

● General:

Infrared module for remote control system which is PIN diode and preamplifier series are assembled on lead frame, in order to realize the receiving and amplifying the infrared remote controller signal. The type of epoxy package can filter the visual interference. The demodulated output signal can directly be decoded by a microprocessor. It may be used in TV sets、video recorder、VCD、satellite receivers、air conditioners etc.

● Features:

- ◆ High reliability
- ◆ No external parts, Inner shield
- ◆ High sensitivity, Large transmission range
- ◆ High immunity against ambient light, power noise and electromagnetic interference
- ◆ Low power consumption
- ◆ TTL & CMOS Compatibility

● Parts Table

Part	Carrier Frequency
HRM130BB5100	30kHz
HRM133BB5100	32.7kHz
HRM136BB5100	36kHz
HRM137BB5100	36.7kHz
HRM138BB5100	37.9kHz
HRM140BB5100	40kHz
HRM144BB5100	44kHz
HRM157BB5100	56.7kHz
HRM176BB5100	76kHz

● Absolute Maximum Ratings (Ta=25°C)

Parameters	Symbol	Rated value	Unit
Supply voltage	V _{CC}	6.0	V
Supply Current	I _{CC}	5.0	mA
Output Voltage	V _O	6.0	V
Output Current	I _O	3.0	mA
Operation Temp.	T _{amb}	-25~+85	°C
Storage Temp.	T _{stg}	-25~+85	°C
Power Dissipation	P	50	mW
Soldering Temp. (10s) *	T _{sd}	+260	°C

*Dip up to 1.0~1.5mm from the terminal root

● Recommended operating conditions (Ta=25°C)

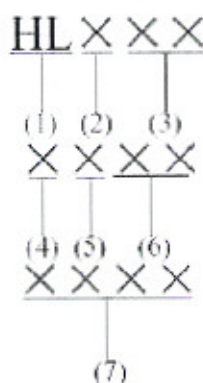
Parameter	Symbol	Operating conditions	Unit
Supply Voltage	Vcc	2.7~5.5	V

● Opto-electric characteristics (Ta=25°C)

Parameters	symbol	Test condition	Min.	Typ.	Max.	Unit
Supply current	I _{CC}	V _s =3V E _v =0 E _e =0	0.7	0.9	1.2	mA
		V _s =5V E _v =0 E _e =0	0.9	1.2	1.5	
Peak wavelength	λ _p			940		nm
High output voltage	V _{OH}	E _e =0.5mw/m ² P _w =600μs Duty=50%	V _s -0.25			V
Low output voltage	V _{OL}				0.25	V
High output pulse width	T _{Wh}		400	600	800	μs
Low output pulse width	T _{wl}		400	600	800	μs
Receiving distance	L	E _e =0.5mw/m ² V _s =5V E _v =(200 ± 50)Lx	15	33		m
Horizontal half angle	θ _{1/2}	E _e =0.5mw/m ² V _s =5V E _v =(200 ± 50)Lx L=6.5m		45		deg

● Mark

Print type model and LOT.NO. on the back of product as follow:



- (1): Company logo
- (2): Operation voltage
- (3): Modulated frequency
- (4): Packaging model
- (5): Pin arrangement
- (6): IC chip code
- (7): DateCode

● **Characteristics Curve (Tamb=25°C)**

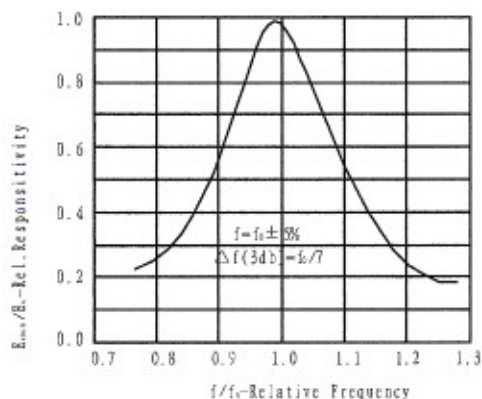


Figure 1. Frequency Dependence of Responsivity

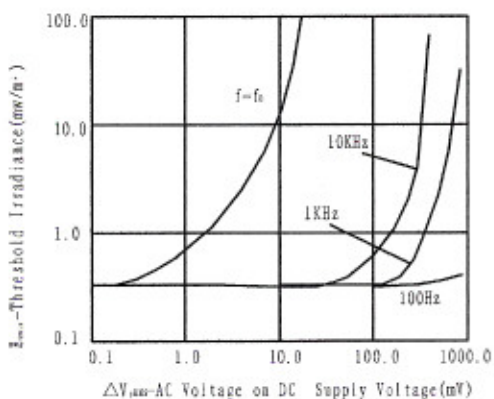


Figure 2. Sensitivity vs. Supply Voltage Disturbances

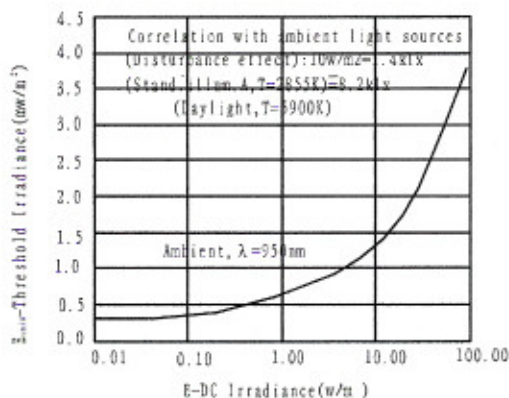


Figure 3. Sensitivity in Bright Ambient

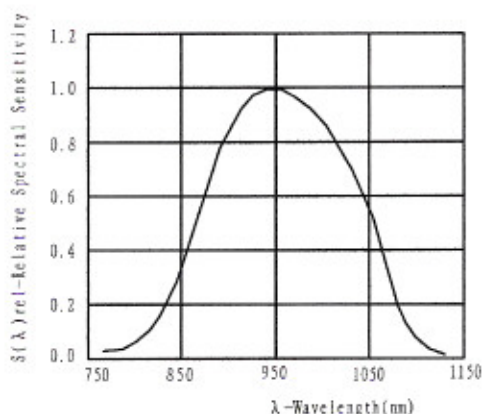


Figure 4. Relative Spectral Sensitivity vs. Wavelength

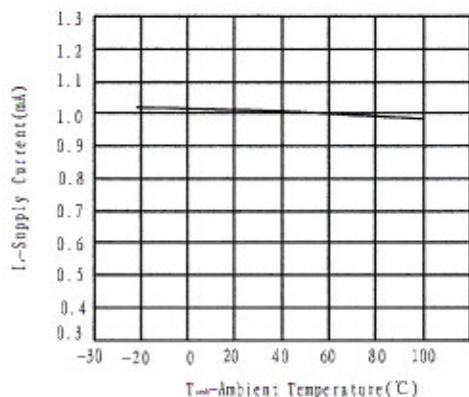


Figure 5. Supply Current vs. Ambient Temperature

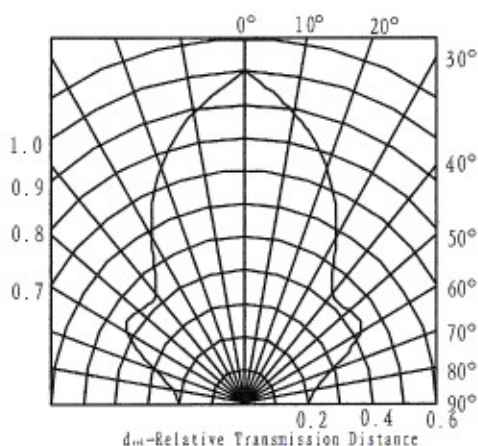
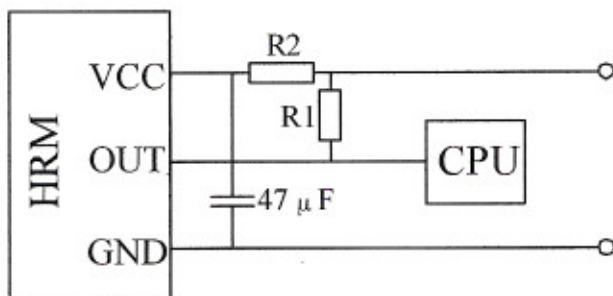


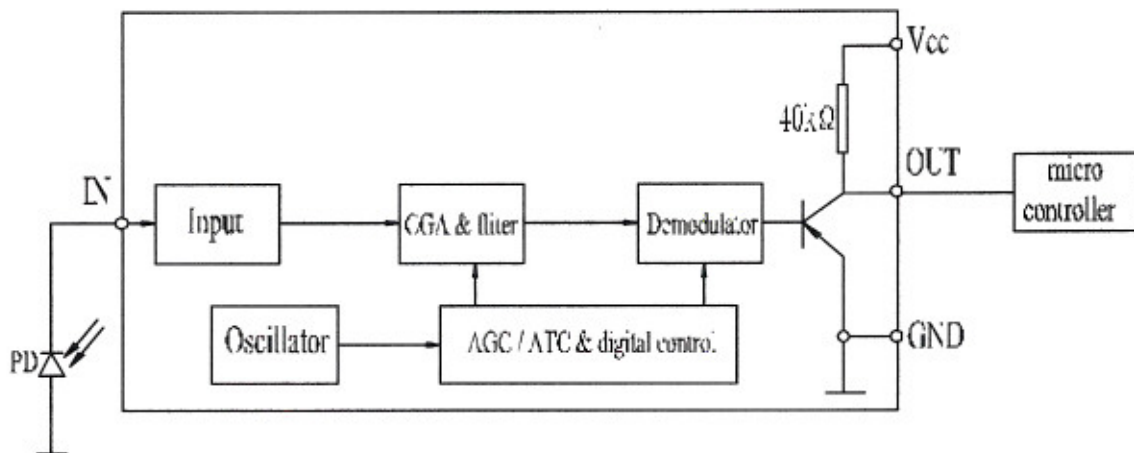
Figure 6. Directivity

● Recommended circuit



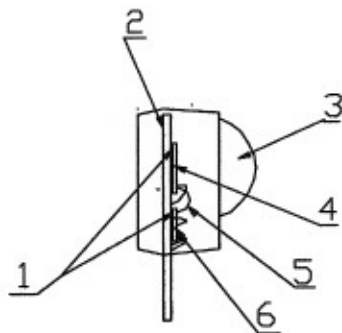
- Note: 1、 When load is $32.4k\Omega$, $1.6k\Omega$ to $8.5k\Omega$ external pull-up resistor(R1) is recommended.
 2、 R1 shall be adjusted with changing of load.
 3、 100Ω for current limited resistor(R2) is recommended, and shall be adjusted after considering the real condition.

● Block diagram

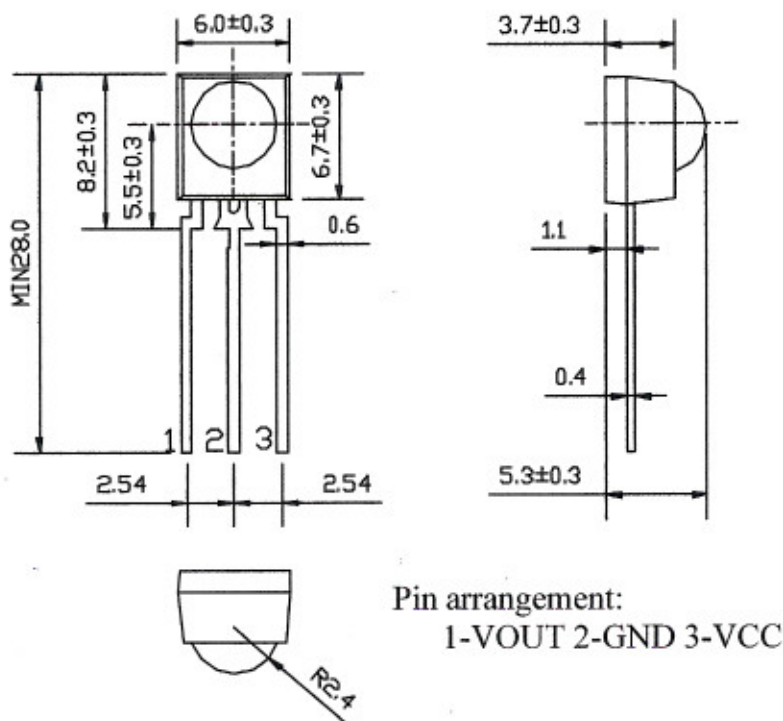


● Construction & Materials

No.	Name	Material
1	Bond	Ag Paste
2	Lead Frame	Silver plating 194#Cu
3	Molding	Epoxy Resin
4	Photo diode	Silicon
5	Bond Wire	Au Wire
6	IC chip	Silicon



● Outline(unit: mm)

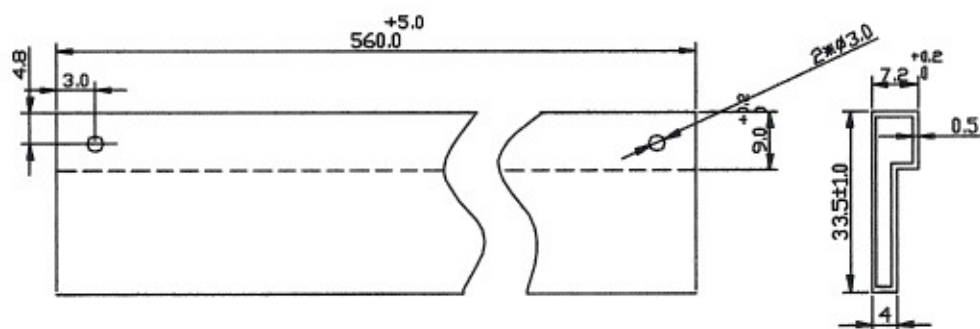


Not indicated tolerances: ± 0.2

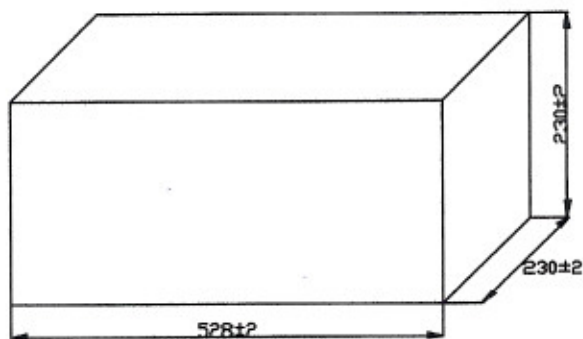
● Package

The parts are put into antistatic plastic tube which are packed in cartons. On the carton ,followings are printed: mark of transportation stipulated in GB191,Company Name ,Trade mark ,Address ,Product Description,Model and Quantity.Sealing mark is stucked on the carton too.Inside the carton there are qualification certificate, stated model,production date and inspector' s code.

1. Tube size (unit: mm)



2. Carton size (unit: mm)



3. Packing quantity

90pcs/1tube, 15840pcs/1carton (22bundles×8tubes×90pcs)

● Precautions for use

1. Since the device is static sensitive, it is requested that anti-static measures should be taken on human body and all devices (including soldering iron) and equipment, machinery, desk and ground.

2. Do not apply unnecessary stress to lead.

3. Please pay attention to the lens of receivers, It might affect the performance if it gets dirty, don't touch the receiving surface either.

4. Current limited resistor should be added to the peripheral circuit to avoid shock of powerful current.