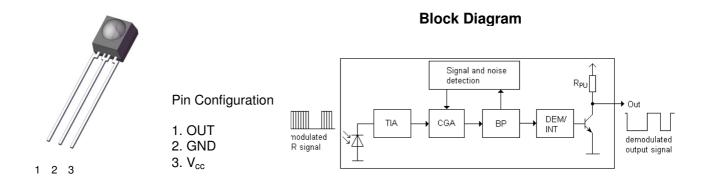


DATASHEET

Infrared Remote Control Receiver Module EAIRMAA1



Features

- · High protection ability against EMI.
- · Circular lens to improve the receive characteristic.
- · Line-up for various center carrier frequencies.
- · Low voltage and low power consumption.
- · High immunity against ambient light.
- · Photodiode with integrated circuit.
- TTL and CMOS compatibility.
- $\cdot \ \ \text{Long reception distance}.$
- · High sensitivity.
- · Pb free and RoHS compliant.

Description

The EAIRMAA1 device is miniature type infrared remote control system receiver which has been developed and designed by utilizing the most updated IC technology.

The PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as an IR filter.

The demodulated output signal can directly be decoded by a microprocessor.

1

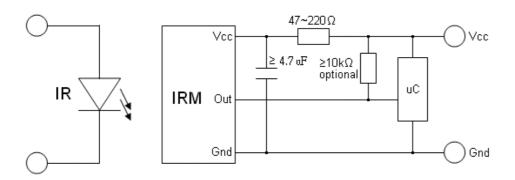
Infrared Remote Control Receiver Module EAIRMAA1



Applications

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

Application Circuit



RC Filter should be connected closely between Vcc pin and GND pin.

Parts Table

Model No.	Carrier Frequency	
EAIRMAA1	38 kHz	



Absolute Maximum Ratings (T_a=25 ℃)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-20 ~ +80	$^{\circ}$
Storage Temperature	Tstg	-40 ~ +85	$^{\circ}$ C
Soldering Temperature *1	Tsol	260	$^{\circ}$ C

^{*1. 4}mm from mold body less than 5 seconds

Electro-Optical Characteristics (Ta=25°C and Vcc=3.0V)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Consumption Current	lcc		0.4	0.6	mA	No signal input
Supply Voltage	Vcc	2.7		5.5	V	
Peak Wavelength	λр		940		nm	
Descrition Distance	L0	14			m	- At the ray axis *2
Reception Distance	L45	6			m	
Half Angle(Horizontal)	θh		45		deg	
Half Angle(Vertical)	θν		45		deg	
High Level Pulse Width	TH	400		800	μs	At the ray axis
Low Level Pulse Width	TL	400		800	μs	*3
High Level Output Voltage	VH	Vcc-0.4			V	I _{SOURCE} ≦1μA
Low Level Output Voltage	VL		0.2	0.5	V	I _{SINK} ≦2mA

^{*2.} The ray receiving surface at a vertex and relation to the ray axis in the range of $\theta=0^{\circ}$ and $\theta=45^{\circ}$.

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^{*3.} A range from 30cm to the arrival distance. Average value of 50 pulses.

Infrared Remote Control Receiver Module

EAIRMAA1



Test Method

The specified electro-optical characteristics is satisfied under the following Conditions at the controllable distance.

- 1. Measurement place
 - A place that is nothing of extreme light reflected in the room.
- 2. External light

Project the light of ordinary white fluorescent lamps which are not high Frequency lamps and must be less then 10 Lux at the module surface. ($Ee \le 10Lux$)

3. Standard transmitter

A transmitter whose output is so adjusted as to **Vo=400mVp-p** and the output Wave form shown in Fig.-1.According to the measurement method shown in Fig.-2 the standard transmitter is specified. However, the infrared photodiode to be used for the transmitter should be $\lambda p=940nm, \Delta \lambda=50nm$. Also, photodiode is used of PD438B (Vr=5V). (Standard light / Light source temperature 2856 K).

4. Measuring system According to the measuring system shown in Fig.-3

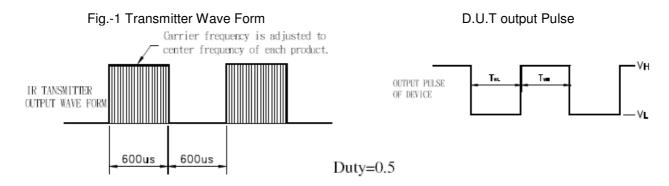


Fig.-2 Measuring Method

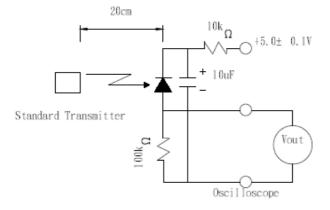
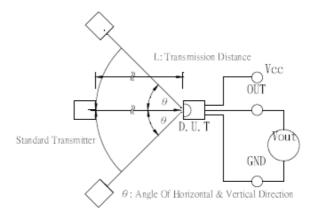


Fig.-3 Measuring System





Typical Performance Curves

Fig.4 Relative Responsibility vs. Wavelength

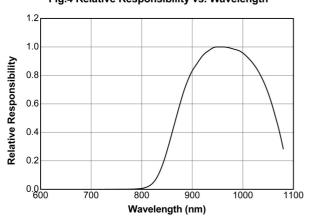
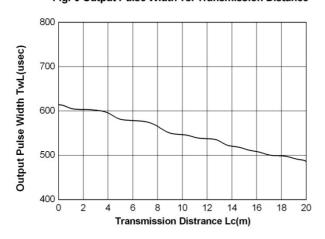


Fig.-6 Output Pulse Width vs. Transmission Distance



Relative Transmission Distance (%) 90 80 60

35

Carrier Frequency (KHz)

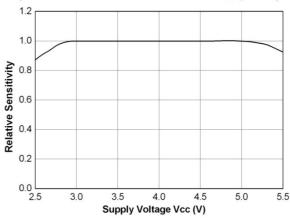
Fig.-8 Relative Transmission Distance

vs. Carrier Frequency

30

Fig.-5 Relative Sensitivity vs. Angle 1.1 1.0 0.9 Relative Sensitivity 0.8 0.7 0.6 0.5 0.4 -40 -20 20 40 60 Angle (deg.)

Fig.-7 Relative Transmission Distance vs. Supply Voltage



100

50 L 20

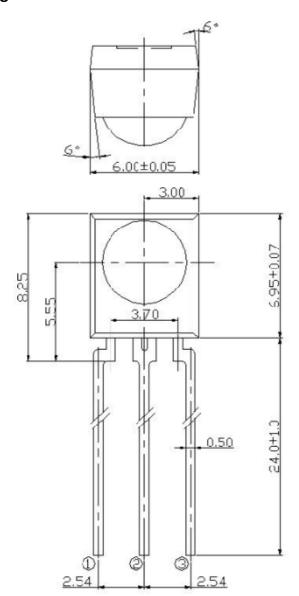
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40

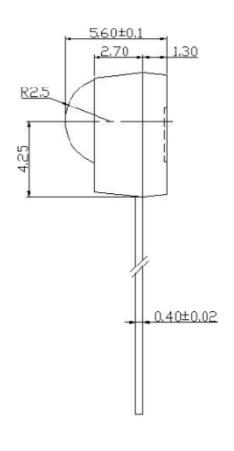
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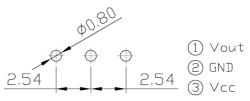


Package Dimensions









Notes: 1.All dimensions are in millimeters.

2. Tolerances unless dimensions ±0.3mm.



Code information

Protocol	Suitable	Protocol	Suitable
JVC	Yes	High Data Rate code	No
Matsushita	Yes	Continuous Code	No
Mitsubishi	No	Sharp	Yes
NEC	Yes	Sony 12 Bit	Yes
RC5_Philips	Yes	Sony 15 Bit	No
RC6_Philips	Yes	Sony 20 Bit	No
RCA_Thomson	No	Toshiba	Yes
Zenith	Yes		

Packing Quantity

1500 pcs / Box

10 Boxes / Carton

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- 2. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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