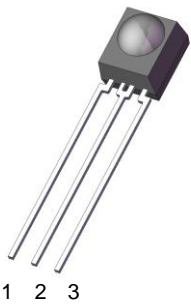


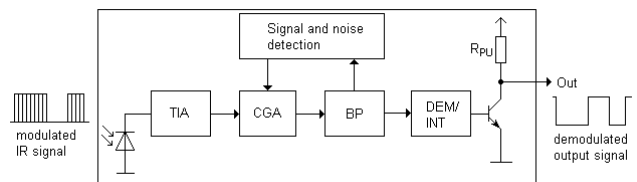
Infrared Receiver Module IRM-36xxM Series



Pin Configuration

1. OUT
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: 6 cycles
- Min gap length: 10 cycles
- Suitable for continuous code
- 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

Description

The IRM-36xxM 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.
- Short pause time protocols
- Toy applications
- CATV set top boxes
- Multi-media Equipment
- Other devices using IR remote control

Application circuit

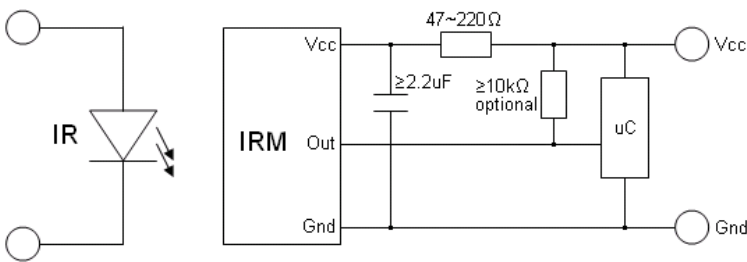


Fig.9: application circuit. The RC Filter must be connected as close as possible to Vcc and GND pins.

Part number table

Model No.	Carrier Frequency
IRM-3636M	36 kHz
IRM-3638M	38 kHz
IRM-3640M	40 kHz
IRM-3656M	56 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 (Ta=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'
	L ₄₅	6	---	---		
Half angle(horizontal)	φ _h	---	±35	---	deg	
Half angle(vertical)	φ _v	---	±35	---	deg	
High level pulse width	T _H	450	---	700	μs	
Low level pulse width	T _L	500	---	750	μs	
High level output	V _{OH}	V _{cc} -0.4	---	---	V	I _{SOURCE} ≤ 1μA
Low level output	V _{OL}	---	0.2	0.5	V	I _{SINK} ≤ 2mA
Internal pull up resistor	R _{PU}	85	100	115	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 ($E_v \leq 10\text{Lux}$).

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

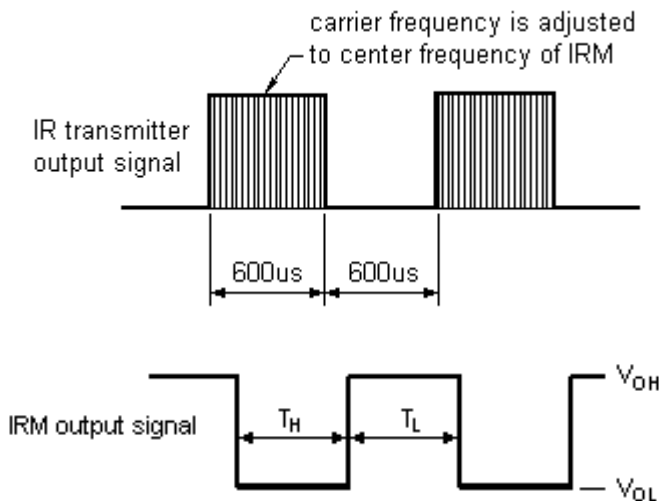


Fig.2 standard transmitter calibration

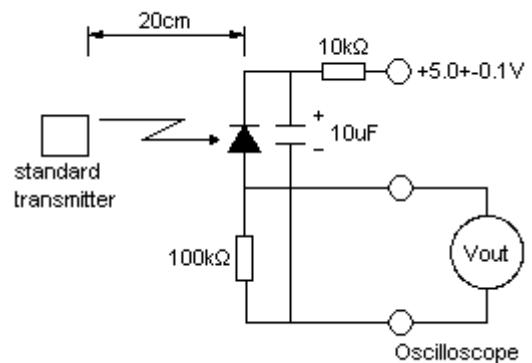
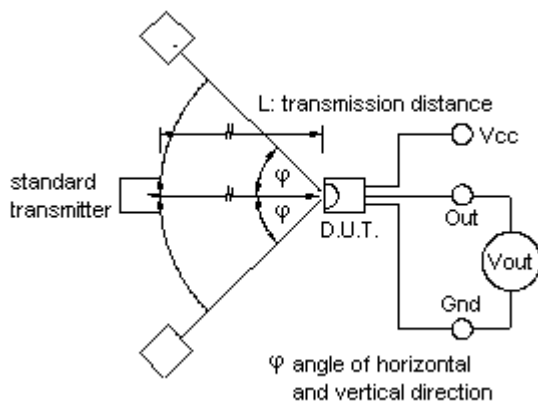


Fig.3 Measuring system



Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

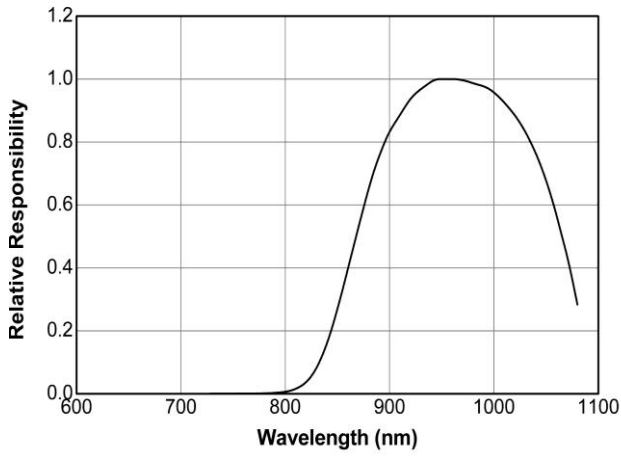


Fig.5 Relative Sensitivity vs. Angle

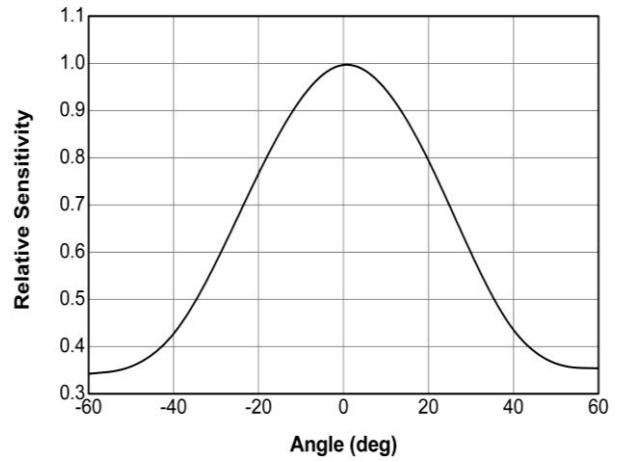


Fig.6 Variation Output Pulse Width vs. Distance

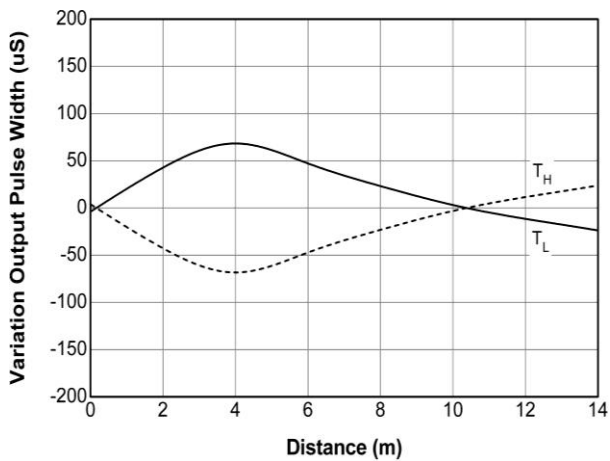


Fig.7 Relative Sensitivity vs. Supply Voltage

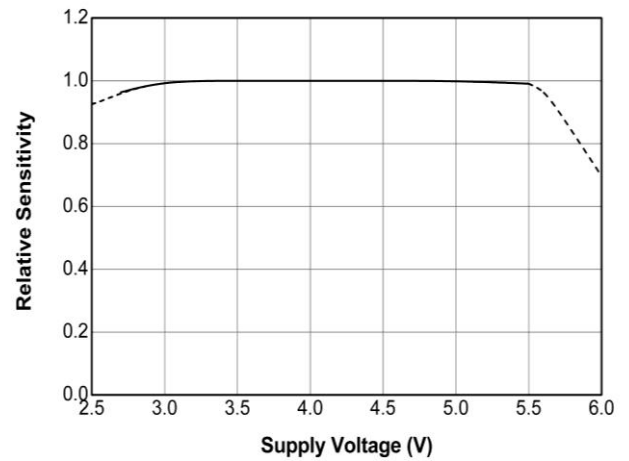
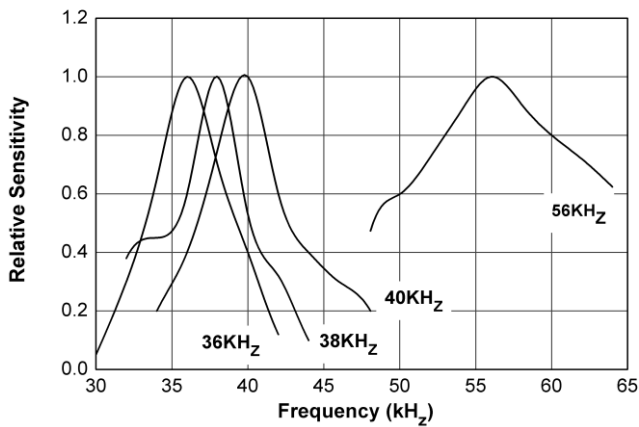


Fig.8 Relative Sensitivity vs. Frequency

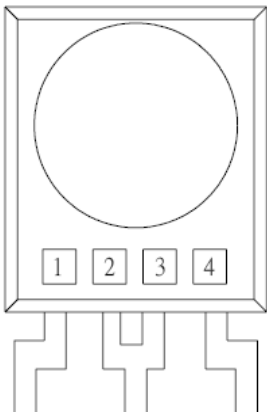


Code compatibility

Protocol	Suitable	Protocol	Suitable
JVC	Yes	RCA	Yes
Matsushita	Yes	r-step	Yes
Mitsubishi	Yes	Sharp	Yes
NEC	Yes	Sony 12 bit	Yes
Panasonic	Yes	Sony 15 bit	No
RC5	Yes	Sony 20 bit	No
RC6	Yes	Toshiba	Yes
RCMM	Yes	XMP-1	Yes
RCS-80	Yes	Continuous Code ¹⁾	Yes

1) Please consider time limits for maximum acceptable burst time 500us

Device Marking



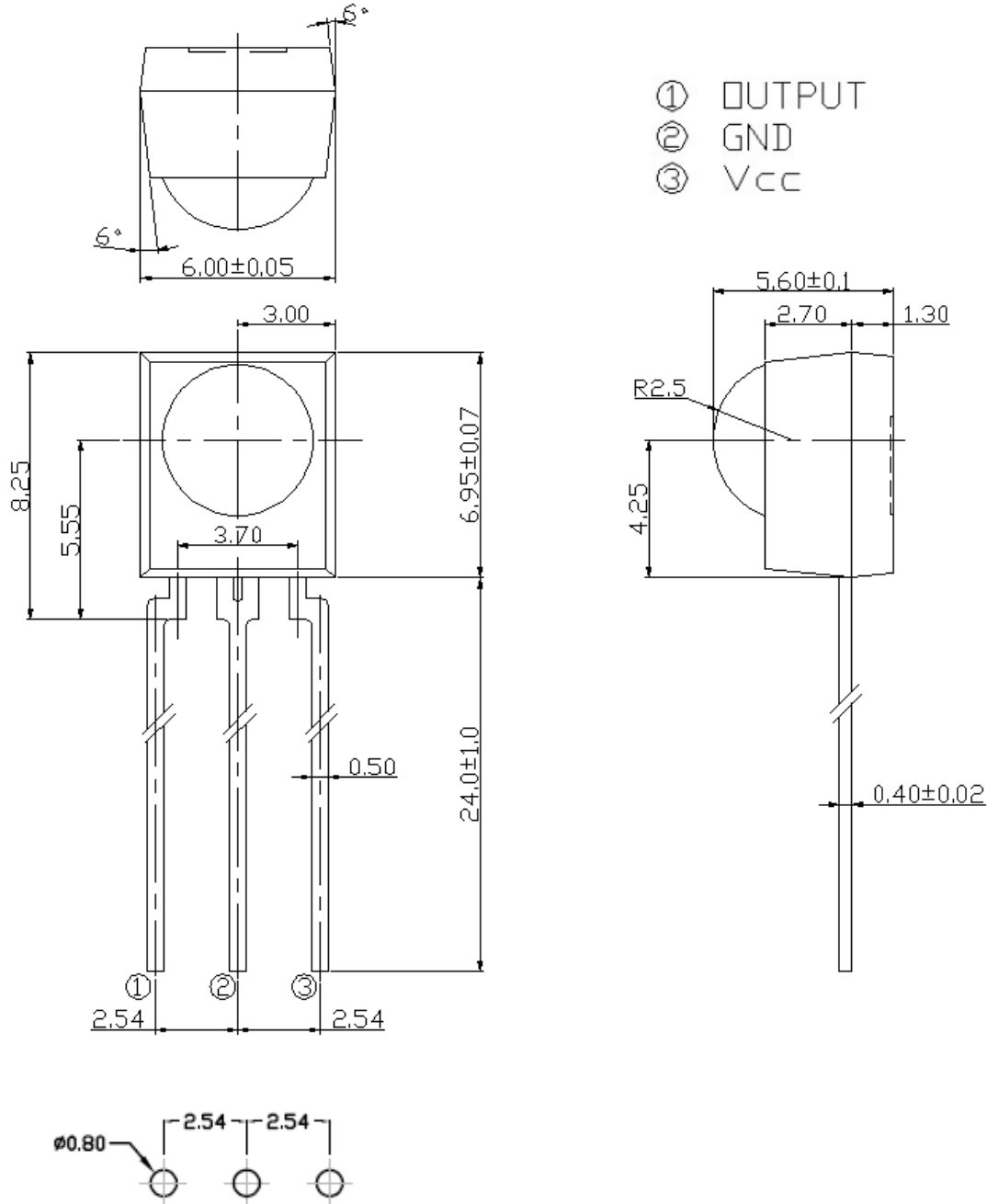
Notes:

- 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)



- Notes: 1. All dimensions are in millimeters.
2. Tolerances unless dimensions ± 0.3 mm.
3. Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

Disclaimer

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
3. 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.
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