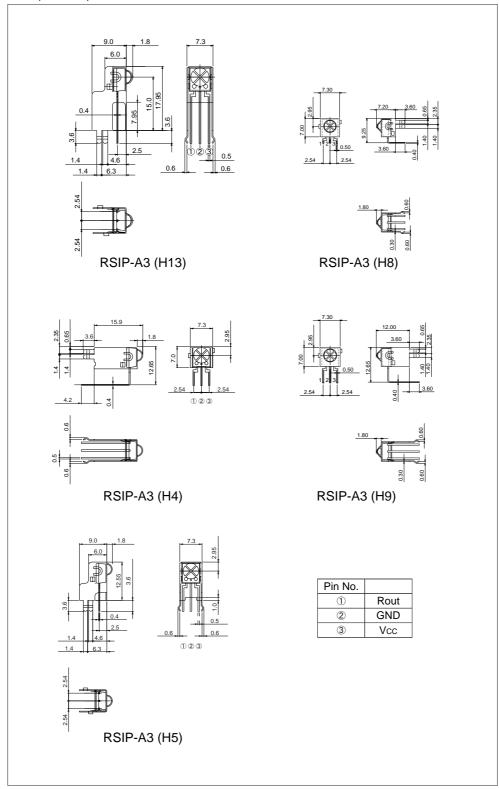
 Therefore, please understand that the receiver cannot cover all characteristics, in case of using it out-door.
- (6) Noise environment (Light noise from inverter Lamp, and other kind of Lamps, Power ripple, electromagnetic noise from power circuit, and etc) may cause a reduced effective distance.
- (7) The receiver may not work properly if receiving signal judgement is done by single pulse due to the surrounding / environmental noises.
 - To prevent such misjudgement, please make sure that the receiver is set up to work only when receiving series of coded signal.
- (8) Emitting unit (remote control transmitter) has to be considered about its emitting device function, characteristics and characteristics of the receiver.
- (9) Please connect 'Holder' on to the 'Ground (GND)' of PCB. If the holder is not connected to the GND, there is a possibility of worsening the characteristics of product.
- (10) Do not supply unnecessary stress to lead and holder.
- (11) Please pay careful attention to the lens.

 It might have a chance to miss-function when the lens get dust or dirty. And also please do not touch the lens.
- (12) In order to prevent products from ESD, human body and solder iron, etc. are required to be grounded.



Rev.B

●Dimensions (Unit:mm)



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Appendix1-Rev1.1