

Infrared Receiver Module

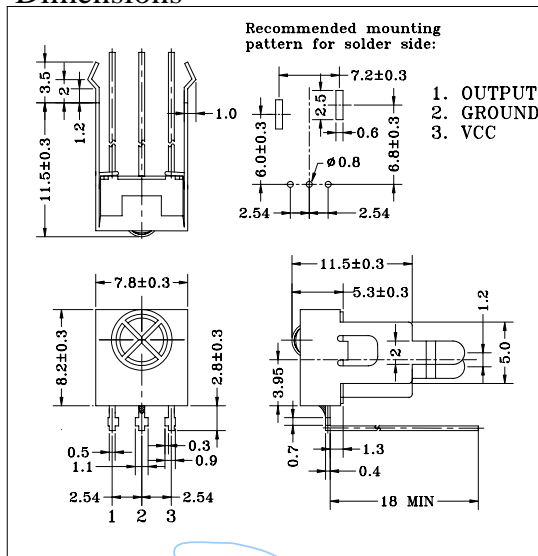
1-05-08-30

Module No.: PIC-2011ATMB-M5K

1. Features:

- Miniature size
- Built-in exclusive IC
- CMOS Design
- Wide half angle & long reception distance
- Good noise-proof capability
- High immunity against ambient light
- High protection ability to EMI
- Back Metal Cover
- Top view
- Mesh
- Wide voltage operating: 2.7V ~ 5.5V

Dimensions



2. Applications

- ▣ AV instruments (Audio, TV, VCR, CD player)
- ▣ Home appliances (Air-conditioner, Fan, Light.)
- ▣ Remote control for wireless devices

3. Absolute Maximum Ratings

(Ta=25°C)

| Parameter | Symbol | Ratings | Unit |
|--------------------------|--------|-----------|------|
| Supply Voltage | Vcc | 6.0 | V |
| Operating Temperature | Topr | -10 ~ +60 | °C |
| Storage Temperature | Tstg | -20 ~ +75 | °C |
| Soldering Temperature *1 | Tsol | 240 | °C |

*1 At the position of 2mm from the bottom of the package within 5 seconds.

4. Electro-optical Characteristics

(Ta=25°C)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---------------------------|--------|--------------------|--------------------|------|------|------|
| Supply voltage | Vcc | | 2.7 | | 5.5 | V |
| Current Consumption | Icc | Input Signal = 0 | | 1.0 | 1.2 | mA |
| Reception Distance | d | 200±5Lux, Vcc=3.0V | 10 | 18 | | m |
| Half Angle | Δθ | | | ±45 | | deg |
| B.P.F. Center Frequency | Fo | | | 37.9 | | kHz |
| Peak Wavelength | λp | | | 940 | | nm |
| Signal Output | So | | --- Active Low --- | | | |
| High Level Output Voltage | Voh | | Vcc-0.5 | | | V |
| Low Level Output Voltage | Vol | | | 0.2 | 0.4 | V |
| High Level Pulse Width | Twh | Burst Wave = 600μs | 500 | 600 | 700 | μs |
| Low Level Pulse Width | Twl | | 500 | 600 | 700 | μs |

5. Reliability Test Items

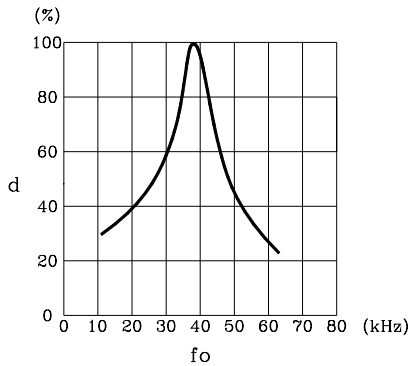
(Ta=25°C)

| Test Items | Test Conditions | Ratings |
|-------------------------------------|-------------------------------|-----------|
| High Temperature Storage | Ta=60°C, Vcc=3.0V | t=240hr. |
| Low Temperature Storage | Ta=-10°C, Vcc=3.0V | t=240hr. |
| High Temperature High Humid Storage | Ta=40°C, 90%RH, Vcc=3.0V | t=240hr. |
| Temperature Cycling | -20°C (30min) ~ +70°C (30min) | 20 cycles |
| Soldering Heat | 240±5°C | 5 sec. |

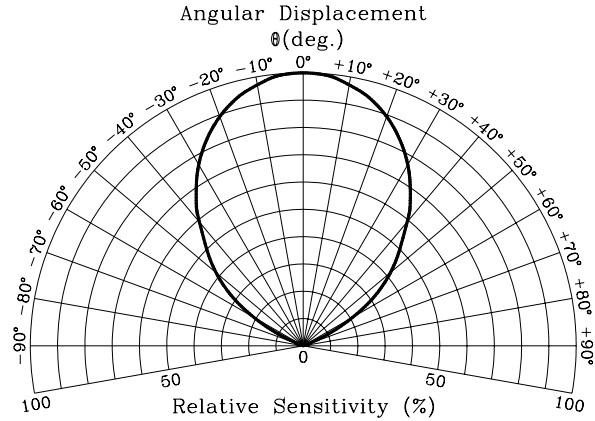
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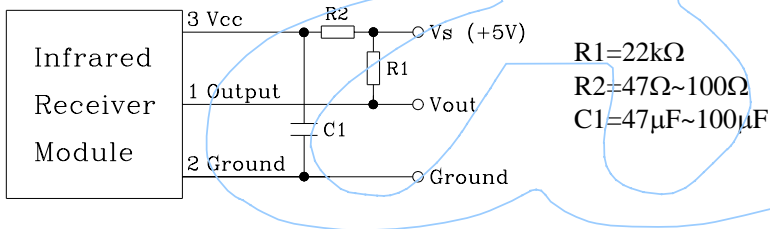
Relative Reception Distance vs Transmitter Carrier Frequency



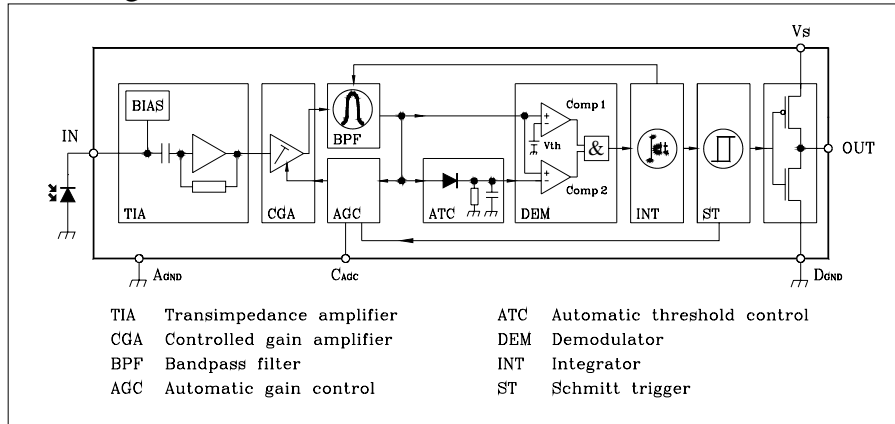
Sensitivity Diagram



In case of noisy power supply, please serially insert 100Ω resistor and about 47μF electrolytic capacitor in Vcc line and ground as follows:-



Block Diagram



Caution: This device is CMOS design. The signal output port of this device should drive the input port of the next stage device UNILATERALLY. Directly connecting the output port of this device with that of other device is not allowed and will cause the device to be damaged.

Standard Inspection

Among electrical characteristics, total quantity will be inspected as below:-

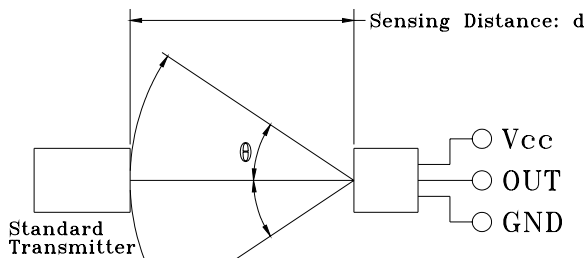
- ⊙ Distance between emitter and detector
- ⊙ Current consumption
- ⊙ H level output voltage
- ⊙ L level output voltage

Infrared Receiver Module

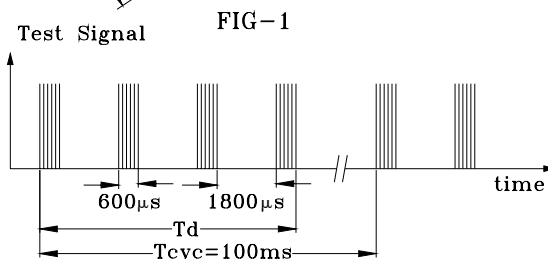
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Testing Method

Distance between emitter and detector specifies maximum distance that output waveform satisfies the standard (FIG-3) under the conditions below against the standard transmitter.



- Measuring place
Indoor without extreme reflection of light.
- Ambient light source
Detecting surface illumination is 200 ± 5 Lux under ordinary white fluorescence lamp of no high frequency lightning.



- Standard transmitter
Transmitter wave indicated in FIG-2 of standard transmitter is arranged to satisfy $V_o \geq 50mV_{p-p}$ under the measuring circuit specified in FIG-3

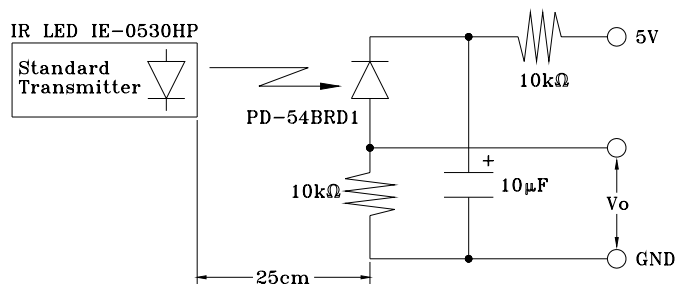
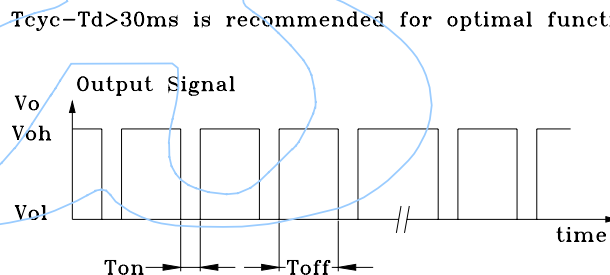


FIG-3 Power Output Measurement Circuit

Precautions for Use

- Store and use where there is no force causing transformation or change in quality.
- Store and use where there is no corrosive gas or sea (salt) breeze.
- Store and use where there is no extreme humidity.
- Solder the lead pin within the condition of ratings. After soldering, do not add exterior force.
- Do not wash this device. Wipe the stains of diode side with a soft cloth. You can use the solvent, ethyl alcohol, or methyl alcohol only.
- To prevent static electricity damage to the pre-amp, make sure that the human body, the soldering iron are connected to ground before using.