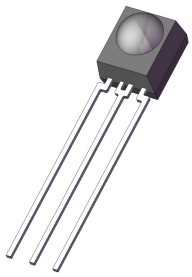
EVERLIGHT

Infrared Receiver Control Receiver Module

IRM-36xxC series

Features

- High protection ability against EMI
- Circular lens for improved reception characteristics
- Min burst length: 400us
- Min gap length: 450us
- Low operating voltage (Vcc = 2.5V)
- High immunity against ambient light
- Long reception range
- High sensitivity
- Pb free and RoHS compliant



1 2 3

Description

The IRM-36xxC devices are miniature type infrared receivers which have been developed and designed by using the latest IC technology, with high immunity against optical interferences and power supply noise. The photo diode and preamplifier are assembled onto a lead frame and molded into an epoxy package which operates as an IR filter.
The demodulated output signal can directly be decoded by a microprocessor.

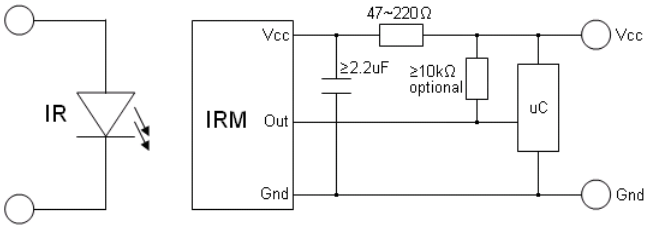
Pin Configuration

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

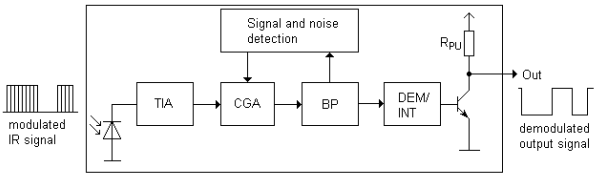
Applications

- AV equipment such as TV, VCR, DVD, CD, MD, etc.
- Toy applications
- CATV set top boxes
- Multi-media Equipment

Application Circuit



Block Diagram



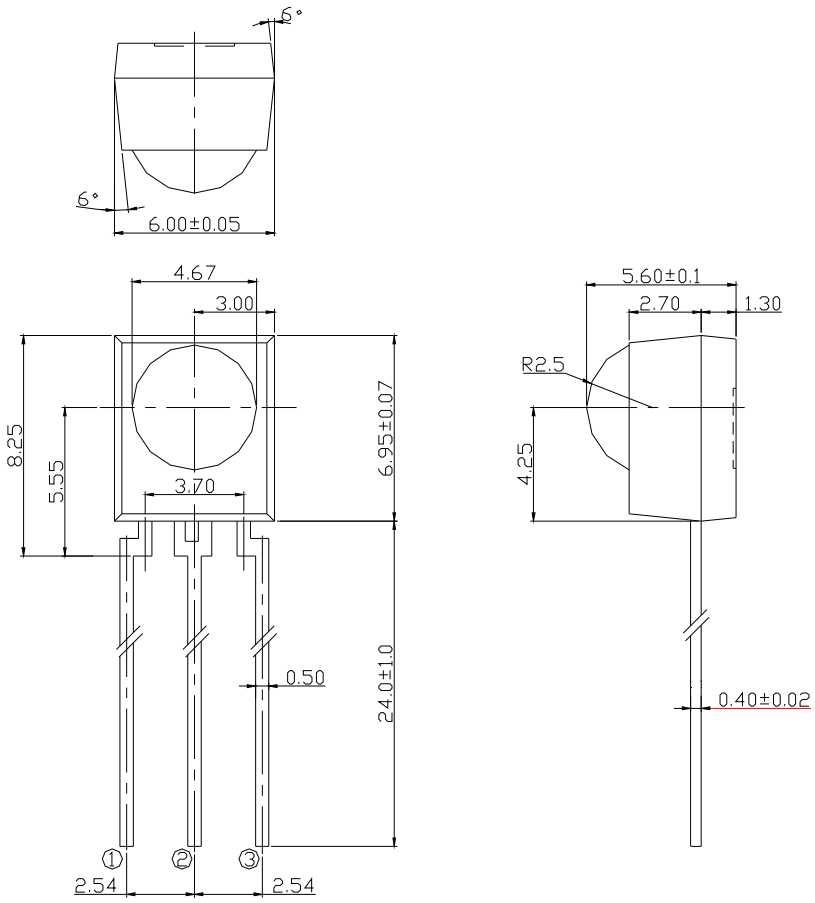
The RC Filter must be connected as close as possible to Vcc and GND pins.

Parts Table

Model No.	Carrier Frequency
IRM-3638C	38 kHz
IRM-3640C	40 kHz

Package Dimensions

(Dimensions in mm)



Absolute Maximum Ratings (T_a=25℃)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-25 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +85	℃
Soldering Temperature *1	Tsol	260	℃

*1 4mm from mold body for less than 10 seconds

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

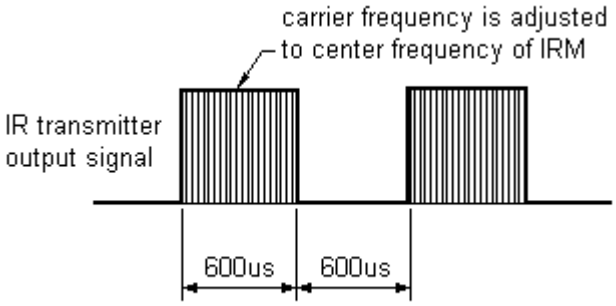
Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Current consumption	Icc	---	1.0	1.3	mA	No input signal
Supply voltage	V_{CC}	2.5	-	5.5	V	
Peak wavelength	λ_p	---	940	---	nm	
Reception range	L_0	14	---	---	m	See chapter ‚Test method'
	L_{45}	6	---	---		
Half angle(horizontal)	φ_h	---	±35	---	deg	
Half angle(vertical)	φ_v	---	±35	---	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	Open circuit
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	

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

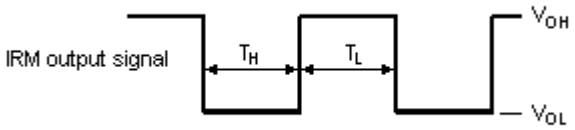


Fig.-2 standard transmitter calibration

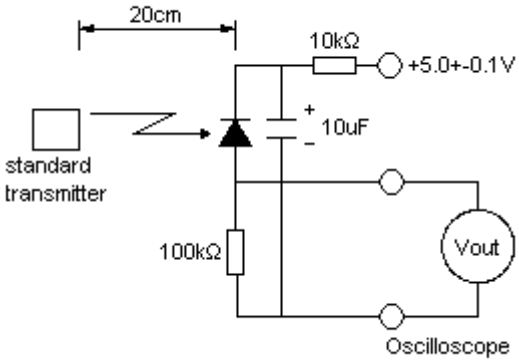
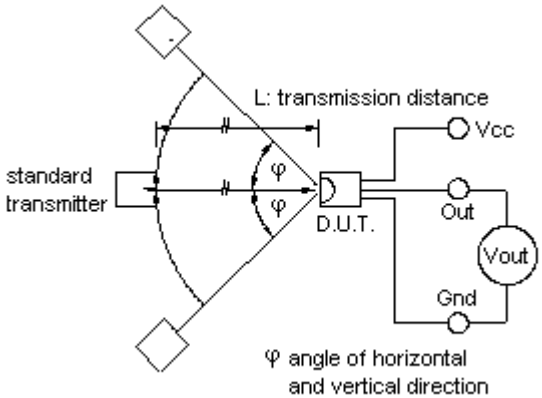


Fig.-3 Measuring System



Typical Electro-Optical Characteristic Curves

Fig.4 Relative Responsibility vs. Wavelength

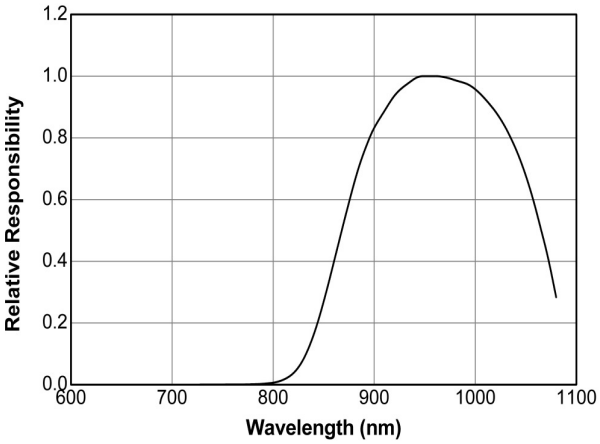


Fig.5 Relative Sensitivity vs. Angle

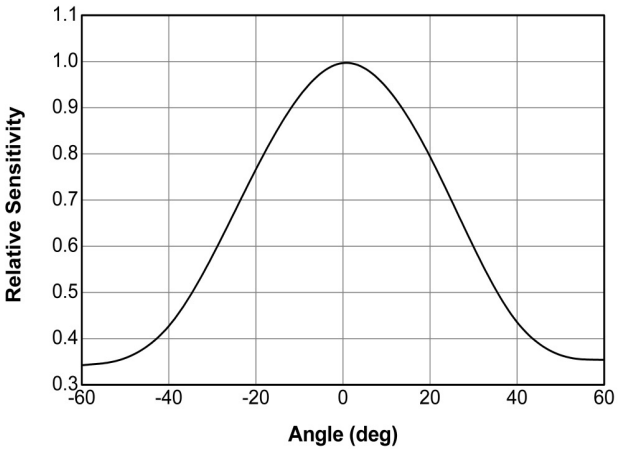


Fig.-6 Output Pulse Width vs. Transmission Distance

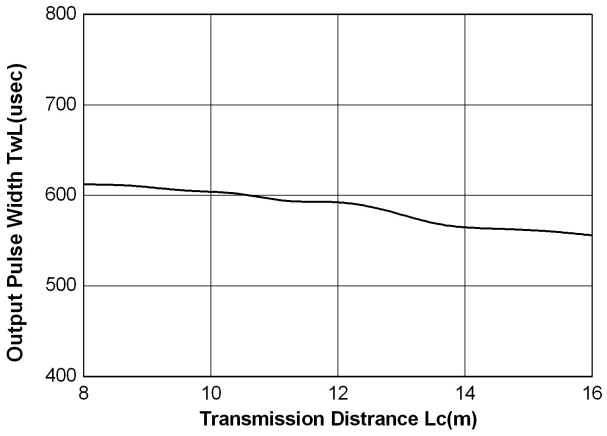


Fig.-7 Relative Transmission Distance vs. Supply Voltage

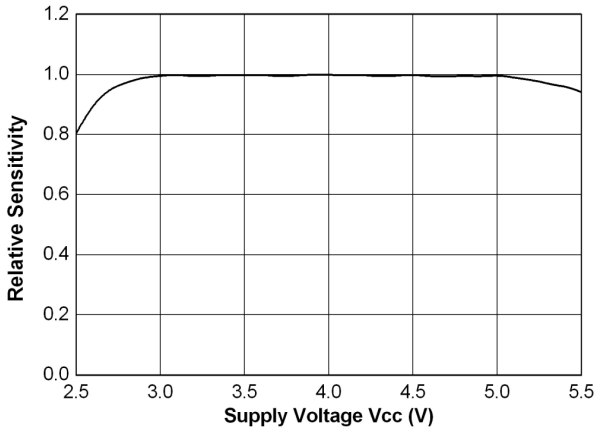
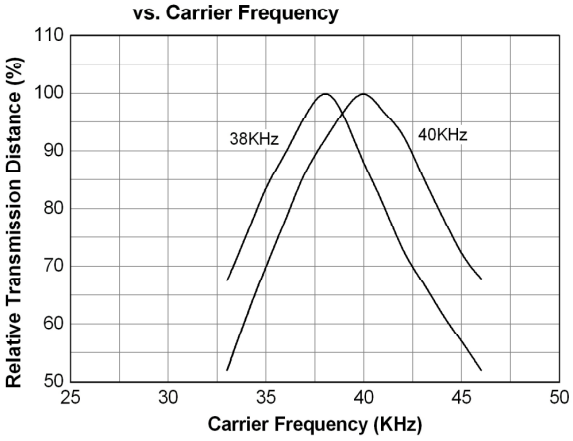


Fig.-8 Relative Transmission Distance vs. Carrier Frequency



Code information

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

Packing Quantity

1500 pcs / Box

10 Boxes / Carton

DISCLAIMER

1. Above specification may be changed without notice. EVERLIGHT 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 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. Reproduction in any form is prohibited without the specific consent of EVERLIGHT.