Technical Data Sheet
Infrared Remote-Control Receiver Module

IRM-8601S-P

Features :

• High protection ability to EMI and metal case can be customized.
• Mold type and metal case type to meet the design of front panel.
• Elliptic lens to improve the characteristic against.
• 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
• Low power consumption
• High sensitivity
• Pb free
• The product itself will remain within RoHS compliant version

Descriptions

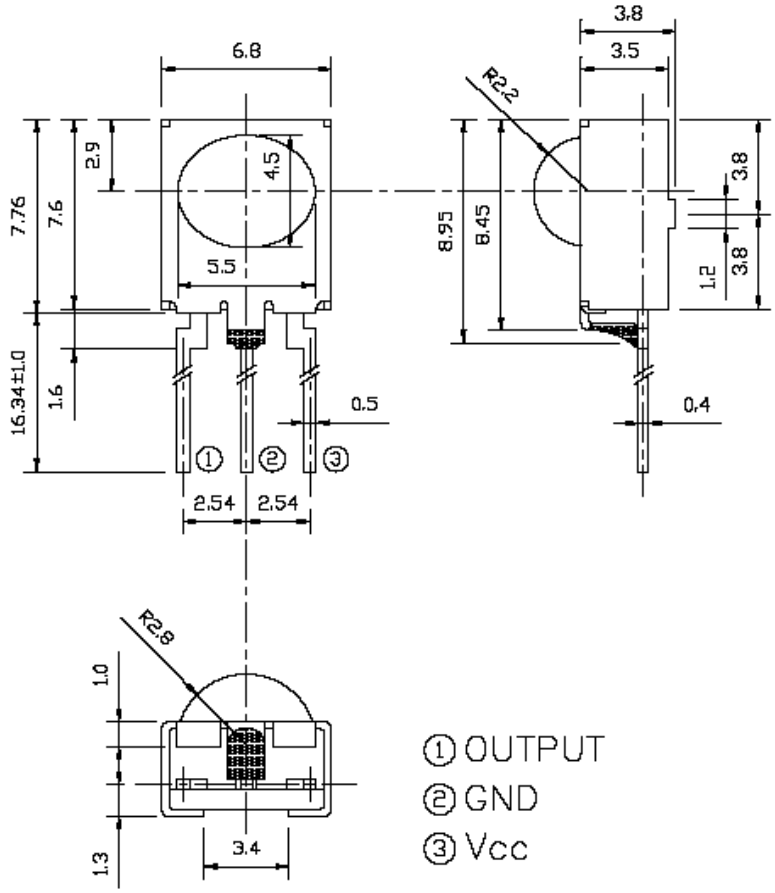
• The device is a miniature type infrared remote control system receiver which has been developed and designed by utilizing the most updated IC technology. The PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as an IR filter. The demodulated output signal can directly 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

PART	MATERIAL	COLOR
Chip	Silicon	Black
Shell	SK7	Silver-white

Package Dimensions



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

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit	Notice
Supply Voltage	Vcc	0~6	V	
Operating Temperature	Topr	-20 ~ +80	℃	
Storage Temperature	Tstg	-40~ +85	℃	
Soldering Temperature	Tsol	260	℃	4mm from mold body less than 5 seconds

Recommended Operating Condition

Supply Voltage Rating: Vcc 4.5V to 5.5V

Electro-Optical Characteristics (Ta=25℃, and Vcc=5.0V)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Consumption Current	Icc	---	---	3	mA	No signal input
B.P.F Center Frequency	Fo	---	38	---	KHz	
Peak Wavelength	λ_p	---	940	---	nm	
Reception Distance	L_0	8	---	---	m	At the ray axis *1
	L_{45}	4	---	---		
Half Angle(Horizontal)	Θ_h	---	45	---	deg	
Half Angle(Vertical)	Θ_v	---	35	---	deg	
High Level Pulse Width	T_H	400	---	800	μs	At the ray axis *2
Low Level Pulse Width	T_L	400	---	800	μs	
High Level Output Voltage	V_H	4.5	---	---	V	
Low Level Output Voltage	V_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°.

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

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≦10Lux)

③Standard transmitter

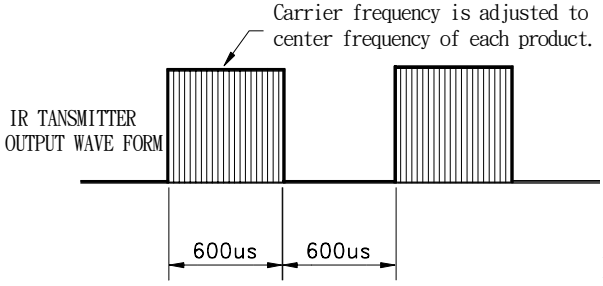
A transmitter whose output is so adjusted as to **Vo=400mVp-p** and the output Wave form shown in Fig.-1.According to the measurement method shown in Fig.-2 the standard transmitter is specified.

However , the infrared photodiode to be used for the transmitter should be λp=940nm,Δλ=50nm. Also, photodiode is used of PD438B(Vr=5V).

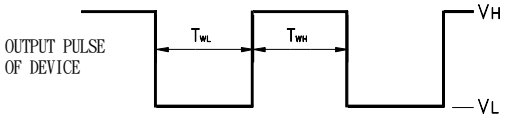
④Measuring system

According to the measuring system shown in Fig.-3

Fig.-1 Transmitter Wave Form



D.U.T output Pulse



Duty=0.5

Fig.-2 Measuring Method

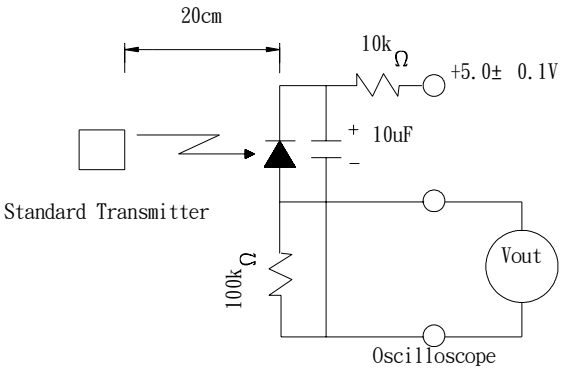
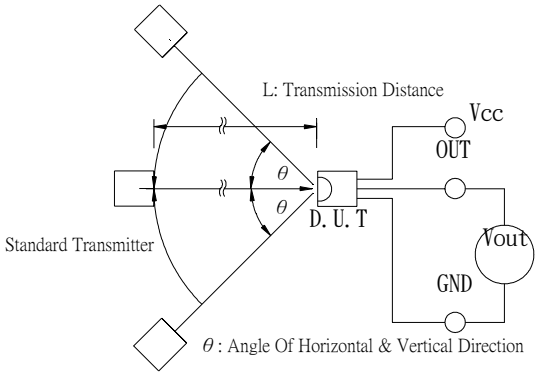
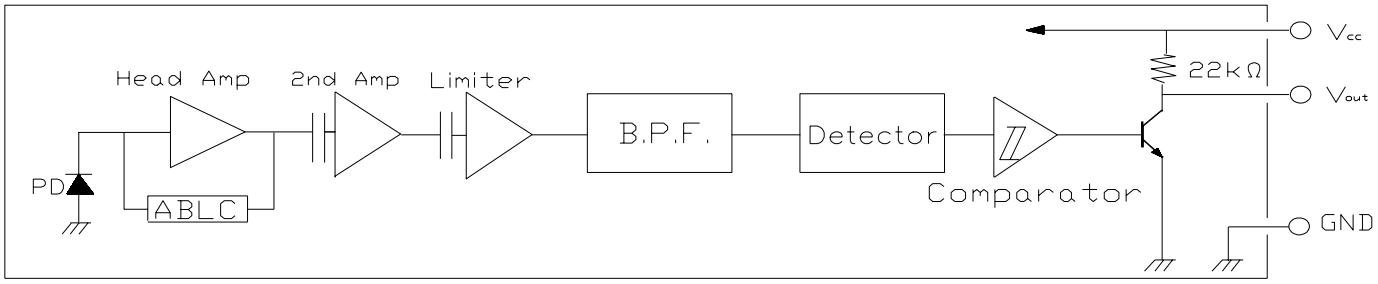


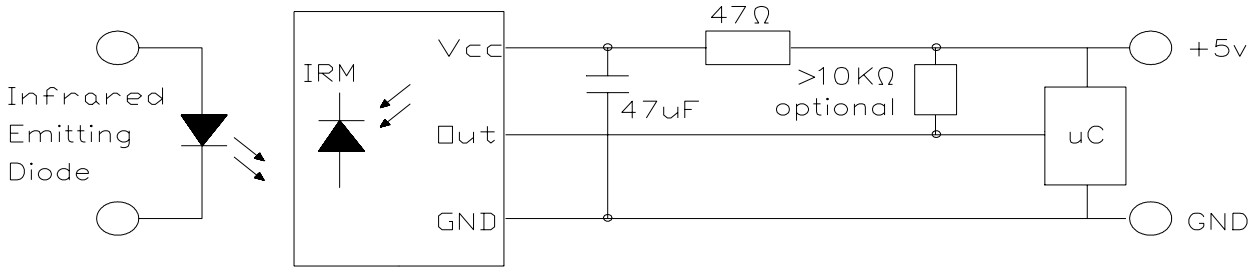
Fig.-3 Measuring System



Block Diagram：



Application Circuit：



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

Typical Electro-Optical Characteristics Curves

Fig.-4 Relative Spectral Sensitivity vs. Wavelength

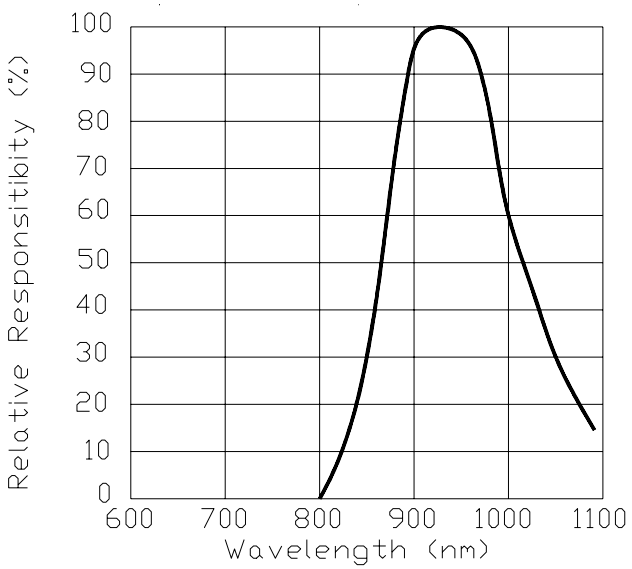


Fig.-5 Relative Transmission Distance vs. Direction

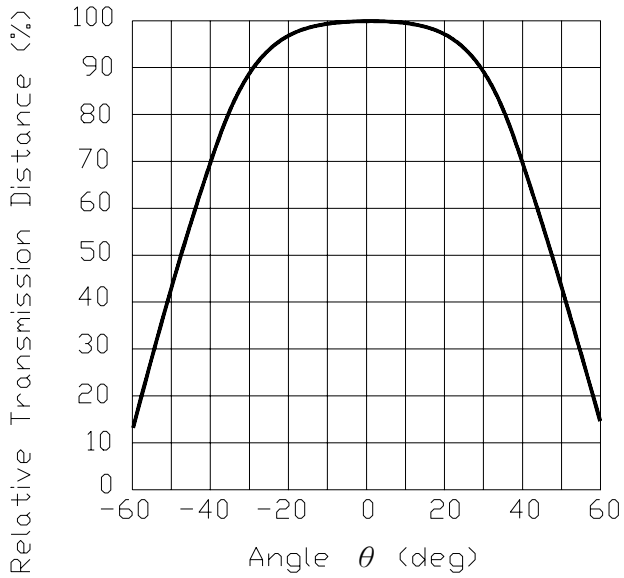


Fig.-6 Output Pulse Length vs. Arrival Distance

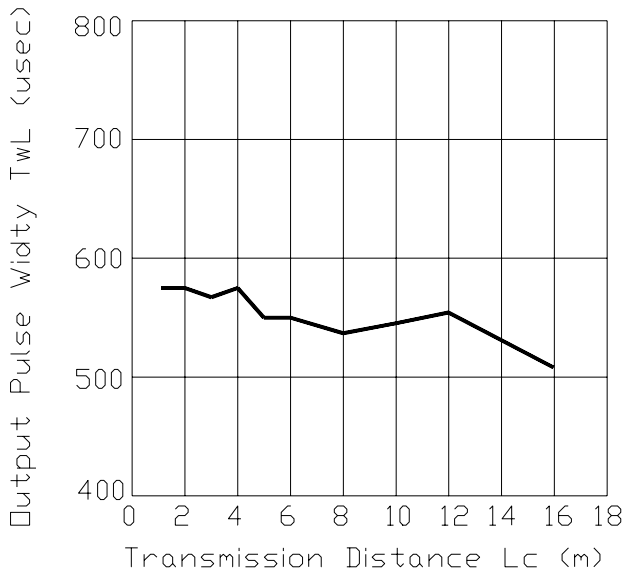
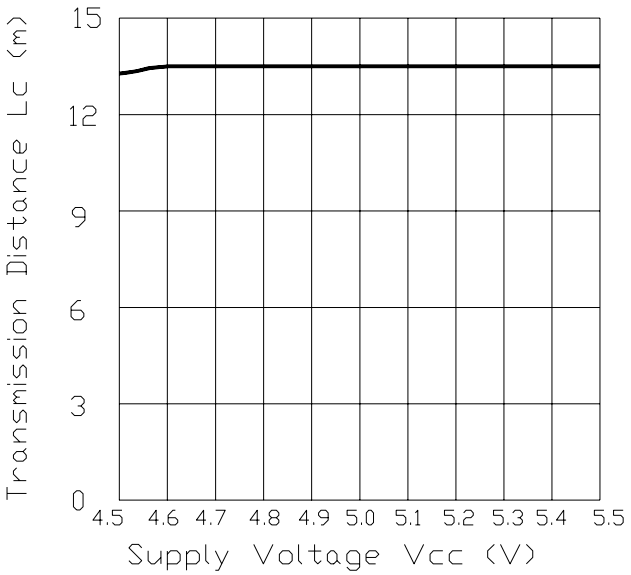


Fig.-7 Arrival Distance vs. Supply Voltage



Typical Electro-Optical Characteristics Curves

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

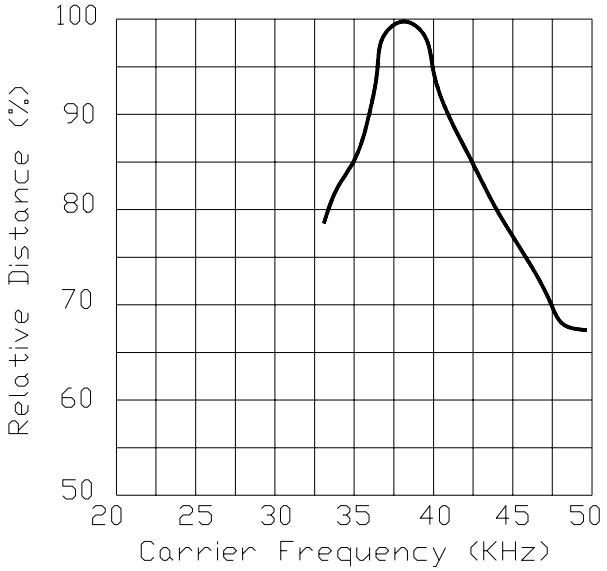
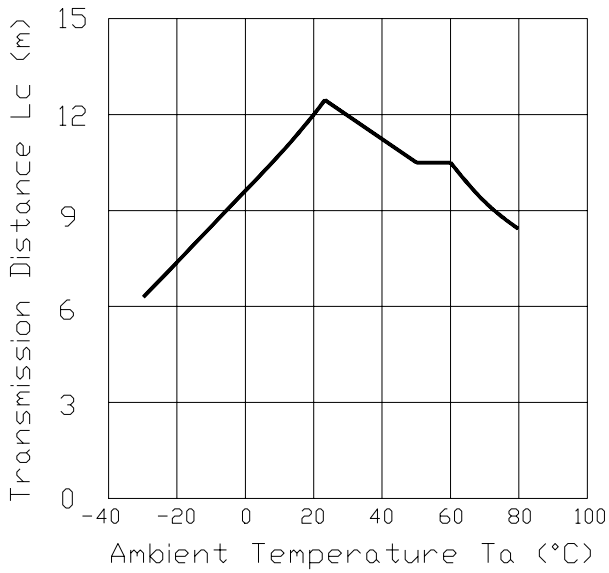


Fig.-9 Arrival Distance vs. Ambient Temperature



Reliability Test Item And Condition

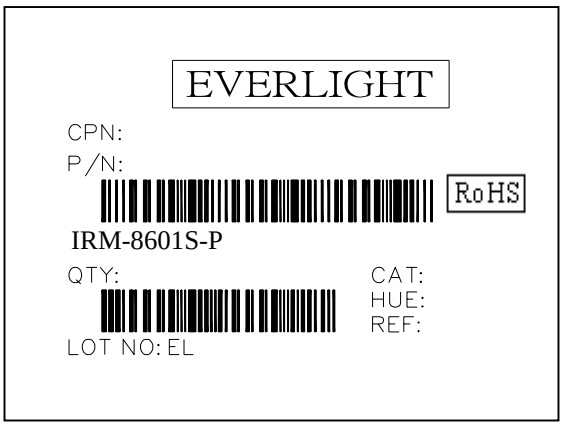
The reliability of products shall be satisfied with items listed below.
Confidence level：90%
LTPD：10%

Test Items	Test Conditions	Failure Judgement Criteria	Samples(n) Defective(c)
Operation life	Vcc=5V,Ta:25℃ 1000hrs	L0≦ L×0.8 L45≦ L×0.8 L: Lower specification limit	n=22,c=0
Temperature cycle	1 cycle -40℃ +25℃ +100℃ (15min)(5min)(15min) 50 cycle test		n=22,c=0
Thermal shock	-10℃ to +100 +℃ (5min)(10sec)(5min) 50 cycle test		n=22,c=0
High temperature test	Temp: +100℃ 1000hrs		n=22,c=0
Low temperature storage	Temp: -40℃ 1000hrs		n=22,c=0
High temperature High humidity	Ta: 85℃,RH:85% 1000hrs		n=22,c=0
Solder heat	Temp: 260±5℃ 5sec 4mm From the bottom of the package.		n=22,c=0
Solderability	Temp: 230±5℃ 5sec 4mm From the bottom of the package.	More than 90% of lead to be covered by soldering	n=22,c=0

Packing Quantity Specification

1. 250pcs/1Bag
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