# **EVERLIGHT** EVERLIGHT ELECTRONICS CO., LTD.

# **Technical Data Sheet**

# **Infrared Remote-Control Receiver Module**

## **IRM-26xx-DIP-A 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.
- Side-Received DIP Type.
- High immunity against ambient light.
- Photodiode with integrated circuit.
- TTL and CMOS compatibility.
- Long reception distance.
- High sensitivity.
- Suitable burst length  $\geq 10$  pulses/burst.
- The product itself will remain within RoHS compliant version.
- Pb free

#### **Descriptions**

The IRM-26xx-DIP-A SERIES 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-26xx-DIP-A SERIES is the standard IR remote control receiver series, supporting all major transmission codes.

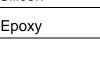
## Applications

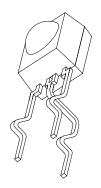
- 1. Light detecting portion of remote control
- AV instruments such as Audio, TV, VCR, CD, MD, etc.
- Home appliances such as Air-conditioner, Fan, etc.
- The other equipments with wireless remote control.
- CATV set top boxes
- Multi-media Equipment

PART	MATERIAL	COLOR
Chip	Silicon	
Compound	Ероху	Black

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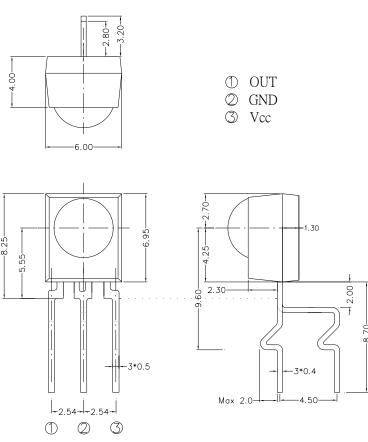
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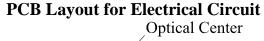
#### **Package Dimensions**



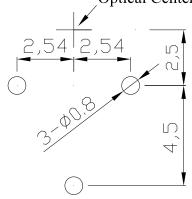
**Notes:** 1.All dimensions are in millimeters. 2.Tolerances unless dimensions ±0.3mm.

## Available Types For Different Carrier Frequencies

Туре	Carrier Frequencies (Typ)
IRM-2633-DIP-A	33 kHz
IRM-2638-DIP-A	38 kHz
IRM-2640-DIP-A	40 kHz
IRM-2656-DIP-A	56 kHz



**IRM-26xx-DIP-A SERIES** 



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## **IRM-26xx-DIP-A SERIES**

issolute maximum Ratings (14–25 ())						
Parameter	Symbol	Rating	Unit	Notice		
Supply Voltage	Vcc	0~6	V			
Operating Temperature	Topr	-25 ~ +80	°C			
Storage Temperature	Tstg	-40 ~ +85	°C			
Soldering Temperature	Tsol	260	°C	4mm from mold body less than 10 seconds		

## Absolute Maximum Ratings (Ta=25℃)

## **Recommended Operating Condition**

Supply Voltage Rating: Vcc =4.5V to 5.5V

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition	
Consumption Current	Icc		1.2		mA	No signal input	
Peak Wavelength	λp		940		nm		
Reception Distance	L <sub>0</sub>	14			m		
	L <sub>45</sub>	6			m		
Half Angle(Horizontal)	$\Theta_{h}$		45		deg	At the ray axis *1	
Half Angle(Vertical)	$\Theta_{v}$		45		deg		
High Level Pulse Width	$T_{\rm H}$	400		800	$\mu$ s	At the ray axis	
Low Level Pulse Width	$T_L$	400		800	μs	*2	
High Level Output Voltage	$V_{\mathrm{H}}$	4.5			V		
Low Level Output Voltage	V <sub>L</sub>		0.2	0.5	V		

## Electro-Optical Characteristics (Ta=25°C, and Vcc=5 V)

\*1:The ray receiving surface at a vertex and relation to the ray axis in the range of  $\theta = 0^{\circ}$  and  $\theta = 45^{\circ}$ . \*2:A range from 30cm to the arrival distance. Average value of 50 pulses.

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## **IRM-26xx-DIP-A SERIES**

#### The Notice of Application:

Transmission remote control signal consist of four parts: Encode Part, IR Transmitter Source, IRM device, Decode Part

- 1. When IRM-26xx code select frequency, it need to well understand the center system of encode part.
- 2. Strong or weak light of IR Transmitter can affect distance of transmission.
- 3. Minimum Burst Length Tburst (number of pulses per burst) : 10 cycles
- 4. It needs to ensure the translation range of decode part if it is applied to the pulse-width range.

If the above items hardly assure of its application, it'll cause NG(no good) message from the edge of signal.

## **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.

@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.

 $(\text{Ee} \leq 10 \text{Lux})$ 

③Standard 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.

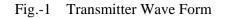
However, the infrared photodiode to be used for the transmitter should be

 $\lambda p=940nm, \Delta \lambda = 50nm$ . Also, photodiode is used of PD438B(Vr=5V).

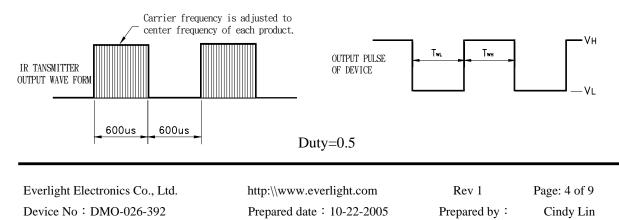
(Standard light / Light source temperature 2856°K).

#### ④Measuring system

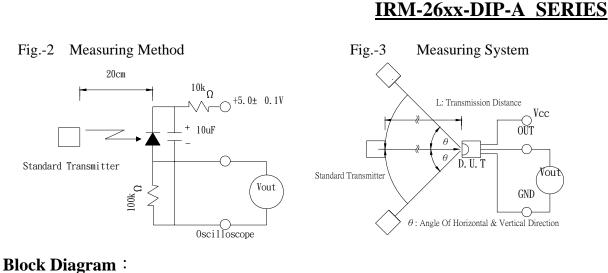
According to the measuring system shown in Fig.-3



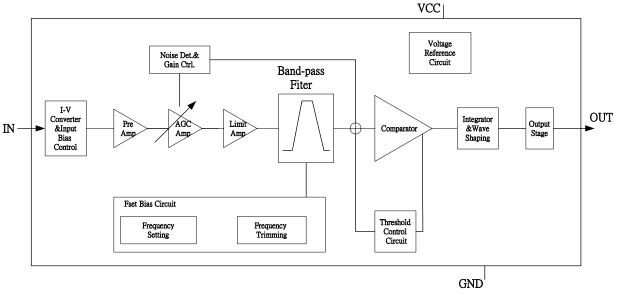
#### D.U.T output Pulse



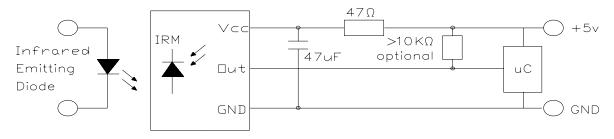
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## **Application Circuit** :



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

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## **IRM-26xx-DIP-A SERIES**

## **Typical Electro-Optical Characteristics Curves**

Fig.-4 Relative Spectral Sensitivity vs. Wavelength 100 90  $\langle \cdot \rangle$ 80 Relative Responsitibity 70 60 50 40 30 20 10 0 600 700 800 900 1000 1100 Wavelength (nm)

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Fig.-6 Arrival Distance vs. Ambient Temperature

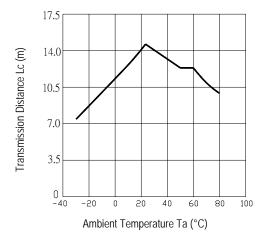


Fig.-5 Relative Transmission Distance vs. Direction

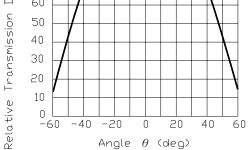
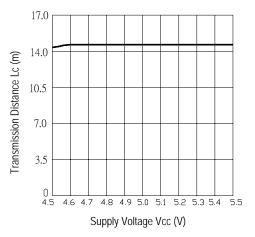


Fig.-7 Arrival Distance vs. Supply Voltage



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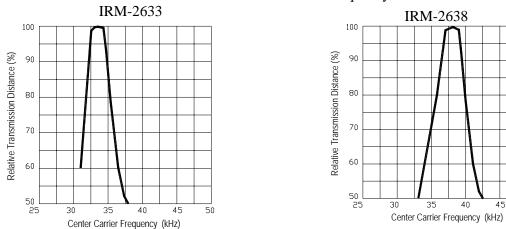
## **IRM-26xx-DIP-A SERIES**

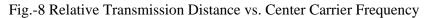
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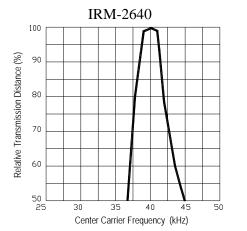
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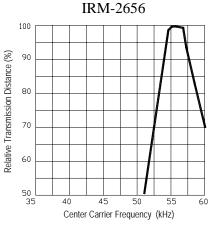
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Fig.-8 Relative Transmission Distance vs. Center Carrier Frequency

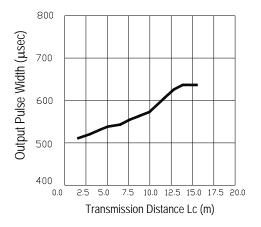












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# **IRM-26xx-DIP-A SERIES**

## **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	$L0 \leq L \times 0.8$	n=22,c=0
Low temperature storage	Temp: -40°C 1000hrs	$L45 \leq Lx0.8$ 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

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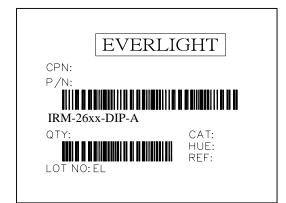


## **IRM-26xx-DIP-A SERIES**

#### **Packing Quantity Specification**

- 1.160PCS/1Box
- 2. 10Boxes/1Carton

#### **Label Form Specification**



## CPN: Customer's Production Number P/N : Production Number QTY: Packing Quantity CAT: Ranks HUE: None 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.
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