

IRM-36xxM series

Features

☐ High protection ability against EMI ☐ Circular lens for improved reception characteristics ☐ Available for various carrier frequencies ☐ Min burst length: 6 cycles ☐ Min gap length: 10 cycles ☐ Suitable for continuous code ☐ Low operating voltage and low power consumption ☐ Optimized immunity against TFT backlight interferences ☐ High immunity against ambient light □ Long reception range ☐ High sensitivity



Description

The IRM-36xxM series devices are miniature type infrared receivers which have been developed and designed by using the latest IC technology, specially optimized to suppress interferences from TFT backlight.

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.

Applications

- · AV equipment such as TV, VCR, DVD, CD, MD, etc.
- · Short pause time protocols

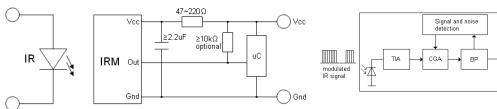
☐ Pb free and RoHS compliant

- Toy applications
- CATV set top boxes
- Multi-media Equipment
- · Other devices using IR remote control

Pin Configuration

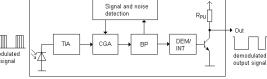
- 1. OUT
- 2. GND
- 3. V_{CC}

Application Circuit



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

Block Diagram



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Revision : 3 LifecyclePhase:正式發行



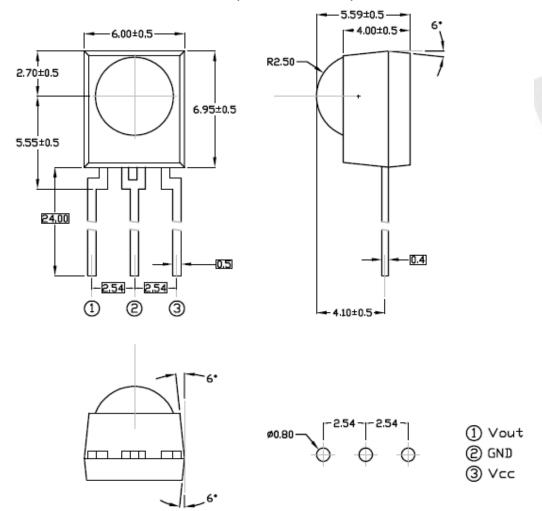
IRM-36xxM series

Parts Table

Model No.	Carrier Frequency		
IRM-3636M	36 kHz		
IRM-3638M	38 kHz		
IRM-3640M	40 kHz		
IRM-3656M	56 kHz		

Package Dimensions

(Dimensions in mm)



Everlight Electronics Co., Ltd. Document No:DMO-0000128

2 Rev.3 http://www.everlight.com January 25, 2011

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Receiver Module

IRM-36xxM series

Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	6	V
Operating Temperature	Topr	-20 ~ +80	
Storage Temperature	Tstg	-40 ~ +85	
Soldering Temperature *1	Tsol	260	

 $^{^{\}star 1}$ 4mm from mold body for less than 10 seconds

Electro-Optical Characteristics (Ta=25 , Vcc=3V)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition	
Current consumption	Icc		0.4	0.6	mA	No input signal	
Supply voltage	V _{CC}	2.7	- 1	5.5	V		
Peak wavelength	λ_{p}		940		nm		
Reception range	L ₀	14	(Lo	-	m		
	L ₄₅	6			111	See chapter ,Test method'	
Half angle(horizontal)	Φh		±35		deg		
Half angle(vertical)	φν		±35		deg		
High level pulse width	T _H	450		700	μs	Test signal according to	
Low level pulse width	T _L	500		750	μs	figure 1	
High level output voltage	V _{OH}	Vcc-0.4			V	I _{SOURCE} 1μΑ	
Low level output voltage	V _{OL}		0.2	0.5	V	I _{SINK} 2mA	
Internal pull up resistor	R _{PU}	85	100	115	kΩ		

Everlight Electronics Co., Ltd. Document No:DMO-0000128

3 Rev.3 http://www.everlight.com January 25, 2011

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IRM-36xxM series

Test method

The specified electro-optical characteristics are valid under the following conditions.

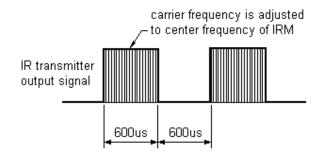
- 1. Measurement environment
 - A place without extreme light reflections.
- 2. External light

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



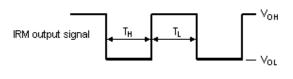


Fig.-2 standard transmitter calibration

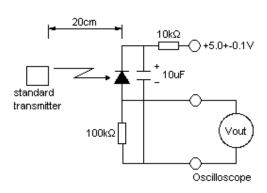
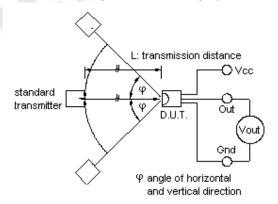


Fig.-3 Measuring System



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4 Rev.3 http://www.everlight.com January 25, 2011

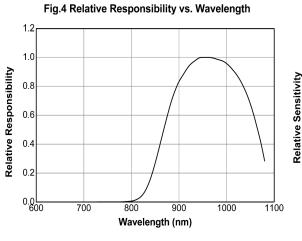
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Typical Electro-Optical Characteristic Curves



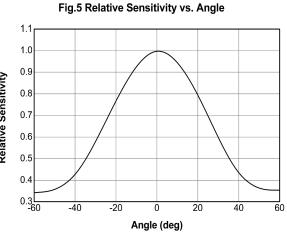
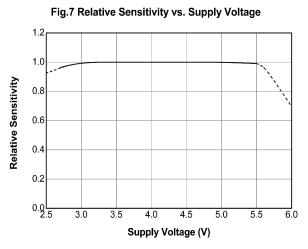
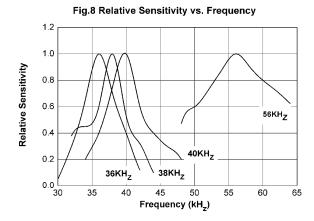


Fig.6 Variation Output Pulse Width vs. Distance Variation Output Pulse Width (uS) 150 100 50 T_H -50 -100 -150 -200L 12 Distance (m)





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5 Rev.3 http://www.everlight.com January 25, 2011

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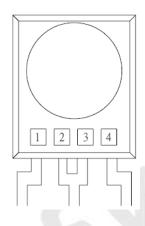


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Code information

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

Device Marking



Notes

1 denotes Year code 2 denotes Month code 3 denotes Device number

4 denotes Carrier frequency (2: 36KHz, 4: 38KHz 5: 40KHz 7:56KHz)

Everlight Electronics Co., Ltd. Document No:DMO-0000128

6 Rev.3 http://www.everlight.com January 25, 2011

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Packing Quantity

1500 pcs / Box

10 Boxes / Carton



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7 Rev.3 http://www.everlight.com January 25, 2011

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IRM-36xxM series

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