

### IR Receiver Modules for Remote Control Systems

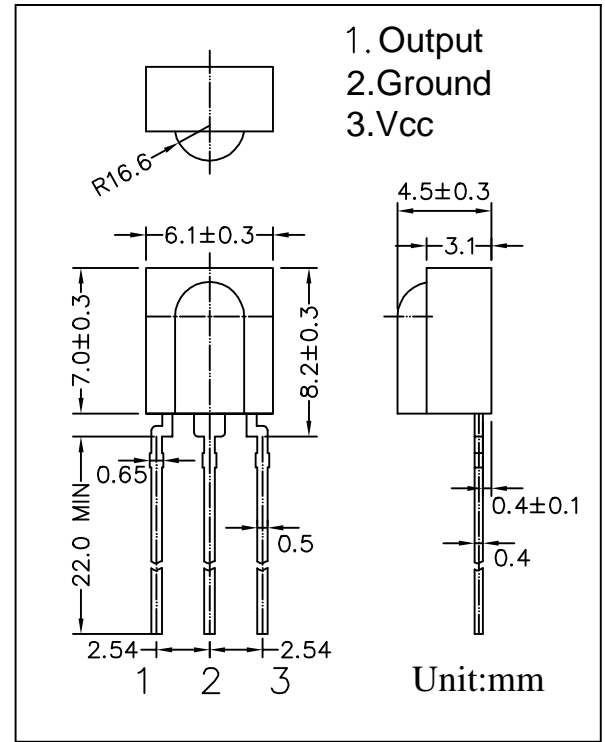
#### Description

The IRM-1738S is remote control receiver modules. Pin diode and receiver IC are assembled on one module. Small-sized, light-weight, and low current consumption. modules have been achieved by using resin mold. The demodulated output signal can directly be decoded by a microprocessor. The main benefit is the reliable function even in disturbed ambient and the protection against uncontrolled output pulses.

#### Features

- ◆ Supply Voltage Range: 2.7V to 5.5 V
- ◆ TTL and CMOS compatibility
- ◆ Photo detector and preamplifier in one package.
- ◆ Internal filter for PCM frequency
- ◆ Output active low
- ◆ Enhanced Immunity against all kinds of disturbance light
- ◆ No occurrence of disturbance pulses at output pin with in nominal conditions.
- ◆ Short settling time after power On.
- ◆ Meet RoHS

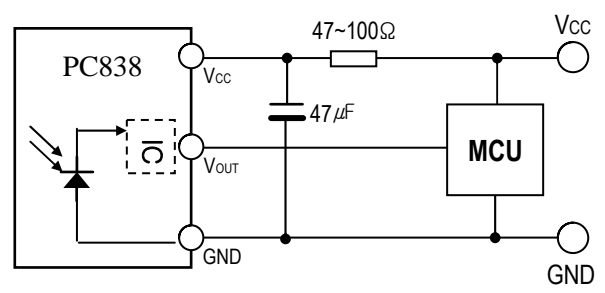
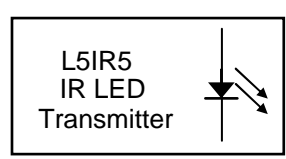
#### Dimensions



#### Applications

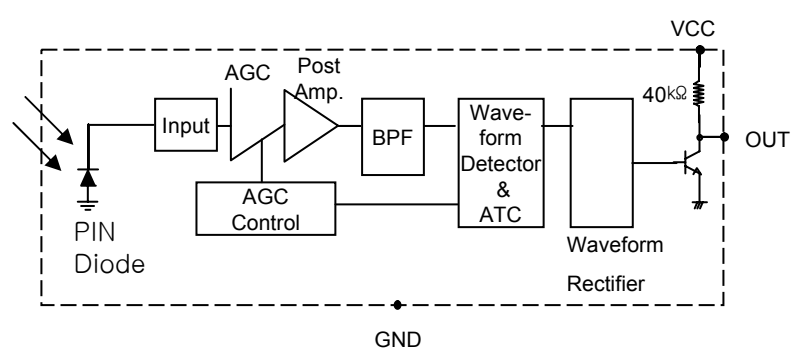
- ◆ Audio video applications
- ◆ Home appliances
- ◆ Toy applications
- ◆ Remote control equipment

#### Application Circuit



R-C filter recommended to suppress power supply disturbances.  
R-C filter should be connected closely between Vcc pin and GND pin.

#### Block Diagram



### Recommended Operating Conditions

(Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	Vcc	2.7	5.0	5.5	V	
Input Frequency	fin	30	37.9	60	kHz	
Operating Temperature	Top	-20	25	80		

### Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Min.	Max.	Unit	Conditions
Supply Voltage	Vcc	0	6.0	V	
Output Voltage	Vout	0	6.0	V	
Output Current	Iout	0	2.5	mA	
Storage Temperature	Tst	-20	80	°C	
Soldering Temperature	Tsd	260°C±5°C		°C	Max 5 sec

### Electro-optical Characteristics

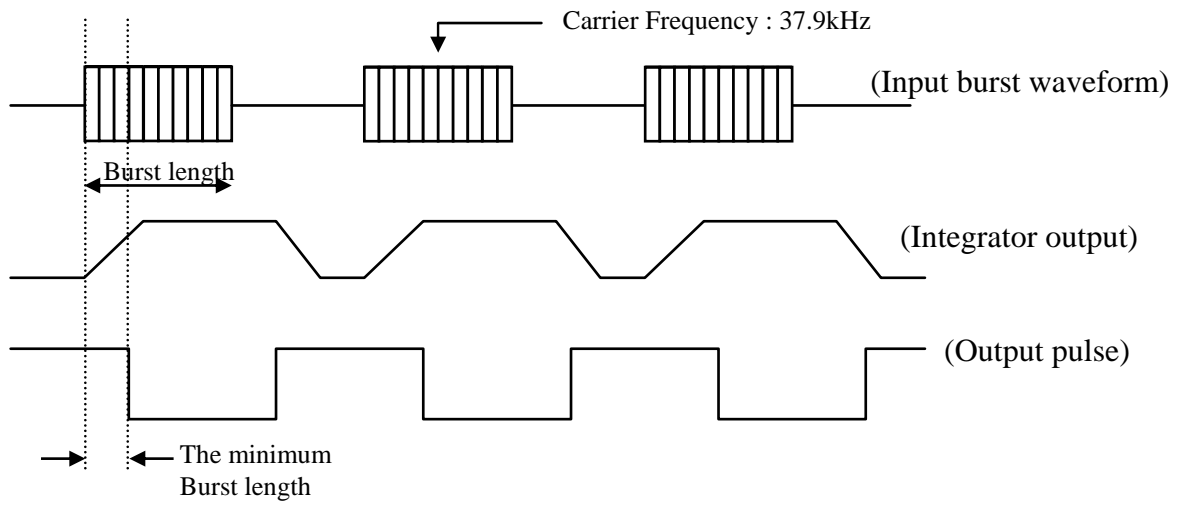
Specifications hold over the Recommended Operating Conditions, unless otherwise noted herein.

All values are at 25 and Vcc=3.0V/5.0V

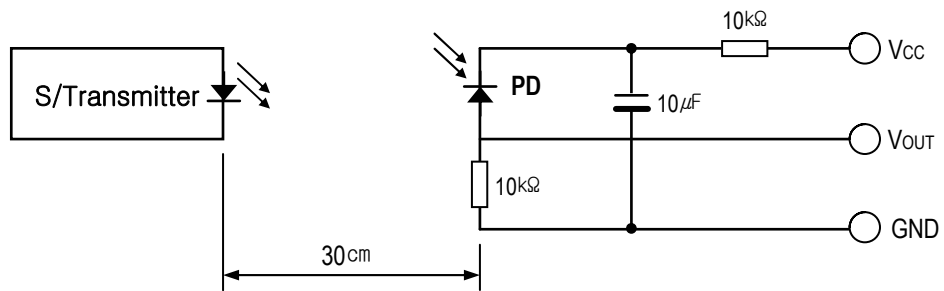
(Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Current	Icc	--	0.9	1.5	mA	Iin=0 μA, Vcc=3V
			1.0	1.5	mA	Iin=0 μA, Vcc=5V
Max. Voltage gain	Av	75	80	85	dB	fin=37.9kHz, Vin=30μVp-p
BPF Bandwidth	fBW	3.5	6.0	8.5	kHz	-3dB Bandwidth Vin=30μVp-p
Output pulse width	tpW1	500	-	800	μs	fin=37.9kHz, burst wave Vin=500 μVp-p note*1
	tpW2	500	-	800	μs	fin=37.9kHz, burst wave Vin= 50mVp-p note*1
Low level output voltage	VOL	-	0.2	0.4	V	Isink=2.0mA
High level output voltage	VOH	2.7	3.0	-	V	Vcc=3V
		4.7	5.0	-	V	Vcc=5V

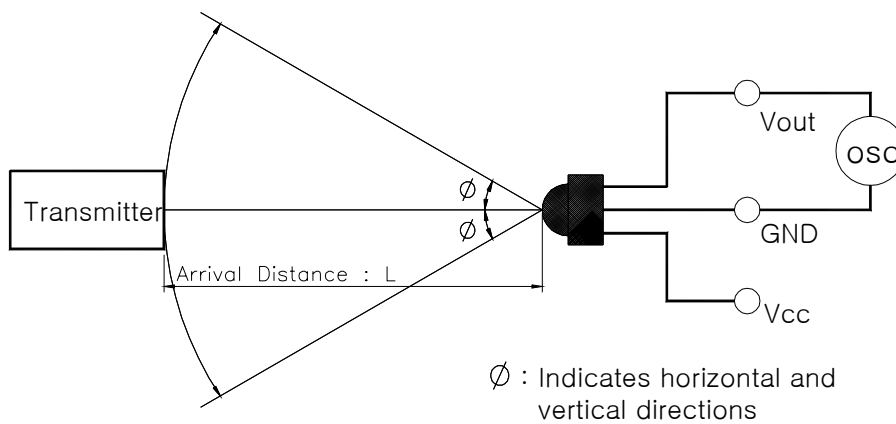
[ Fig. 1 ] Data Signal diagram



[ Fig.2 ] Transmitter



[ Fig.3 ] Test condition of arrival distance

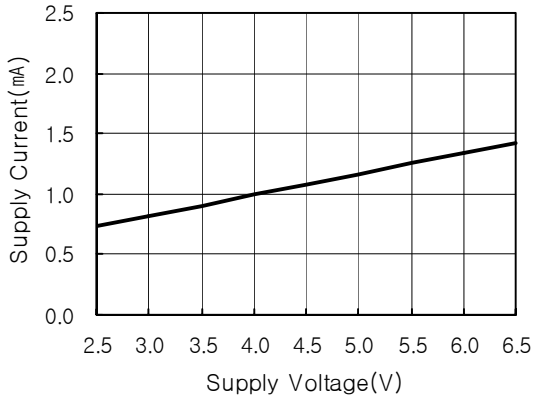


[ Measurement condition for arrival distance ]

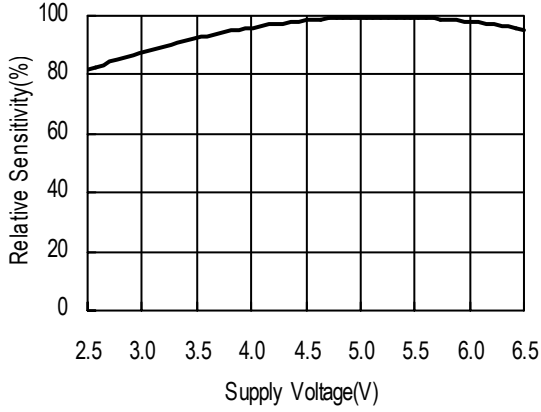
Ambient light source : Detecting surface illumination shall be irradiate  $200 \pm 50$  Lux under ordinary white fluorescence lamp without high frequency lighting

### Electrical/Optical Characteristics

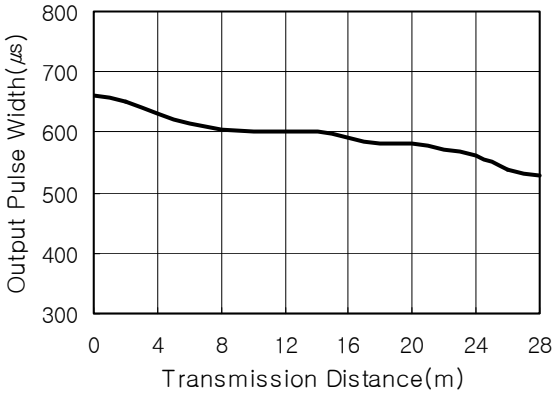
[ Fig.4 ] Supply Current vs. Voltage



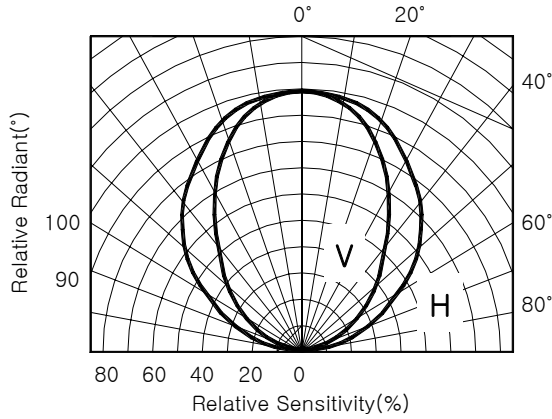
[ Fig.5 ] Sensitivity vs. Supply Voltage



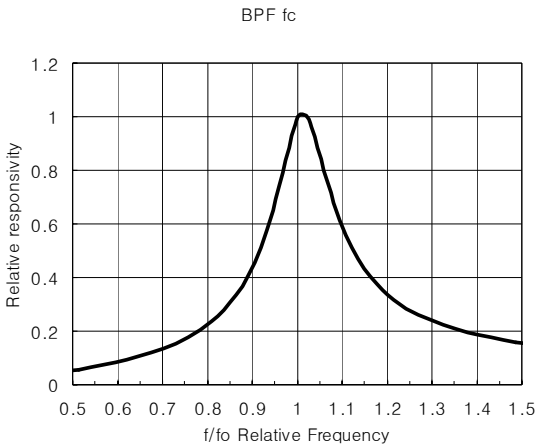
[ Fig.6 ] Output Pulse Width vs. Distance



[ Fig.7 ] Directivity (Horizontal)



[ Fig.8 ] BPF Fc Curve



### ESD Test Results

Parameter	Conditions	Specification	Results
Machine Model	C=200pF, R=0Ω	Min ±200V	>±200V
Human Body Model	C=100pF, R=1.5kΩ	Min ±2000V	>±2000V
Charged Device Model	R=100MΩ, 1Ω	Min ±800V	>±800V