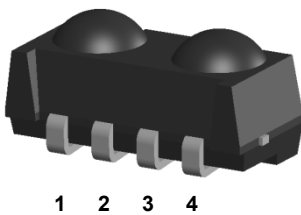


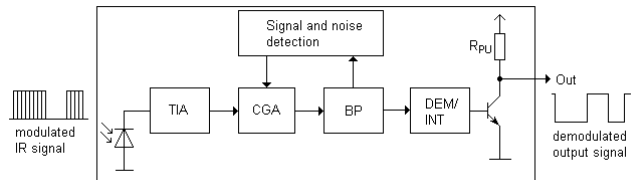
### Infrared Receiver Control Receiver Module IRM-H8xxM/TR2 series



#### Pin Configuration

1. GND
2. Vcc
3. Out
4. GND

#### Block Diagram



#### Features

- High protection ability against EMI
- Available for various carrier frequencies
- Min burst length: 6 cycles
- Min gap length: 10 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
- Compliance with EU REACH
- Compliance Halogen Free (Br < 900 ppm, Cl < 900 ppm, Br+Cl < 1500 ppm)

#### Description

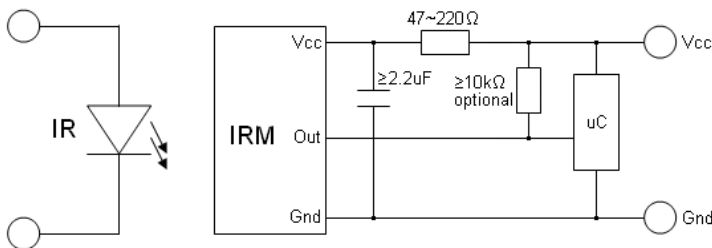
The device is miniature SMD type infrared receiver that has been developed and designed by utilizing the latest IC technology.

The PIN diode and preamplifier are assembled onto a lead frame and molded into an epoxy package which operated an IR filter. The demodulated output signal can directly be decoded by a microprocessor.

## Applications

- Light detecting portion of remote control
- AV instruments such as Audio, TV, VCR, CD, MD, etc
- Home appliances such as Air-conditioner, Fan, etc
- Other devices using IR remote control
- CATV set top boxes
- Multi-media Equipment

## Application Circuit



## Parts Table

Model No.	Carrier Frequency
IRM-H836M/TR2	36 kHz
IRM-H838M/TR2	38 kHz
IRM-H856M/TR2	56 KHz

## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-20 ~ +80	°C
Storage Temperature	Tstg	-40 ~ +85	°C
Soldering Temperature <sup>*1</sup>	Tsol	260	°C

<sup>\*1</sup> Soldering time ≤ 5 seconds

### Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Current consumption	I <sub>CC</sub>	-	0.4	0.6	mA	No input signal
Supply voltage	V <sub>CC</sub>	2.7	-	5.5	V	
Peak wavelength	λ <sub>p</sub>	---	940	---	nm	
Reception range	L <sub>0</sub>	8	---	---	m	See chapter ,Test method' <sup>*2</sup>
	L <sub>45</sub>	5	---	---		
Half angle(horizontal)	φ <sub>h</sub>	---	±45	---	deg	
Half angle(vertical)	φ <sub>v</sub>	---	±45	---	deg	
High level pulse width	T <sub>H</sub>	450	---	700	μs	Test signal according to figure 1 <sup>*3</sup>
Low level pulse width	T <sub>L</sub>	500	---	750	μs	
High level output voltage	V <sub>OH</sub>	V <sub>CC</sub> -0.4	---	---	V	I <sub>SOURCE</sub> ≤ 1μ A
Low level output voltage	V <sub>OL</sub>	---	0.2	0.5	V	I <sub>SINK</sub> ≤ 2mA

<sup>\*2</sup> The ray receiving surface at a vertex and relation to the ray axis in the range of θ=0° and θ=45°.

<sup>\*3</sup> 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

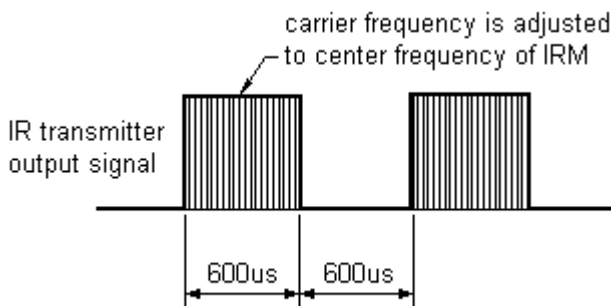
The environment contains an ordinary, white fluorescent lamp without high frequency modulation. The color temperature is 2856K and the illumination at the IR receiver is less than 10 Lux ( $E_v \leq 10\text{Lux}$ ).

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 measurement system is shown in Fig.-3

Fig.-1 Transmitter Wave Form



D.U.T output Pulse

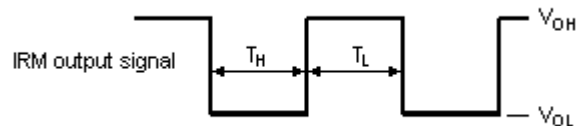
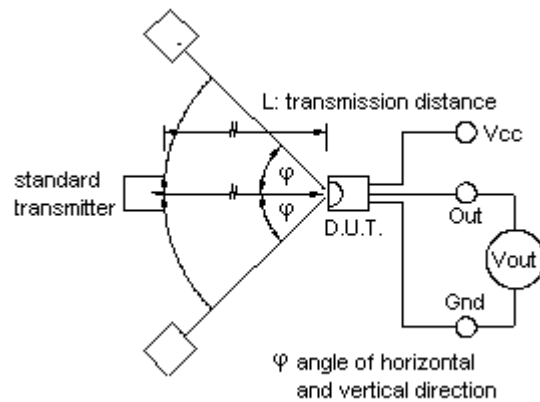
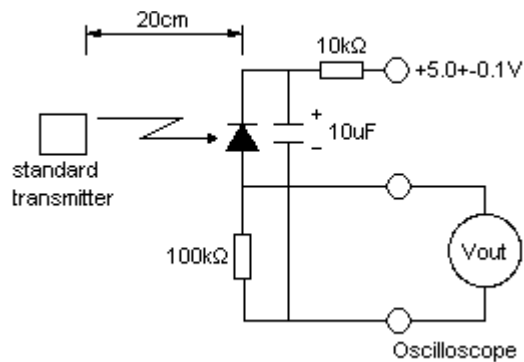


Fig.-3 Measuring System



Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

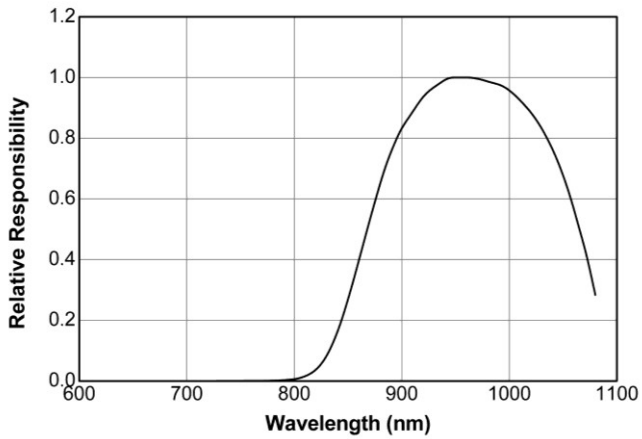


Fig.-5 Relative Sensitivity vs. Angle

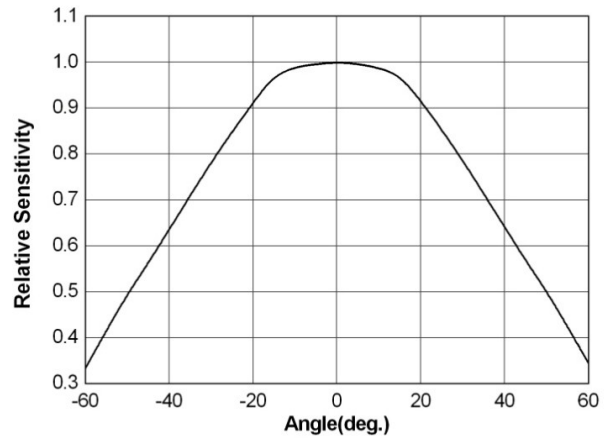


Fig.6 Variation Output Pulse Width vs. Distance

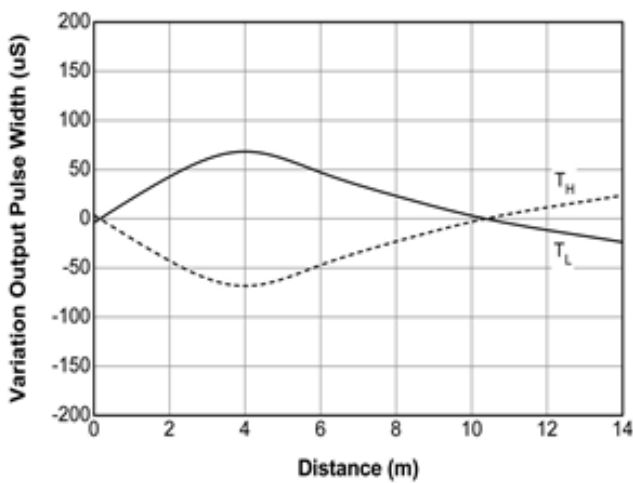


Fig.7 Relative Sensitivity vs. Supply Voltage

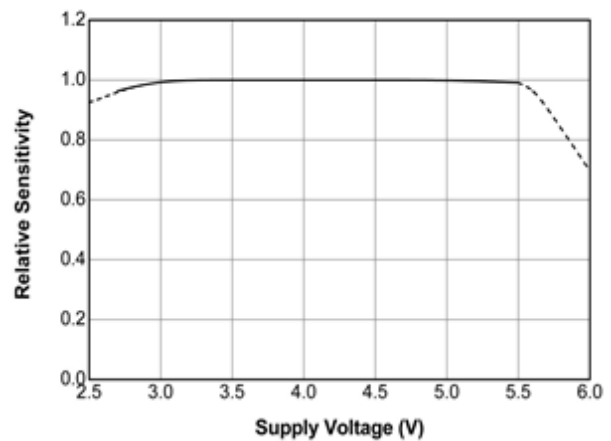
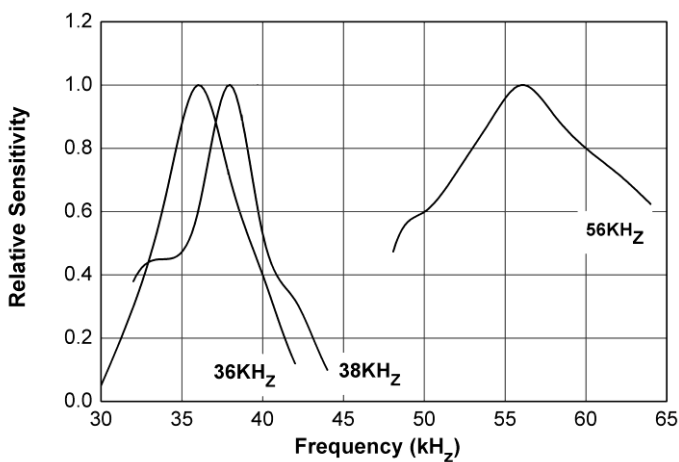
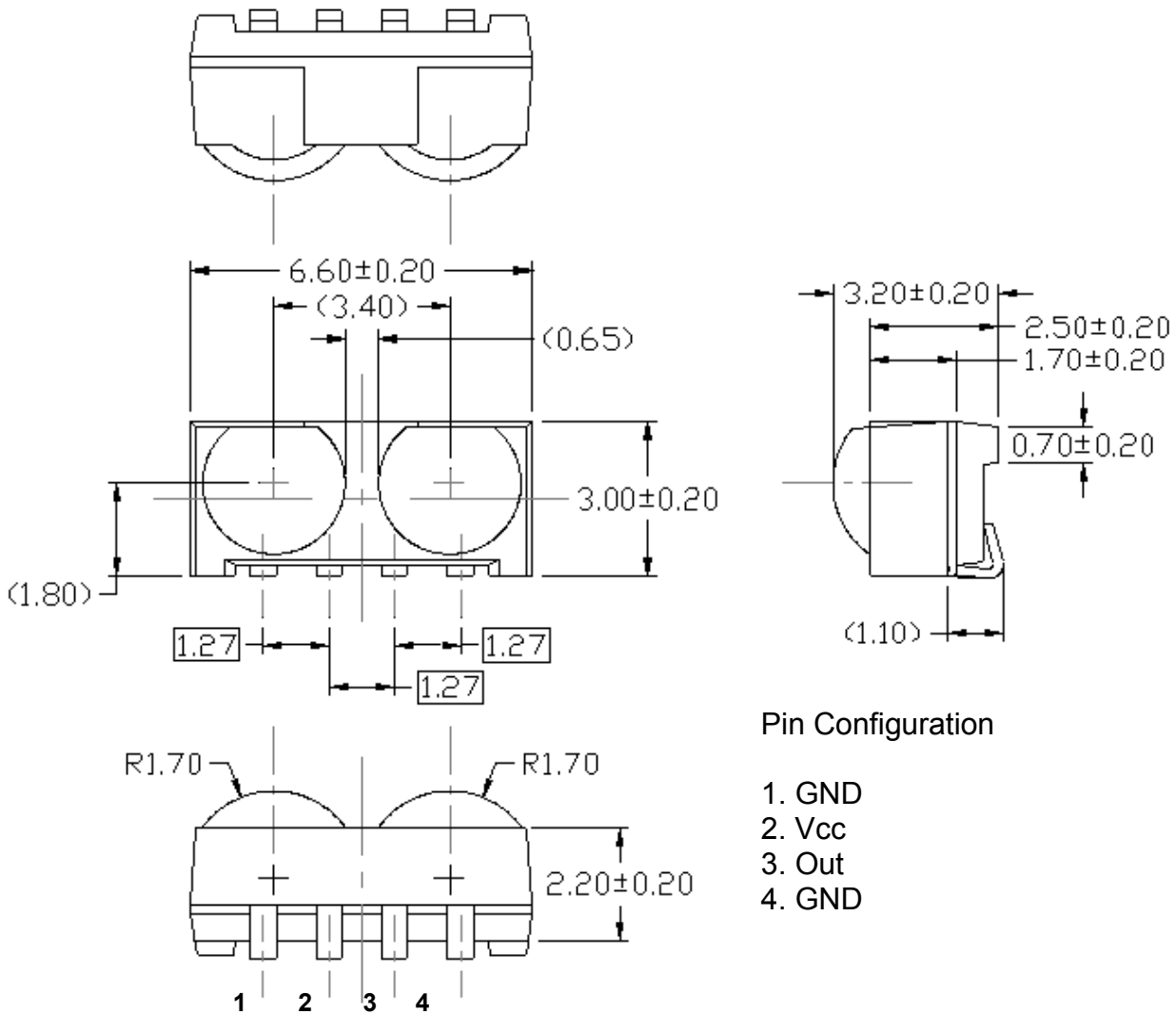


Fig.8 Relative Sensitivity vs. Frequency



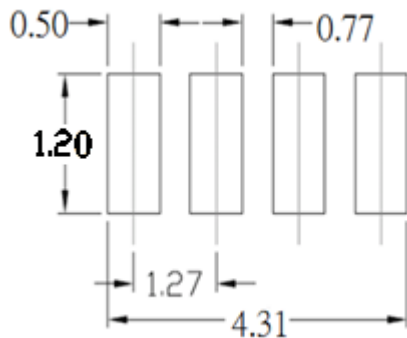
Package Dimension



Pin Configuration

1. GND
2. Vcc
3. Out
4. GND

Recommended pad layout for surface mount leadform



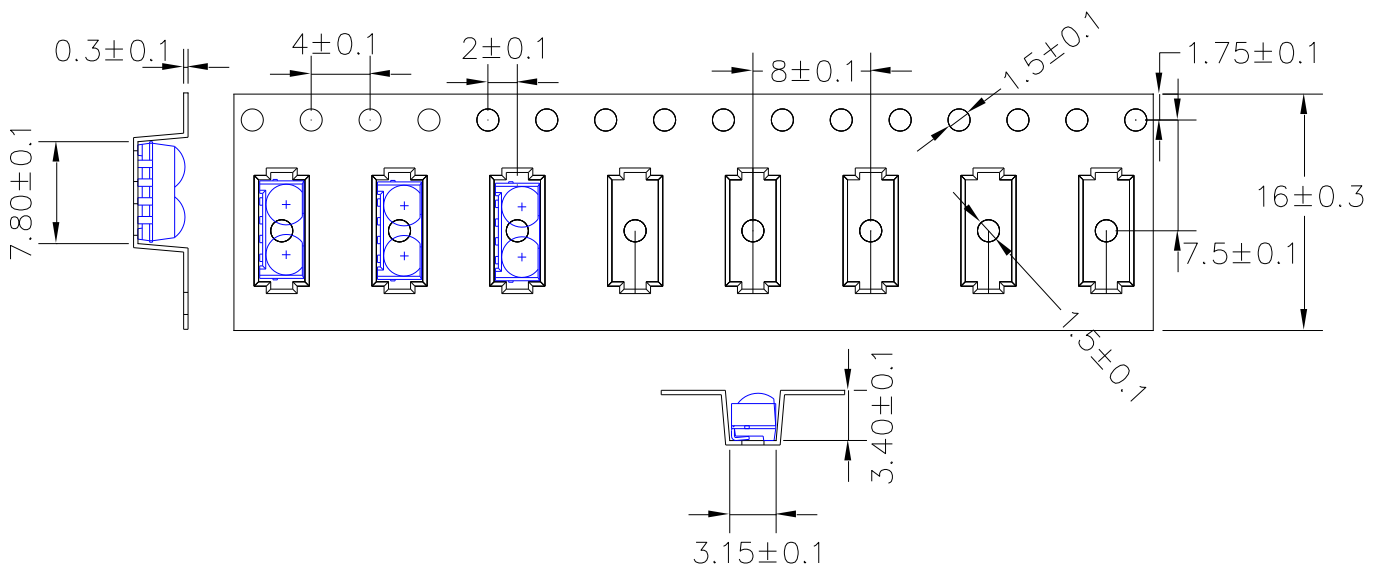
**Notes:** Suggested pad dimension is just for reference only.  
 Please modify the pad dimension based on individual need.

### Code information

Protocol	Suitable	Protocol	Suitable
JVC	Yes	Sharp	Yes
Matsushita	Yes	Sony 12 Bit	Yes
Mitsubishi	Yes	Sony 15 Bit	No
NEC	Yes	Sony 20 Bit	No
RC5	Yes	Toshiba	Yes
RC6	Yes	XMP-1	Yes
RCA	Yes	r-step <sup>1)</sup>	Yes

1) For r-step 38kHz version M3 is the best choice, for r-step 56kHz version only M is recommended.

### Tape & Reel Packing Specifications (Dimensions in mm)



### Packing Quantity

2000 pcs / Reel  
5 Reels / Carton

## Application Restrictions

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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