

### ■Features

- Miniature size
- Built-in exclusive IC
- Wide half angle & long reception distance
- Good noise-proof capability
- High immunity against ambient light
- Side view

### ■Applications

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

### ■Absolute Maximum Rating

(Ta=25°C)

| Parameter                     | Symbol           | Ratings   | Unit |
|-------------------------------|------------------|-----------|------|
| Supply Voltage                | V <sub>cc</sub>  | 6.0       | V    |
| Operating Temperature         | T <sub>opr</sub> | -10 ~ +60 | °C   |
| Storage Temperature           | T <sub>stg</sub> | -20 ~ +75 | °C   |
| Lead Soldering Temperature *1 | T <sub>sol</sub> | 260°C     | -    |

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

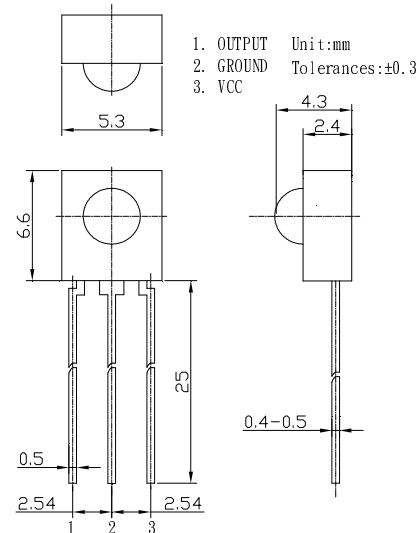
### ■Electrical -Optical Characteristics

(Ta=25°C)

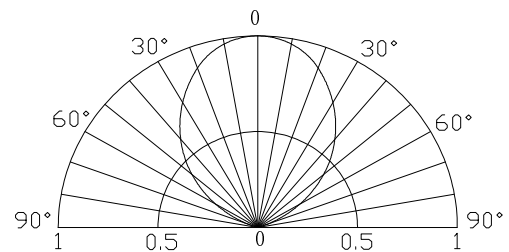
| Item                      | Symbol          | Condition                                    | Min.           | Typ. | Max. | Unit |
|---------------------------|-----------------|----------------------------------------------|----------------|------|------|------|
| Supply Voltage            | V <sub>cc</sub> |                                              | 2.7            | 3.0  | 5.5  | V    |
| Current Consumption       | I <sub>cc</sub> | Input signal=0                               | -              | 0.9  | 1.5  | mA   |
| Reception Distance        | d               | 200 ± 5Lux, V <sub>cc</sub> =3V              | 15             | 20   | -    | m    |
| B.P.F. Center Frequency   | F <sub>o</sub>  |                                              | -              | 37.9 | -    | KHZ  |
| Peak Wavelength           | λ <sub>p</sub>  |                                              | -              | 940  | -    | nm   |
| Signal Output             | S <sub>o</sub>  |                                              | --Active Low-- |      |      |      |
| High level output voltage | V <sub>oh</sub> | V <sub>cc</sub> =3V                          | 2.7            | 3.0  |      | V    |
|                           |                 | V <sub>cc</sub> =5V                          | 4.7            | 5.0  |      | V    |
| Low level output voltage  | V <sub>ol</sub> | V <sub>in</sub> =0V I <sub>sink</sub> =2.0mA | -              | 0.2  | 0.4  | V    |
| Burst width tolerance *2  | B <sub>w</sub>  | Burst Wave=600 μs                            | 400            | 600  | 800  | μs   |
| Half Angle                | Δθ              |                                              |                | 90   |      | deg  |

\*2 The output tolerance of burst width received when transmitter sends the burst wave.

### ■Outline Dimension

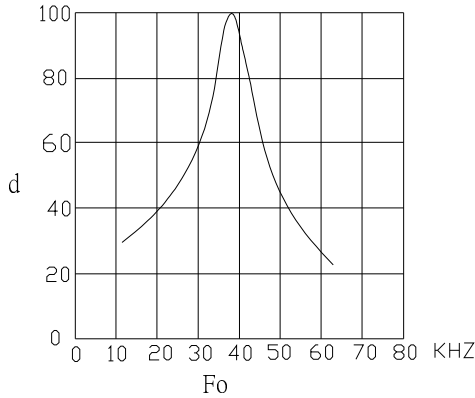


### ■Directivity



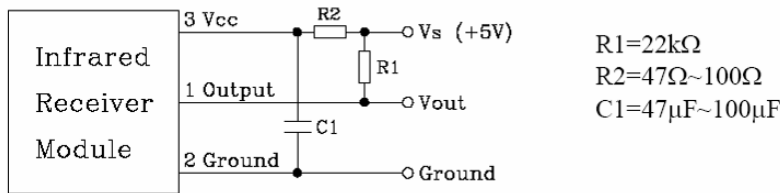
■ **Carrier Frequency**

Relative Reception Distance vs Transmitter carrier Frequency

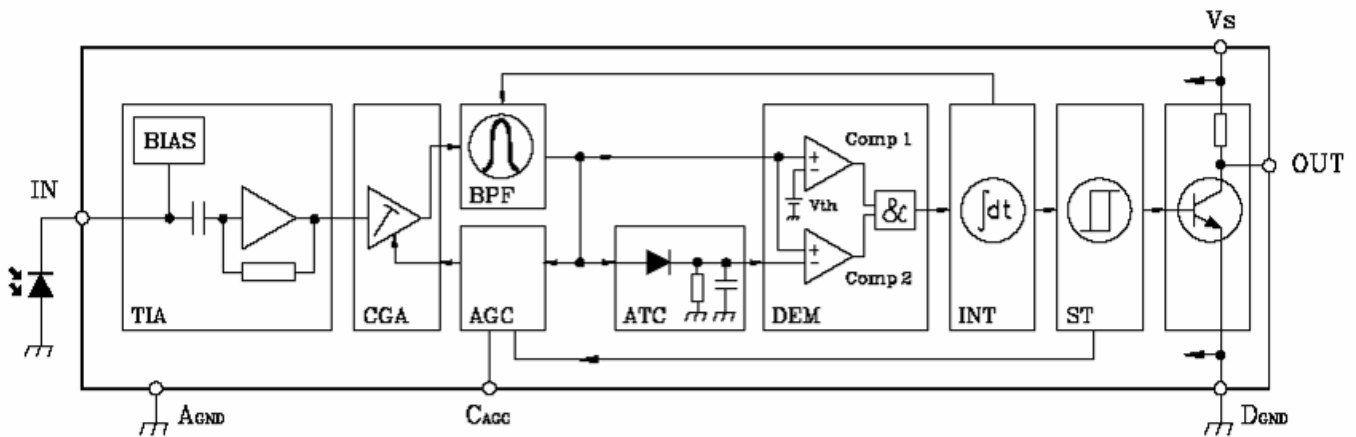


■ **For Noisy Power Supply**

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



■ **Block Diagram**



- |     |                           |     |                             |
|-----|---------------------------|-----|-----------------------------|
| TIA | Transimpedance amplifier  | ATC | Automatic threshold control |
| CGA | Controlled gain amplifier | DEM | Demodulator                 |
| BPF | Bandpass filter           | INT | Integrator                  |
| AGC | Automatic gain control    | ST  | Schmitt trigger             |

### ■ Testing Method

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

**a. Measuring place**

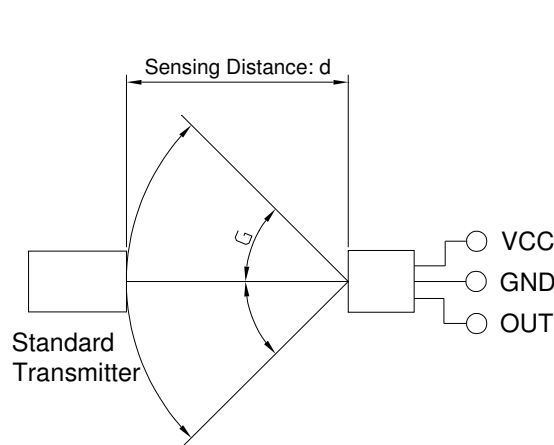
**Indoor Without extreme reflection of light.**

**b. Ambient light source**

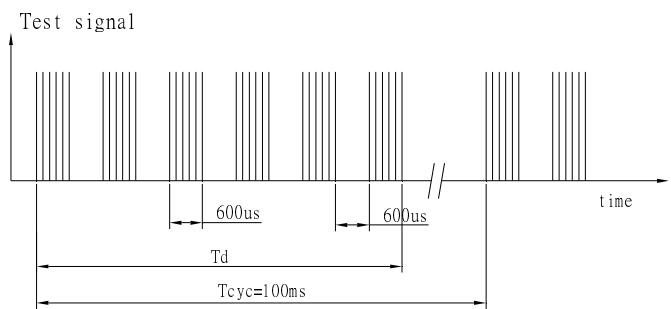
**Detecting surface illumination is  $200 \pm 5$  Lux under ordinary white fluorescence lamp of no high frequency lightning.**

**c. Standard transmitter**

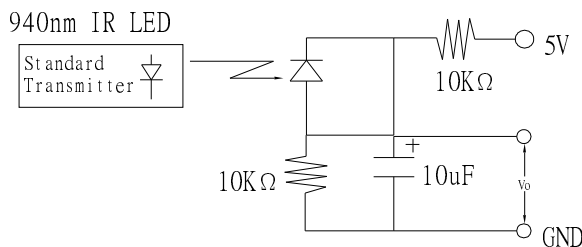
**Transmitter wave indicated in FIG-2 of standard transmitter is arranged to satisfy  $V_o \geq 50$  mVp-p under the measuring circuit specified in FIG-3**



**FIG-1**



**FIG-2**



**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.

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