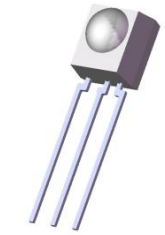
EVERLIGHT AMERICAS

DATASHEET

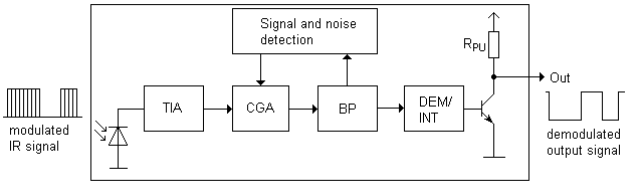
Infrared Receiver Module
EAIRMAA0



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 Carrier Frequencies between 30KHz to 56KHz
- TTL and CMOS Compatible
- Low operating voltage (Vcc = 2.5V)
- High immunity against ambient light
- 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

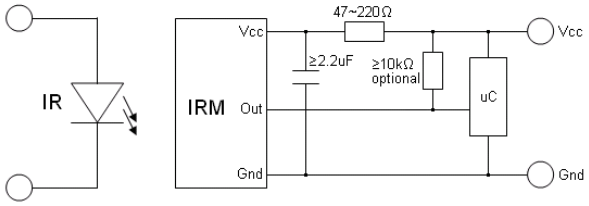
- The EAIRMAA0 devices are miniature type infrared receivers which have been developed and designed by using the latest IC technology.
- The photo diode and preamplifier are assembled onto a lead frame and molded into an epoxy package which operates as an IR filter.
- The receiver provides a modulated output signal which can be used for IR code learning and IR repeater

.Applications

- IR code learning
- IR repeater
- remote control

Copyright © 2010, Everlight Americas Inc. Release Date : July 25, 2013 Issue No: 1 Rev 1.

Application Circuit



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

Parts Table

Model No.	Carrier Frequency
EAIRMAA0	30~56 kHz

Absolute Maximum Ratings (Ta=25℃)

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 10 seconds

Copyright © 2010, Everlight Americas Inc. Release Date : May 21, 2013. Issue No: 1 Rev 1.

Electro-Optical Characteristics (Ta=25℃,Vcc=3V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Current consumption	Icc	---	1.2	--	mA	No input signal
Supply voltage	V_{CC}	2.5	-	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 output voltage	V_{OH}	Vcc-0.4	---	---	V	No load
Low level output voltage	V_{OL}	---	0.2	0.5	V	$I_{SINK} \leqq 2mA$
Internal pull up resistor	R_{PU}	40	50	60	kΩ	

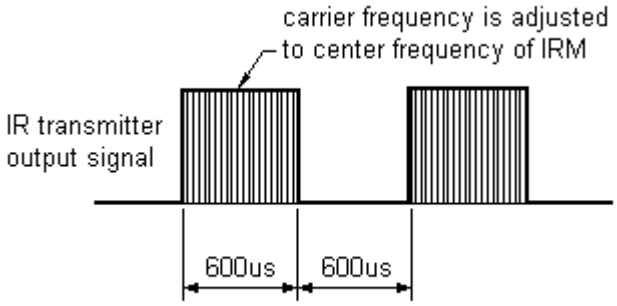
Copyright © 2010, Everlight Americas Inc. Release Date : May 21, 2013. Issue No: 1 Rev 1.

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

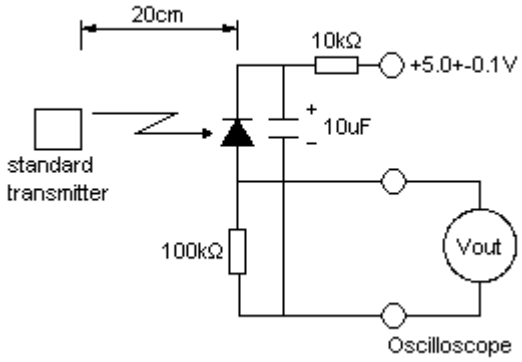
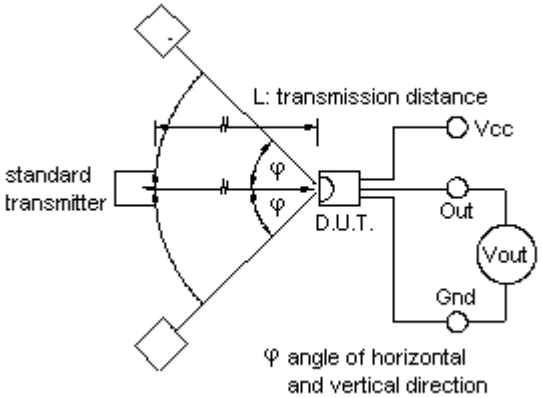


Fig.-3 Measuring System



Copyright © 2010, Everlight Americas Inc. Release Date : May 21, 2013. Issue No: 1 Rev 1.

Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

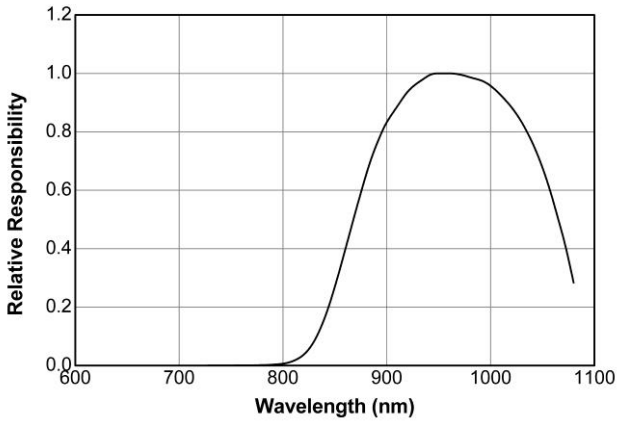


Fig.-5 Relative Sensitivity vs. Horizontal Angle

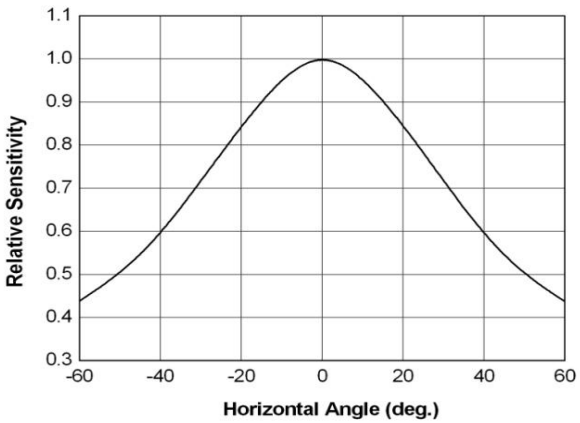


Fig.-6 Relative Sensitivity vs. Supply Voltage

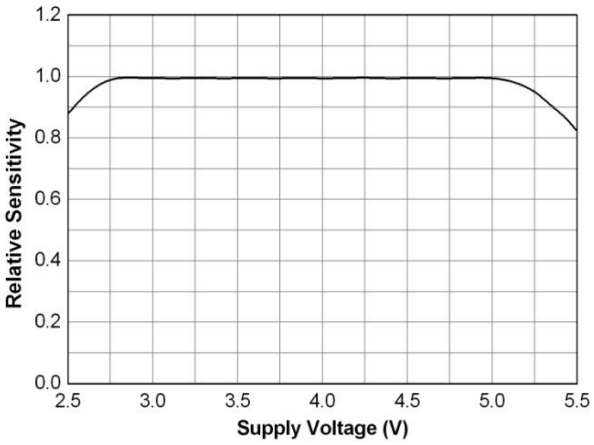
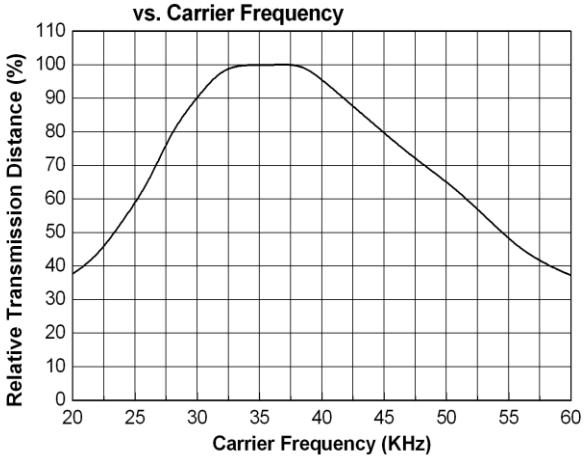
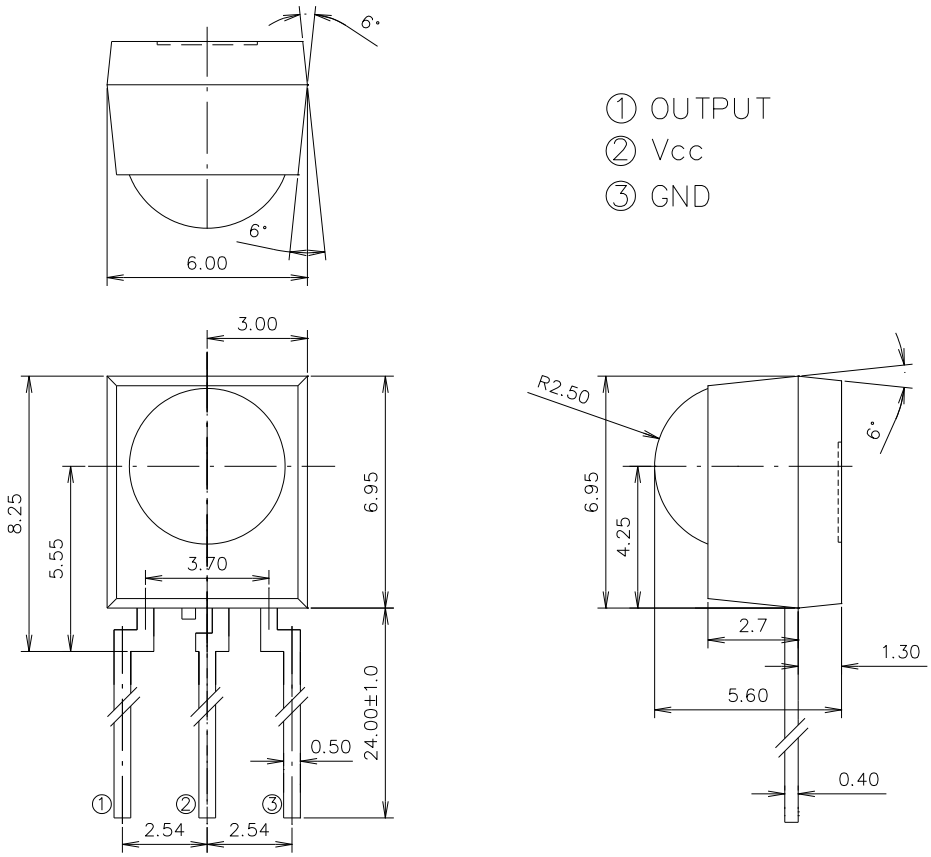


Fig.-7 Relative Transmission Distance vs. Carrier Frequency



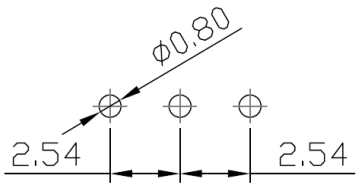
Copyright © 2010, Everlight Americas Inc. Release Date : May 21, 2013. Issue No: 1 Rev 1.

Package Dimension
(Dimensions in mm)



Notes:

Tolerance unless otherwise mentioned ±0.3mm



Copyright © 2010, Everlight Americas Inc. Release Date : May 21, 2013. Issue No: 1 Rev 1.

Packing Quantity

1500 pcs / Box
10 Boxes / Carton

Application Restrictions

1. Above specification may be changed without notice. Everlight Americas 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 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.
3. These specification sheets include materials protected under copyright of Everlight Americas. Reproduction in any form is prohibited without the specific consent of Everlight Americas

Copyright © 2010, Everlight Americas Inc. Release Date : May 21, 2013. Issue No: 1 Rev 1.