

Infrared Remote Control Receiver Module

IRM-56384F65

Features

- High protection ability against EMI.
- Circular lens to improve the receive characteristic.
- Line-up for various center carrier frequencies.
- Low voltage and low power consumption.
- High immunity against ambient light.
- Photodiode with integrated circuit.
- TTL and CMOS compatibility.
- Long reception distance.
- High sensitivity.
- Pb free and RoHS compliant.



Description

The IRM-56384F65 device 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.

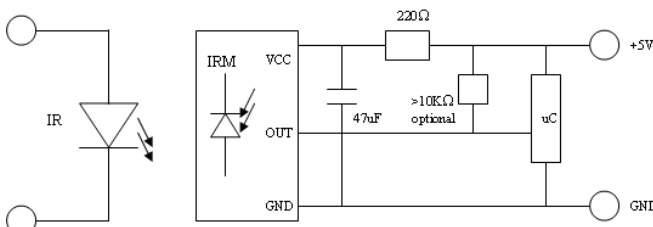
Pin Configuration

1. OUT
2. GND
3. Vcc

Applications

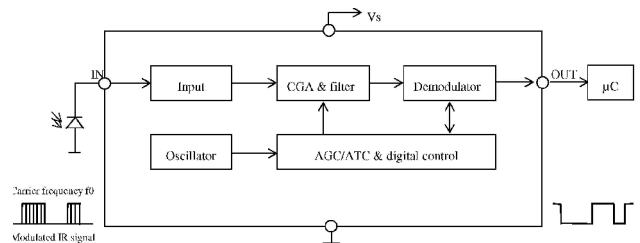
- Light detecting portion of remote control
- AV instruments such as Audio, TV, VCR, CD, MD, etc.
- Home appliances such as Air-conditioner, Fan, etc.
- The other equipments with wireless remote control.
- CATV set top boxes
- Multi-media Equipment

Application Circuit



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

Block Diagram

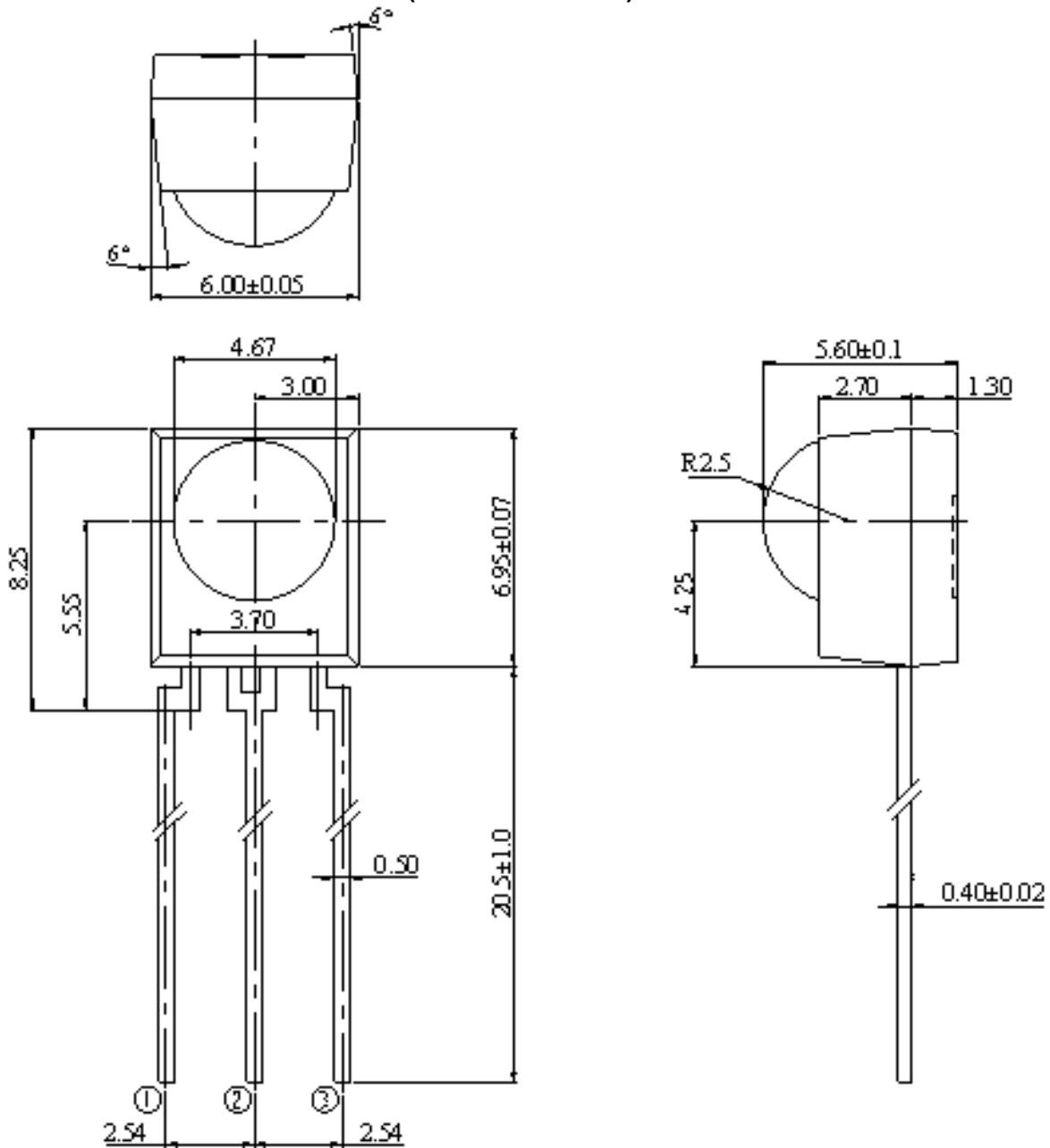


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Package Dimensions

(Dimensions in mm)



Notes: Tolerances unless dimensions ± 0.3 mm.

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Absolute Maximum Ratings (Ta=25)

| Parameter | Symbol | Rating | Unit |
|-------------------------------------|--------|-----------|------|
| Supply Voltage | Vcc | 0~6 | V |
| Operating Temperature | Topr | -25 ~ +80 | |
| Storage Temperature | Tstg | -40 ~ +85 | |
| Soldering Temperature ^{*1} | Tsol | 260 | |

^{*1} 4mm from mold body less than 10 seconds

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

| Parameter | Symbol | MIN. | TYP. | MAX. | Unit | Condition |
|---------------------------|-----------------|------|------|------|---------|-------------------|
| Consumption Current | Icc | --- | --- | 2 | mA | No signal input |
| B.P.F Center Frequency | F0 | | 38 | | KHZ | |
| Peak Wavelength | λ_p | --- | 940 | --- | nm | |
| Reception Distance | L ₀ | 14 | --- | --- | m | At the ray axis*1 |
| | L ₄₅ | 6 | --- | --- | | |
| Half Angle(Horizontal) | θ_h | --- | 45 | --- | deg | |
| Half Angle(Vertical) | θ_v | --- | 45 | --- | deg | |
| High Level Pulse Width | T _H | 400 | --- | 800 | μs | At the ray axis*2 |
| Low Level Pulse Width | T _L | 400 | --- | 800 | μs | |
| High Level Output Voltage | V _H | 2.7 | --- | --- | V | |
| Low Level Output Voltage | V _L | --- | 0.2 | 0.5 | V | |

*2. The ray receiving surface at a vertex and relation to the ray axis in the range of $\theta=0^\circ$ and $\theta=45^\circ$.

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

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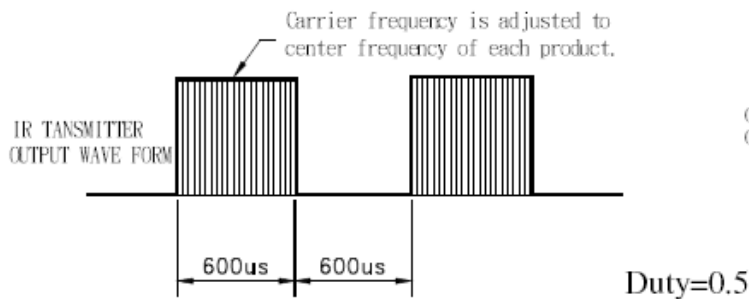
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Test Method

The specified electro-optical characteristics is satisfied under the following Conditions at the controllable distance.

1. Measurement place
A place that is nothing of extreme light reflected in the room.
2. External light
Project the light of ordinary white fluorescent lamps which are not high frequency lamps and must be less than 10 Lux at the module surface.
($E_e \leq 10\text{Lux}$)
3. Standard transmitter
A transmitter whose output is so adjusted as to $V_o=400\text{mVp-p}$ and the output Wave form shown in Fig.-1. According to the measurement method shown in Fig.-2 the standard transmitter is specified. However, the infrared photodiode to be used for the transmitter should be $\lambda_p=940\text{nm}, \Delta\lambda=50\text{nm}$. Also, photodiode is used of PD438B ($V_r=5\text{V}$). (Standard light / Light source temperature 2856°K).
4. Measuring system According to the measuring system shown in Fig.-3

Fig.-1 Transmitter Wave Form



D.U.T output Pulse

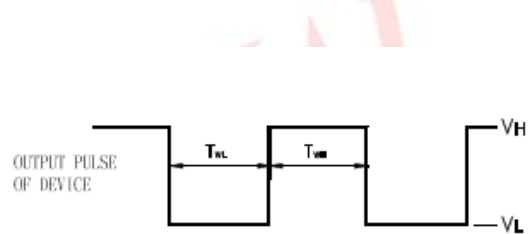


Fig.-2 Measuring Method

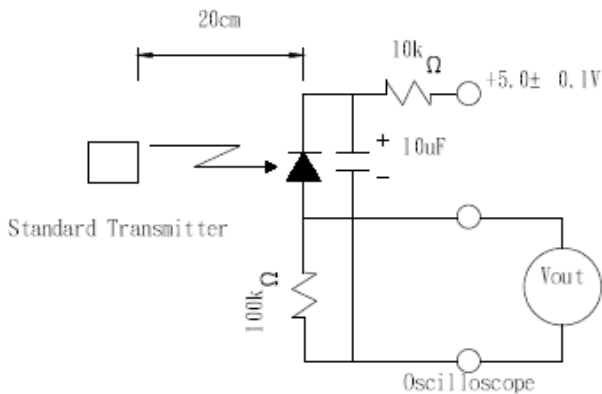
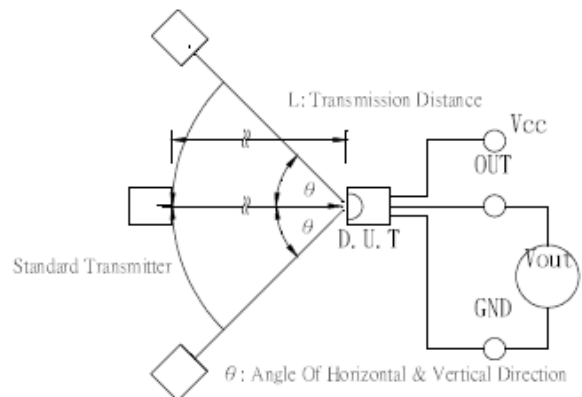


Fig.-3 Measuring System





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Typical Performance Curves

Fig.-4 Relative Spectral Sensitivity vs. Wavelength

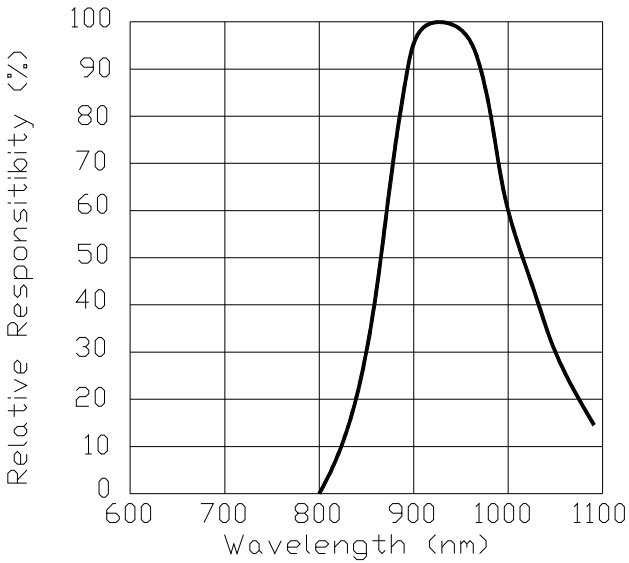


Fig.-5 Relative Transmission Distance vs. Direction

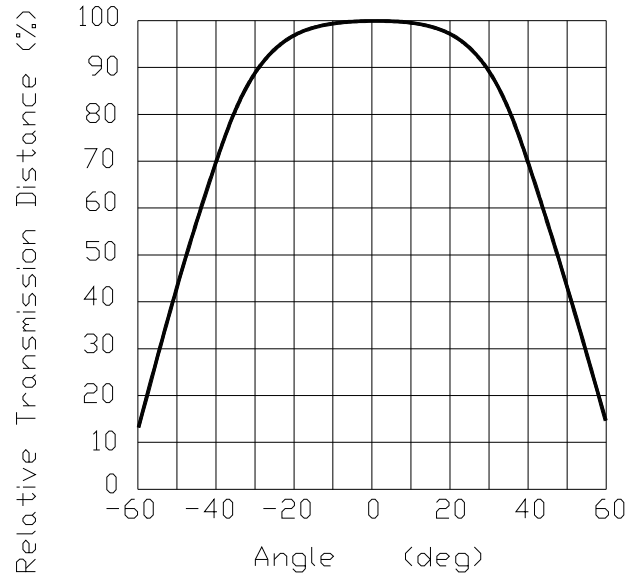


Fig.-6 Output Pulse Length vs. Arrival Distance

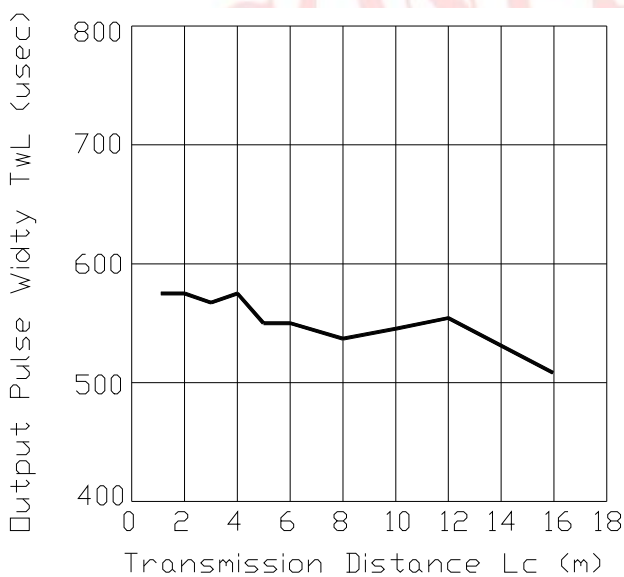
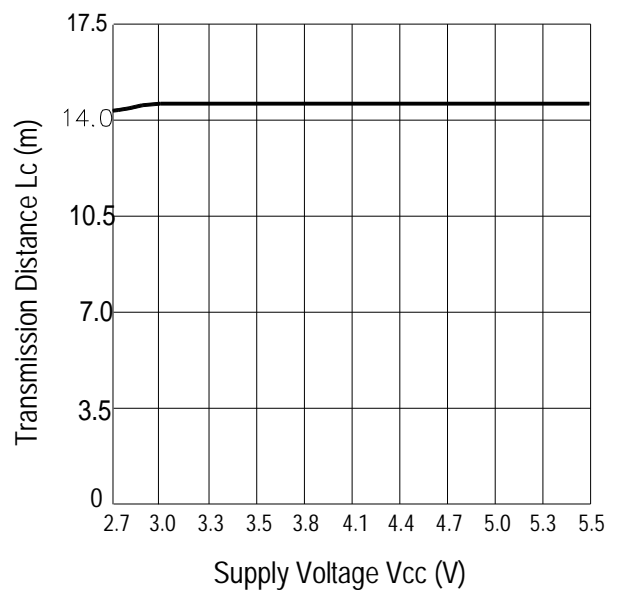


Fig.-7 Arrival Distance vs. Supply Voltage





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Fig.-8 Relative Transmission Distance vs. Center Carrier Frequency -IRM-3633N3F58

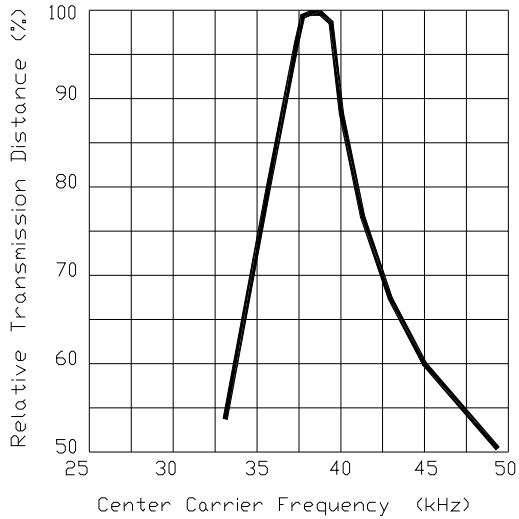
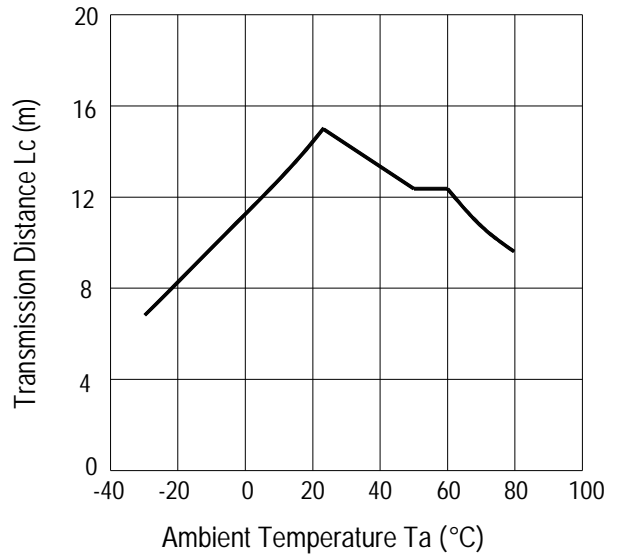


Fig.-9 Arrival Distance vs. Ambient Temperature



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Packing Quantity

- 1000 pcs / Box
- 10 Boxes / Carton



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