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Infrared Remote Control Receiver Module

IRM-66xxN3S45 series

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



1 2 3

Description

The IRM-66xxN3S45 series devices 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.

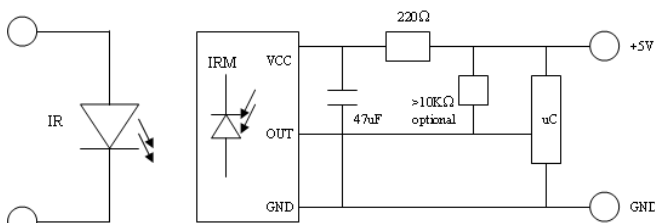
Pin Configuration

1. OUT
2. GND
3. V_S

Applications

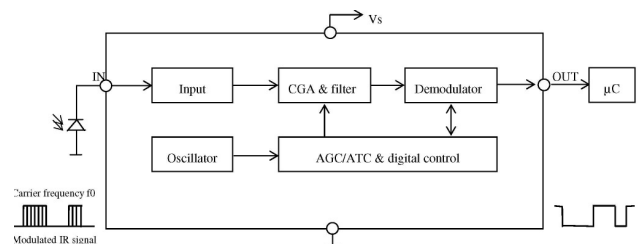
- Light detecting portion of remote control
- AV instruments such as Audio, TV, VCR, CD, MD, etc.
- Home appliances such as Air-conditioner, Fan, etc.
- The other equipments with wireless remote control.
- CATV set top boxes
- Multi-media Equipment

Application Circuit



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

Block Diagram





LIGHTING FOREVER

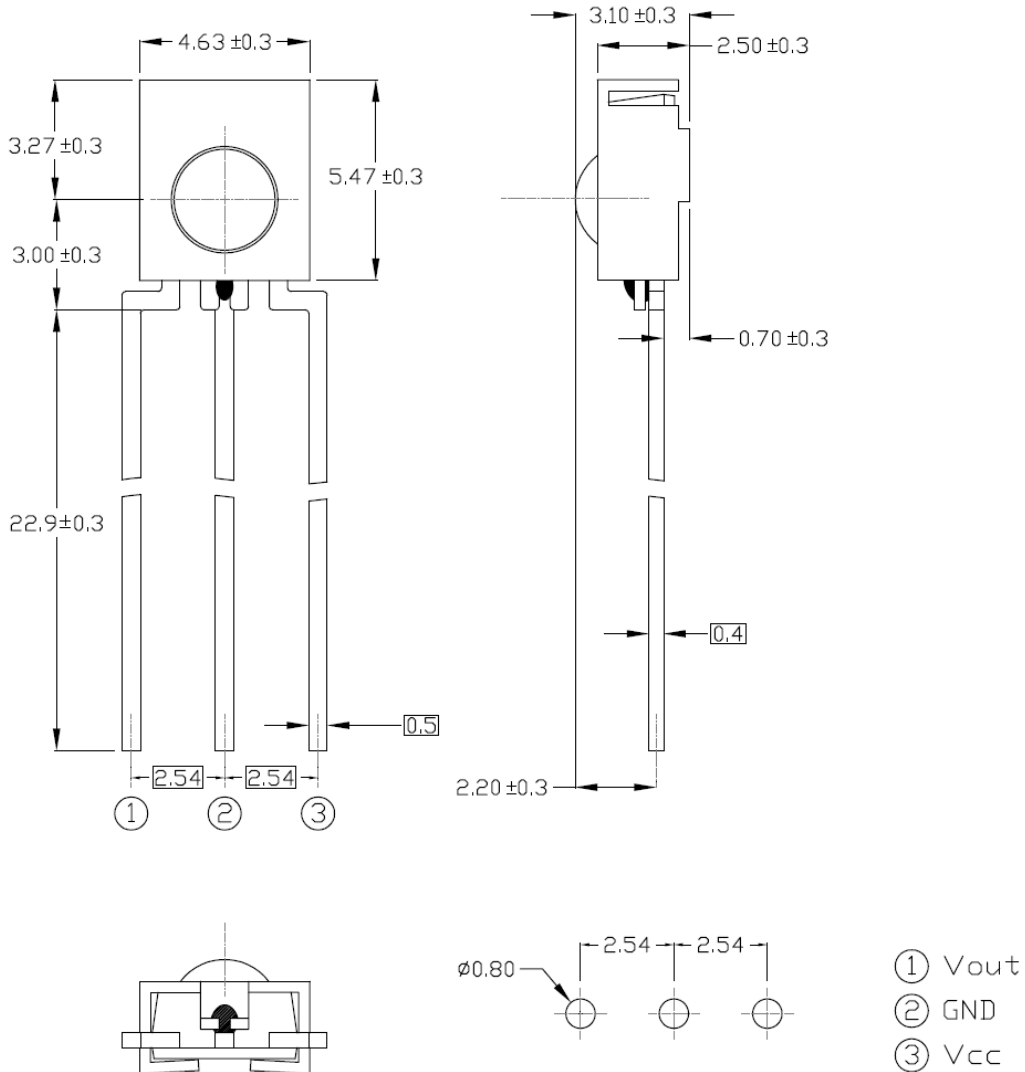
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Parts Table

Model No.	Carrier Frequencies
IRM-6636N3S45	36 kHz
IRM-6638N3S45	38 kHz

Package Dimenstions (Dimensions in mm)



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Absolute Maximum Ratings (T_a=25 °C)

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

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

Recommended Operating Condition

Supply Voltage Rating: Vcc 2.7V to 3.3V and 4.5V to 5.5V

Electro-Optical Characteristics (T_a=25°C and Vcc=3.0V)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Consumption Current	Icc	-	-	2	mA	No signal input
Supply Voltage	Vs	2.7	-	5.5	V	
Peak Wavelength	λp	-	940	-	nm	
Reception Distance	L0	14	-	-	m	At the ray axis ^{*2}
	L45	6	--	-		
Half Angle(Horizontal)	θh	-	45	-	deg	
Half Angle(Vertical)	θv	-	45	-	deg	
High Level Pulse Width	TH	400	--	800	μs	At the ray axis ^{*3}
Low Level Pulse Width	TL	400	--	800	μs	
High Level Output Voltage	VH	2.7	-	-	V	
Low Level Output Voltage	VL	-	-	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.

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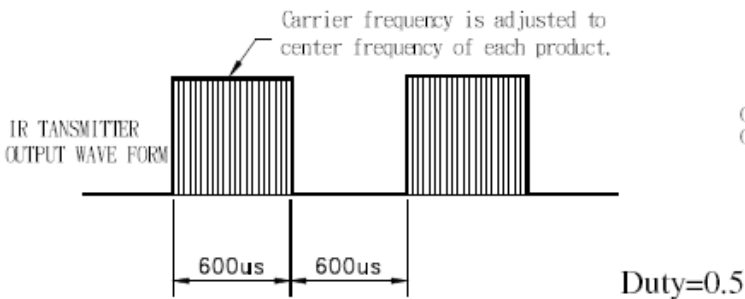
IRM-66xxN3S45 series

Test Method

The specified electro-optical characteristics are 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.
($E_e \leq 10\text{Lux}$)
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

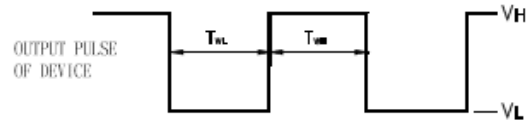


Fig.-2 Measuring Method

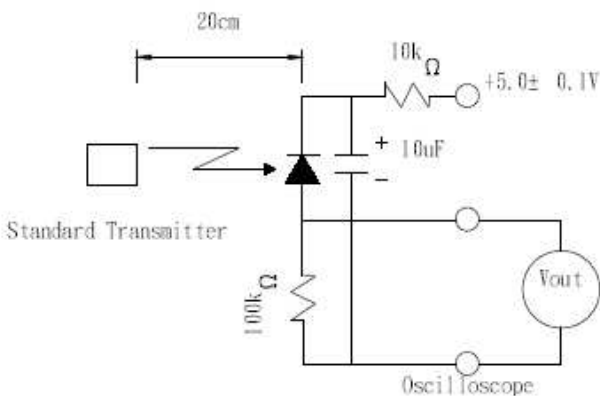
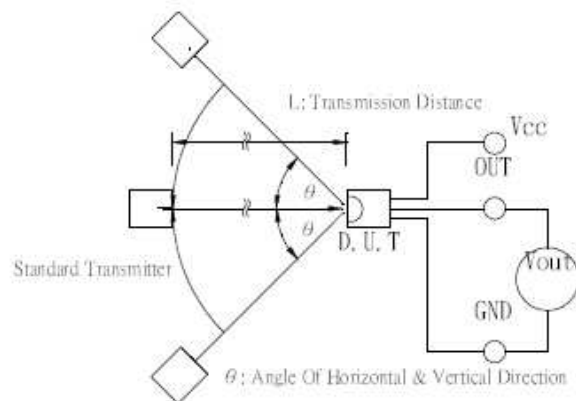


Fig.-3 Measuring System



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Typical Electro-Optical Characteristics Curves

Fig.-4 Reverse Light Current vs. Wavelength

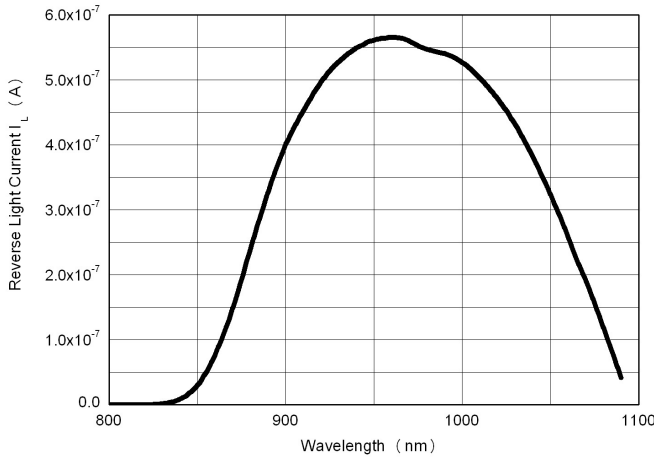


Fig.-5 Relative Transmission Distance vs. Direction

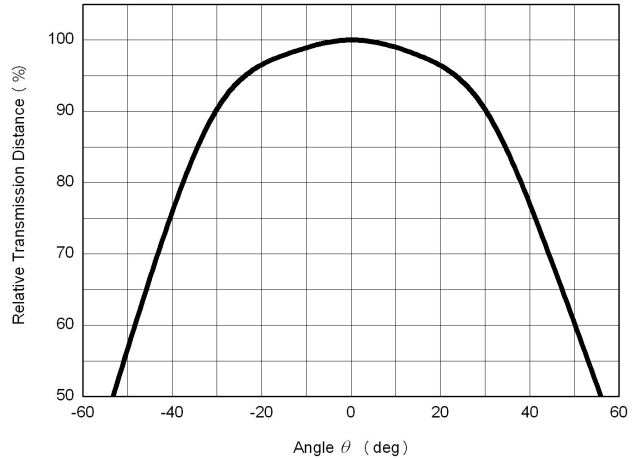


Fig.-6 Output Pulse Width vs. Transmission Distance

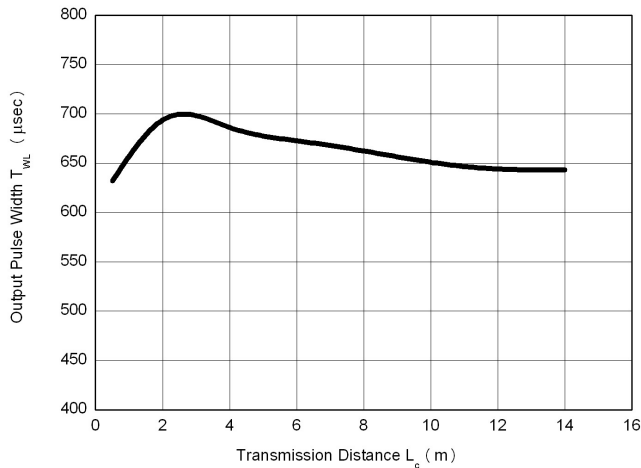


Fig.-7 Relative Transmission Distance vs. Supply Voltage

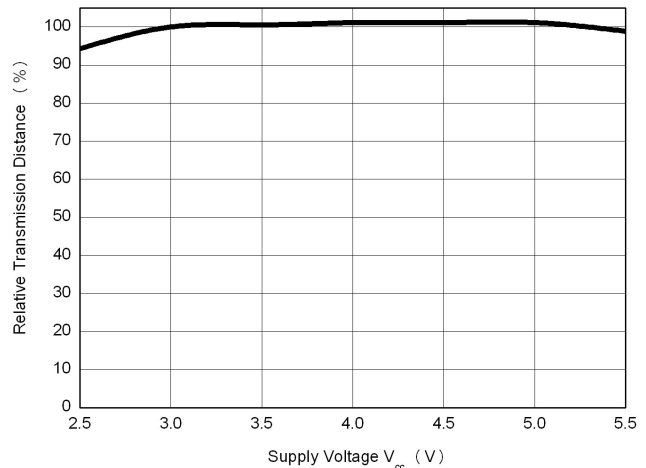


Fig.-8 Relative Transmission Distance vs. Carrier Frequency

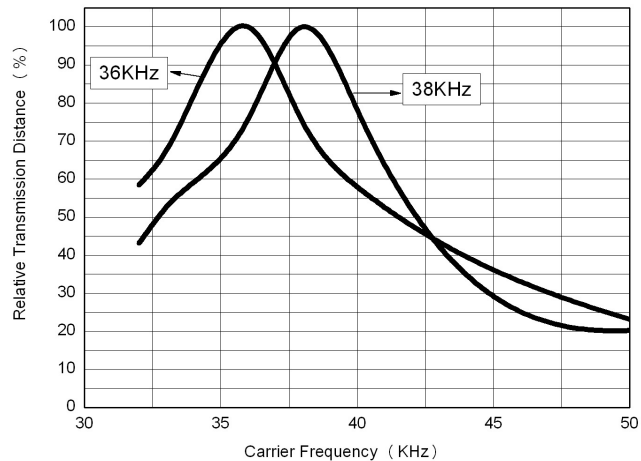
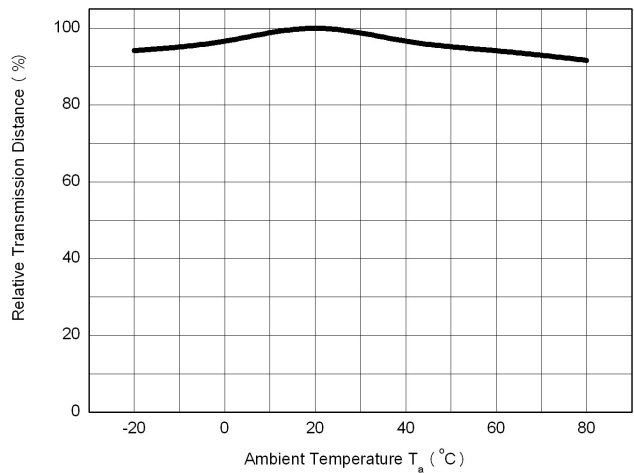


Fig.-9 Relative Transmission Distance vs. Ambient Temperature





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Packing Quantity

1500 pcs / Box

10 Boxes / Carton

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