



Infrared photo module

38kHz 2.4 to 5.5V

General:

Infrared module for remote control system which is PIN diode and preamplifier series are assembled on lead frame, in order to realise 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
55-0902	37.9kHz

Absolute maximum rating (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 to +85	°C
Storage temp.	T _{stg}	-25 to +85	°C
Power dissipation	P	50	mW
Soldering temp. (10s)	T _{sd}	+260	°C

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

Recommended operating conditions (Ta = 25°C)

Parameters	Symbol	Operating conditions	Unit
Supply voltage	V _{cc}	2.7 to 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%	4.5			V
Low output voltage	V _{OL}				0.5	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

Characteristics curve (Tamb=25°C)

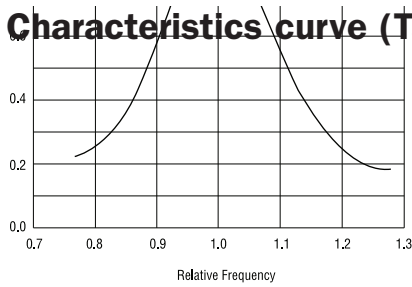


Figure 1. Frequency dependence of responsivity

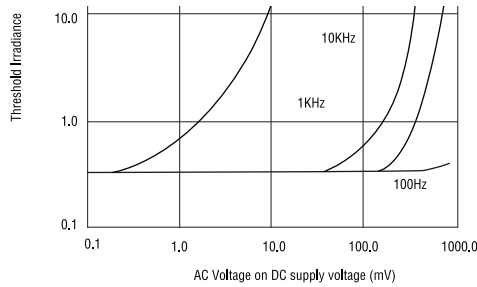


Figure 2. Sensitivity vs supply voltage disturbances

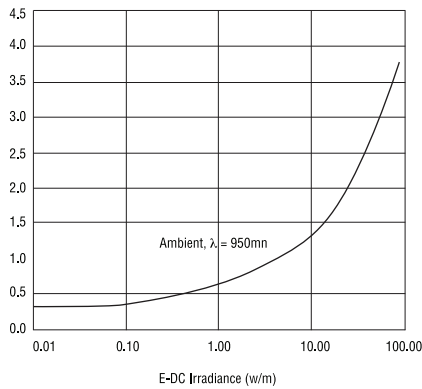


Figure 3. Sensitivity in bright ambient

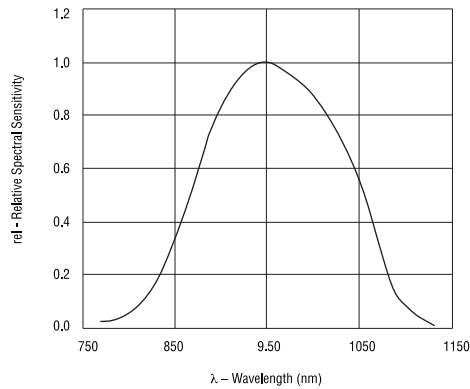


Figure 4. Relative spectral sensitivity vs. wavelength

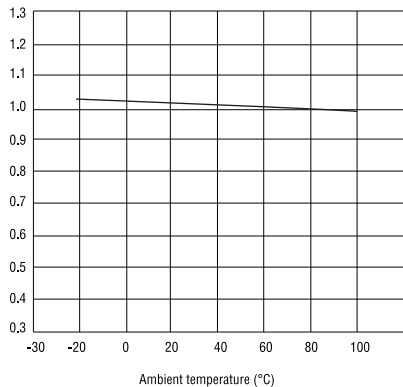


Figure 5. Supply current vs. ambient temperature

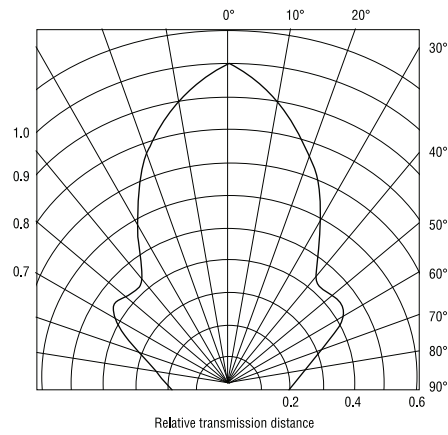
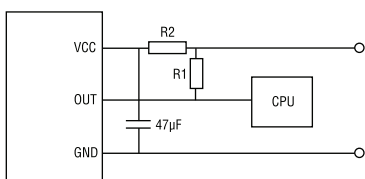


Figure 6. Directivity

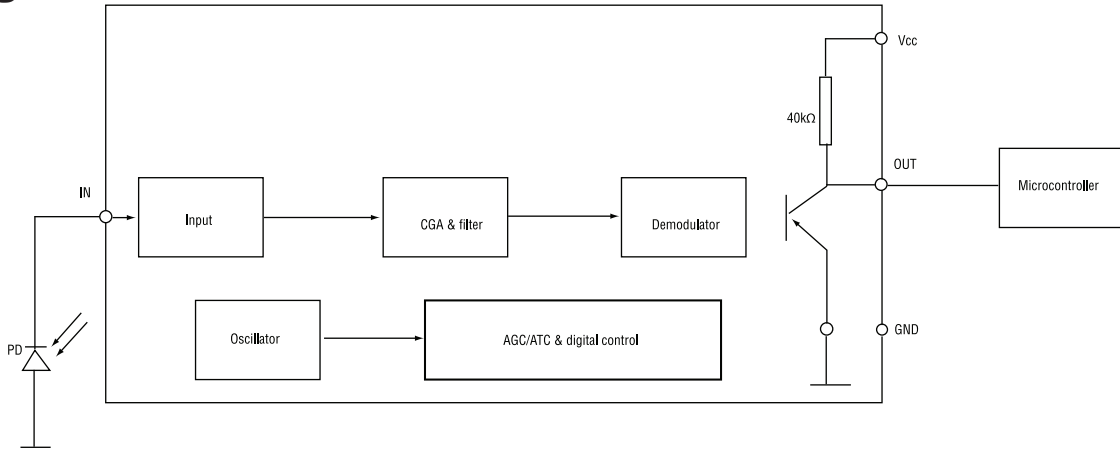
Recommended circuit



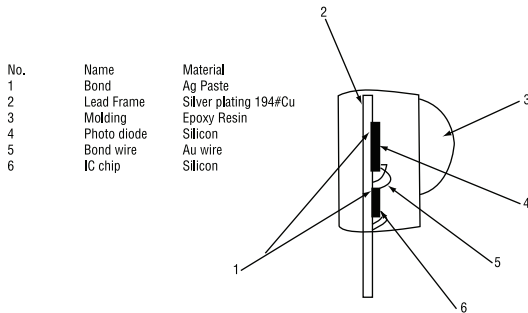
Note:

- 1) When load is 32.4kΩ, 1.6kΩ to 8.5kΩ 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

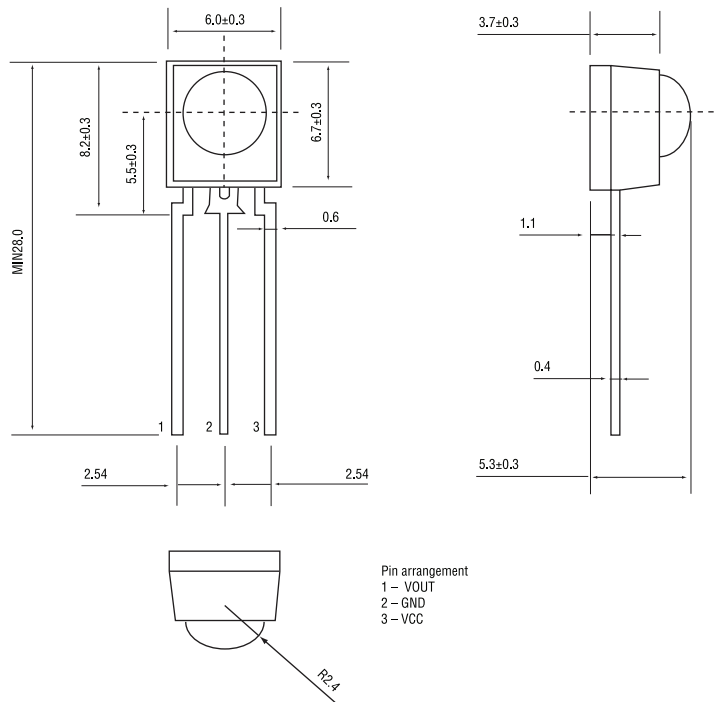
Block diagram



Construction & materials



Outline (unit: mm)

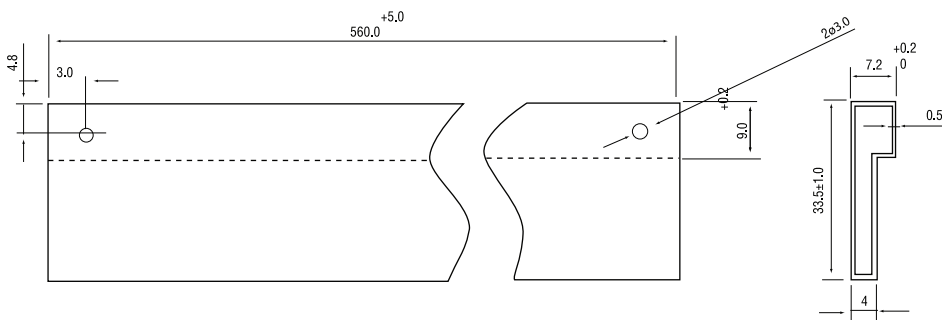


Pin arrangement
 1 - VOUT
 2 - GND
 3 - VCC

Package

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

1. Tube size (unit: mm)

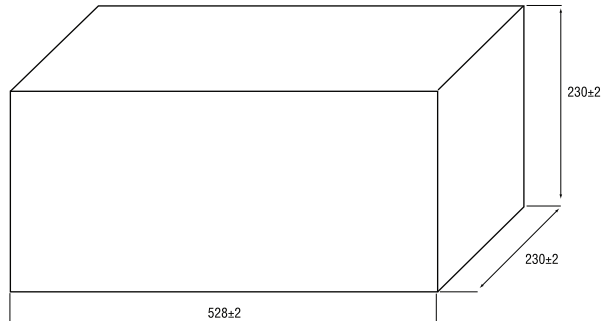


Not indicated tolerances: ±0.2



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Carton size (unit: mm)



Packing quantity

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

Carton size (unit: mm)

- 4.1 Since the device is static sensitive, it is requested that antistatic measures should be taken on human body and all devices (including soldering iron) and equipment, machinery, desk and ground
- 4.2 Do not apply unnecessary stress to lead
- 4.3 Please pay attention to the lens of receivers, it may affect the performance if it gets dirty, don't touch the receiving surface either.
- 4.4 Current limited resistor should be added to the peripheral circuit to avoid shock of powerful current.