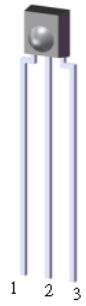
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DATASHEET

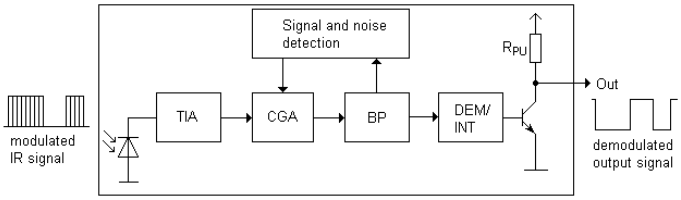
# Infrared Receiver Module
# EAIRMCA0




Pin Configuration

1. OUT
2. GND
3. $V_{CC}$

**Block Diagram**




## Features

- High protection ability against EMI
- Circular lens for improved reception characteristics
- Available for various carrier frequencies
- Min burst length: 8 cycles
- Min gap length: 12 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

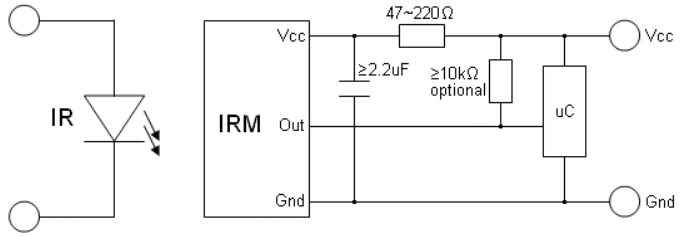
- The EAIRMCA0 devices are mini DIP type infrared receivers which have been developed and designed by using the latest IC technology.
- The PIN diode and preamplifier are assembled onto a lead frame and molded into a black epoxy package which operates as an IR filter. The demodulated output signal can directly be decoded by a microprocessor.

## Applications

- AV equipment such as TV, VCR, DVD, CD, MD, etc.
- CATV set top boxes
- Multi-media Equipment
- Other devices using IR remote control


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## Application Circuit




The RC Filter must be connected as close as possible to Vcc and GND pins.

## Parts Table

| Model No. | Carrier Frequency |
|---|---|
| EAIRMCA0 | 38 kHz |

## Absolute Maximum Ratings ($T_a$=25°C)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Supply Voltage | Vcc | 6 | V |
| Operating Temperature | Topr | -20 ~ +80 | ℃ |
| 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℃, Vcc=3V)

| 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 | $\lambda_p$ | --- | 940 | --- | nm | |
| Reception range | $L_0$ | 14 | --- | --- | m | See chapter ‚Test method' |
| | $L_{45}$ | 6 | --- | --- | | |
| Half angle(horizontal) | $\varphi_h$ | --- | ±50 | --- | deg | |
| Half angle(vertical) | $\varphi_v$ | --- | ±50 | --- | 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 | |
| Low level output voltage | $V_{OL}$ | --- | 0.2 | 0.5 | V | $I_{SINK} \leqq 2mA$ |
| Internal pull up resistor | $R_{PU}$ | 85 | 100 | 115 | 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

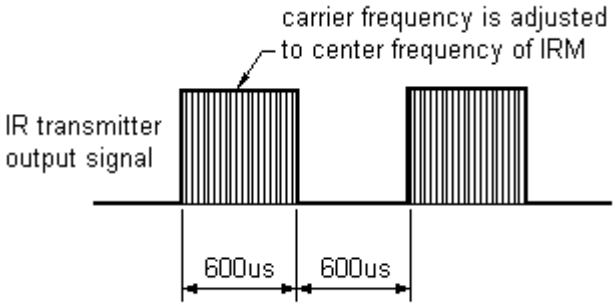
   The environment contains an ordinary, white fluorescent lamp without high frequency modulation. The color temperature is 2856K and the illumination at the IR receiver is less than 10 Lux (Ev≦10Lux).

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

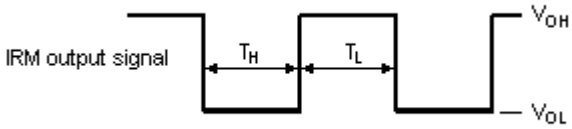



Fig.-2 standard transmitter calibration

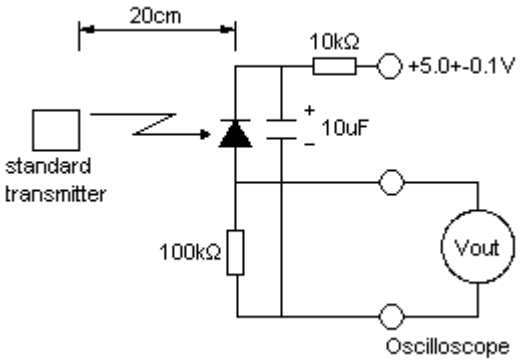
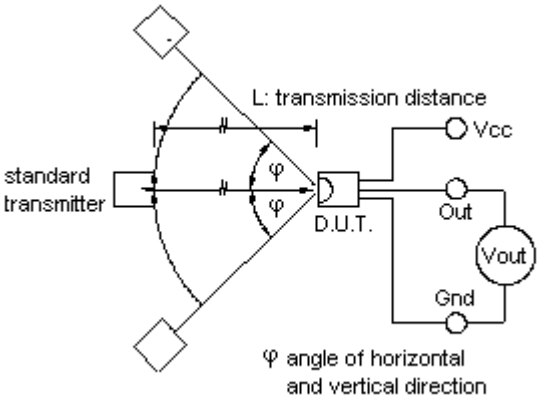



Fig.-3 Measuring System





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## Typical Electro-Optical Characteristic Curves

Fig.4 Relative Responsibility vs. Wavelength

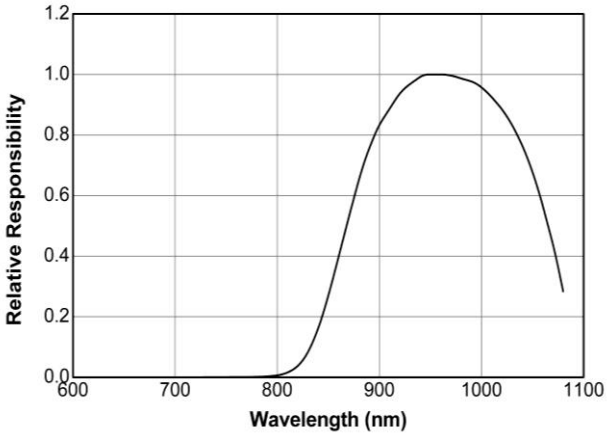



Fig.-5 Relative Transmission Distance vs. Direction

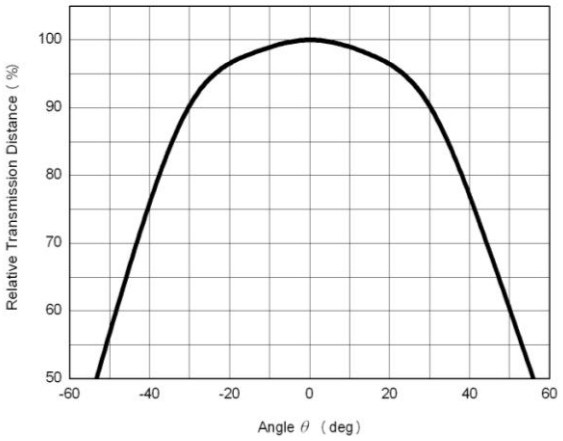



Fig.6 Variation Output Pulse Width vs. Distance

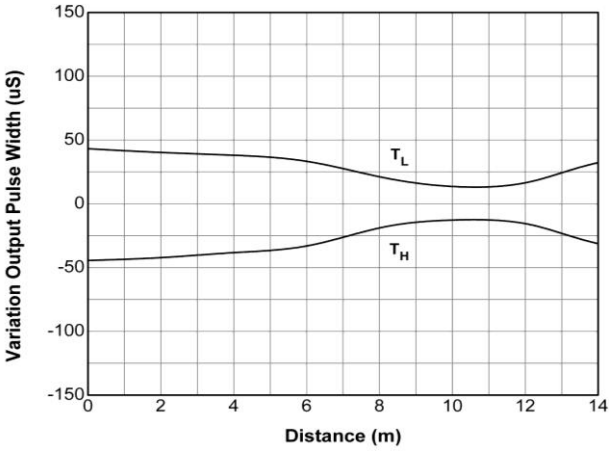



Fig.7 Relative Sensitivity vs. Supply Voltage

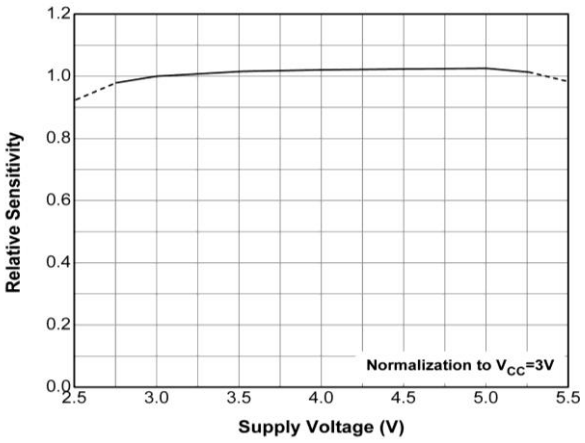
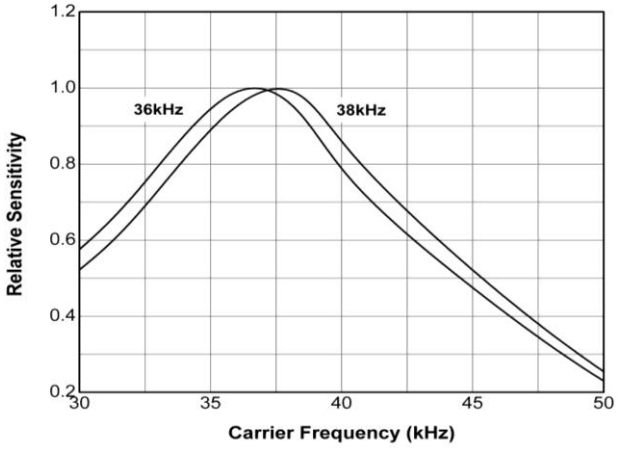



Fig.8 Relative Sensitivity vs. Carrier Frequency

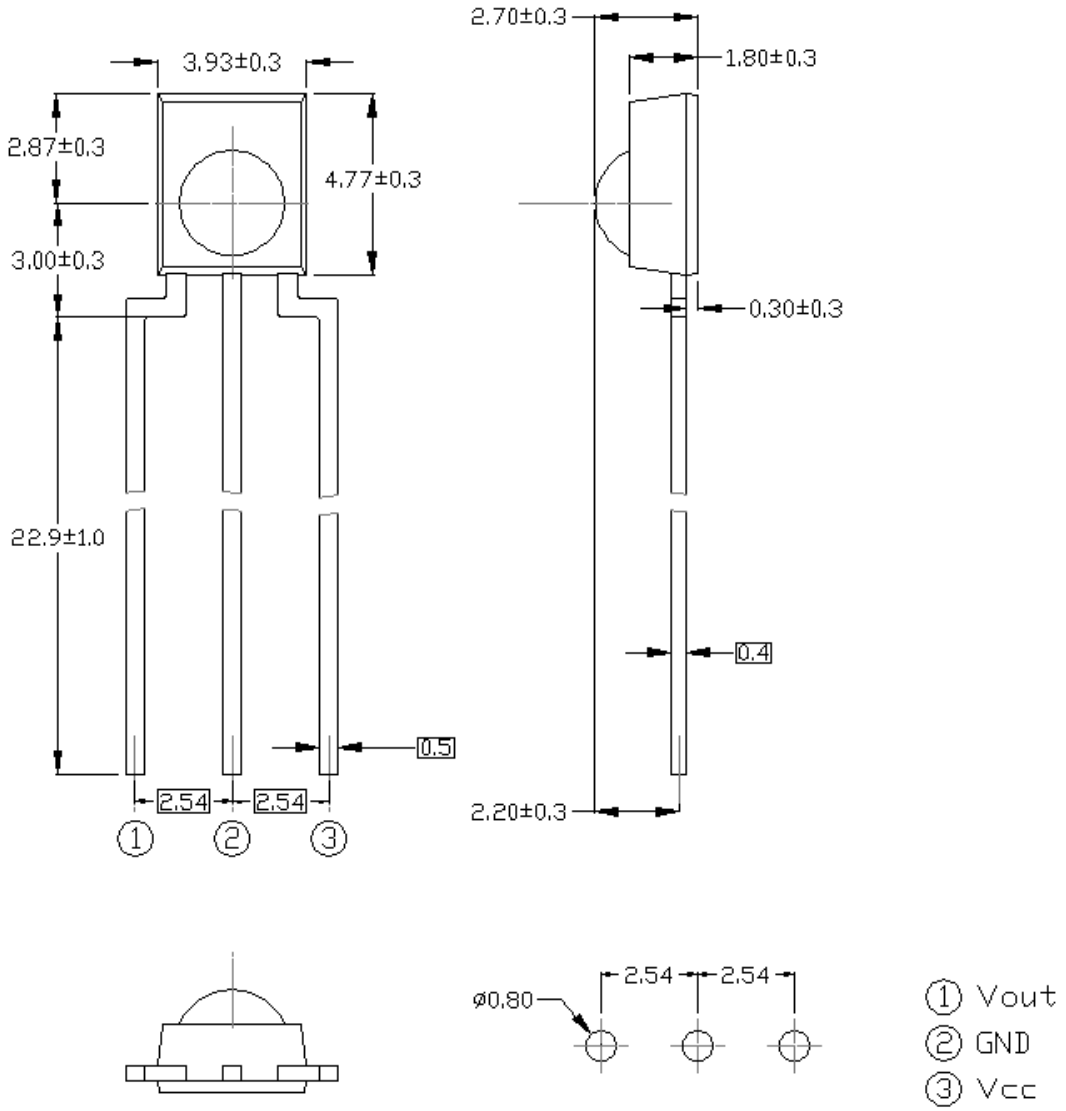




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## Package Dimensions

**(Dimensions in mm)**




**Notes:**

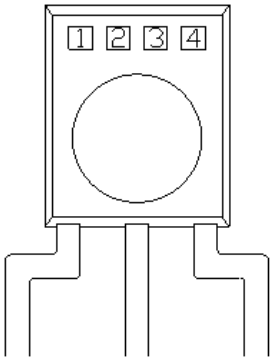
Tolerances unless mentioned ±0.3mm. Unit: mm


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## Code information

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

## Device Marking




**Notes**

1 denotes Year code

2 denotes Month code

3 denotes Device number

4 denotes Carrier frequency

## Packing Quantity

1500 pcs / Box

10 Boxes / Carton


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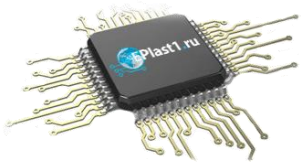
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