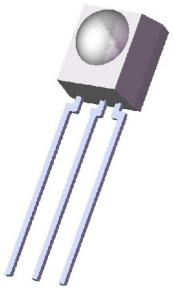
Infrared Receiver Module

IRM-37xxM3 series

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



1 2 3

Pin Configuration

1. OUT
2. Vcc
3. GND

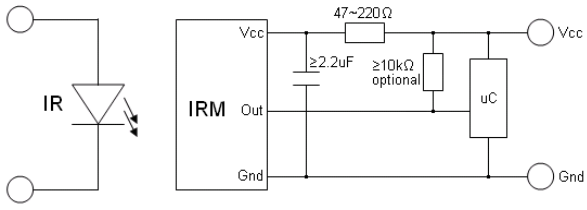
Description

The IRM-37xxM3 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

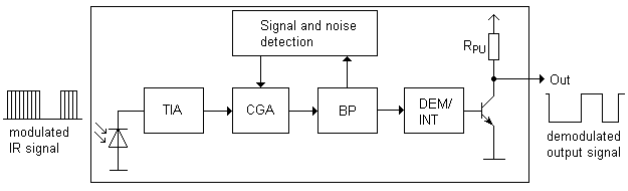
- AV equipment such as TV, VCR, DVD, CD, MD, etc.
- CATV set top boxes
- Multi-media Equipment
- Other devices using IR remote control

Application Circuit



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

Block Diagram



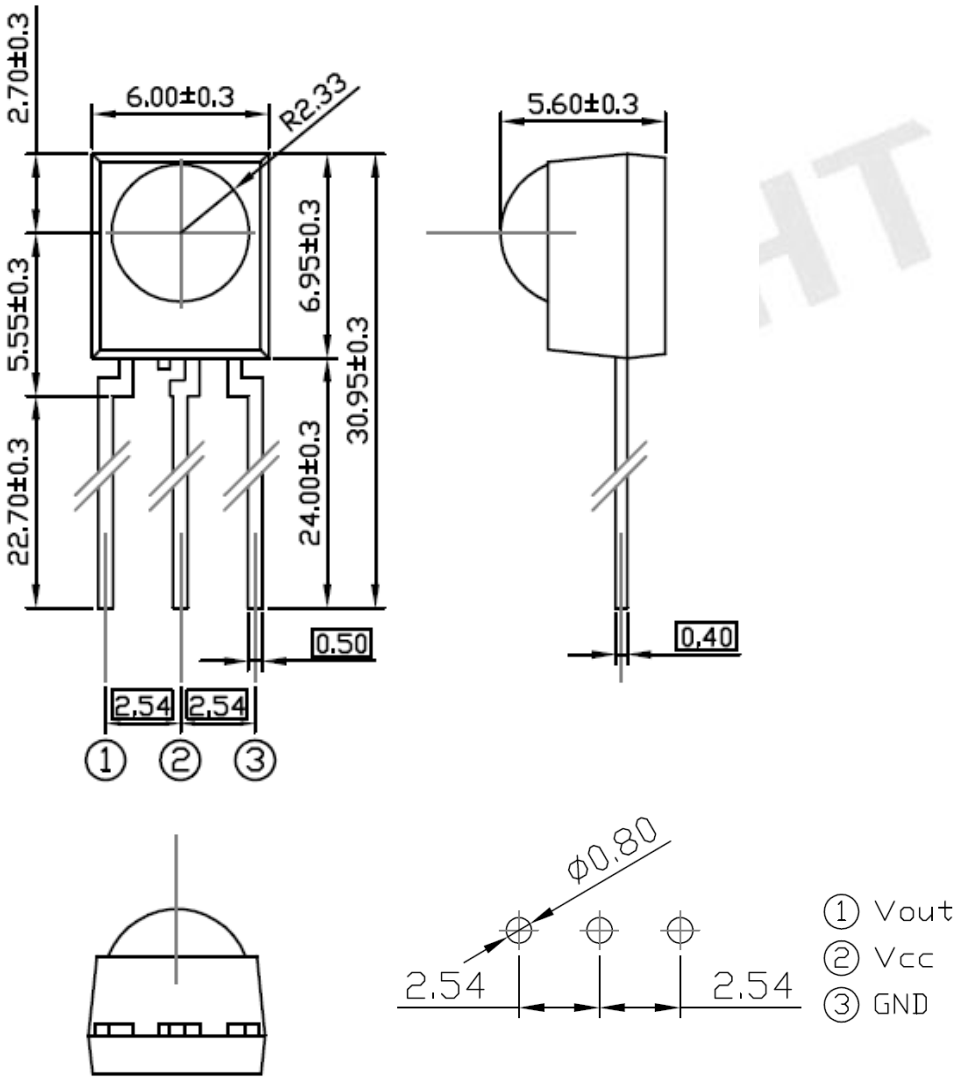
Revision : 1
Release Date:2010-10-28 18:37:38.0
LifecyclePhase:正式發行
Expired Period: Forever

Parts Table

Model No.	Carrier Frequency
IRM-3736M3	36 kHz
IRM-3738M3	38 kHz
IRM-3756M3	56 kHz

Package Dimensions

(Dimensions in mm)



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Infrared Receiver Module

IRM-37xxM3 series

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 10 seconds

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	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	No load
Low level output voltage	V_{OL}	---	0.2	0.5	V	I_{SINK}≦2mA
Internal pull up resistor	R_{PU}	85	100	115	kΩ	

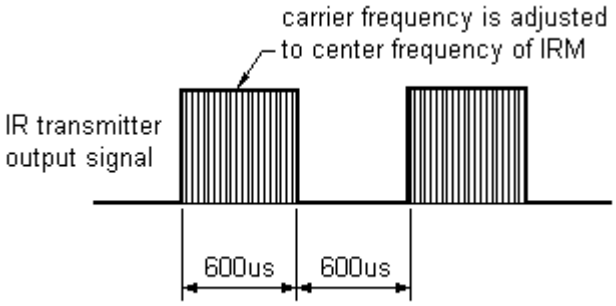
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Test method

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

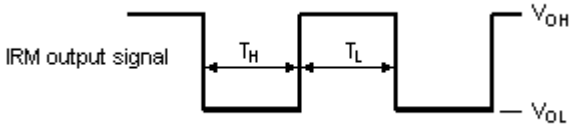


Fig.-2 standard transmitter calibration

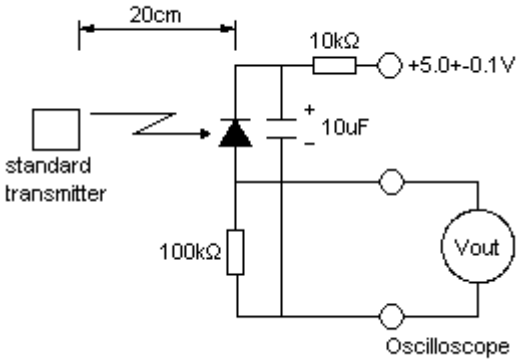
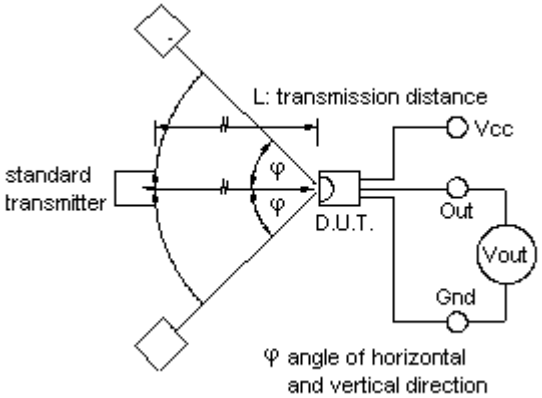


Fig.-3 Measuring System



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Typical Electro-Optical Characteristic Curves

Fig.4 Relative Responsibility vs. Wavelength

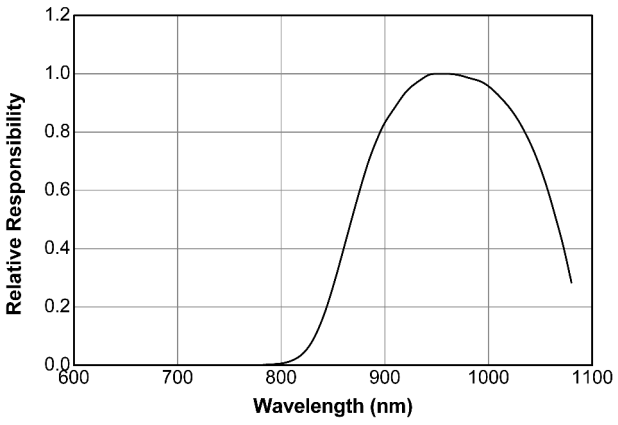


Fig.5 Relative Sensitivity vs. Angle

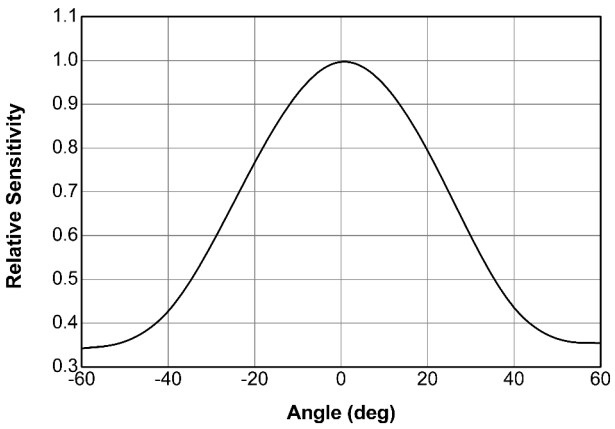


Fig.6 Variation Output Pulse Width vs. Distance

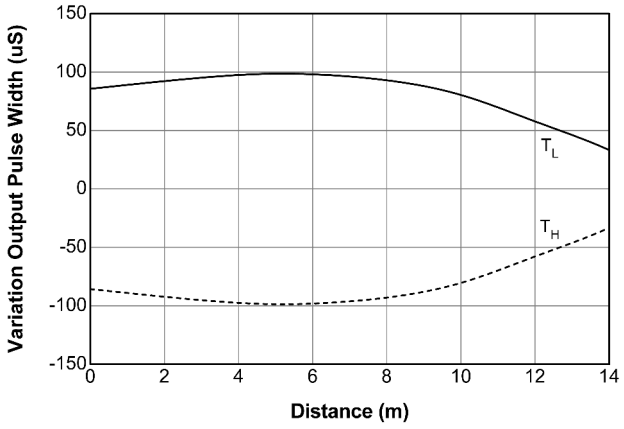


Fig.7 Supply Voltage vs. Distance

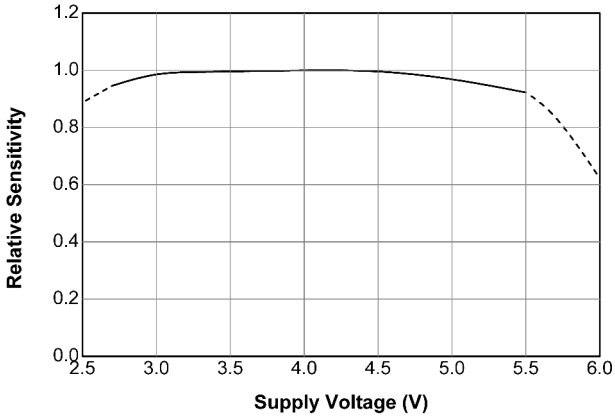
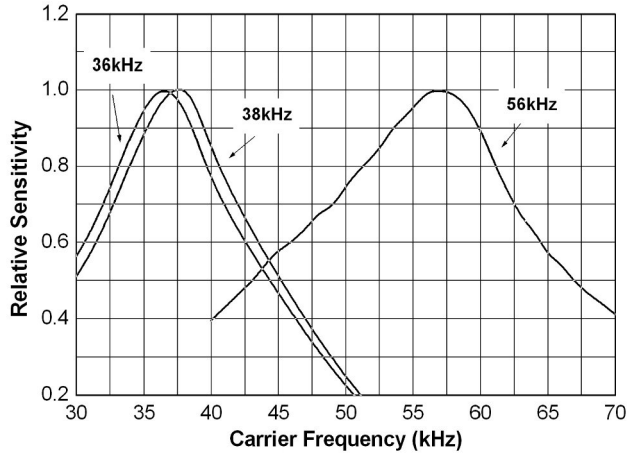


Fig.8 Relative Sensitivity vs. Carrier Frequency

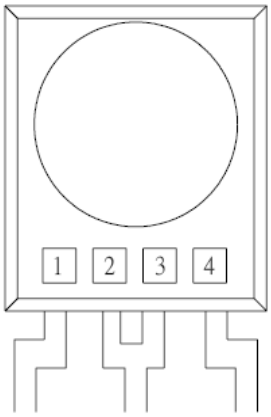


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Code information

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 20Bit	No
RC6	Yes	Toshiba	Yes
RCMM	No	Zenith	Yes
RCS-80	No	Continuous Code	No

Device Marking



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Notes

1 denotes Year code
2 denotes Month code
3 denotes Device number
4 denotes Carrier frequency

Revision : 1
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Packing Quantity

1500 pcs / Box

10 Boxes / Carton

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