

# INFRARED RECEIVER MODULE

# MIM-R1AA38-1

## Description

The MIM-R1AA38-1 series are 37.9 KHz 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.

## Package Dimensions

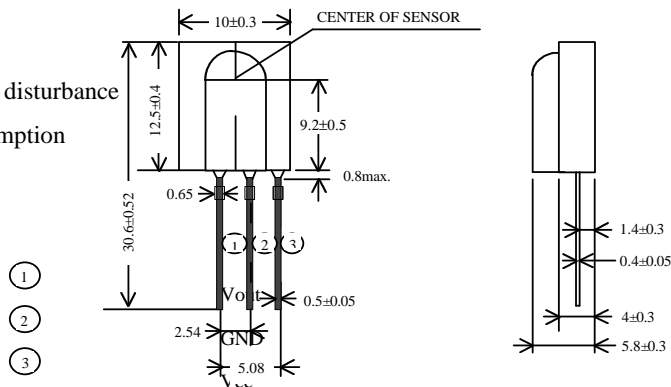


## Features

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

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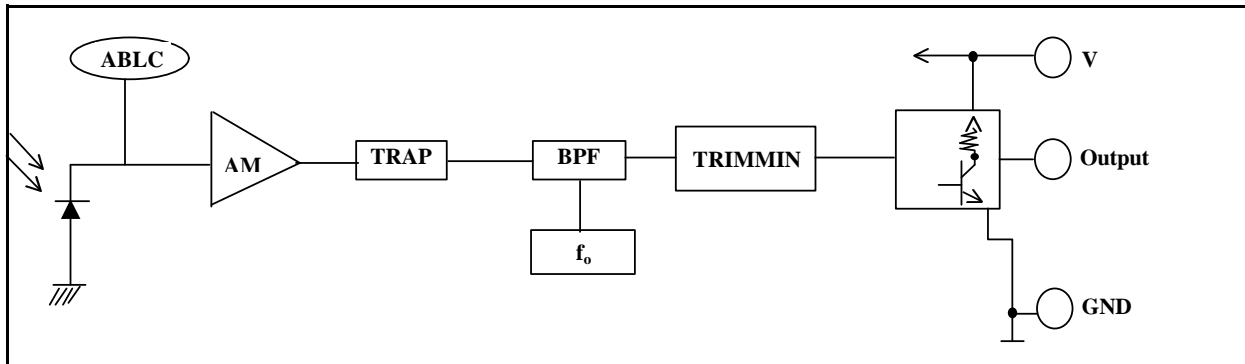
unit : mm



Notes :

1. Tolerance is  $\pm 0.25$  mm (.010") unless otherwise noted.
2. Lead spacing is measured where the leads emerge from the package.

## BLOCK DIAGRAM



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## Absolute Maximum Ratings

@  $T_A=25^\circ\text{C}$

Item	Symbol	Ratings	Unit	Remark
Supply voltage	$V_{CC}$	5.8	V	
Operating temperature	$T_{opr}$	-10 ~ + 60	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-20 ~ + 75	$^\circ\text{C}$	
Soldering temperature	$T_{sd}$	260	$^\circ\text{C}$	Maximum 5 seconds
Power Dissipation	$P_D$	17.5	mW	$V_{cc}=+5.0\text{V}$ ; under no signal

## Electro-optical characteristics (Vcc=5V)

@  $T_A=25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Current consumption	$I_{cc}$			5.0	mA	Under no signal
Response wavelength	$\lambda_p$		940		nm	
Tuning frequency	$f_0$		37.9		KHz	
Output form	----- active low output -----					
H level output voltage	$V_{0h}$	4.2			V	
L level output voltage	$V_{0l}$			0.5	V	
H level output pulse width	$T_{wh}$	400		800	$\mu\text{s}$	
L level output pulse width	$T_{wl}$	400		800	$\mu\text{s}$	
Distance between emitter & detector	L	10.0			m	Note 1
Half angle	$\Delta\theta$	$\pm 16$	$\pm 55$		deg	Horizontal direction

## Test Method

### A. Standard Transmitter

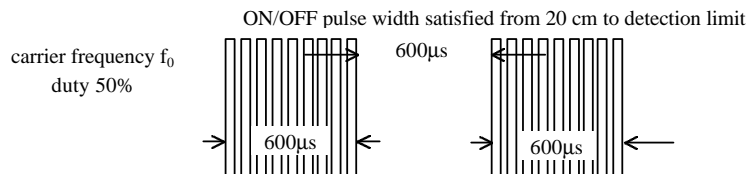


Fig 1. Burst Wave

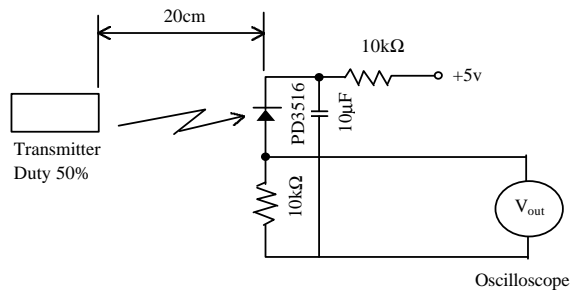


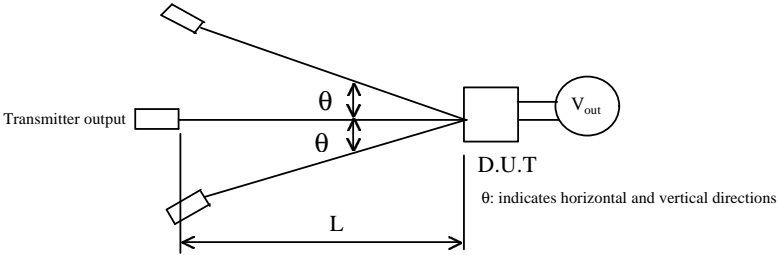
Fig 2. Standard Transmitter Measurement

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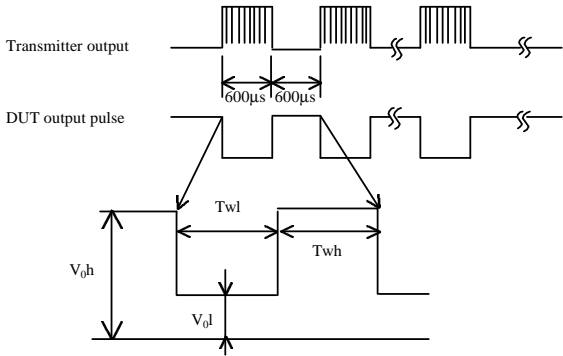
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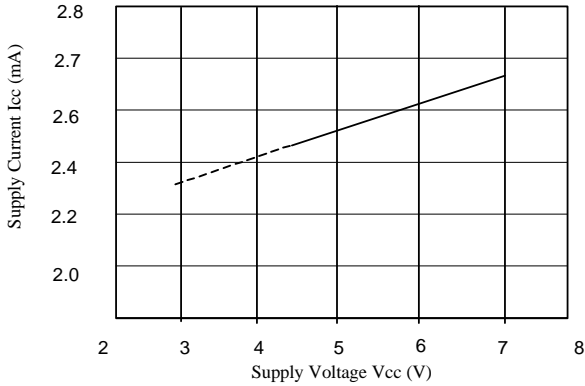
**B. Detection Length Test**



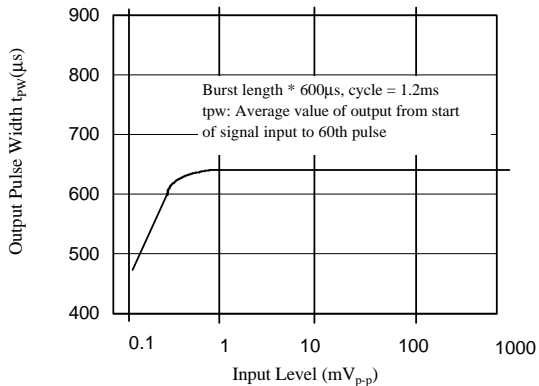
**C. Pulse Width Test**



**CHARACTERISTIC CURVES ( $T_A=25^\circ C$ )**



SUPPLY VOLTAGE vs. SUPPLY CURRENT



INPUT LEVEL vs. OUTPUT PULSE WIDTH

NOTE 1. Distance between emitter & detector specifies maximum distance that output wave form satisfies

the standard under the conditions below against the standard transmitter.

- (1) Measuring place .....Indoor without extreme reflection of light.
- (2) Ambient light source...Detecting surface illumination shall be  $200 \pm 50$  Lux 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.