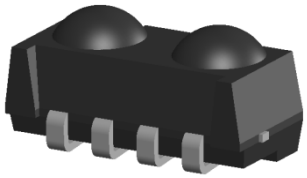
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DATASHEET

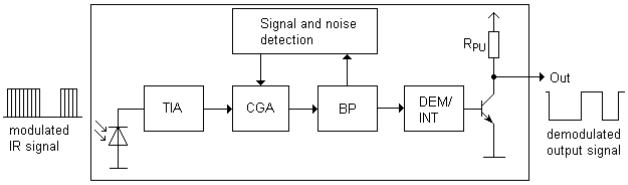
Infrared Receiver Control Receiver Module
EAIRMJA1



Pin Configuration

1. GND
2. Vcc
3. Out
4. GND

Block Diagram



Features

- High protection ability against EMI
- Available for various carrier frequencies
- Min burst length: 6 cycles
- Min gap length: 10 cycles
- Low operating voltage and low power consumption
- High immunity against ambient light
- High immunity against TFT and PDP backlight
- Long reception range
- High sensitivity
- Pb free and RoHS compliant
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Description

The device is miniature SMD type infrared receiver that has been developed and designed by utilizing the latest IC technology.

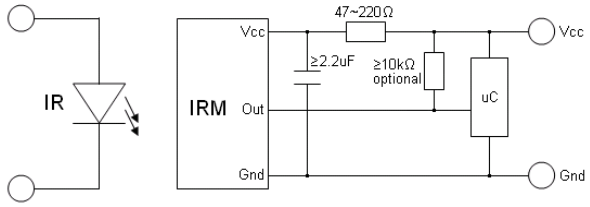
The PIN diode and preamplifier are assembled onto a lead frame and molded into an epoxy package which operated an IR filter. The demodulated output signal can directly be decoded by a microprocessor.

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
- 0ther devices using IR remote control
- CATV set top boxes
- Multi-media Equipment

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Application Circuit



Parts Table

Model No.	Carrier Frequency
EAIRMJA1	38 kHz

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-20 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +85	℃
Soldering Temperature *1	Tsol	260	℃

*1 4mm from mold body for less than 5 seconds

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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Current consumption	Icc	-	0.4	0.6	mA	No input signal
Supply voltage	V_{CC}	2.7	-	5.5	V	
Peak wavelength	λ_p	---	940	---	nm	
Reception range	L_0	14	---	---	m	See chapter ‚Test method'
	L_{45}	6	---	---		
Half angle(horizontal)	φ_h	---	±45	---	deg	
Half angle(vertical)	φ_v	---	±45	---	deg	
High level pulse width	T_H	450	---	750	μs	Test signal according to figure 1
Low level pulse width	T_L	450	---	750	μs	
High level output voltage	V_{OH}	Vcc-0.4	---	---	V	$I_{SOURCE} \leqq 1\mu$ A
Low level output voltage	V_{OL}	---	0.2	0.5	V	$I_{SINK} \leqq 2$mA
Internal pull up resistor	R_{PU}	---	40	---	kΩ	

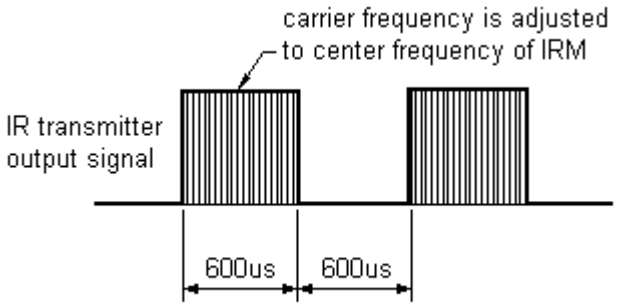
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Test method

The specified electro-optical characteristics are valid under the following conditions.

1. Measurement environment
   A place without extreme light reflections.
2. External light
   The environment contains an ordinary, white fluorescent lamp without high frequency modulation. The color temperature is 2856K and the illumination at the IR receiver is less than 10 Lux (Ev≦10Lux).
3. Standard transmitter
   The test transmitter is calibrated by using the circuit shown in figure 2. The radiation intensity of the transmitter is adjusted until **Vo=400mVp-p.** Both, the test transmitter and the photo diode, have a peak wavelength of 940nm. The photo diode for calibration is PD438B (λp=940nm, Vr=5V).
4. The measurement system is shown in Fig.-3

Fig.-1 Transmitter Wave Form



D.U.T output Pulse

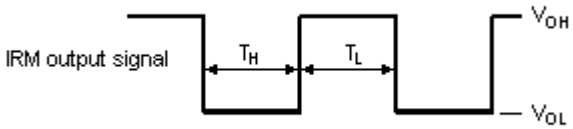
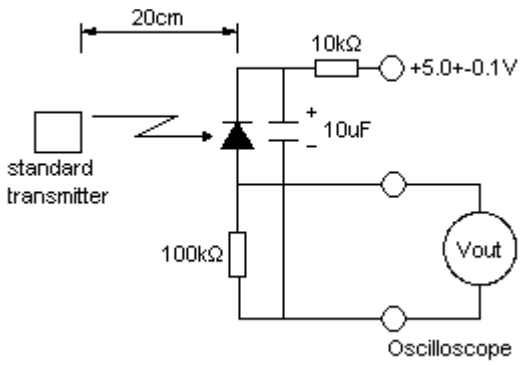
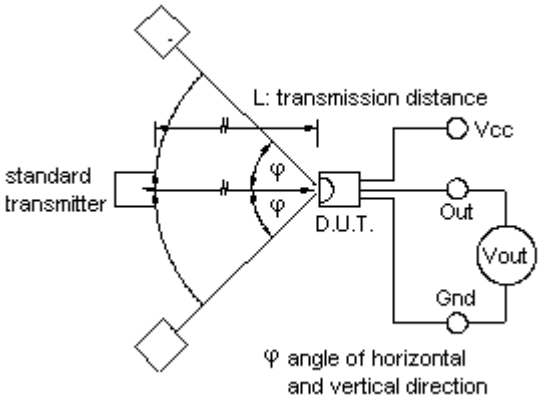


Fig.-3 Measuring System





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Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

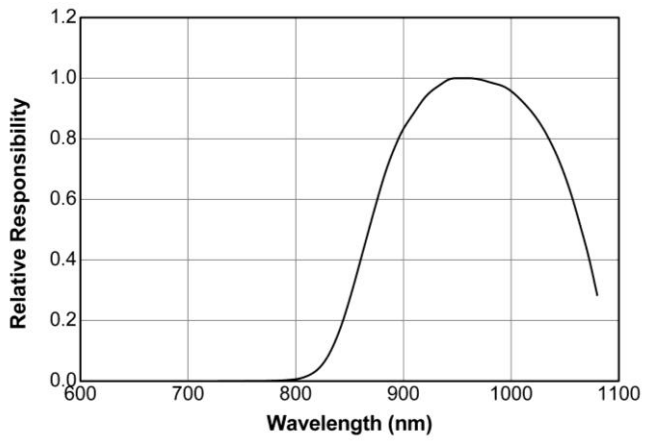


Fig.-5 Relative Sensitivity vs. Angle

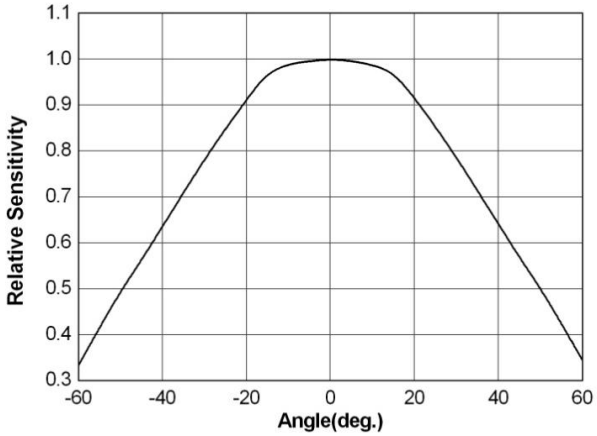


Fig.6 Variation Output Pulse Width vs. Distance

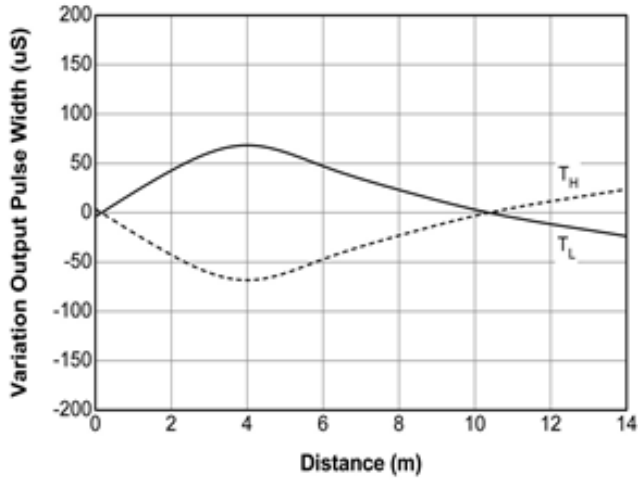


Fig.7 Relative Sensitivity vs. Supply Voltage

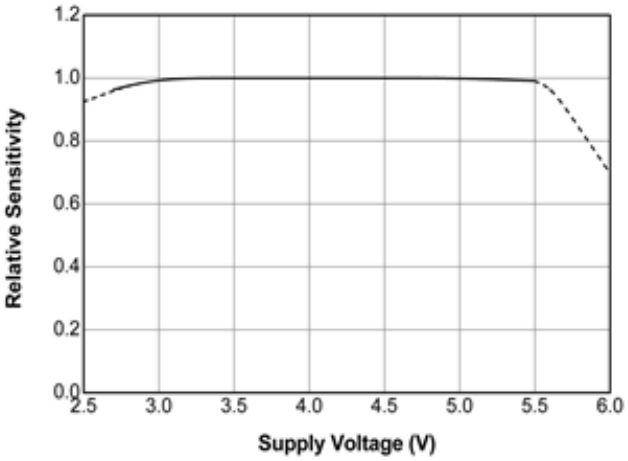
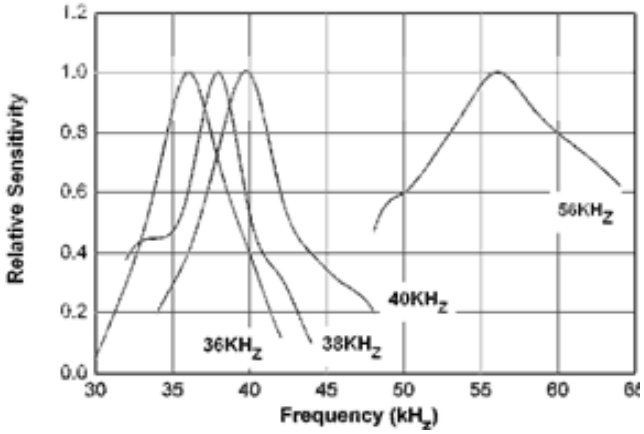
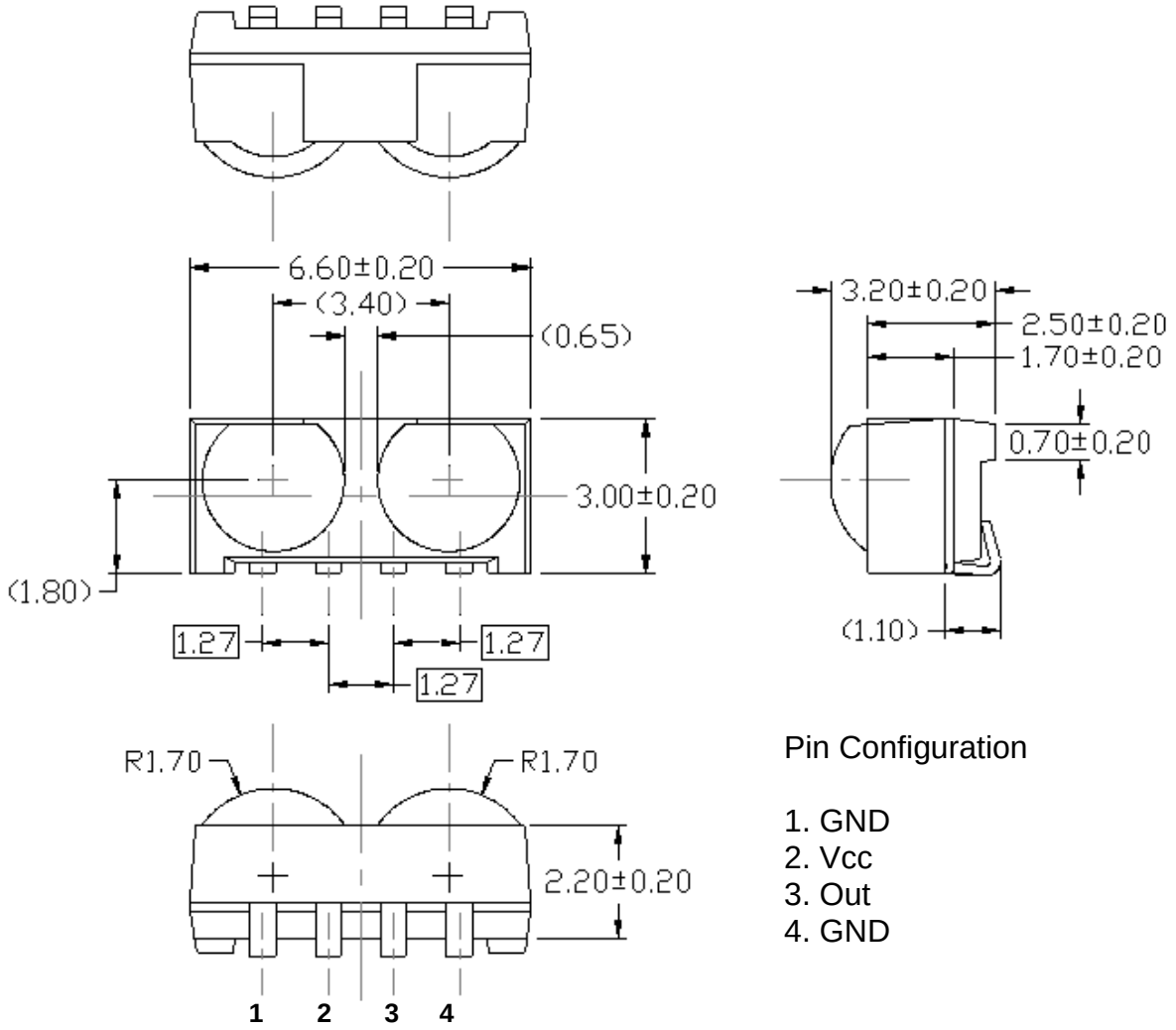


Fig.8 Relative Sensitivity vs. Frequency



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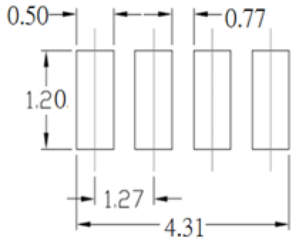
Package Dimension



Pin Configuration

1. GND
2. Vcc
3. Out
4. GND

Recommended pad layout for surface mount leadform



Note: Tolerances unless mentioned ±0.2mm. Unit: mm

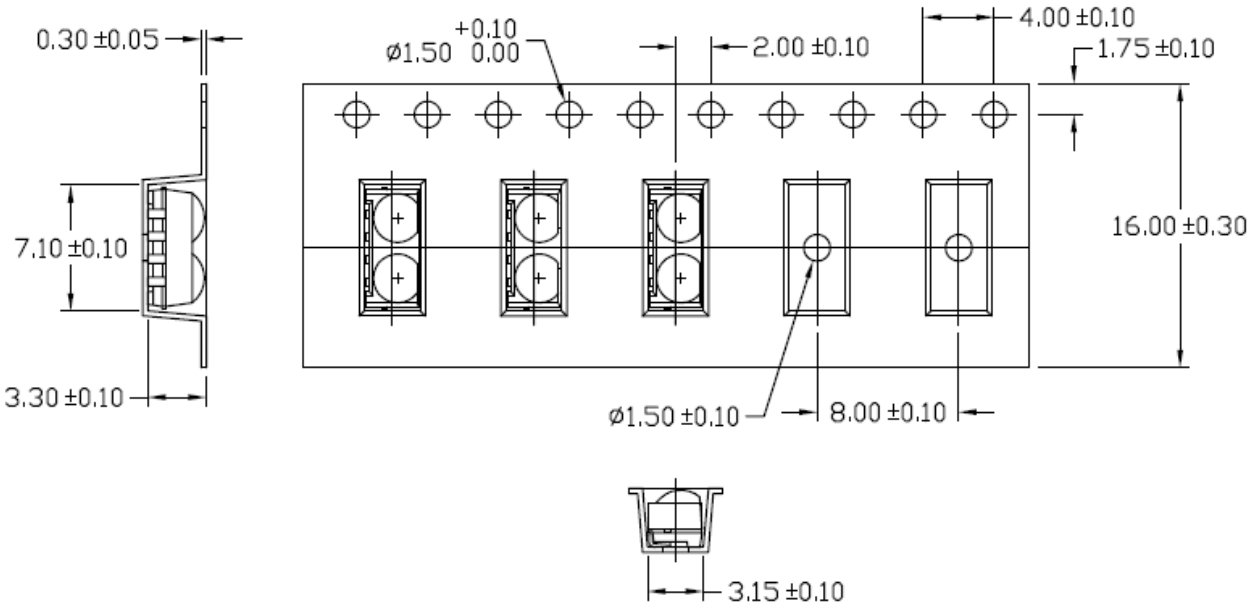
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Code information

Protocol	Suitable	Protocol	Suitable
JVC	Yes	RCS-80	Yes
Matsushita	Yes	Sharp	Yes
Mitsubishi	Yes	Sony 12 Bit	Yes
NEC	Yes	Sony 15 Bit	No
RC5	Yes	Sony 20 Bit	No
RC6	Yes	Toshiba	Yes
RCMM	Yes	Zenith	Yes
RCA	Yes	XMP-1	Yes
Continuous Code	Yes		

Tape & Reel Packing Specifications

(Dimensions in mm)



Packing Quantity

1000 pcs / Reel

5 Reels / Carton

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Application Restrictions

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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 Americas 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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