DATASHEET

Infrared Receiver Module
IRM-3636MS27 Datasheet

Features

- High protection ability against EMI
- Circular lens to improve the receive characteristic
- Low voltage
- High immunity against ambient light
- Photodiode with integrated circuit
- TTL and CMOS compatibility
- Long reception distance
- High sensitivity
- Pb free and RoHS compliant
- Compliance with EU REACH

Description

The IRM-3636mS27device is miniature type infrared remote control system receiver which has been developed and designed by utilizing the most updated IC technology.

The PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as an IR filter.

The demodulated output signal can directly be decoded by a microprocessor.

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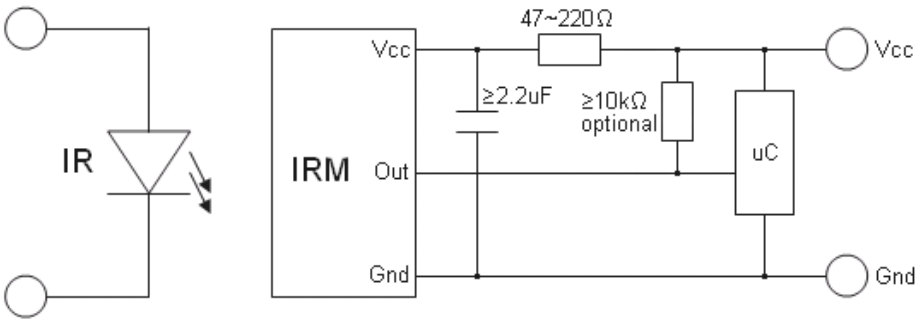
Applications

- AV equipment such as TV, VCR, DVD, CD, MD, etc.
- Toy applications
- CATV set top boxes
- Multi-media Equipment

Application Circuit



RC Filter should be connected closely between Vcc pin and GND pin.

Parts Table

Model No.	Carrier Frequency
IRM-3636MS27	36 kHz

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Absolute Maximum Ratings (Ta=25℃) *1

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-20 ~ +80	℃
Storage Temperature	Tstg	-40 ~ +85	℃
Soldering Temperature *2	Tsol	260	℃

*1 Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability

*2 4mm from mold body for less than 5 seconds

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

Parameter	Symbol	Min.	Typ.	Max	Unit	Condition
Current consumption	Icc	---	1.0	1.6	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 *3
	L_{45}	5	---	---		
Half angle(horizontal)	φ_h	---	±35	---	deg	
Half angle(vertical)	φ_v	---	±35	---	deg	
High level pulse width	T_H	400	---	800	μs	Test signal according to figure 1 *4
Low level pulse width	T_L	400	---	800	μs	
High level output voltage	V_{OH}	2.7	---	---	V	
Low level output voltage	V_{OL}	---	0.2	0.5	V	

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

*4 A range from 30cm to the arrival distance. Average value of 50 pulses.

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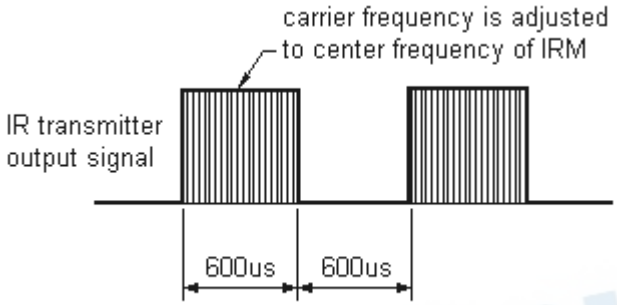
Test method

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 the 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

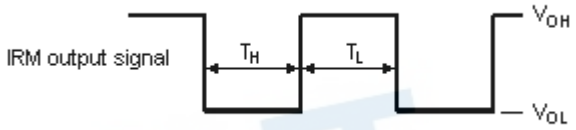


Fig.-2 standard transmitter calibration

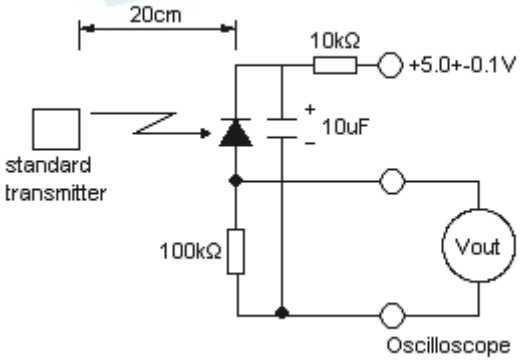
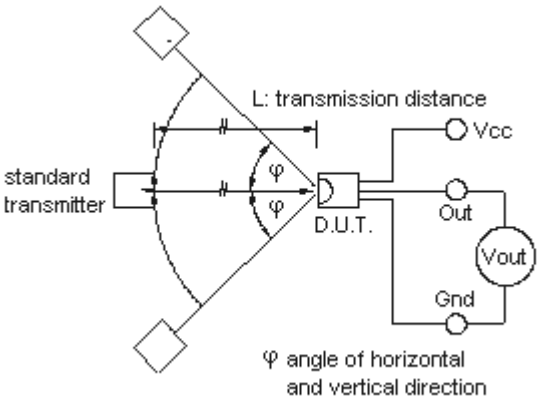


Fig.-3 Measuring System



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Typical Electro-Optical Characteristics Curves

Fig.4 Relative Responsibility vs. Wavelength

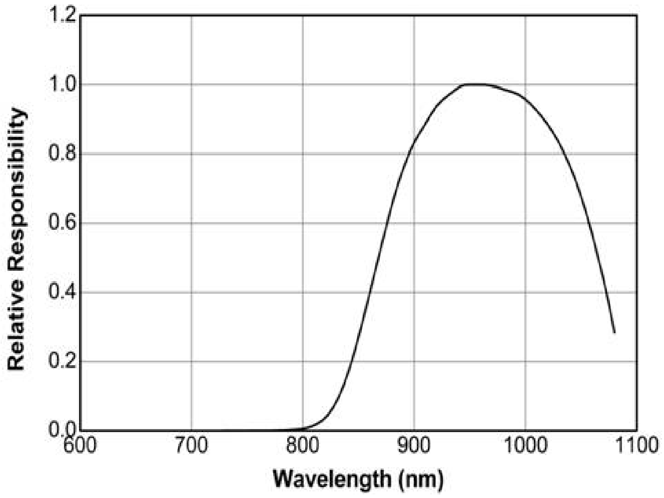


Fig.5 Relative Sensitivity vs. Angle

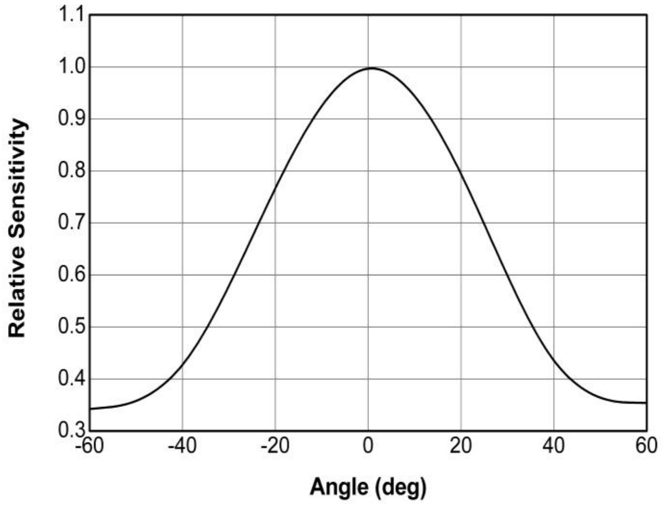


Fig.-6 Output Pulse Width vs. Transmission Distance

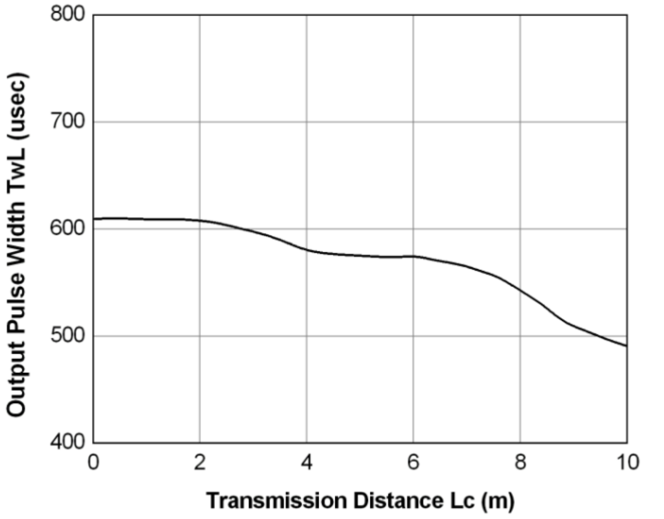
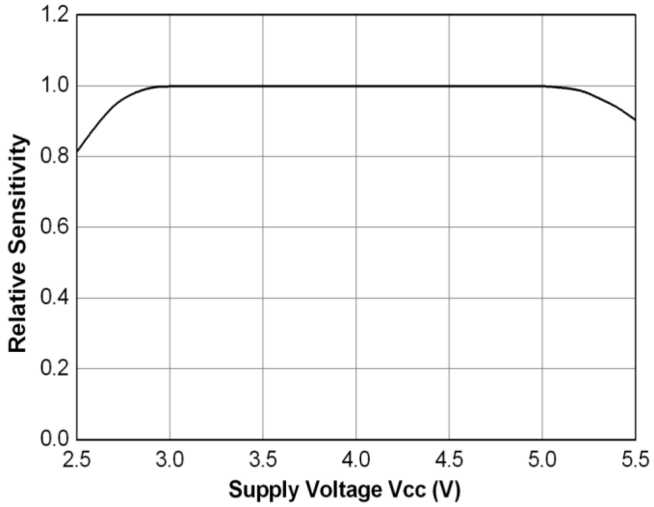


Fig.-7 Relative Transmission Distance vs. Supply Voltage



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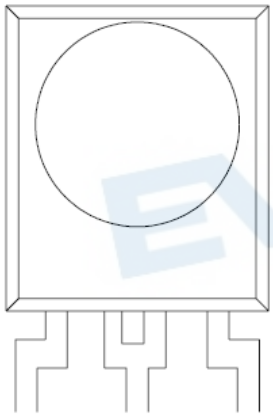
Code compatibility

Protocol	Suitable	Protocol	Suitable
JVC	No	r-step [2)]	Yes
Matsushita	Yes	Sharp	No
Matsubishi	No	Sony 12 Bit	Yes
NEC	Yes	Sony 15 Bit	No
Panasonic	Yes	Sony 20 Bit	No
RC5	Yes	Toshiba	Yes
RC6 [1)]	Yes	XMP	No
RCMM	No	Zenith	Yes
RCS-80	No	Continuous Code	No
RCA	No		

1) RC6 is only compatible if the data low time is 23ms or more
2) R-step is only suitable for 36kHz version

Device Marking



Note
X denotes date code Year
X denotes date code Month
X denotes frequency del

Packing Quantity

1500 pcs / Box
10 Boxes / Carton

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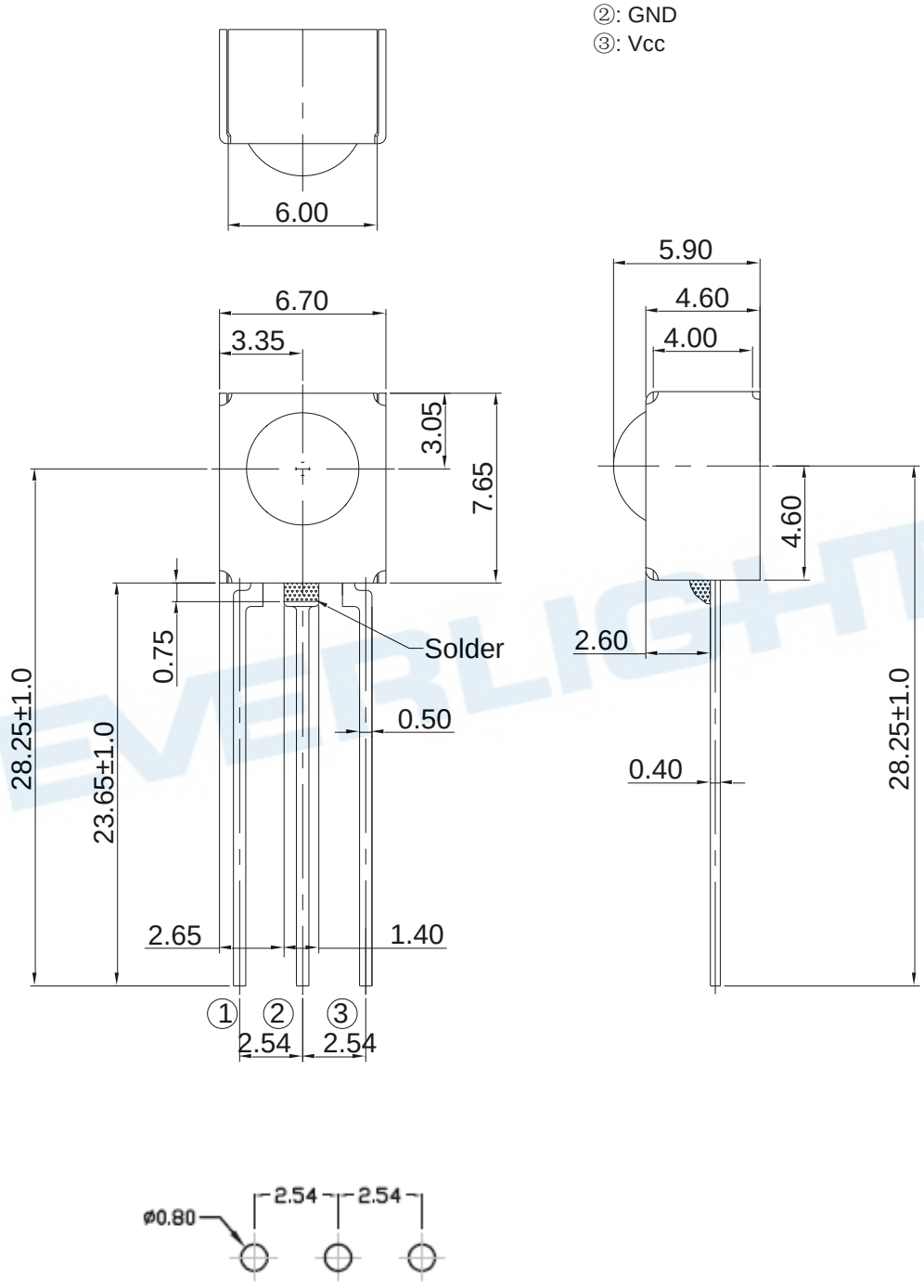
Package Dimensions
(Dimensions in mm)

Pin Function
①: Vout
②: GND
③: Vcc



Notes:1. All dimensions are in millimeters.
2.Tolerances unless dimensions ±0.5mm.
3.Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

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Recommended method of storage

The following are general recommendations for IRM with metal shell storage and use:
1. Do not open package bag before devices are ready to use.
2. Sealed package bag suggested to be stored at 10°C~30°C and 60%RH.
3. After opening the package, the devices must be stored at 10°C~30°C and 60%RH, and suggested to be used within 24 hours or as soon as possible. Besides, suggest that the remaining devices seal in the package bag as soon as possible please.

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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