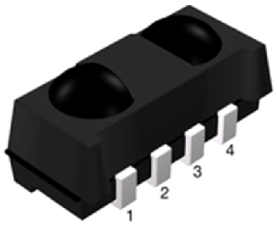
DATASHEET

Infrared Receiver Module

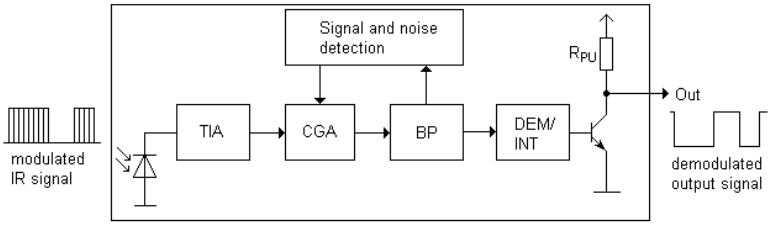
IRM-H8xxM3-C/TR2 Series



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 (36/38 kHz): 8 cycles
- min burst length (56 kHz): 10 cycles
- min gap length (36/38 kHz): 12 cycles
- min gap length (56 kHz): 14 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

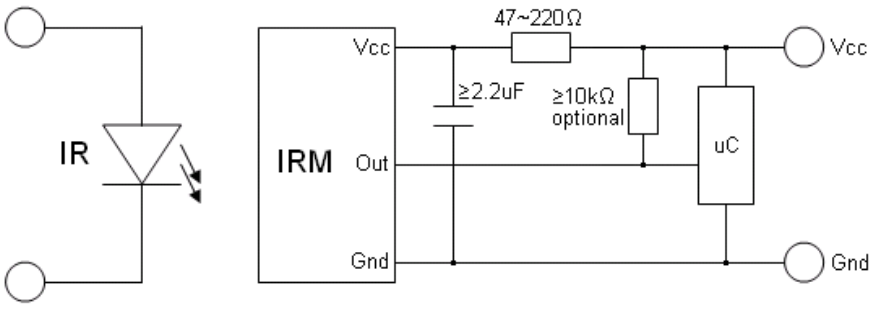
The device is miniature SMD type infrared receiver that has been developed and designed by using the latest IC technology.

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
- 0ther devices using IR remote control
- CATV set top boxes
- Multi-media Equipment

Application Circuit



Parts Table

Model No.	Carrier Frequency
IRM-H836M3-C/TR2	36 kHz
IRM-H838M3-C/TR2	38 kHz
IRM-H856M3-C/TR2	56 kHz

Absolute Maximum Ratings (Ta=25℃)

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 Soldering time≦5 seconds

Electro-Optical Characteristics (Ta=25℃, and Vcc=3.0V)

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	8	---	---	m	See chapter ‚Test method'
	L_{45}	5	---	---	m	
Half angle(horizontal)	φ_h	---	±45	---	deg	
Half angle(vertical)	φ_v	---	±45	---	deg	
High level pulse width	T_H	400	---	800	μs	Test signal according to figure 1
Low level pulse width	T_L	400	---	800	μs	
High level output voltage	V_{OH}	Vcc-0.4	---	---	V	I_{SOURCE}≦1μA
Low level output voltage	V_{OL}	---	0.2	0.5	V	I_{SINK}≦2mA

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 standard transmitter has a radiant intensity of 420mW/sr.

4. The signal is according to figure 1.

5. The measurement system is shown in Fig.-2

Fig.-1 Transmitter Wave Form

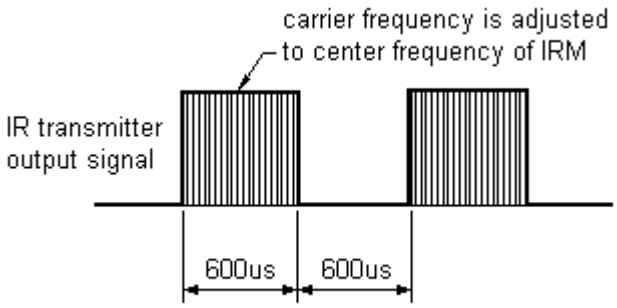
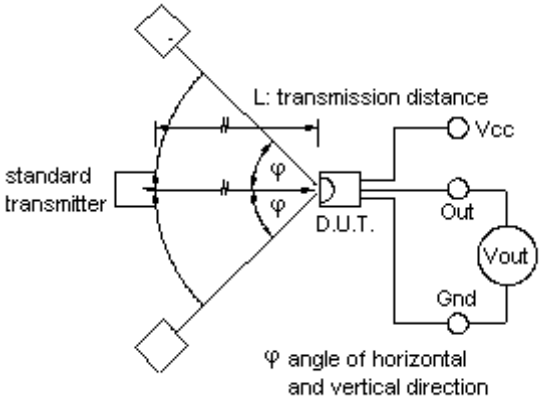
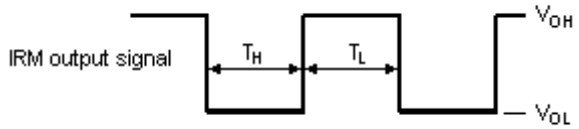


Fig.-2 standard transmitter calibration

Fig.-2 Measuring System



D.U.T output Pulse



Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

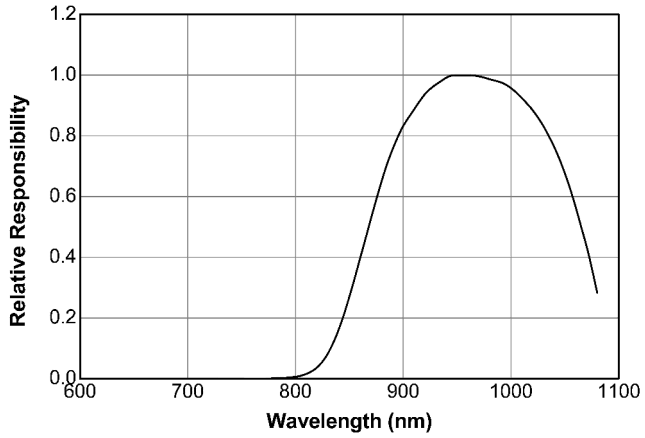


Fig.-5 Relative Sensitivity vs. Angle

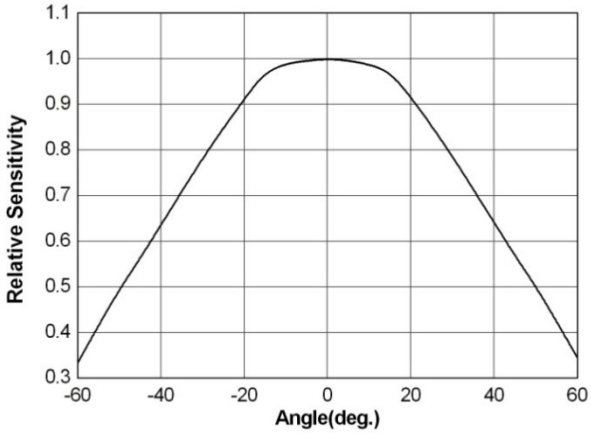


Fig.6 Variation Output Pulse Width vs. Distance

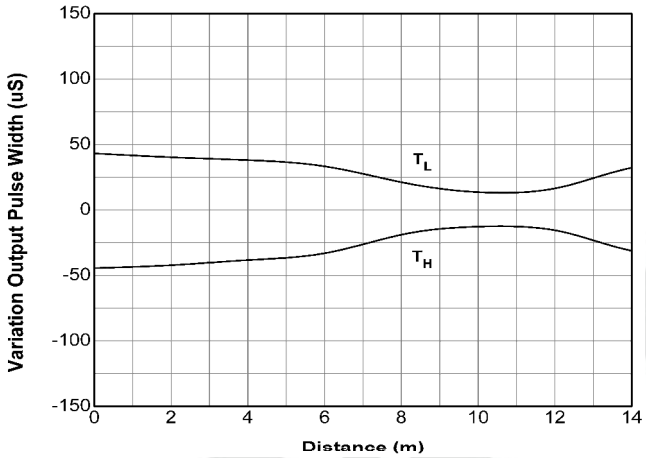


Fig.7 Relative Sensitivity vs. Supply Voltage

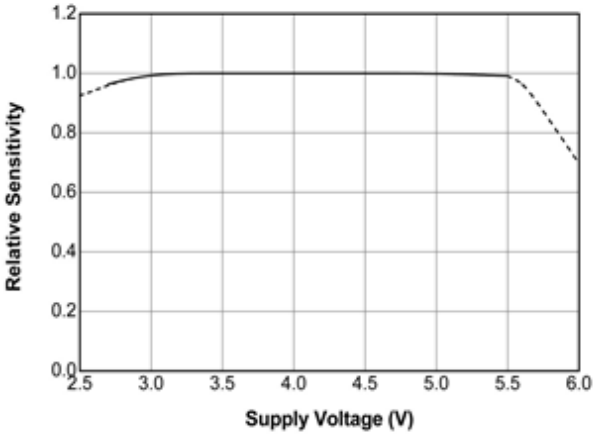
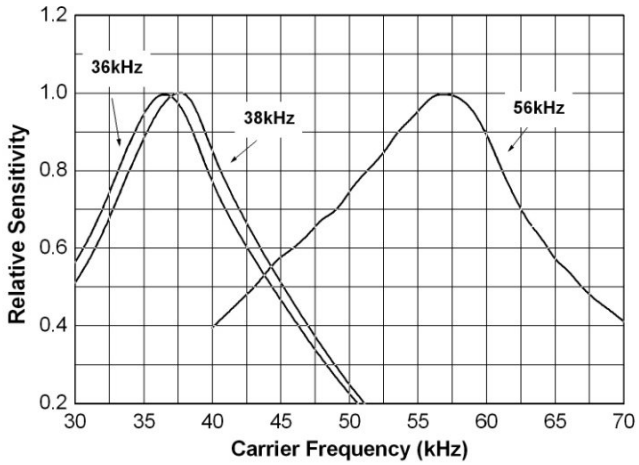
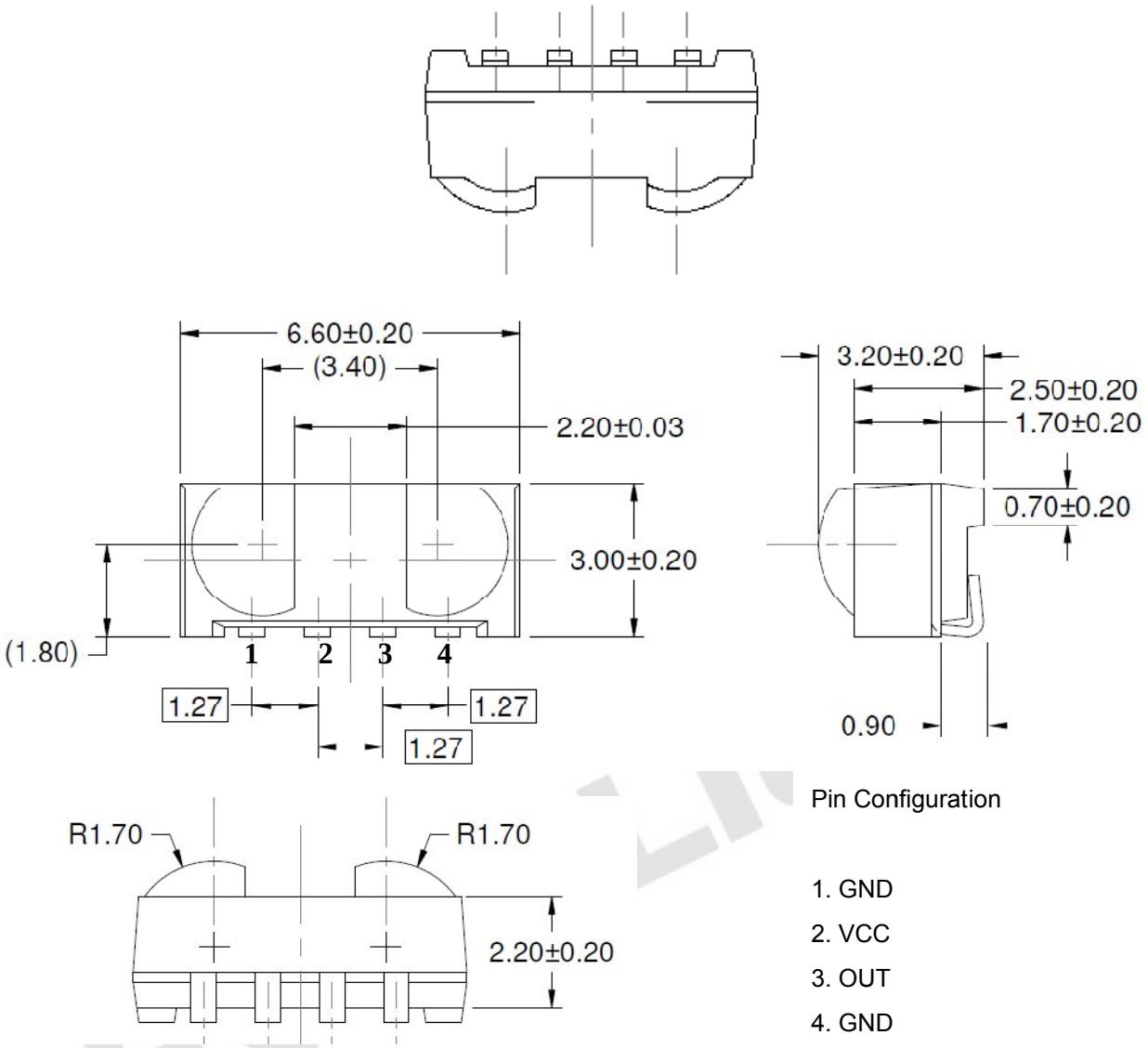


Fig.8 Relative Sensitivity vs. Carrier Frequency



Package Dimension

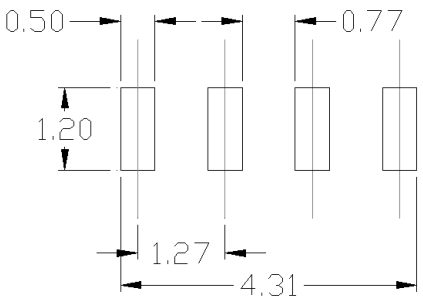


Pin Configuration

1. GND
2. VCC
3. OUT
4. GND

Note: Tolerances unless mentioned ±0.2mm. Unit: mm

Recommended pad layout for surface mount leadform



Notice: Suggested pad dimension is just for reference only.

Please modify the pad dimension based on individual need.

Code information

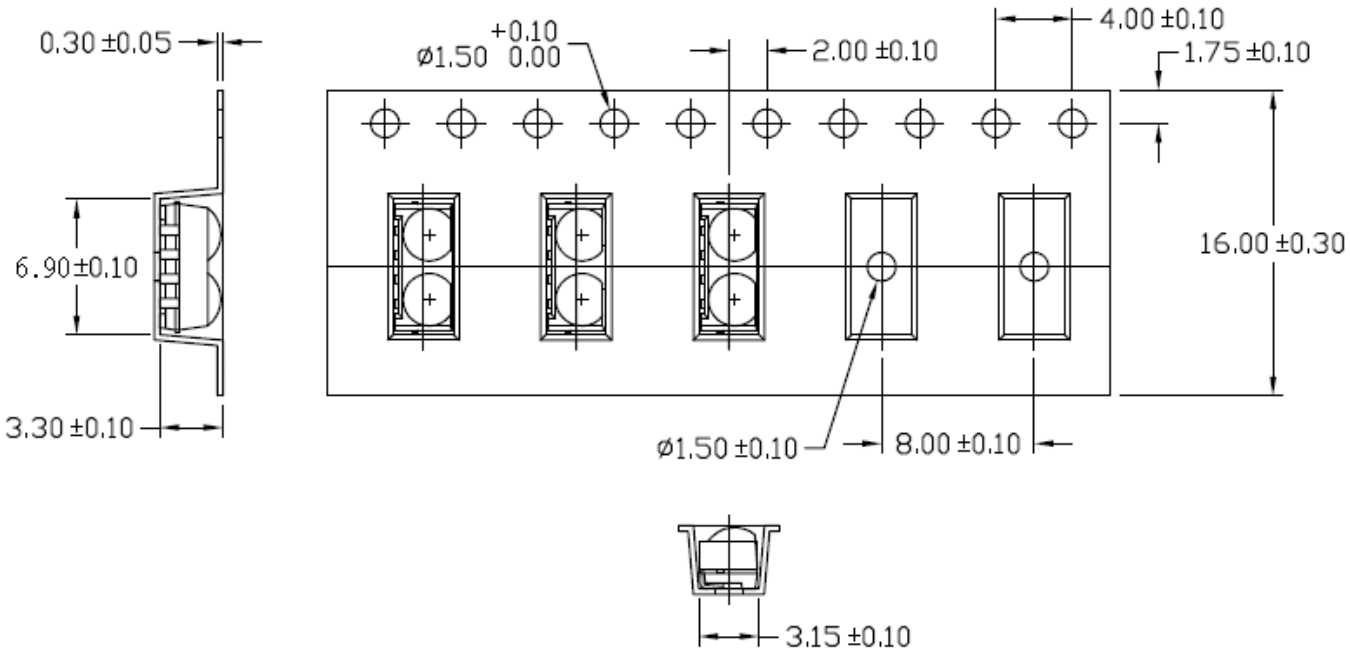
Protocol	Suitable	Protocol	Suitable
JVC	Yes	RCS-80	No
Matsushita	Yes	Sharp	Yes
Mitsubishi	No	Sony 12 Bit	Yes
NEC	Yes	Sony 15 Bit	No
RC5	Yes	Sony 20 Bit	No
RC6	Yes	Toshiba	Yes
RCMM	No	XMP-1	Yes
RCA	No	Panasonic	Yes
Continuous Code	No	R-step	Yes

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

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

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

Tape & Reel Packing Specifications



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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