

Description

The MIM-3xx7S3F is miniaturized infrared receivers for remote control and other applications requiring improved ambient light rejection.

The separate PIN diode and preamplifier IC are assembled on a single leadframe.

The epoxy package contains a special IR filter.

This module has excellent performance even in disturbed ambient light applications and provides protection against uncontrolled output pulses.



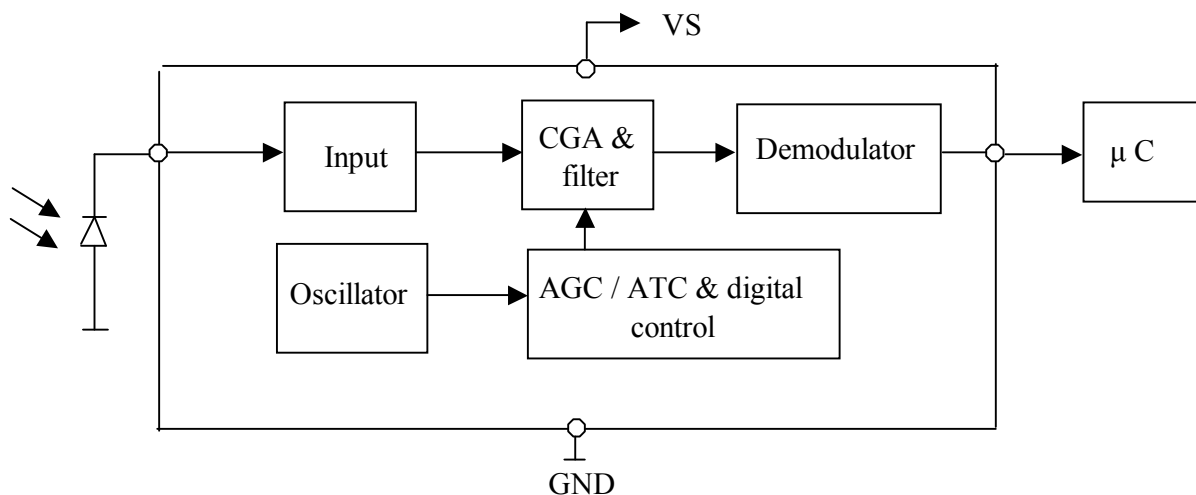
Features

- Photo detector and preamplifier in one package
- Internal filter for PCM frequency
- High immunity against ambient light
- Improved shielding against electric field disturbance
- 3.0-Volt supply voltage; low power consumption
- TTL and CMOS compatibility

MIM-3xx7S3F Series Models

- MIM-3337S3F 32.7KHz
- MIM-3377S3F 36.7KHz
- MIM-3387S3F 37.9KHz
- MIM-3407S3F 40.0KHz
- MIM-3567S3F 56.7KHz

BLOCK DIAGRAM



Absolute Maximum Ratings

@ Ta=25°C

| Item | Symbol | Ratings | Unit | Remark |
|-----------------------|------------------|------------|------|------------------------|
| Supply voltage | V _s | -0.3 ~ 6.0 | V | |
| Supply Current | I _s | 2.5 | mA | |
| Operating temperature | T _{opr} | -25 ~ + 85 | °C | |
| Storage temperature | T _{stg} | -25 ~ + 85 | °C | |
| Soldering temperature | T _{sd} | 260 | °C | t ≤ 5 s, 1mm from case |
| Junction Temperature | T _j | 100 | °C | |

Electro-optical characteristics (Vcc=3.0V)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Remarks |
|-------------------------------------|-------------------------------|------|------|------|------|----------------------|
| Supply Voltage | V _s | 2.7 | 3.0 | 5.5 | V | |
| Current consumption | I _{cc} | | 1.1 | 2.5 | mA | Under no signal |
| Response wavelength | λ _p | | 940 | | nm | |
| Output form | ----- active low output ----- | | | | | |
| H level output voltage | V _{0h} | 2.8 | 3.0 | | V | |
| L level output voltage | V _{0l} | | 0.2 | 0.4 | V | |
| H level output pulse width | T _{wh} | 500 | | 800 | μs | |
| L level output pulse width | T _{wl} | 500 | | 800 | μs | |
| Distance between emitter & detector | L ₁ | 10.0 | | | m | Note 1 |
| Half angle | Δθ | | ±45 | | deg | Horizontal direction |

Test Method

A. Standard Transmitter

ON/OFF pulse width satisfied from 25 cm to detection limit

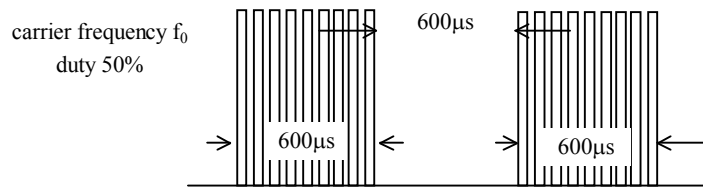


Fig 1. Burst Wave

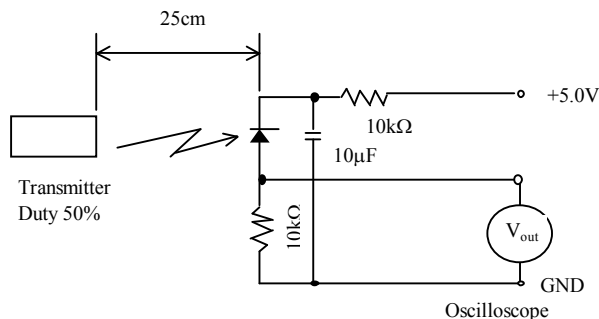
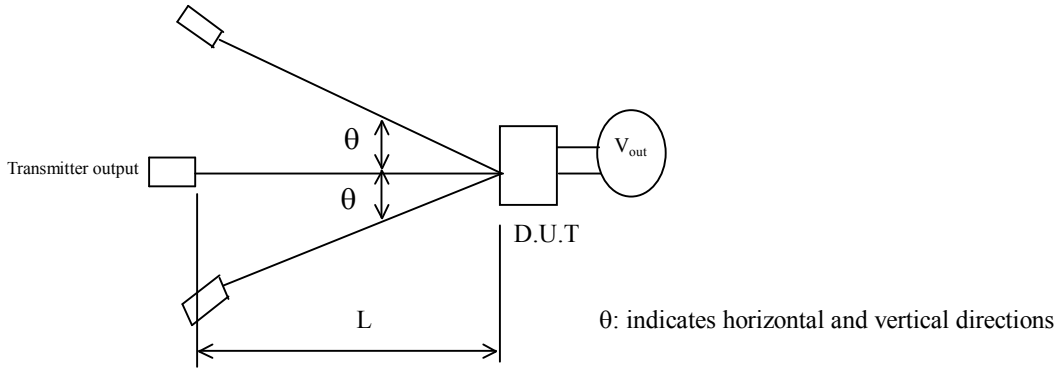
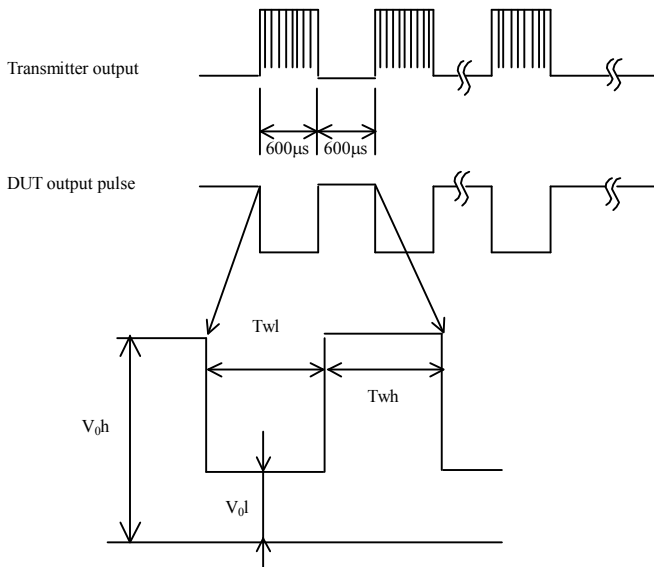


Fig 2. Standard Transmitter Measurement circuit

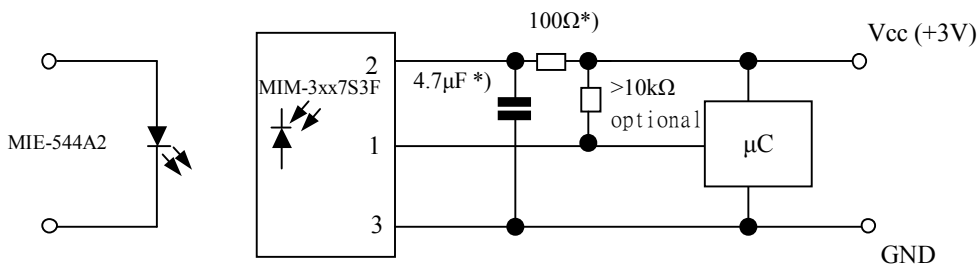
B. Detection Length Test



C . Pulse Width Test

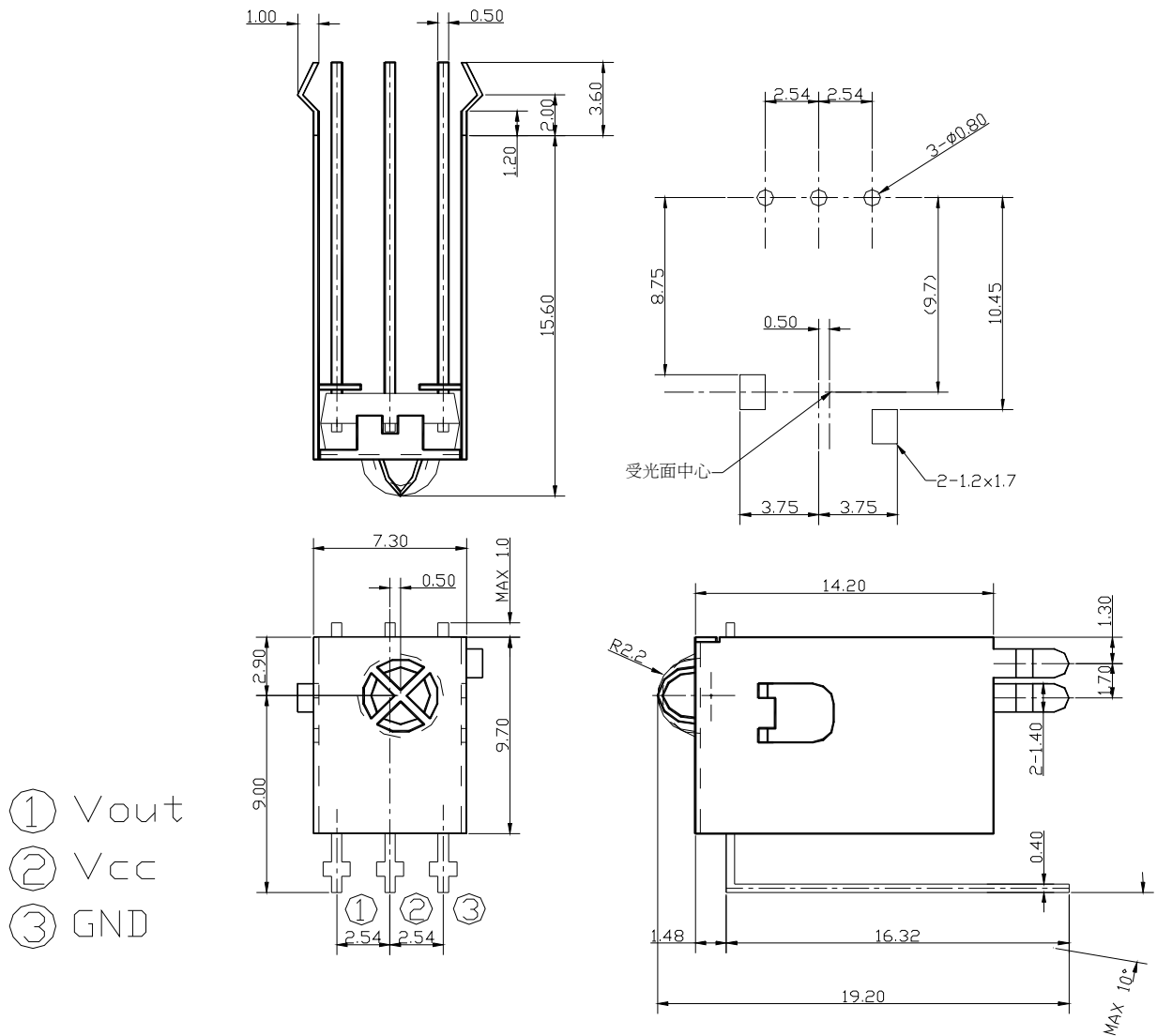


Application Circuit

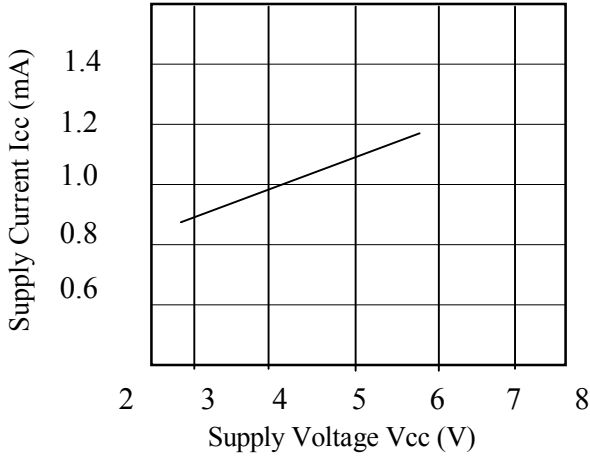


*) recommended to suppress power supply disturbances

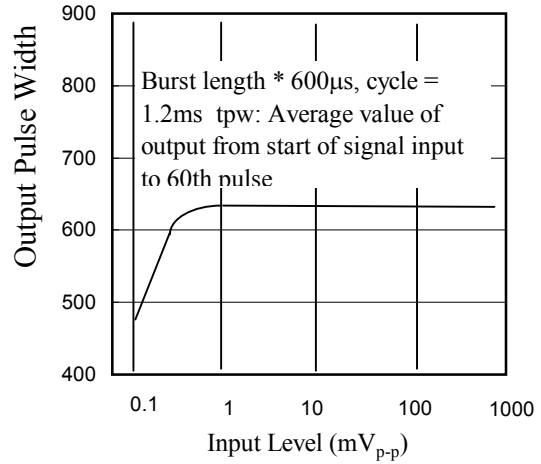
Dimensions in mm



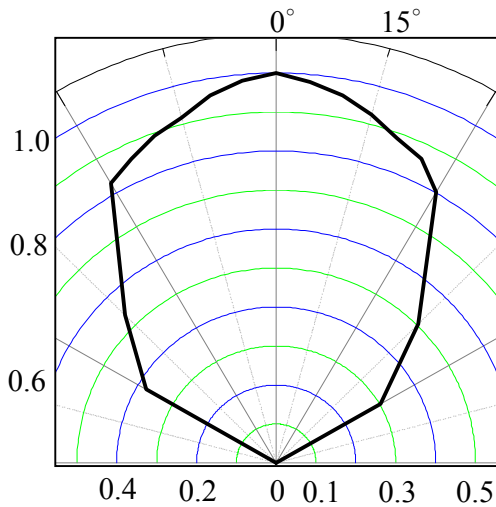
CHARACTERISTIC CURVES ($T_A=25^{\circ}\text{C}$)



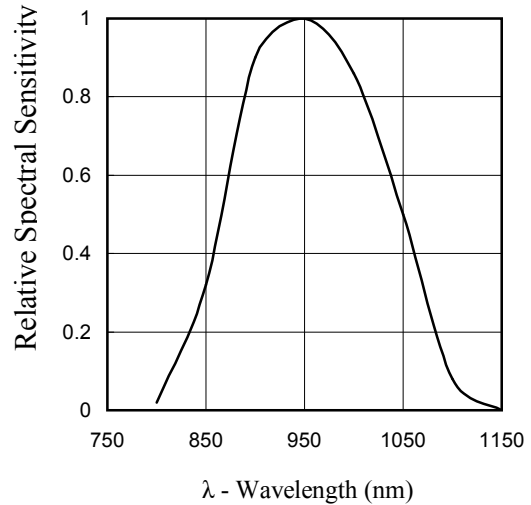
SUPPLY VOLTAGE vs. SUPPLY CURRENT



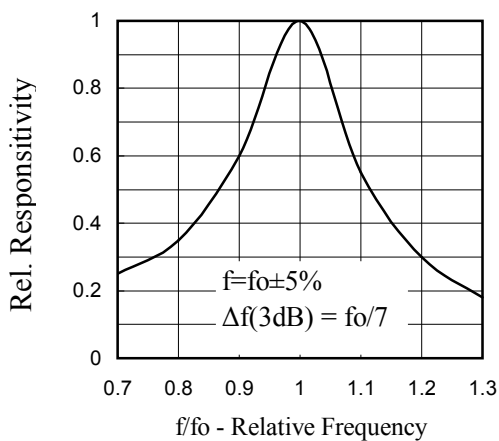
INPUT LEVEL vs. OUTPUT PULSE WIDTH



RELATIVE TRANSMISSION



RELATIVE SPECTRAL SENSITIVITY vs WAVELENGTH



FREQUENCY DEPENDENCE OF RESPONSIVITY

Reliability

| Test item | Test condition | Standard |
|-------------------------|---|----------|
| High temperature | Ta=+80°C t=240H | Note 2. |
| High temp. & high humi. | Ta=+40°C 90%RH t=240H | Note 2. |
| Low temperature | Ta= -30°C t=240H | Note 2. |
| Temperature cycle | -30oC(0.5H) ~ +80oC(0.5H) 20cycle | Note 2. |
| Dropping | Test devices shall be dropped 3 times naturally onto hard wooden board from a 75cm height position. | Note 3. |

NOTE 1. Distance between emitter & detector specifies maximum distance that output wave form satisfies the standard under the conditions below against the standerd transmitter.

- (1)Measuring placeIndoor without extreme reflection of light.
- (2)Ambient light source... Detecting surface illumination shall be 200±50Lux under ordinary hite fluorescense lamp of no high frequency lighting.
- (3)Standard transmitter ... Burst wave indicated in Fig 1. of standard transmitter shall be arranged to 50mVp-p under the measuring circuit specified in Fig 2.

NOTE 2. (electro-optical characteristics) shall be satisfied after leaving 2 hours in the normal temperature .

NOTE 3. (electro-optical characteristics) shall be satisfied and no conoid deforms and destructions of appearance .(excepting deforms of terminals)

Inspection standard

- 1.Among electrical characteristics , total number shall be inspected on items blow.
 - 1-1 front distance between emitter & detector
 - 1-2 Current consumption
 - 1-3 H level output voltage
 - 1-4 L level output voltage
- 2.Items except above mentioned are not inspected particularly , but shall fully satisfy

CAUTION (When use and storage of this device)

- 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 lead-pin within the condition of ratings. After soldering do not add extra force .
- 5.Do not wash this device . Wipe the stains of diode side with a soft cloth. You can use the solvent , ethylalcohol or methylalcohol or isupropylene only .
- 6.To prevent static electricity damage to the Pre-AMP make sure that the human body , the soldering iron is connected to ground before using .
- 7.Put decoupling device between Vcc and GND for reduse the noise from power supply line .
- 8.The performance of remote-control system depends on environments condition and ability of periferal parts. Customer should evaluate the performance as total system in those conditions after system up with components such as commander , micon and this receiver module .

Others

- 1.This device is not design to endure radiative rays and heavily charged particles .
- 2.In case where any trouble or questions arise,both parties agress to make full discussion covering the said problem .