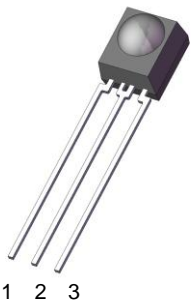


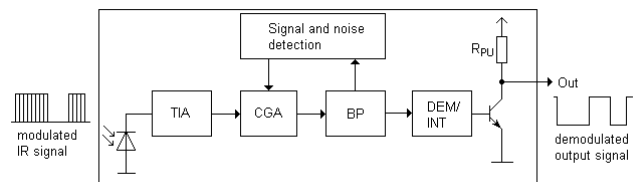
Infrared Receiver Module IRM-36XXM2 Series



Pin Configuration

- 1: Vout
- 2: GND
- 3: Vcc

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
- Optimized immunity against TFT backlight interferences
- High immunity against ambient light
- Long reception range
- High sensitivity
- Pb free and RoHS compliant
- Compliance with EU REACH

Description

The IRM-36XXM2 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.
- Toy applications
- CATV set top boxes
- Multi-media Equipment
- Other devices using IR remote control

Application circuit

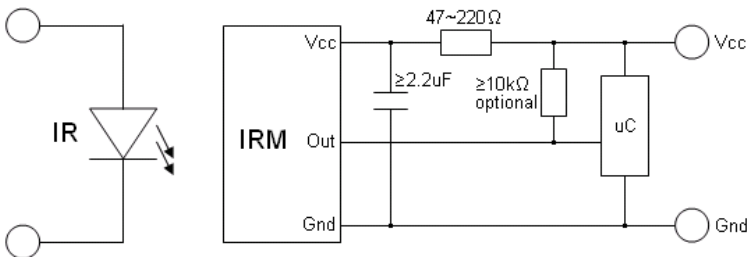


Fig.9: application circuit. The RC Filter must be connected as close as possible to Vcc and GND pins.

Part number table

Model No.	Carrier Frequency
IRM-3638M2	38 kHz

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{cc}	6	V
Operating Temperature	T _{opr}	-20 ~ +80	°C
Storage Temperature	T _{stg}	-40 ~ +85	°C
Soldering Temperature ^{*1}	T _{sol}	260	°C

^{*1} 4mm from mold body for less than 5 seconds

Electro-Optical Characteristics (T_a=25°C, V_{cc}=3V)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Current consumption	I _{cc}	---	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 ^{*2}
	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	
Low level pulse width	T _L	450	---	750	μs	
High level output voltage	V _{OH}	V _{cc} -0.4	---	---	V	I _{SOURCE} ≤ 1μA
Low level output voltage	V _{OL}	---	0.2	0.5	V	I _{SINK} ≤ 2mA

^{*2} The ray receiving surface at a vertex and relation to the ray axis in the range of θ=0° and θ=45°.

^{*3} A range from 30cm to the arrival distance. Average value of 50 pulses.

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

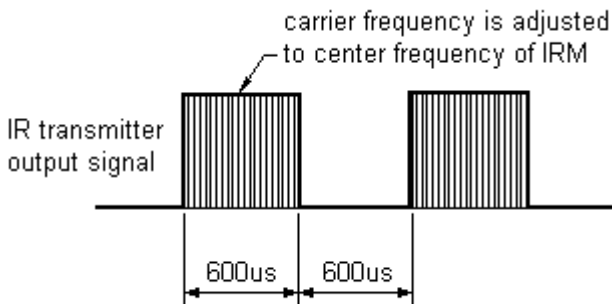
The test transmitter is calibrated by using the circuit shown in figure 2. The radiation intensity of the transmitter is adjusted until $V_o=400\text{mVp-p}$. Both, the test transmitter and the photo diode, have a peak wavelength of 940nm.

The photo diode for calibration is PD438B ($\lambda_p=940\text{nm}$, $V_r=5\text{V}$).

4. The signal is according to figure 1.

5. The measurement system is shown in figure 3

Fig.1 Transmitter Wave Form



D.U.T output Pulse

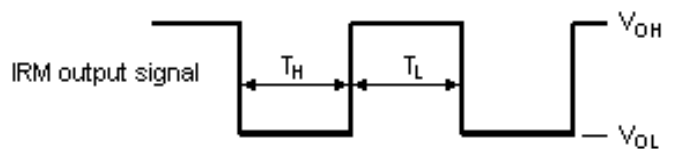


Fig.2 standard transmitter calibration

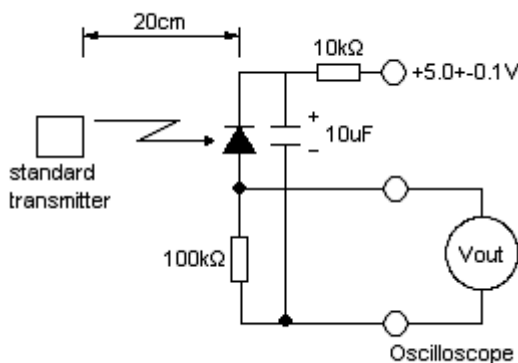
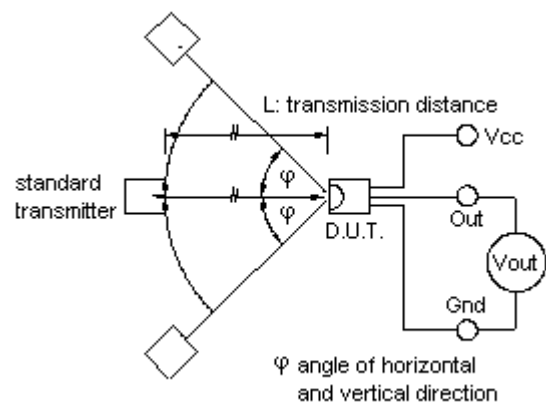


Fig.3 Measuring system



Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

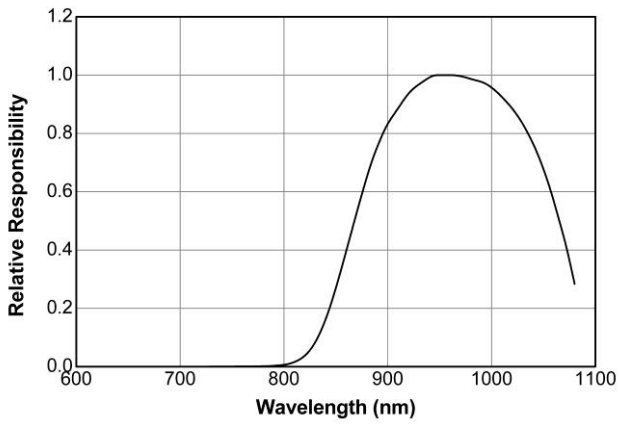


Fig.5 Relative Sensitivity vs. Angle

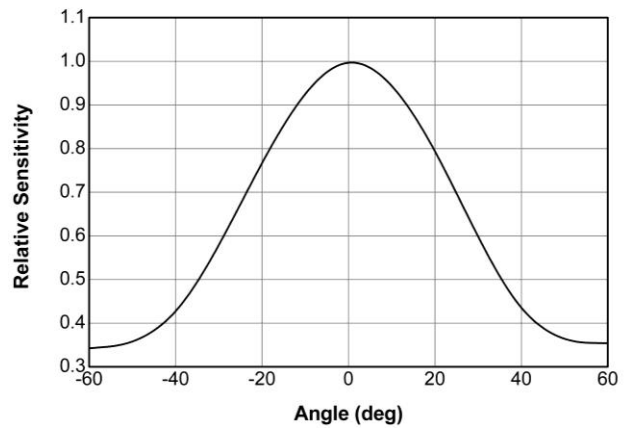


Fig.6 Variation Output Pulse Width vs. Distance

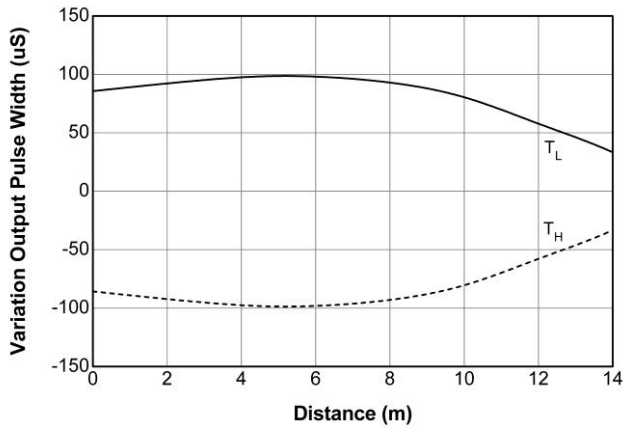


Fig.7 Supply Voltage vs. Distance

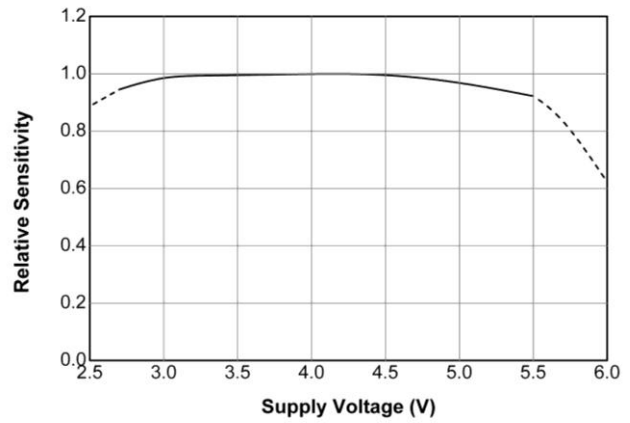
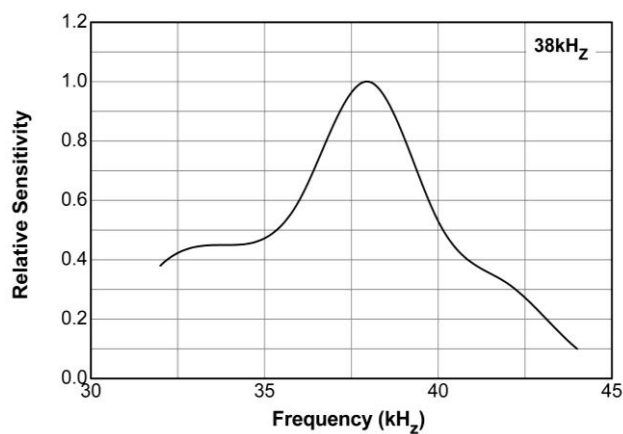


Fig.8 Relative Sensitivity vs. Frequency



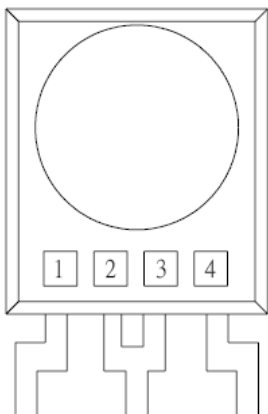
Code compatibility

Protocol	Suitable	Protocol	Suitable
JVC	Yes	r-step	No
Mitsubishi	Yes	Sharp	Yes
RCMM	No	Sony 12 bit ²⁾	Yes
NEC	Yes	Sony 15 bit	Yes
RC5	Yes	Sony 20 bit	Yes
RC6 ¹⁾	Yes	Toshiba	Yes
XMP	No		

1) Best choice depends on RC6 mode. If data low time is below 22ms, M2 is the best choice, otherwise M3.

2) If only Sony 12 bit version is used, M3 is recommended otherwise M2 is the best choice.

Device Marking



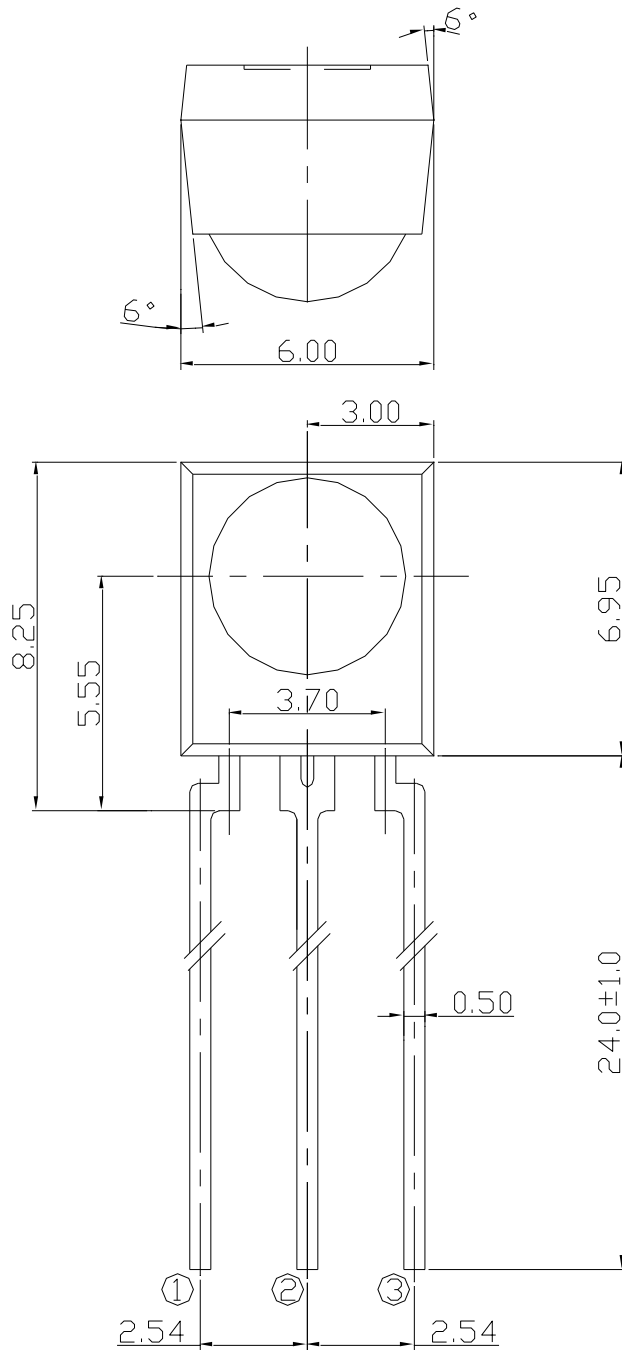
Notes:

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

Packing Quantity

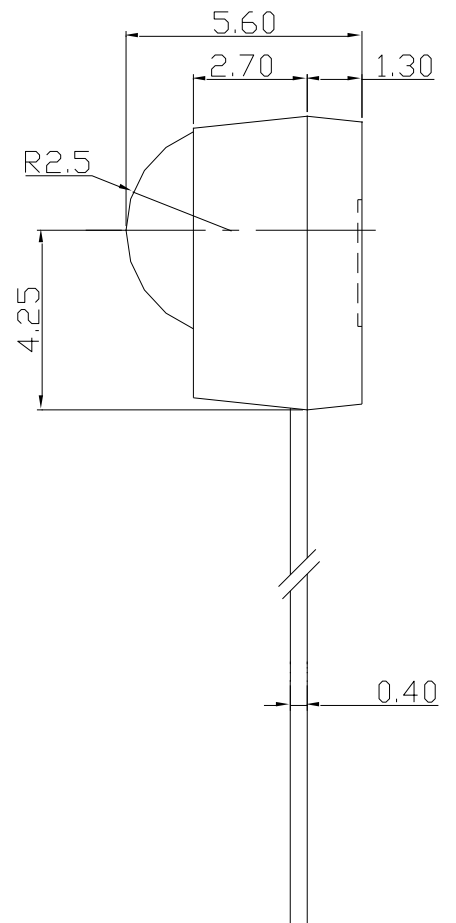
1500 pcs / Box
10 Boxes / Carton

Package Dimensions
(Dimensions in mm)



Pin Function

- ①: Vout
- ②: GND
- ③: Vcc



Notes:

- 1. All dimensions are in millimeters.
- 2. Tolerances unless dimensions $\pm 0.5\text{mm}$.

Disclaimer

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
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