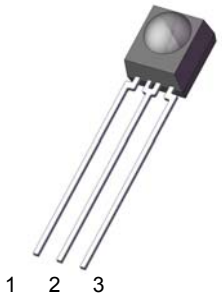
EVERLIGHT

Infrared Remote Control Receiver Module

IRM-36xxT-X 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 TFT backlight
- Long reception range
- High sensitivity
- Pb free and RoHS compliant



Pin Configuration

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

Description

The IRM-36XXT-X devices are miniature type infrared remote control system receiver which has been developed and designed by utilizing the most updated IC technology.

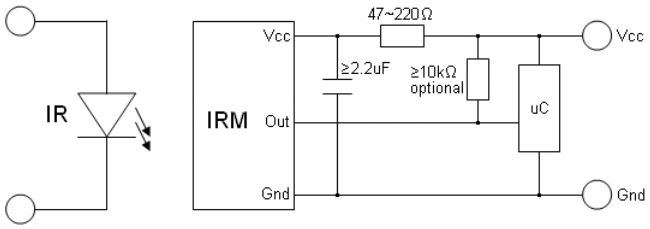
The PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as an IR filter.

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

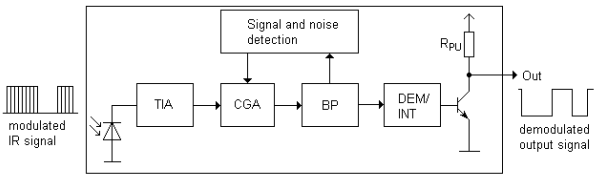
Applications

- 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



Block Diagram



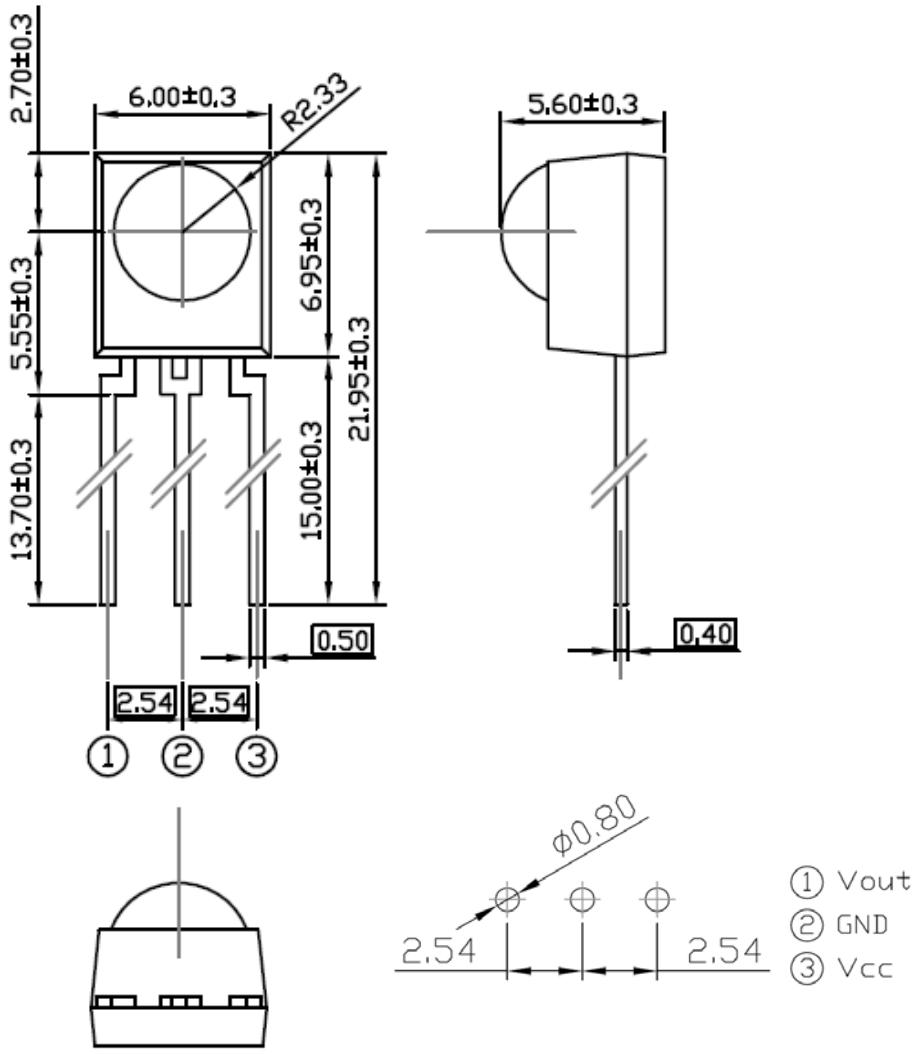
The RC Filter must be connected as close as possible to Vcc and GND pins.

Parts Table

Model No.	Carrier Frequencies
IRM-3636T-X	36
IRM-3638T-X	38
IRM-3640T-X	40
IRM-3656T-X	56

Package Dimenstions

(Dimensions in mm)



Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	0 ~ 6	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	---	---	1.2	mA	No signal input
Supply Voltage	Vcc	2.7	-	5.5	V	
Peak Wavelength	λ_p	---	940	---	nm	
Reception Distance	L_0	14	---	---	m	See chapter ‚Test method'
	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	Test signal according to figure 1
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	$I_{SINK} \leqq$ 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

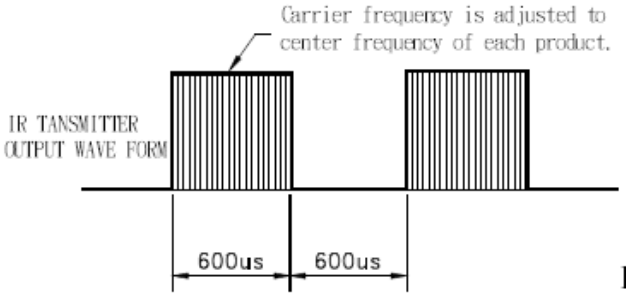
   The environment contains an ordinary, white fluorescent lamp without high frequency modulation. The color temperature is 2856K and the illumination at the IR receiver is less than 10 Lux (Ev≦10Lux).

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 a 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

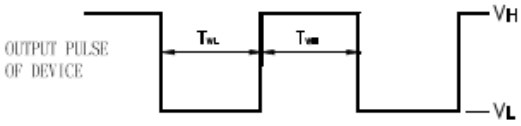
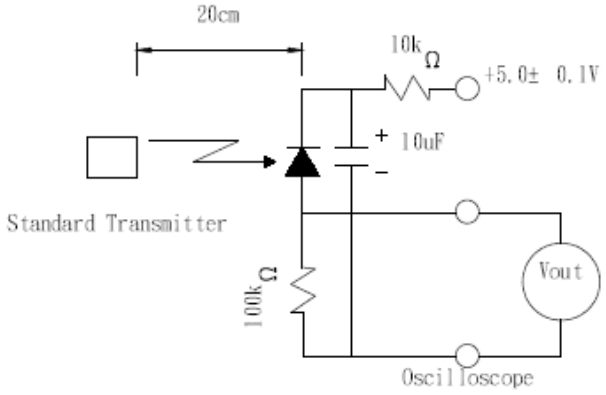
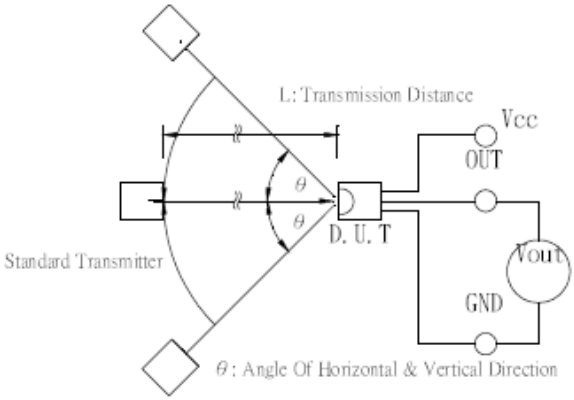


Fig.-2 Measuring Method

Fig.-3 Measuring System





Typical Performance Curves

Fig.-4 Relative Spectral Sensitivity vs. Wavelength

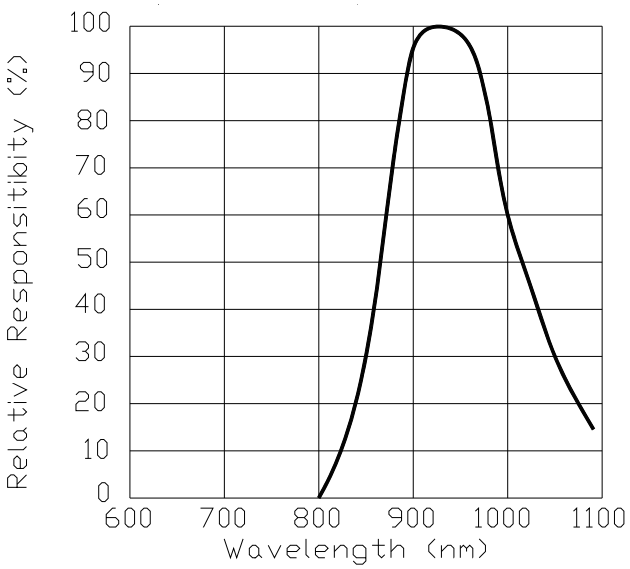


Fig.-5 Relative Transmission Distance vs. Direction

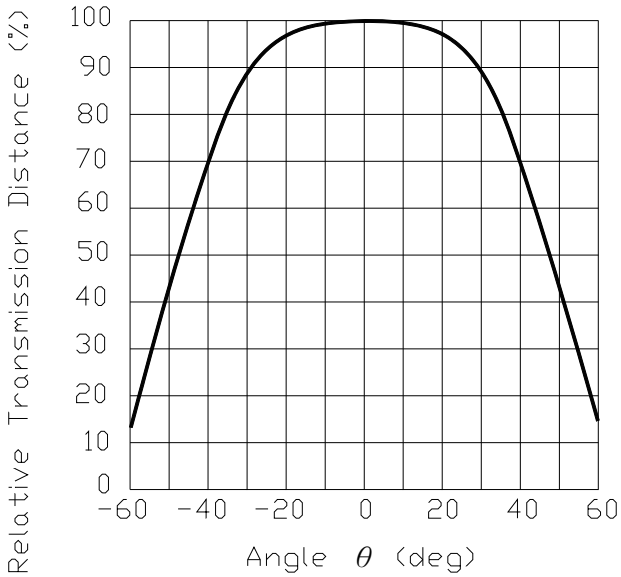


Fig.-6 Output Pulse Length vs. Arrival Distance

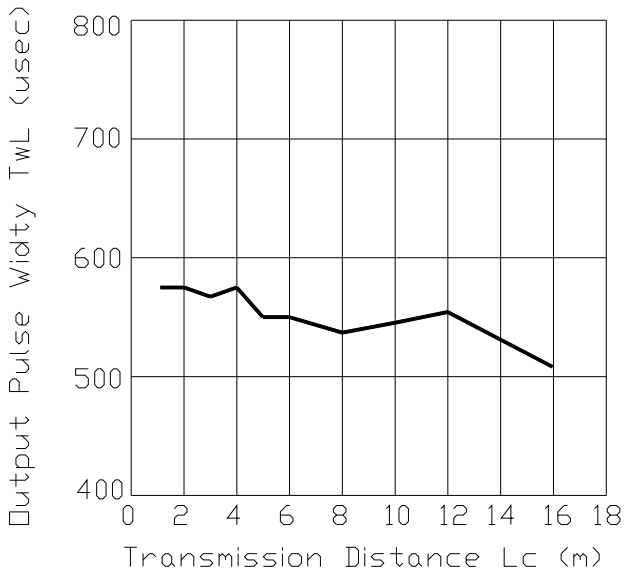


Fig.-7 Arrival Distance vs. Supply Voltage

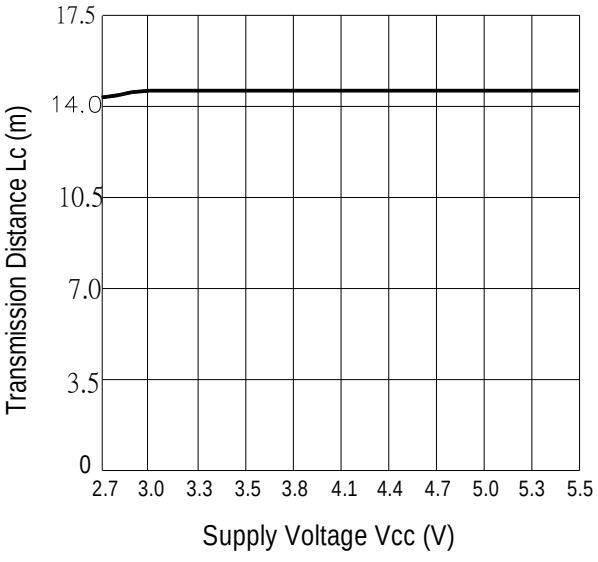


Fig.-8 Relative Transmission Distance vs. Center Carrier Frequency -IRM-3636T

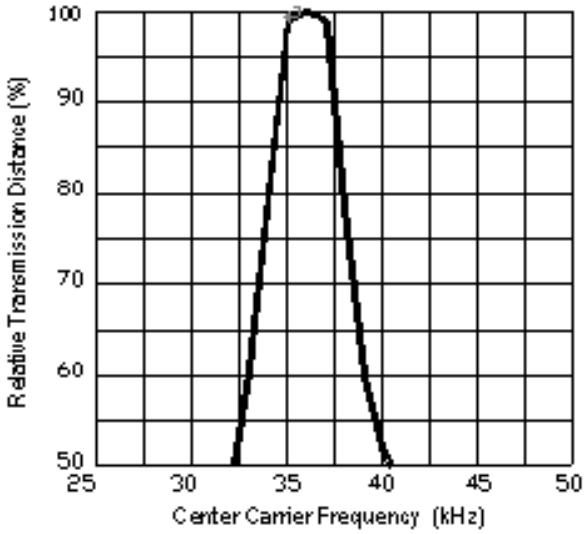


Fig.-9 Relative Transmission Distance vs. Center Carrier Frequency -IRM-3638T

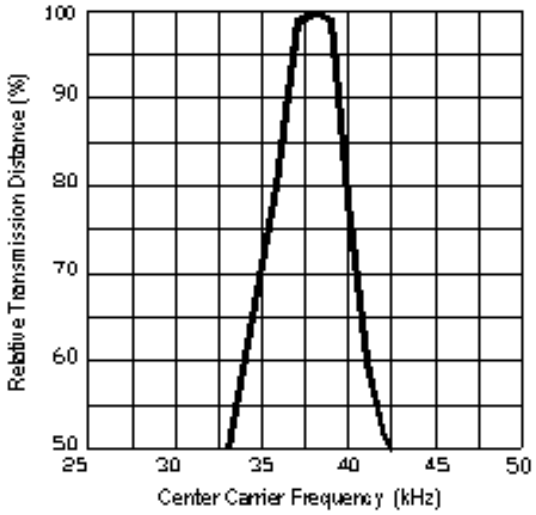


Fig.-10 Relative Transmission Distance vs. Center Carrier Frequency -IRM-3640T

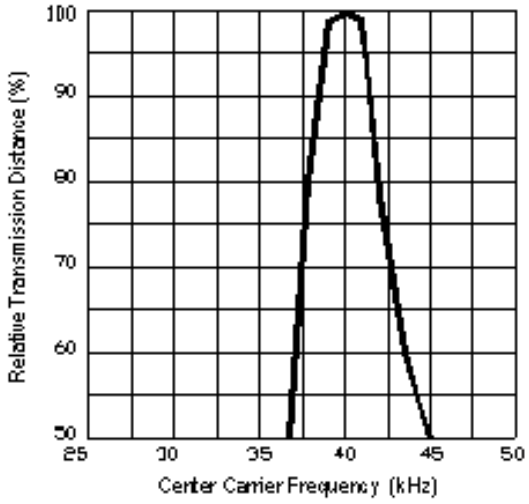
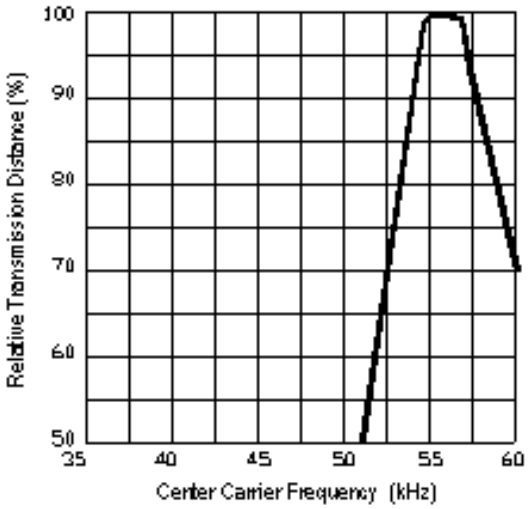


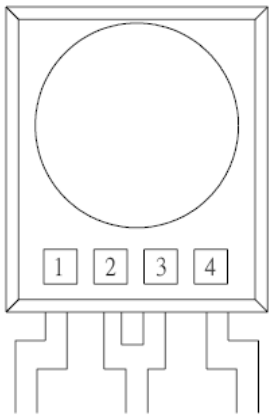
Fig.-11 Relative Transmission Distance vs. Center Carrier Frequency -IRM-3656T



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

Device Marking



Notes

1 denotes Year code

2 denotes Month code

3 denotes Device number (m: T type)

4 denotes Carrier frequency (2: 36KHz, 4: 38KHz and 5: 40KHz)

Packing Quantity

1500 pcs / Box

10 Boxes / Carton

DISCLAIMER

1. Above specification may be changed without notice. EVERLIGHT 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. 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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