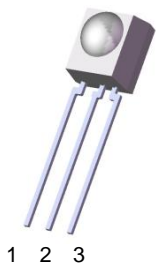


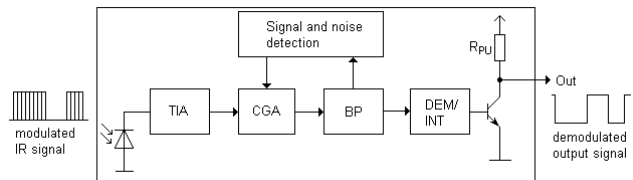
### Infrared Receiver Module EAIRMBA7



#### Pin Configuration

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

#### Block Diagram



#### Features

- High protection ability against EMI
- Circular lens for improved reception characteristics
- Available for various carrier frequencies
- Min burst length: 10 cycles
- Min gap length: 14 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

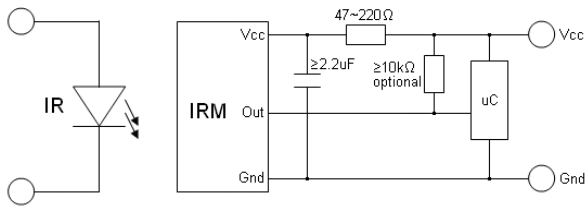
The EAIRMBA7 devices are DIP type infrared receivers which have been developed and designed by using the latest IC technology.

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

## Application Circuit



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

## Parts Table

Model No.	Carrier Frequency
EAIRMBA7	36 kHz

## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-20 ~ +80	°C
Storage Temperature	Tstg	-40 ~ +85	°C
Soldering Temperature <sup>*1</sup>	Tsol	260	°C

<sup>\*1</sup> 4mm from mold body for less than 10 seconds

**Electro-Optical Characteristics (Ta=25°C,Vcc=3V)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Current consumption	I <sub>CC</sub>	---	1.0	1.2	mA	No input signal
Supply voltage	V <sub>CC</sub>	2.7	-	5.5	V	
Peak wavelength	λ <sub>p</sub>	---	940	---	nm	
Reception range	L <sub>0</sub>	14	---	---	m	See chapter ,Test method'
	L <sub>45</sub>	6	---	---		
Half angle(horizontal)	φ <sub>h</sub>	---	±45	---	deg	
Half angle(vertical)	φ <sub>v</sub>	---	±45	---	deg	
High level pulse width	T <sub>H</sub>	400	---	800	μs	Test signal according to figure 1
Low level pulse width	T <sub>L</sub>	400	---	800	μs	
High level output voltage	V <sub>OH</sub>	2.7	---	---	V	No load
Low level output voltage	V <sub>OL</sub>	---	---	0.25	V	I <sub>SINK</sub> ≤ 2mA

### 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 ( $E_v \leq 10\text{Lux}$ ).
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  $V_o=400\text{mVp-p}$ . Both, the test transmitter and the photo diode, have a peak wavelength of 940nm. The photo diode for calibration is PD438B ( $\lambda_p=940\text{nm}$ ,  $V_r=5\text{V}$ ).
4. The measurement system is shown in Fig.-3

Fig.-1 Transmitter Wave Form

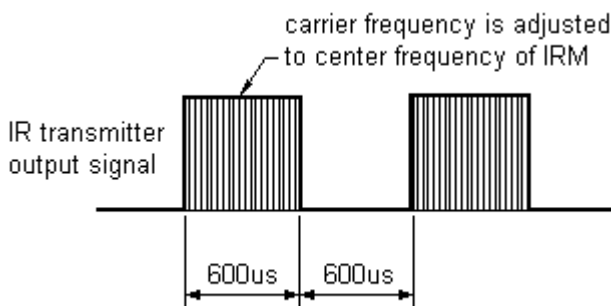
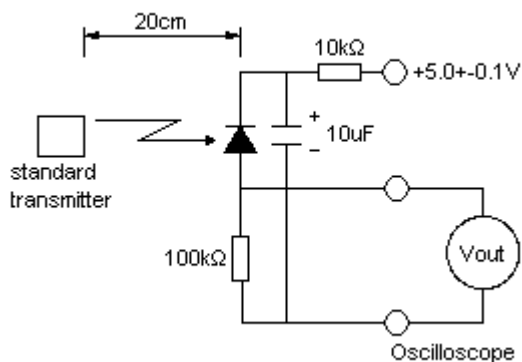


Fig.-2 standard transmitter calibration



D.U.T output Pulse

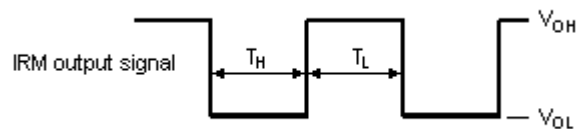
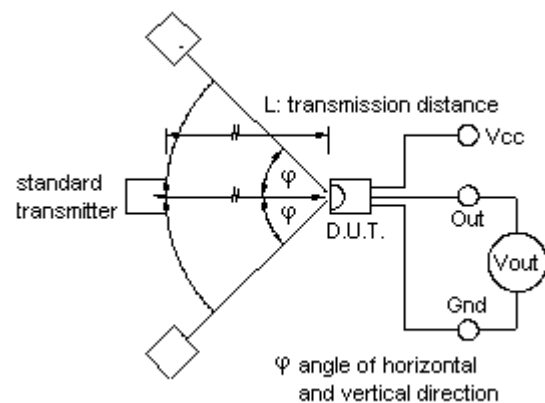


Fig.-3 Measuring System



## Typical Electro-Optical Characteristics Curves

Fig.-4 Relative Spectral Sensitivity vs. Wavelength Direction

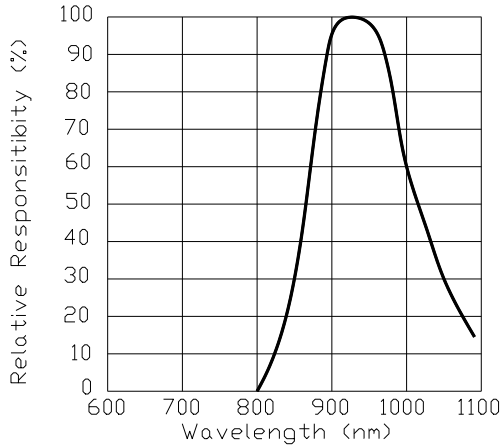


Fig.-5 Relative Transmission Distance vs. Angle

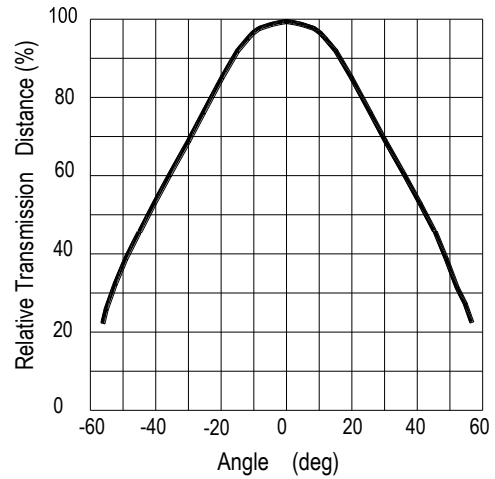


Fig.-6 Output Pulse Length vs. Arrival Distance

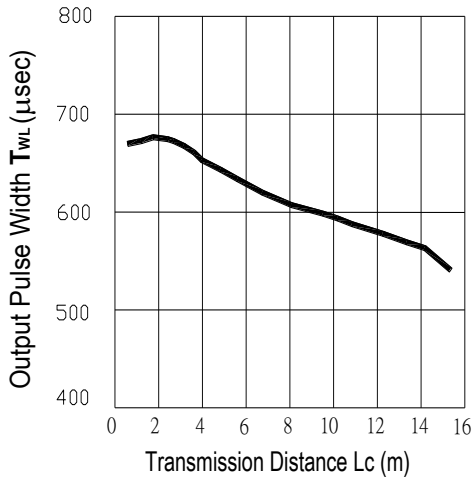


Fig.-7 Arrival Distance vs. Supply Voltage

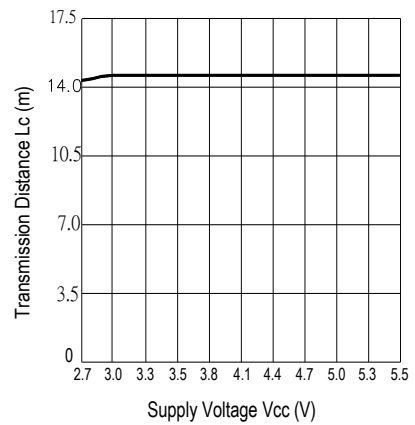
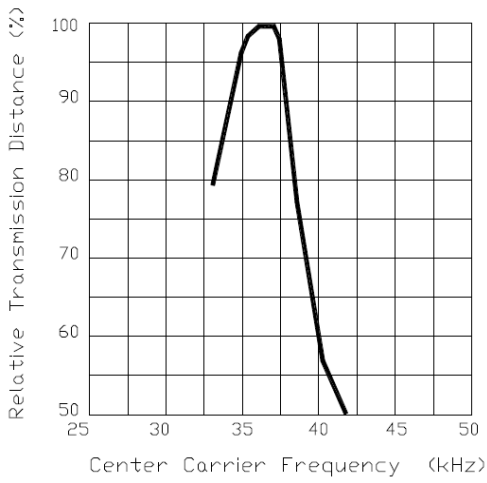
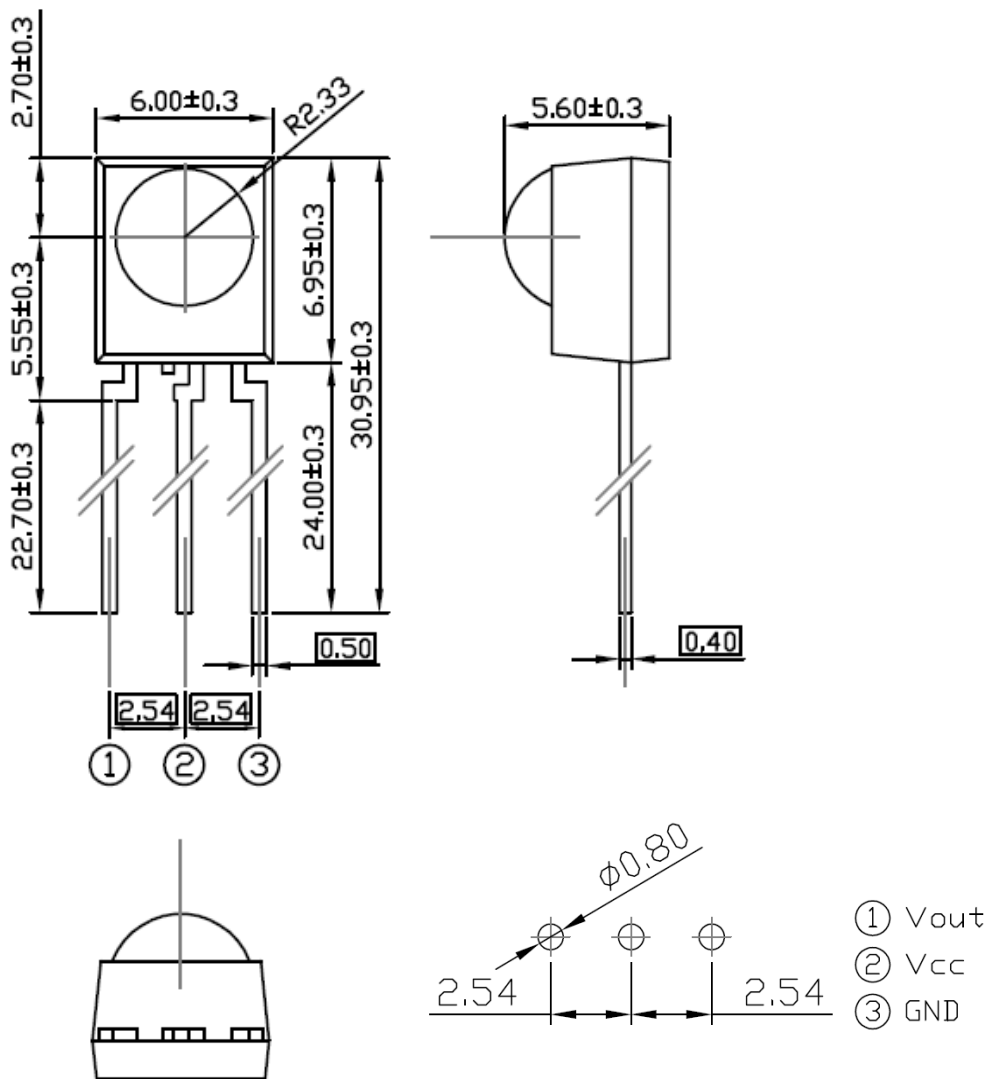


Fig.-8 Relative Transmission Distance vs. Center Carrier Frequency



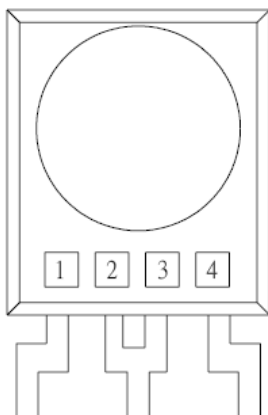
**Package Dimension**  
(Dimensions in mm)



## Code information

Protocol	Suitable	Protocol	Suitable
NEC	Yes	Sony 12 Bit	Yes
RC5	Yes	Sony 15 Bit	No
RC6	Yes	Sony 20 Bit	No
RCA	No	Matsushita	Yes
Toshiba	Yes	Mitsubishi	Yes
Sharp	Yes	Zenith	Yes
JVC	Yes	High data rate (4000 bit/s)	NO
NEC	Yes	Sony 12 Bit	Yes

## 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

## Application Restrictions

1. Above specification may be changed without notice. Everlight Americas Inc. will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. Everlight Americas Inc. 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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