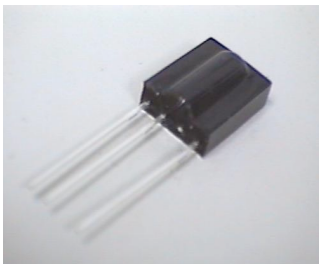
**MIM-R1AAx Family**

# IR RECEIVER MODULE

## Features



**> Package:** Side View IR Filter Lens With PIN Diode And Pre-Amplifier IC

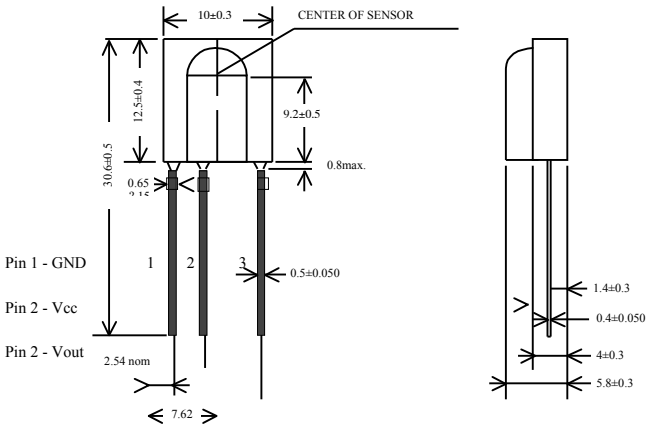
**> Technology:** Photodetector And Pre-Amplifier IC In One Package
Internal Filter For PCM Frequency
High Immunity Against Ambient Light
Designed For Resistance To Electric Field Disturbance
5 Volt Supply Voltage

**> Family:**

| | |
|---|---|
| MIM-R1AA33 | 32.7 KHz |
| MIM-R1AA37 | 36.7 KHz |
| MIM-R1AA38 | 37.9 KHz |
| MIM-R1AA40 | 40.0 KHz |
| MIM-R1AA57 | 56.7 KHz |

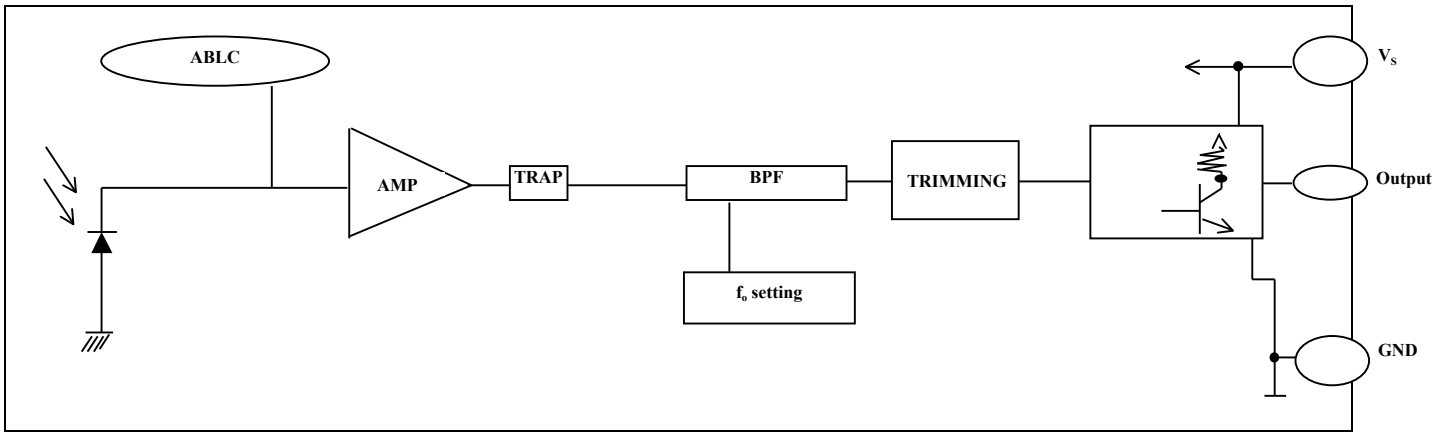
**MIM-R1AA38**

Unit: mm




Notes :
1. Tolerance is ± 0.25 mm (.010") unless otherwise noted.
2. Lead spacing is measured where the leads emerge from the package.

## CIRCUIT DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

$T_a = 25^oC$

| Item | Symbol | Ratings | Unit | Note |
|---|---|---|---|---|
| Supply Voltage | $V_{CC}$ | 5.8 | V | |
| Operating Temperature | $T_{opr}$ | -10 ~ + 60 | °C | |
| Storage Temperature | $T_{stg}$ | -20 ~ + 75 | °C | |
| Soldering Temperature | $T_{sd}$ | 260 | °C | Maximum 5 seconds |

## ELECTRO-OPTICAL CHARACTERISTICS ($V_{cc}$ = 5$V_{DC}$)

$T_a = 25^oC$

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| Current Consumption | Icc | | | 5.0 | mA | Under No Signal |
| Response Wavelength | nm | | 940 | | nm | |
| Tuning Frequency | $F_O$ | 32.7 , 36.7 , 37.9 , 40.0 , 56.7 | | | KHz | |
| Output Form | - - - - - active low output - - - - - | | | | | |
| High Level Output Voltage | $V_{OH}$ | 4.2 | | | V | |
| Low Level Output Voltage | $V_{OL}$ | | | 0.5 | V | |
| High Level Output Pulse Width | $T_{WH}$ | 400 | | 800 | us | |
| Low Level Output Pulse Width | $T_{WL}$ | 400 | | 800 | us | |
| Distance Emitter To Detector | L | 10.0 | | | m | **Note 1** |
| Half Angle | ° | | ±55 | | deg | Horizontal Direction |

**NOTE 1**

**1. Distance between emitter & detector specifies maximum distance that output wave form satisfies the standard under the conditions below:**

**A. Measuring Location: Indoor without extreme reflection of light.**

**B. Ambient Light: Detecting surface illumination shall be 200±50 Lux under ordinary light flourscent lamp with no high frequency lighting.**

**C. Standard Transmitter: Burst wave indicated in Figure 1 shall be arrranged to 50 $mV_{p-p}$ using measurement circuit in Figure 2.**

**TEST METHOD**

**A. 940nm IR Emitter Standard Transmitter Remote Control**

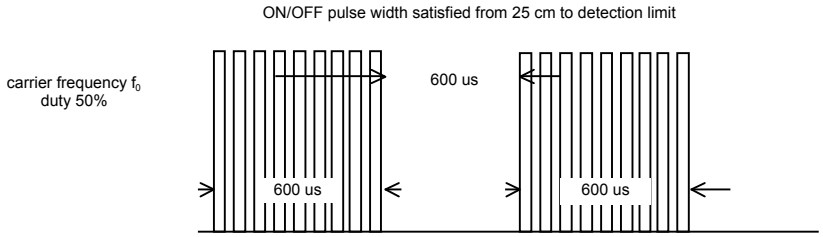



**Figure 1. Burst Wave**

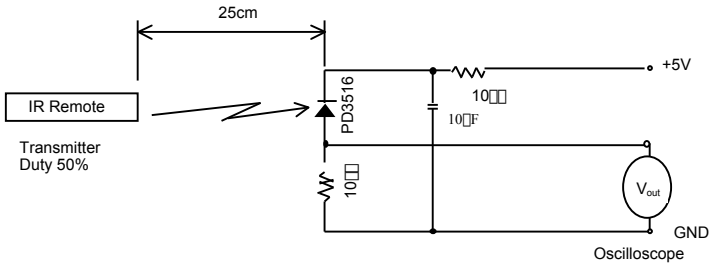
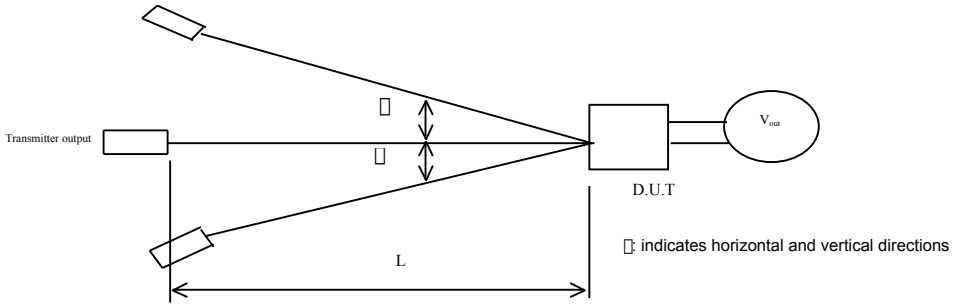


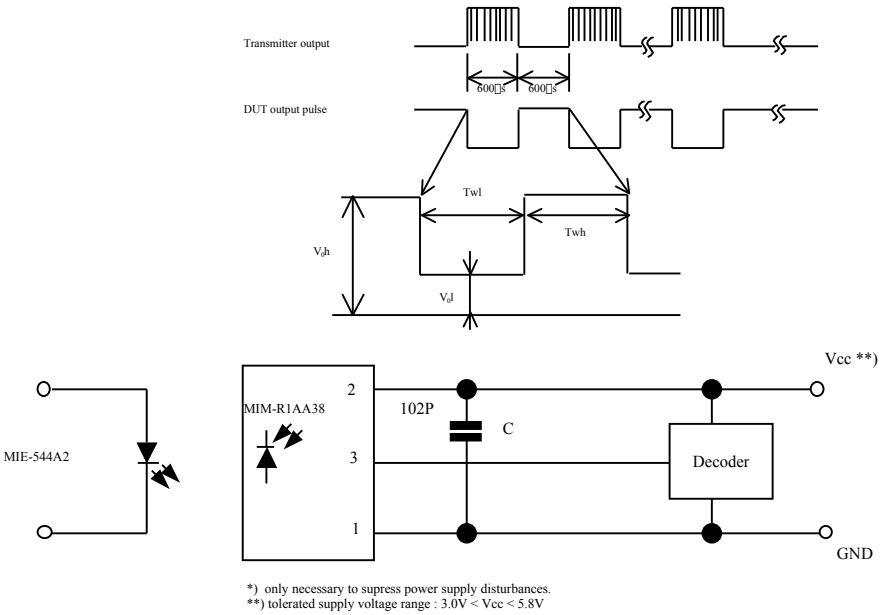

**Figure 2. Standard Transmitter Measurement Circuit**

**TEST METHOD**

**B. Detection Length Test**

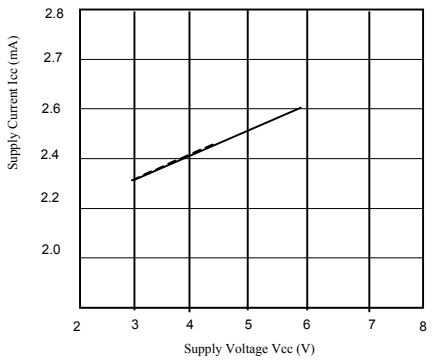



**C. Pulse Width Test**

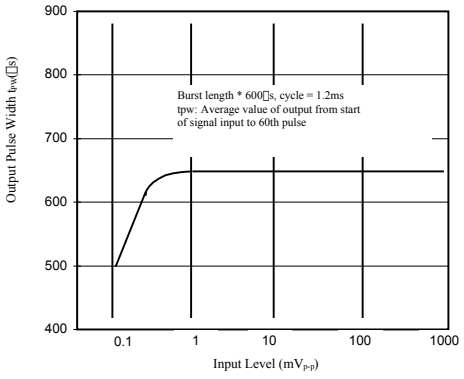



*) only necessary to supress power supply disturbances.
**) tolerated supply voltage range : 3.0V < Vcc < 5.8V

**CHARACTERISTIC CURVES $T_A$ = 25°C**




**SUPPLY VOLTAGE vs. SUPPLY CURRENT**




**INPUT LEVEL vs.OUTPUT PULSE WIDTH**

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## Reliability Test

# IR RECEIVER MODULE

| Test Item | Test Condition | Note |
|---|---|---|
| High Temperature | Ta=+60°C, Vcc=5.0V, Time = 240 hours | Note 2. |
| High Temp / Humidity | Ta=+40°C, 90% Relative Humidity, Vcc=5.0V, Time = 240 H | Note 2. |
| Low Temperature | Ta= -10°C, Vcc=5.0V, Time = 240 Hours | Note 2. |
| Temperature Cycle | -20°C, 0.5 Hours ~ +75°C 0.5 Hours, 20 Cycles | Note 2. |
| Drop | 75cm Height | Note 3. |

NOTE 2. Component testing following each Test Item shall be verified following the test after 2 hours at 25°C .

NOTE 3. Component testing following Drop Test is confirmed by no conoid deformity or destruction of lens.

### Inspection Standard

1.Critical Items 100% inspected are:

1.1 IR Emitter distance test

1.2 Receiver Module current consumption

1.3 High level output voltage

1.4 Low level output voltage

### Care In Handling

1.Store and use where there is no force causing transformation or change in quality .

2.Store and use where there is no corrosive gas or sea(salt) breeze .

3.Store and use where there is no extreme humidity .

4.Solder the leads within the condition of ratings. After soldering do not apply force to the lens.

5.Do not wash this device . Wipe the stains of diode side with a soft cloth using ethyl-alcohol, methyl-alchohol, or isopropylene only.

6.To prevent static electricity damage to the pre-amplifier, proper grounding of operators and soldering equipment is required.

7.Put decoupling the component between Vcc and Ground for reduction of noise from power supply line .