

DATA SHEET

● **DEVICE NUMBER : AX-1838HS**

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2007-4-19	1.0	1.0	1.0	1.0	1.0	1.0					Initial Released

APPROVED	DRAWER

INFRARED RECEIVER MODULE

● Description

The AX-1838HS 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.
- ? Inner shield, good anti-interference ability.
- ? High immunity against ambient light.
- ? Improved shielding against electric field disturbance
- ? 3.0V or 5.0V supply voltage; low power consumption.
- ? TTL and CMOS compatibility.
- ? **8ms data pause time codes are acceptable .**

● Applications:

1. Optical switch
2. Light detecting portion of remote control
 - ? AV instruments such as Audio, TV, VCR, CD, MD, DVD, etc.
 - ? Home appliances such as Air-conditioner, Fan, etc.
 - ? CATV set top boxes
 - ? Multi-media Equipment



📄 Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rated	Unit	Notice
Supply Voltage	Vs	2.1-6.5	V	i
Operating Temperature	Topr	-20~+65	°C	i
Storage Temperature	Tstg	-40~+85	°C	i
Soldering Temperature	Tsd	260	°C	4mm from mold body less than 5 sec

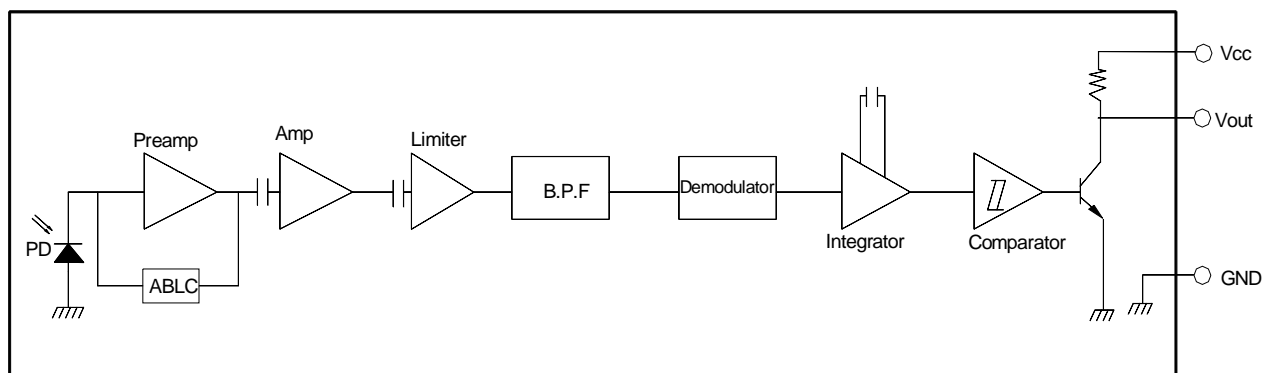
☒ **Electrical And Optical Characteristics**(Ta=25°C)

Parameter	Symbol	Ratings			Unit	Condition
		Min.	Typ.	Max.		
Supply Voltage	Vs	2.1	-	5.5	V	
Supply Current	Icc	i	i	1.5	mA	No signal input
Reception Distance	L ₀	17	i	i	m	At the ray axis*1
	L ₄₅	8	i	i		
B.P.F Center Frequency	f _o	i	38	i	KHz	
Peak Wavelength	λ _p	i	940	i	nm	
Half Angle	θ	i	45	i	deg	At the ray axis *1
High Level Pulse Width	T _H	400	i	800	μS	At the ray axis *2
Low Level Pulse Width	T _L	400	i	800	μS	
High Level Output Voltage	V _H	4.5	i	i	V	
Low Level Output Voltage	V _L	i	i	0.5	V	

*1:The ray receiving surface at a vertex and relation to the ray axis in the range of θ=0° and θ=45°

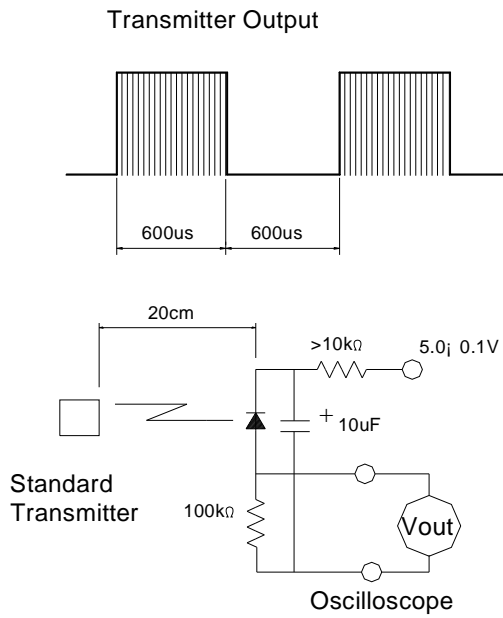
*2:A range from 30cm to the arrival distance. Average value of 50 pulses

● **BLOCK DIAGRAM**

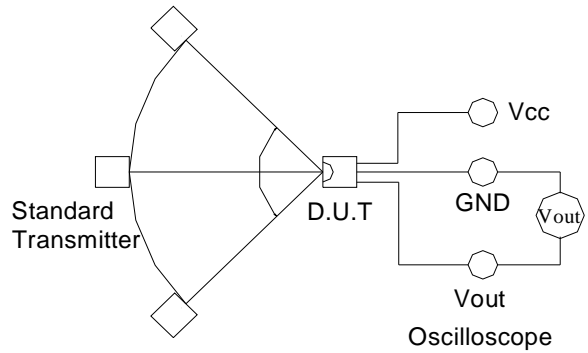


☐ Test Method

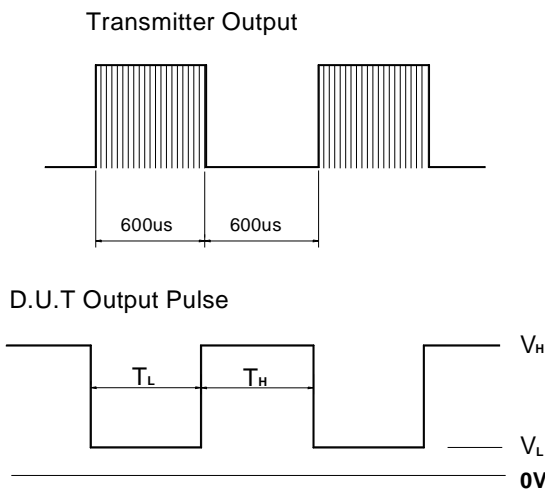
A. Standard Transmitter



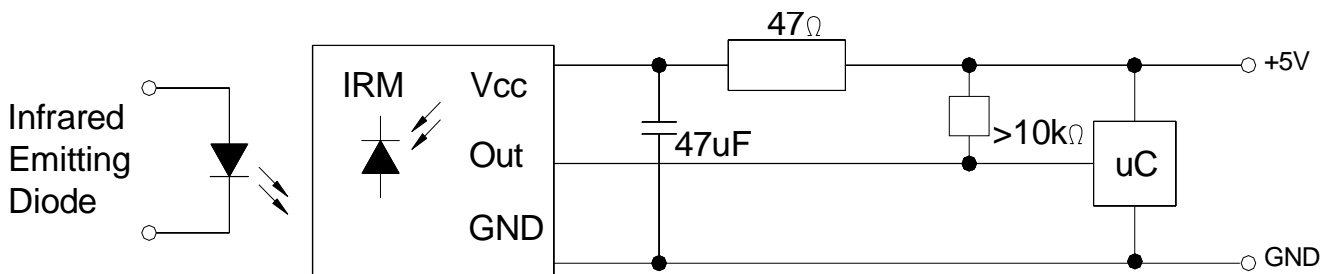
B. Detection Length Test



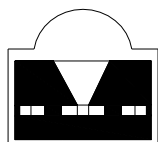
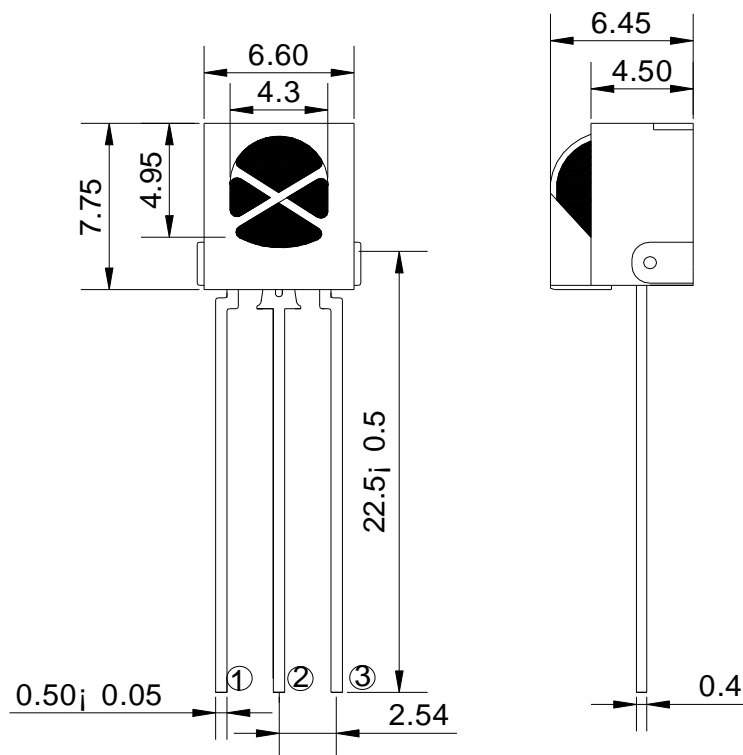
C. Pulse Width Test



☐ Application Circuit



● **Package Dimensions:**



- ① OUT
- ② GND
- ③ VCC

NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.30\text{mm}$ (0.012in) unless otherwise specified.
3. Specifications are subject to change without notice.

☐ **Electrical And Optical Curves(Ta=25°C)**

Fig.1 Relative Spectral Sensitivity vs. Wavelength

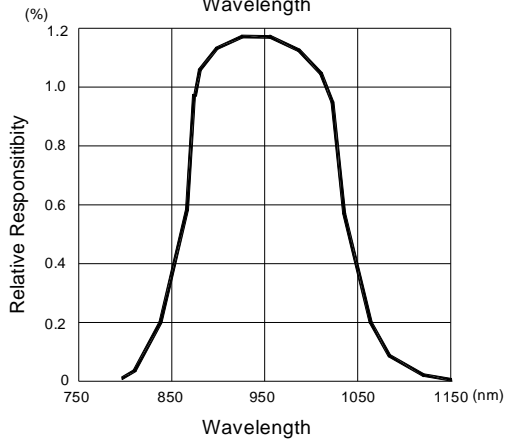


Fig.2 Relative Transmission Distance Vs. Direction

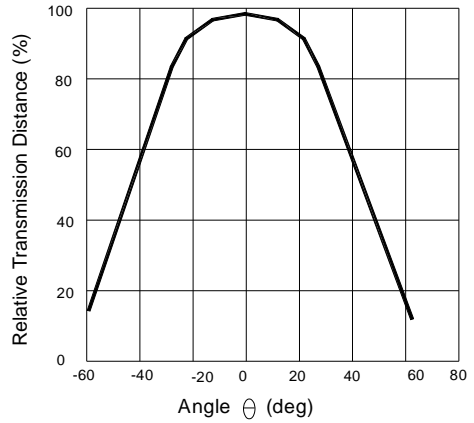


Fig.3 Frequency Dependence of Responsivity

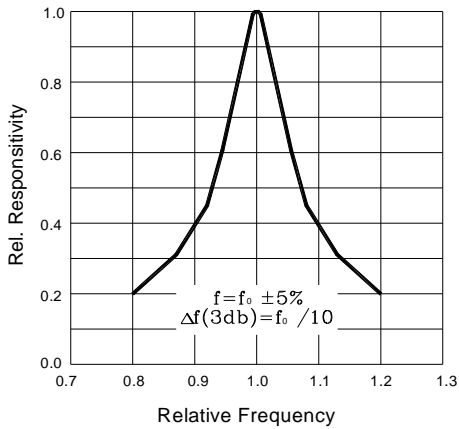


Fig.4 Supply Current vs. Ambient Temperature

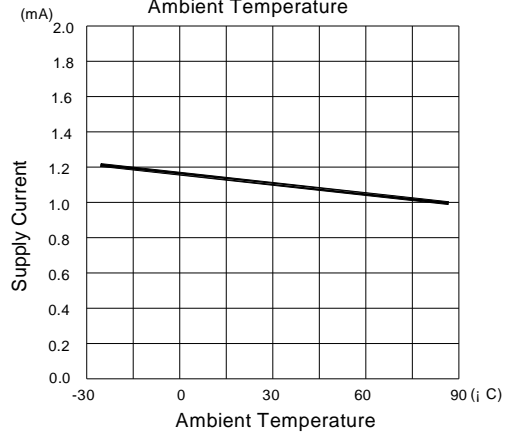


Fig.5 Relative Transmission Distance vs. Direction

