SIVAGO®
SEMICONDUCTOR

Infrared Remote Control Receiver Modul   IRM0038W

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

Description

    The IRM0038W device are 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.
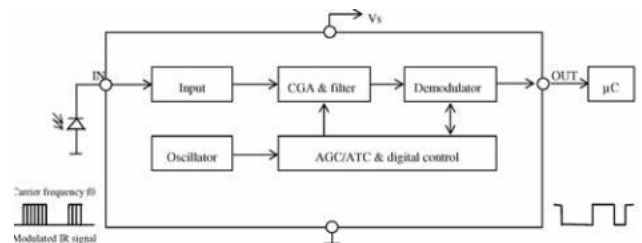
Applications

- 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
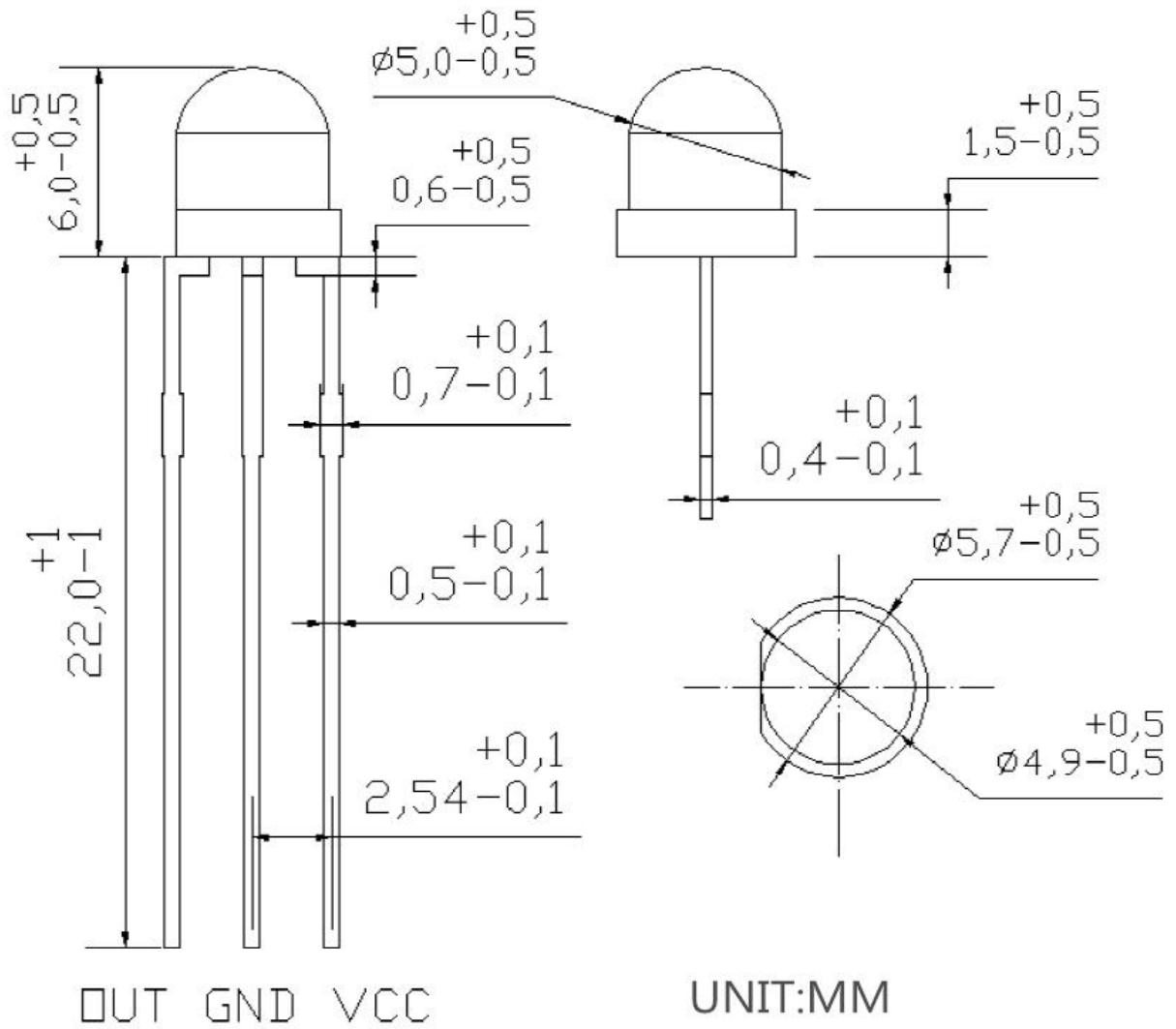- Multi-media Equipment

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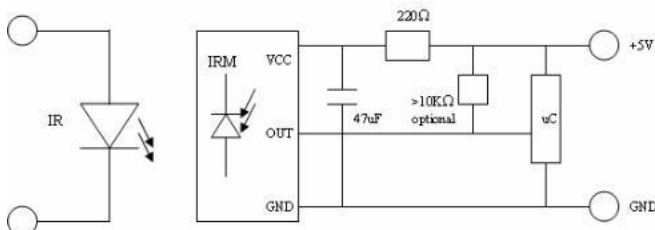
RC Filter should be connected closely between Vcc pin and GND pin.

Block Diagram

PACKAGE DIMENSIONS

UNIT:MM

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	3-5	V
Operating Temperature	Topr	-25 ~ +85	℃
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	Fo	---	38	---	KHz	
Peak Wavelength	λ_p	---	940	---	nm	
Reception Distance	L_0	14	---	---	m	At the ray axis Notes 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 Notes 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 θ=0° and θ=45°.
*3. A range from 30cm to the arrival distance. Average value of 50 pulses.

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 then 10 Lux at the module surface. ($Ee \leqq 10Lux$)

3. Standard transmitter

   A transmitter whose output is so adjusted as to **Vo=400mVp-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 $\lambda p=940nm, \Delta\lambda=50nm$. Also, photodiode is used of PD400B (Vr=5V). (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
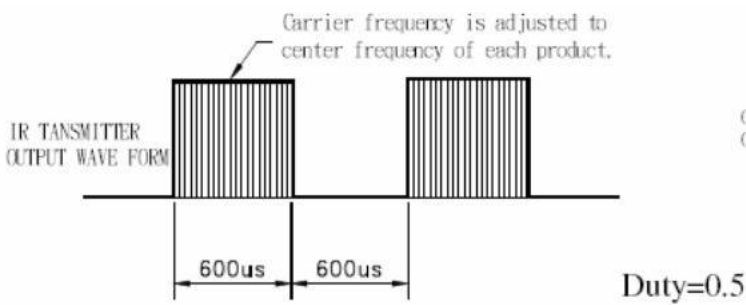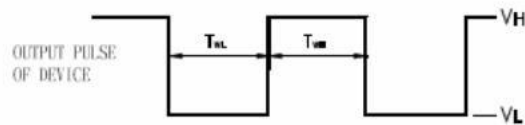
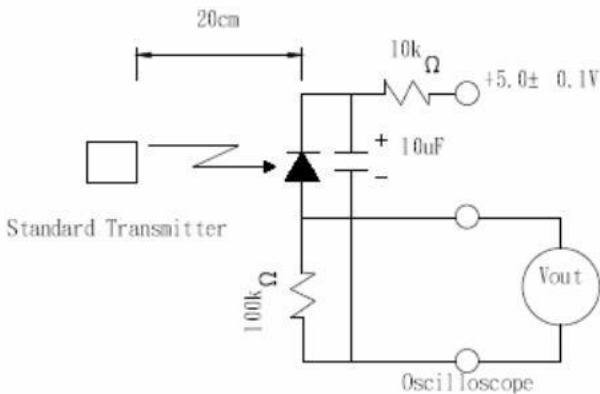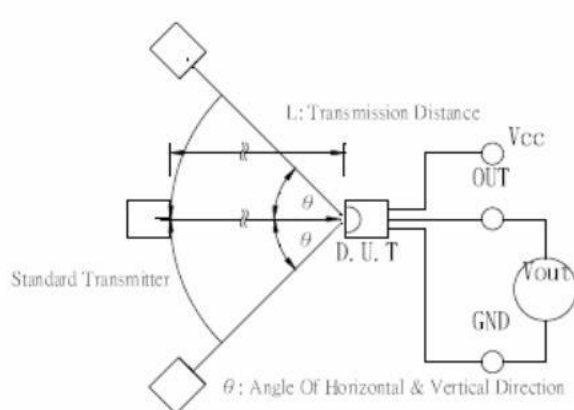Fig.-2 Measuring Method   Fig.-3   Measuring System

Typical Performance Curves

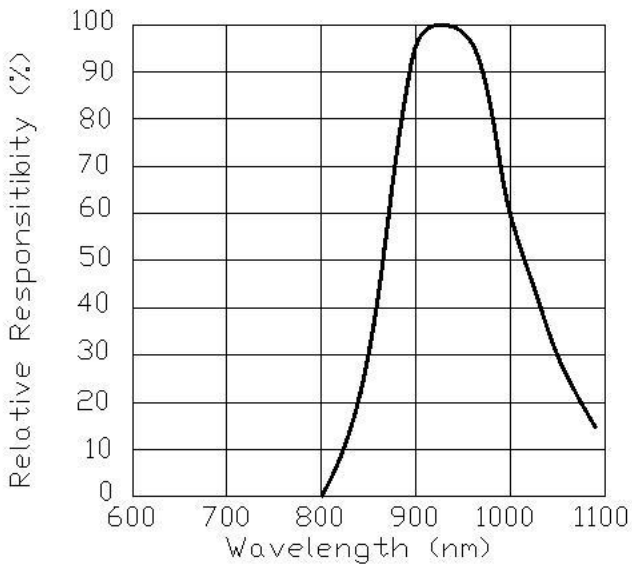Fig.-4 Relative Spectral Sensitivity vs. Wavelength

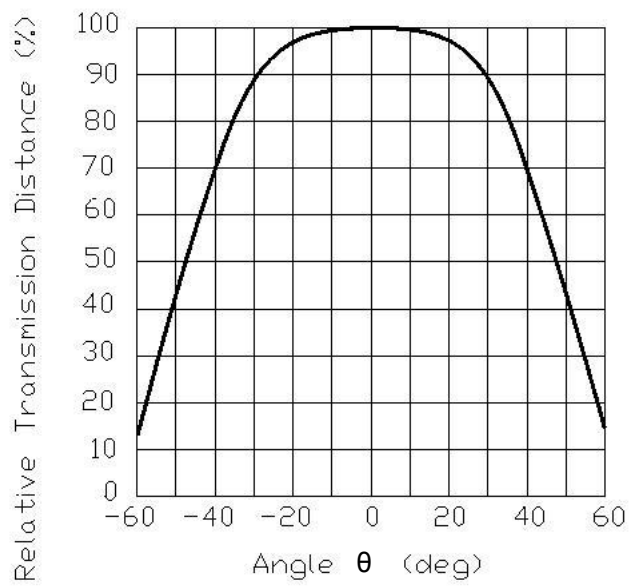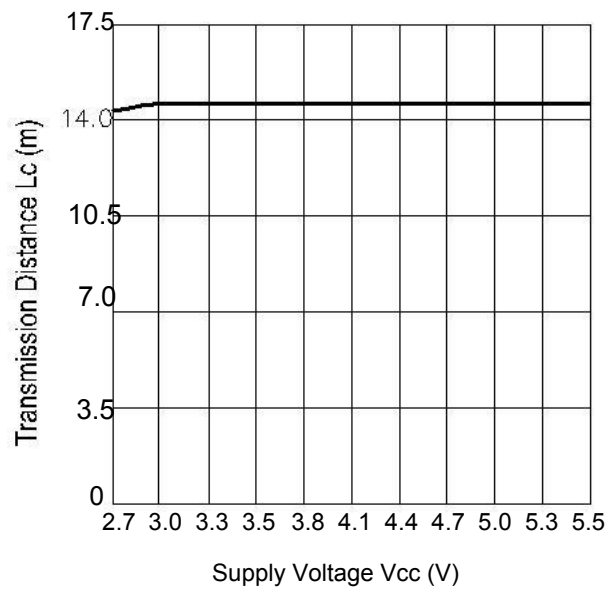Fig.-5 Relative Transmission Distance vs. Direction

Fig.-6 Output Pulse Length vs. Arrival Distance

Fig.-7 Arrival Distance vs. Supply Voltage

Packing Quantity Specification

  1.500Pcs/1Bag,10 Bag/1Box

  2.4Boxes/1Carton

Label Form Specification

- ・PRODUCT: Part Number
- ・CODE NO.: Product Serial Number
- ・QTY: Packing Quantity
- ・LOT No: Lot Number
- ・REMARKS:Remarks

DISCLAIMER

1. Above specification may be changed without notice. SIVAGO will reserve authority on material change for above specification.

2. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. SIVAGO 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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