< Specifications (Precautions and Prohibitions) >

● Precautions Regarding Foreign Exchange and Foreign Trade Control Law

1) The Company has not determined whether or not the products are considered "a controlled product or technology " as specified in the Foreign Exchange and Foreign Trade Control Law.
Accordingly, if exportation of the products, either separately or integrated in another company's products, is intended, or giving the products to persons who are not residents is planed, additional steps are required, based upon the appropriate regulations.

● Prohibitions Regarding Industrial Property

1) These Specifications contain information related to the Company's industrial property. Any use of them other than pertaining to the usage of appropriate products is not permitted. Duplication of these Specifications and its disclosure to a third party without the Company's permission is prohibited.

2) Information and data on products, including application examples, contained in these specifications are simply for reference; the Company does not guarantee any industrial property rights, intellectual property rights, or any other rights of a third party regarding this information or data. Accordingly, the Company does not bear any responsibility for:
[a] infringement of the intellectual property rights of a third party
[b] any problems incurred by the use of the products listed herein.

3) The Company prohibits the purchaser of its products to exercise or use the intellectual property rights, industrial property rights, or any other rights that either belong to or are controlled by the Company, other than the right to use, sell, or dispose of the products.

● Precautions on Use of Products

1) Verification and confirmation of performance characteristics of products, after on-board mounting, is advised.

2) In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse) is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

3) When a highly active halogenous (chlorine, bromine, etc.) flux is used, the remainder of flux may negatively affect product performance and reliability.

● Precautions Regarding Product Storage

1) Product performance and soldered connections may deteriorate if the products are stored in the following places:
[a] Where the products are exposed to sea winds or corrosive gases, including Cl_2, H_2S, NH_3, SO_2, and NO_2
[b] Where the temperature or humidity exceeds those recommended by the Company

2) The guaranteed period of solder connections and product performance is within one year from shipment by the Company, provided that the above-mentioned storage conditions have been satisfied.

● Other Matters

1) Please sign these Specifications and return one copy to the Company.
If a copy is not returned within three months after the issued date specified on the front page of these Specifications, the Company will consider the Specifications accepted.
2) If any matter related to these Specifications needs to be clarified, discussions shall be held promptly between the two parties concerned to determine the issue.

1. Device name RPM7100 series
2. Construction Semiconductor IC
3. Application Remote control (Home electronics, in room use only)
4. Dimensions fig.4, fig.5
5. Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Spec	Unit	Conditions
Supply Voltage	Vcc	6.3	V	
Output Current	Io	2.0	mA	
Storage Temperature	Tstg	−30～+100	°C	
Operating Temperature	Topr	−10～+75	°C	No dew condensation is allowed
Soldering Temperature	Tsol	260	°C	Within 5sec

6. Recommended Operating Conditions

Parameter	Symbol	Min	TYP	Max	Unit
Supply Voltage	Vcc	4.5	5.0	5.5	V

7. Electrical, Optical Characteristics (VCC=5V, Ta=25°C)

Parameter	Symbol	Min	TYP	Max	Unit	Conditions
Consumption Current	Icc	—	0.95	1.5	mA	No outside light, No signal input
Effective Distance	L	8	15	—	m	※1 Outer light condition Ee<10(lx)
High Level Output Voltage	VH	4.5	—	—	V	※1
Low Level Output Voltage	VL	—	—	0.5	V	※1 Isink<200μA
ON Pulse Width	TON	400	600	800	μs	※1 Outer light condition Ee<10(lx)
OFF Pulse Width	TOFF	400	600	800	μs	※1 Outer light condition Ee<10(lx)
Center frequency	fo	—	※3	—	kHz	
Horizontal half angle	θ1/2	—	50	—	deg	※2
Vertical half angle	θ1/2	—	40	—	deg	※2

※1 The burst wave form mentioned in fig.1 is to be transmitted from standard transmitter (fig.2). Measure 10th or later pulse width after beginning of transmission.

※2 The angle which effective distance become 50% of L.(effective distance at θ=0°)

※3 Frequencies 36.7, 37.9, 40.0 kHz are available.

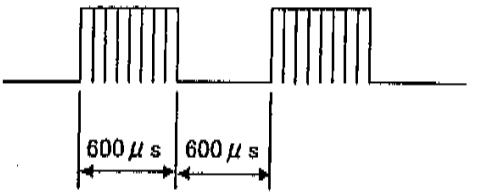
Application example
The application circuit is recommended for use. Make sure to confirm the adequacy of the characteristics.
When using the circuit with changes to the external circuit constants, make sure to leave an adequate margin for external components including static and transitional characteristics as well as dispersion of the IC.
Note that ROHM cannot provide adequate confirmation of patents.

The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys).
Should you intend to use this product with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

ROHM assumes no responsibility for use of any circuits described herein, conveys no license under any patent or other right, and makes no representations that the circuits are free from patent infringement.

8. Measurement Conditions

(1)Transmit signal



Carrier frequency=fo, Duty=50%

fig.1 transmit signal

(2)Standard transmitter

λ peak=940nm

Δ λ =40nm

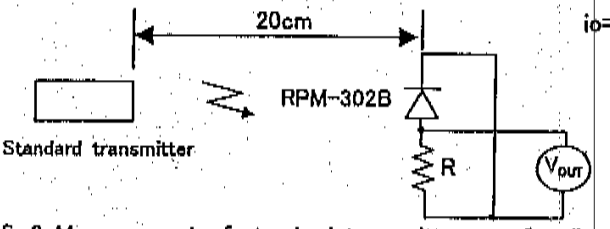


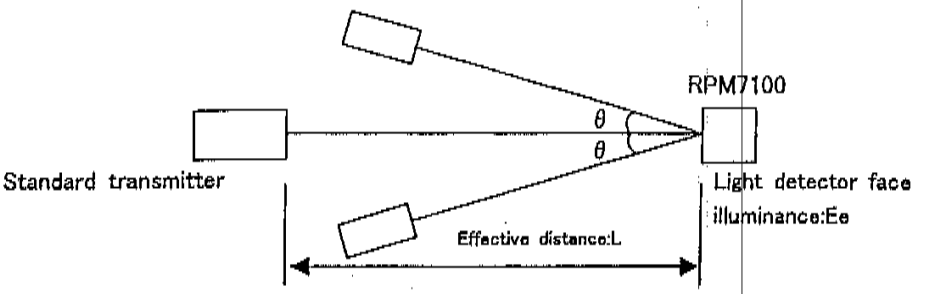
fig.2 Measurement of standard transmitter proofreading.

When standard transmitter output the signal at fig.1 standard photodiode output become io=5 μ 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 E=1000(lx) (using CIE standard light source A)

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



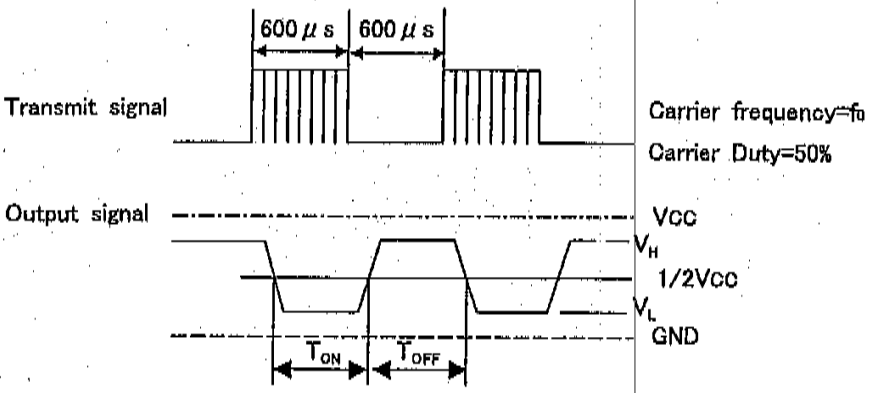
(θ ;Indicates horizontal and vertical directions)

fig.3 Measurement condition for effective distance

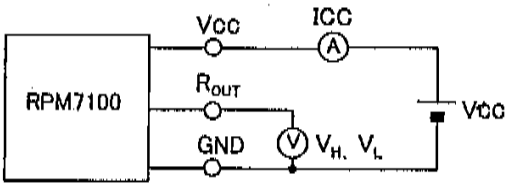
Effective distance L : Effective distance at θ=0° fig.3

Horizontal & vertical half angle θ: The angle which effective distance became 50% of L.

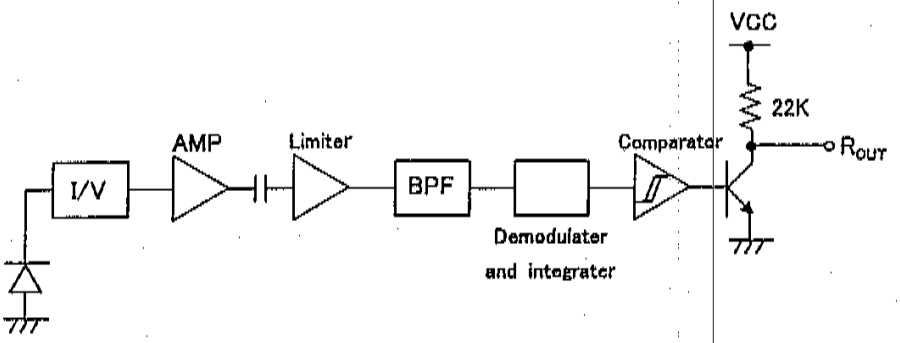
(4)Output signal



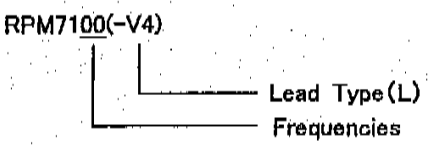
(5)Measurement circuit for the output voltage and the consumption current



9.Block Diagram



10.The type neme of the RPM7100 series.



Frequencies

Symbol	37	38	40
Frequencies	36.7kHz	37.9kHz	40.0kHz

11.Others

This device is not designed as radiation proof.
There is no laser oscillator in this device.
There is one photosensitive element in this device.
There is no photoconductive circuit in this device.

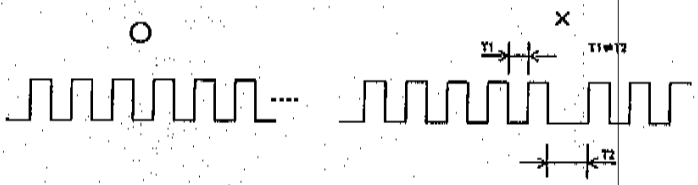
NOTE

(1) All characteristics of the receiver in this specification are specified by supplying burst wave form with ROHM standard transmitter (Shown as 8 (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 f0 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.

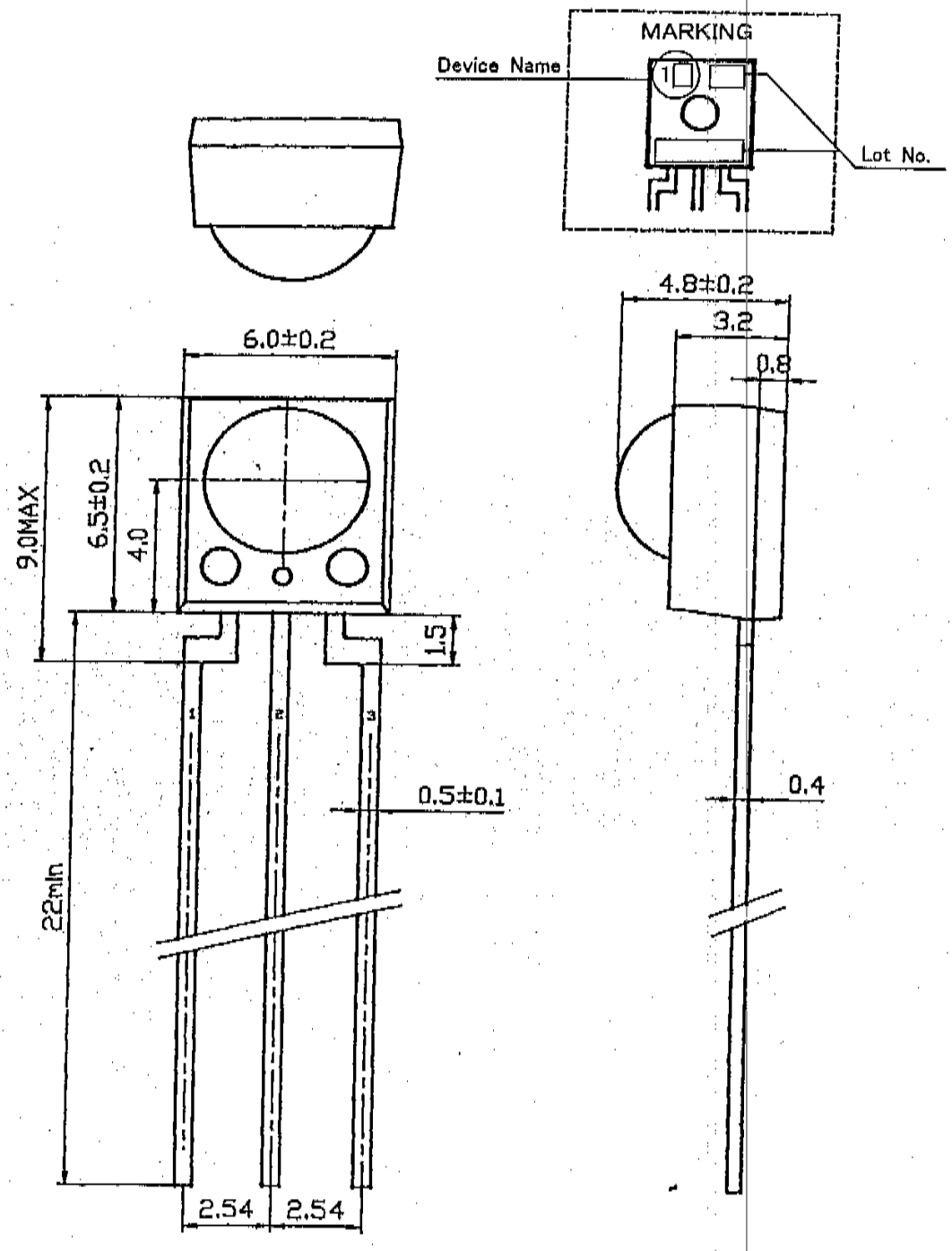
(7) Emitting unit (remote control transmitter) has to be considered about its emitting device function, characteristics and characteristics of the receiver.

(8) Do not supply unnecessary stress to lead.

(9) Please pay careful attention to the lens.
It might has a chance to miss-function when the lens get dust or dirty. And also please do not touch the lens.

(10) In order to prevent IC from ESD, human body, solder iron, etc are required to be grounded.

fig.4(RPM7100)



(UNIT: mm)

1:ROUT
2:GND
3:VCC

Unspecified tolerance: ±0.2

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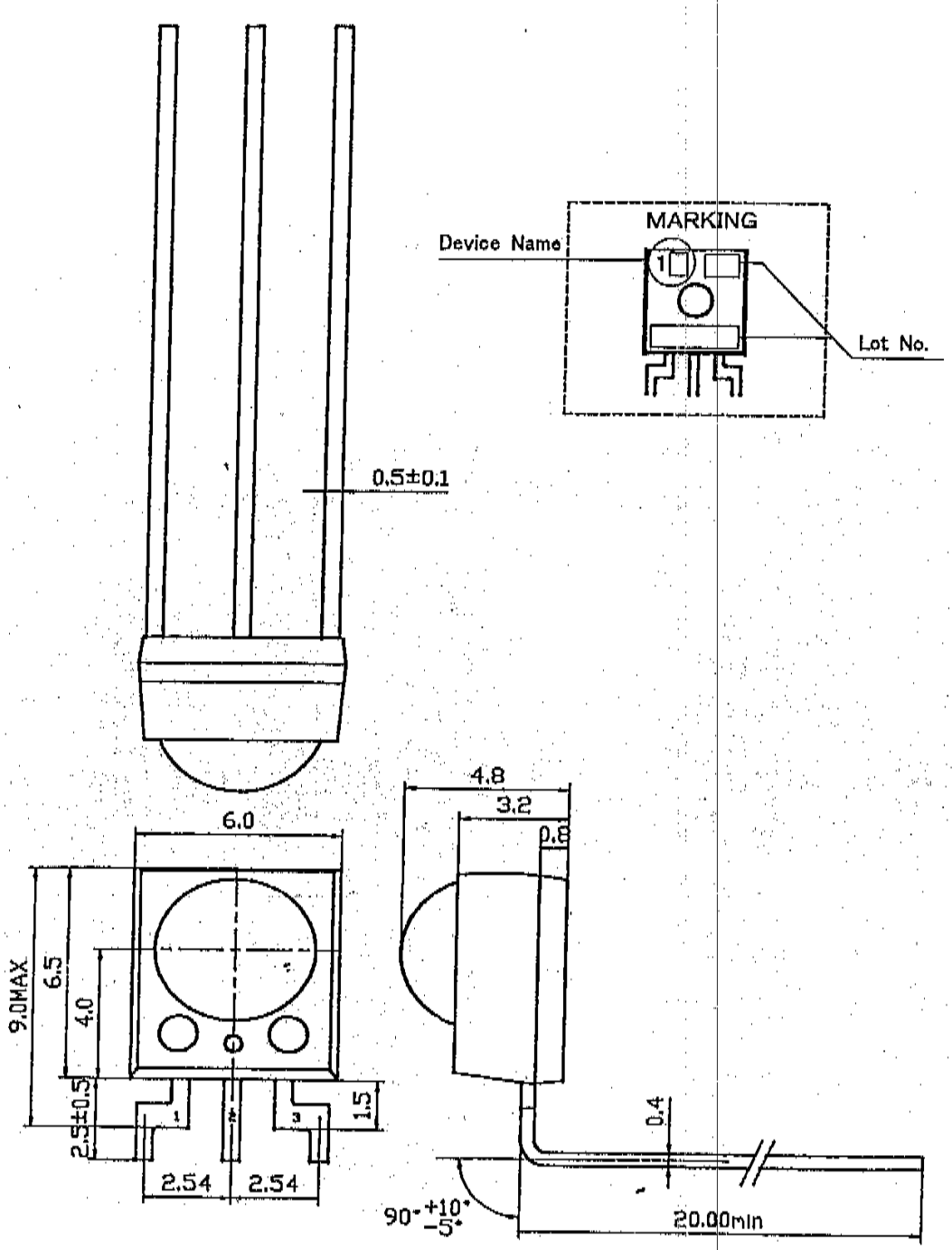
fig.5(RPM7100-V4)



1:ROUT
2:GND
3:VCC

Unspecified tolerance: ±0.2

(UNIT: mm)

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