

Technical Data Sheet

Infrared Remote-control Receiver Module

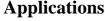
IRM-2738

Features:

- Photo detector and preamplifier in one package
- Internal filter for PCM frequency
- Improved shielding against electrical field disturbance
- TTL and CMOS compatibility
- Output active low
- Low power consumption
- Improved immunity against ambient light
- Suitable burst length ≥ 10 cycles/burst
- Pb free



• The IRM-2738 are miniaturized receivers for infrared remote control systems. PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as IR filter. The demodulated output signal can directly be decoded by a microprocessor. IRM-2738 is the standard IR remote control receiver series, supporting all major transmission codes.



- 1. Optical switch
- 2. 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

PART	MATERIAL	COLOR
Chip	Silicon	Black
Compound	Ероху	Black

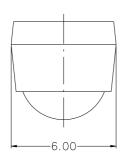


Everlight Electronics Co., Ltd. http://www.everlight.com Rev 1.0 Page: 1 of 9

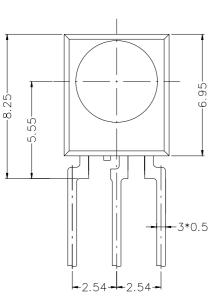
Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu

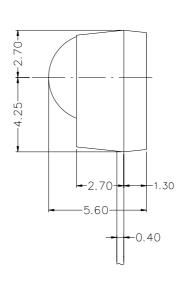
IRM-2738

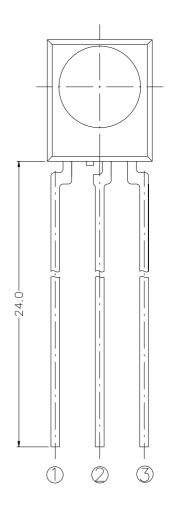
Package Dimensions



- ① OUT
- ② Vcc
- 3 GND







Notes: 1.All dimensions are in millimeters.

2. Tolerances unless dimensions ±0.3mm.

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit	Notice
Supply Voltage	Vcc	0~6	V	
Operating Temperature	Topr	-25 ~ +80	$^{\circ}\!\mathbb{C}$	
Storage Temperature	Tstg	-40 ~ +85	$^{\circ}\mathbb{C}$	
Soldering Temperature	Tsol	260	$^{\circ}\! \mathbb{C}$	4mm from mold body less than 10 seconds

Everlight Electronics Co., Ltd.

Device No: DMO-027-187

http:\\www.everlight.com

Prepared date : 06-16-2004

Rev 1.0

Page: 2 of 9

Prepared by:

Carryll Hsu



IRM-2738

Recommended Operating Condition

Supply Voltage Rating: Vcc 4.5V to 5.5V

Electro-Optical Characteristics (Ta=25 $^{\circ}$ C, and Vcc=5 V)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Consumption Current	Icc		1.2		mA	No signal input
B.P.F Center Frequency	Fo		38		KHz	
Peak Wavelength	λp		940		nm	
Reception Distance	L_0	14			m	
	L ₄₅	7				
Half Angle(Horizontal)	Θ_{h}		45		deg	At the ray axis *1
Half Angle(Vertical)	$\Theta_{\rm v}$		45		deg	
High Level Pulse Width	T_{H}	400		800	μ s	At the ray axis
Low Level Pulse Width	$T_{ m L}$	400		800	μ s	*2
High Level Output Voltage	V_{H}	4.5			V	
Low Level Output Voltage	$V_{\rm L}$		0.2	0.5	V	

^{*1:}The ray receiving surface at a vertex and relation to the ray axis in the range of θ = 0° and θ =45°.

Everlight Electronics Co., Ltd. http://www.everlight.com Rev 1.0 Page: 3 of 9

Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu

^{*2:}A range from 30cm to the arrival distance. Average value of 50 pulses.

IRM-2738

Test Method:

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

①Measurement place

A place that is nothing of extreme light reflected in the room.

②External 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 \leq 10Lux)

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.

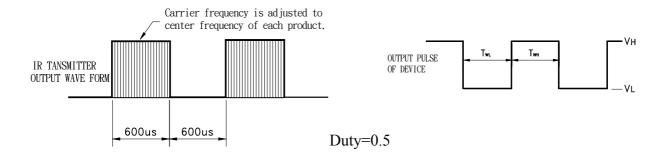
However , the infrared photodiode to be used for the transmitter should be $\lambda p=940$ nm, $\Delta\lambda=50$ nm. Also, photodiode is used of PD438B(Vr=5V).

Measuring system

According to the measuring system shown in Fig.-3

Fig.-1 Transmitter Wave Form

D.U.T output Pulse



Everlight Electronics Co., Ltd. http://www.everlight.com Rev 1.0 Page: 4 of 9

Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu

IRM-2738

Fig.-2 Measuring Method

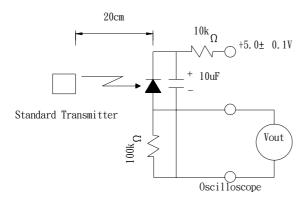
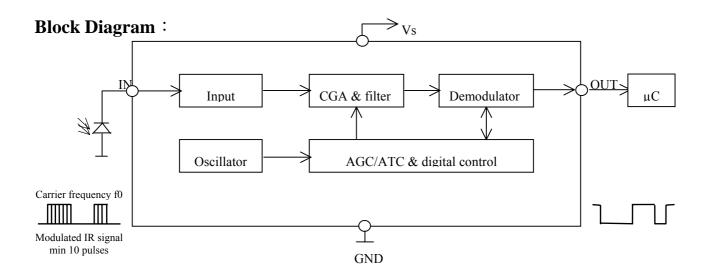


Fig.-3 Measuring System

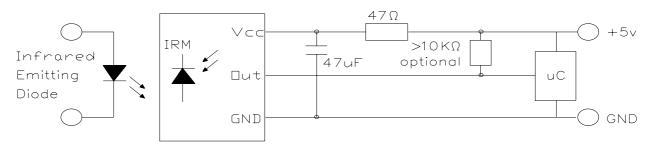
L: Transmission Distance Vcc

OUT θ D. U. T

Standard Transmitter θ : Angle Of Horizontal & Vertical Direction



Application Circuit:



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

Everlight Electronics Co., Ltd. http://www.everlight.com Rev 1.0 Page: 5 of 9

Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu

Direction

IRM-2738

Typical Electro-Optical Characteristics Curves

Fig.-4 Relative Spectral Sensitivity vs.

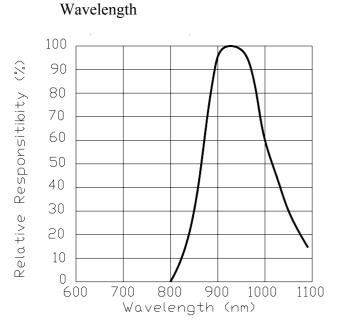
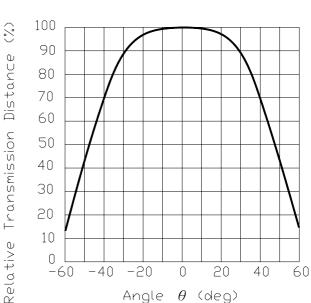


Fig.-5 Relative Transmission Distance vs.



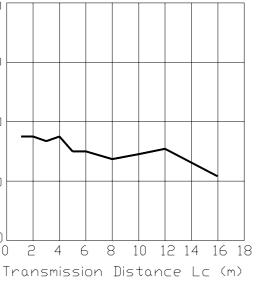
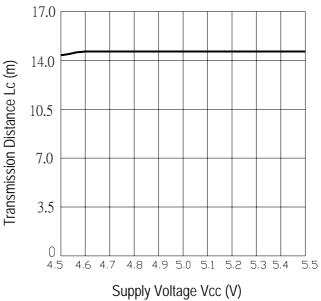


Fig.-6 Output Pulse Length vs. Arrival Distance Fig.-7 Arrival Distance vs. Supply Voltage



Everlight Electronics Co., Ltd. Device No: DMO-027-187

Dutput Pulse Widty TwL (usec)

800

700

600

500

400

http://www.everlight.com Prepared date: 06-16-2004 Rev 1.0

Page: 6 of 9

Prepared by:

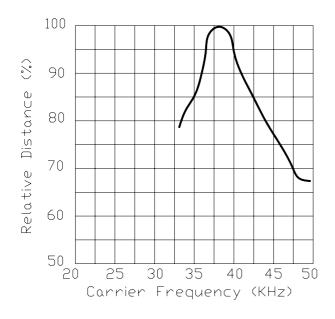
Carryll Hsu

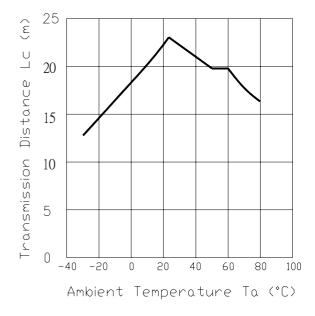
IRM-2738

Typical Electro-Optical Characteristics Curves

Fig.-8 Relative Transmission Distance vs. Center Carrier Frequency

Fig.-9 Arrival Distance vs. Ambient Temperature





Everlight Electronics Co., Ltd. http://www.everlight.com Rev 1.0 Page: 7 of 9

Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu



IRM-2738

Reliability Test Item And Condition

The reliability of products shall be satisfied with items listed below.

Confidence level: 90% LTPD: 10%

Test Items	Test Conditions	Failure Judgement Criteria	Samples(n) Defective(c)
Temperature cycle	1 cycle -40°C +25°C +85°C (30min)(5min)(30min) 300 cycle test		n=22,c=0
High temperature test	Temp: +85°C Vcc:5V 1000hrs	L0≦ L×0.8	n=22,c=0
Low temperature storage	Temp: -40°C 1000hrs	L: Lower specification	n=22,c=0
High temperature High humidity	Ta: 85°C ,RH: 85% 1000hrs	limit	n=22,c=0
Solder heat	Temp: 260±5°C 10sec 4mm From the bottom of the package.		n=22,c=0

Everlight Electronics Co., Ltd. http:\\www.everlight.com Rev 1.0 Page: 8 of 9

Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu

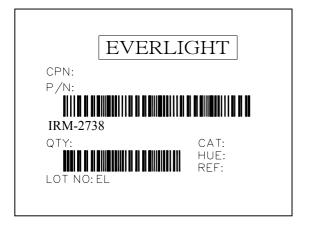


IRM-2738

Packing Quantity Specification

- 1. 1500PCS/1Box
- 2. 10Boxes/1Carton

Label Form Specification



CPN: Customer's Production Number

P/N : Production Number QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

REF: Reference

LOT No: Lot Number

MADE IN TAIWAN: Production Place

Notes

- 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 using 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.
- These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

EVERLIGHT ELECTRONICS CO., LTD.

Office: No 25, Lane 76, Sec 3, Chung Yang Rd, Tucheng, Taipei 236, Taiwan, R.O.C Tel: 886-2-2267-2000, 2267-9936

Fax: 886-2267-6244, 2267-6189, 2267-6306

http:\\www.everlight.com

Everlight Electronics Co., Ltd. http://www.everlight.com Rev 1.0 Page: 9 of 9

Device No: DMO-027-187 Prepared date: 06-16-2004 Prepared by: Carryll Hsu