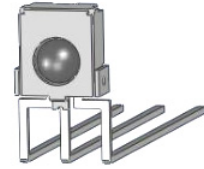


Infrared Receiver Module

IRM- 66xxTS45F4 series

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
- High immunity against ambient light
- Long reception range
- High sensitivity
- Pb free and RoHS compliant



1 2 3

Description

The IRM-6638TS45F4 series devices are miniature type infrared receivers which have been developed and designed by using the latest IC technology. The photo diode and preamplifier are assembled onto a lead frame and molded into an epoxy package which operates as an IR filter. The demodulated output signal can directly be decoded by a microprocessor.

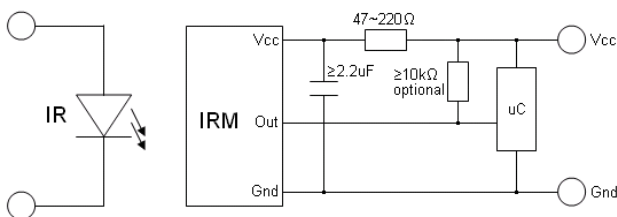
Pin Configuration

1. OUT
2. GND
3. V_{CC}

Applications

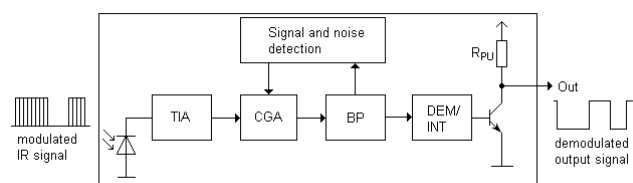
- AV equipment such as TV, VCR, DVD, CD, MD, etc.
- Short pause time protocols
- Toy applications
- CATV set top boxes
- Multi-media Equipment
- Other devices using IR remote control

Application Circuit



The RC Filter must be connected as close as possible to Vcc and GND pins.

Block Diagram



Infrared Receiver Module

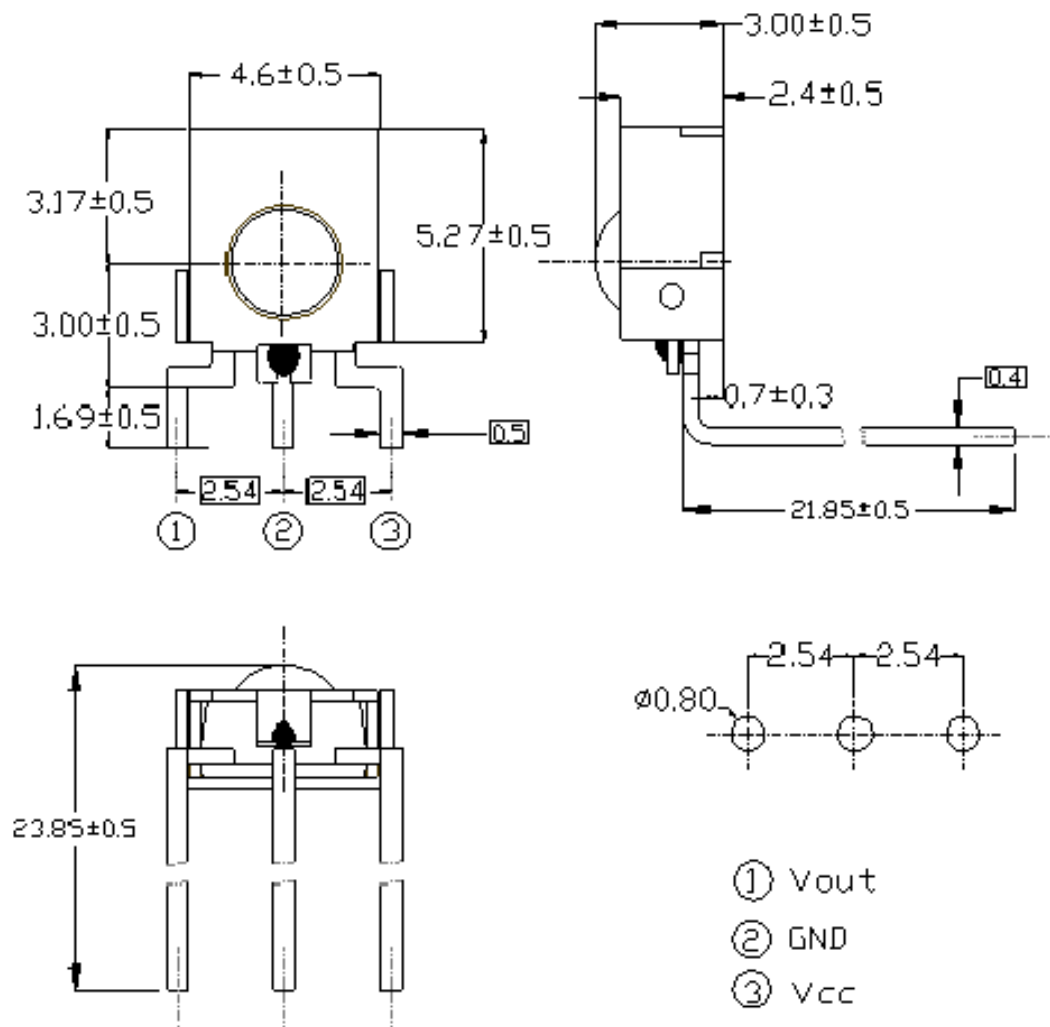
IRM- 66xxTS45F4 series

Parts Table

| Model No. | Carrier Frequency |
|----------------|-------------------|
| IRM-6636TS45F4 | 36 kHz |
| IRM-6638TS45F4 | 38 kHz |

Package Dimensions

(Dimensions in mm)



Infrared Receiver Module

IRM- 66xxTS45F4 series

Absolute Maximum Ratings (T_a=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 10 seconds

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

| Parameter | Symbol | MIN. | TYP. | MAX. | Unit | Condition |
|---------------------------|-----------------|----------------------|------|------|------|---|
| Current consumption | I _{cc} | --- | 1.0 | 1.2 | 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 | --- | ±50 | --- | deg | |
| Half angle(vertical) | φ _v | --- | ±50 | --- | 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} | V _{cc} -0.4 | --- | --- | V | |
| 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

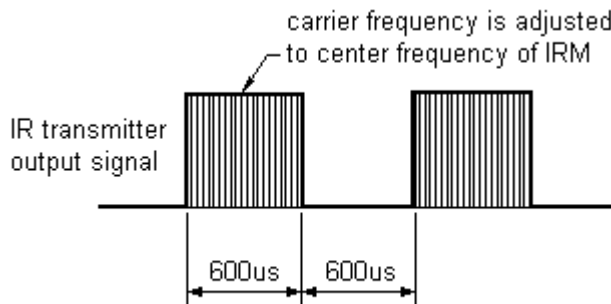
The environment contains an ordinary, white fluorescent lamp without high frequency modulation. The color temperature is 2856K and the illumination at the IR receiver is less than 10 Lux ($E_v \leq 10\text{Lux}$).

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

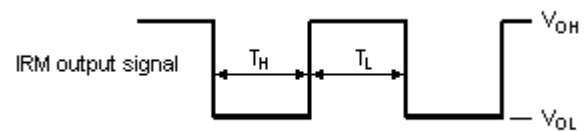


Fig.-2 standard transmitter calibration

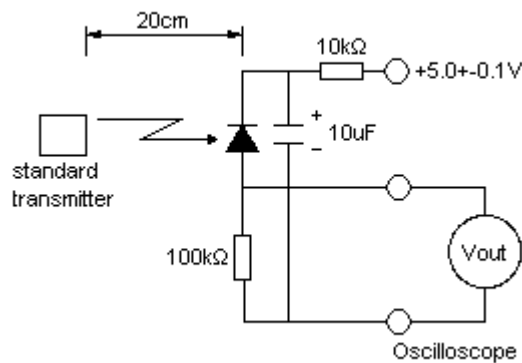
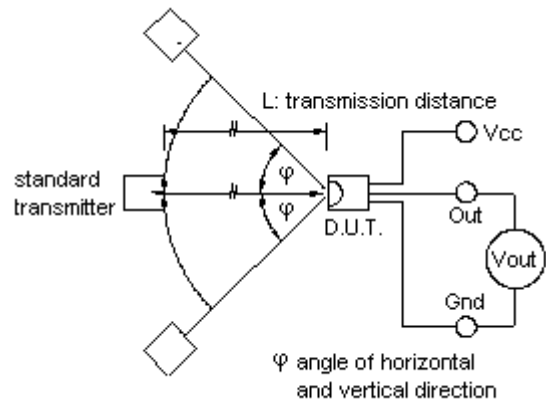


Fig.-3 Measuring System



Typical Electro-Optical Characteristics Curves

Fig.-4 Relative Spectral Sensitivity vs. Wavelength

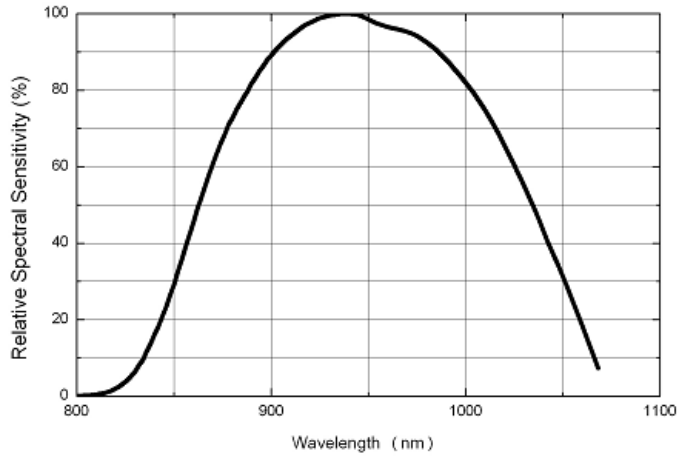


Fig.-5 Relative Transmission Distance vs. Direction

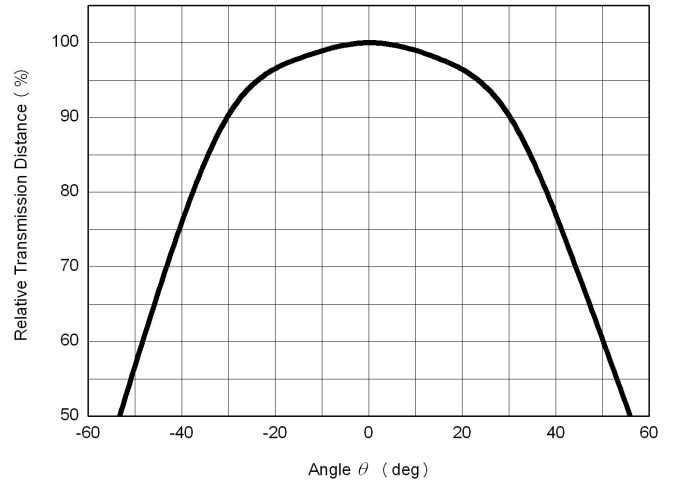


Fig.-6 Output Pulse Width vs. Transmission Distance

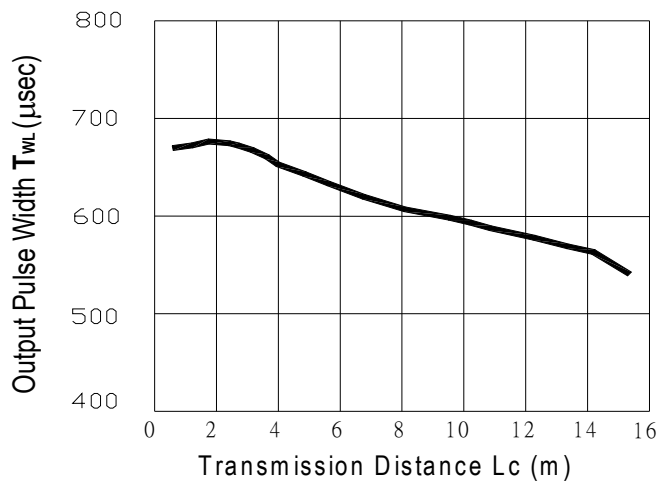


Fig.-7 Relative Transmission Distance vs. Supply Voltage

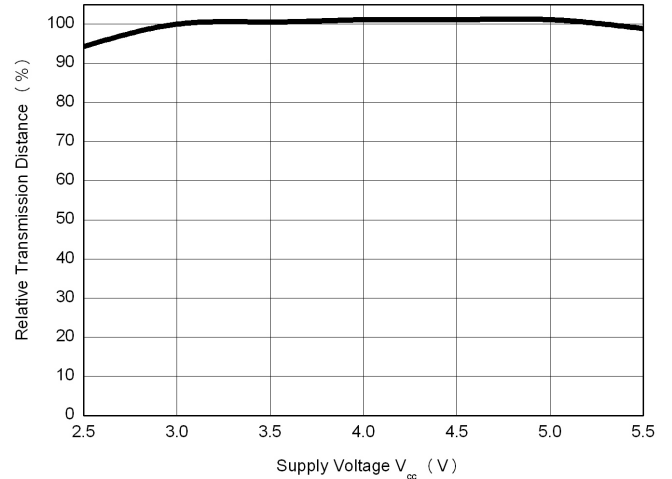
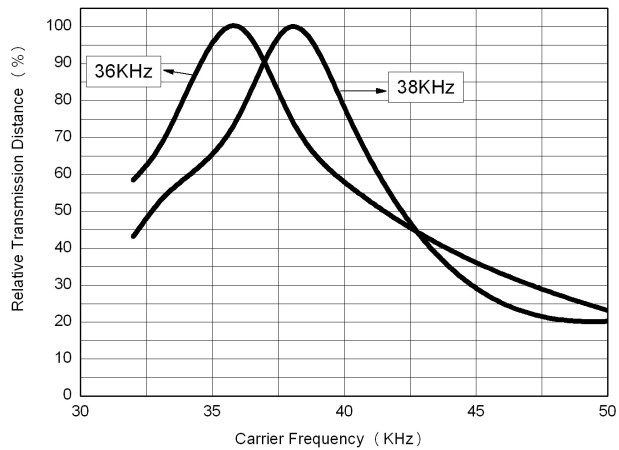


Fig.-8 Relative Transmission Distance vs. Carrier Frequency



Preliminary

Infrared Receiver Module

IRM- 66xxTS45F4 series

Code information

| Protocol | Suitable | Protocol | Suitable |
|------------|----------|-----------------|----------|
| JVC | No | RCA | No |
| Matsushita | Yes | Sharp | Yes |
| Mitsubishi | No | Sony 12 Bit | Yes |
| NEC | Yes | Sony 15 Bit | No |
| RC5 | Yes | Sony 20Bit | No |
| RC6 | Yes | Toshiba | Yes |
| RCMM | No | Zenith | Yes |
| RCS-80 | No | Continuous Code | No |

Packing Quantity

1500 pcs / Box

10 Boxes / Carton

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2. 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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