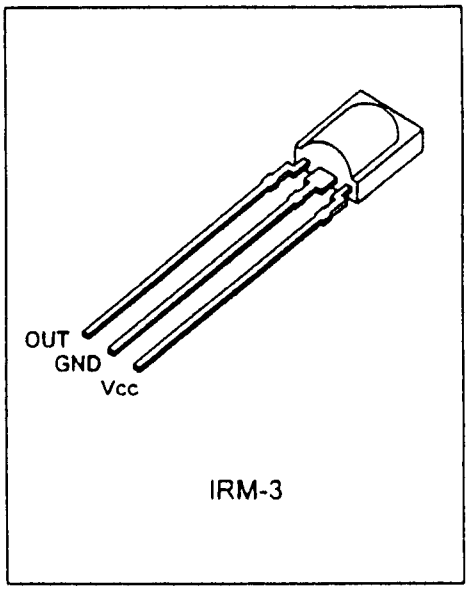
SENSITIVITY AND ANTI-DISTURBANCE ENHANCED INFRARED RECEIVER MODULE



DESCRIPTION

The H3638 series are miniaturized receivers for infrared remote control systems. PIN diode and preamplifier are assembled on lead frame, the epoxy package is designed as IR filter.

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

* Improved shielding against electrical field disturbance and ambient light
* No external components necessary
* Built-in high frequency filter of fluorescence lamp
* TTL and CMOS compatibility
* Output active low
* Lower power consumption

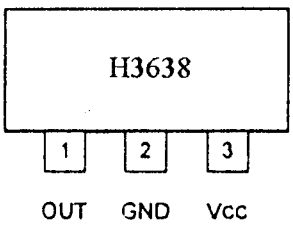
ORDERING INFORMATION

Device	Package
H3638	IRM-3

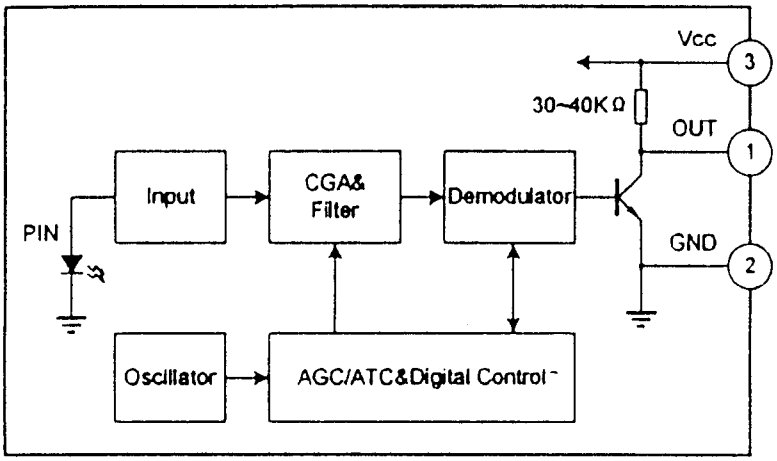
APPLICATIONS

* Remote control module for TV, VCR, DVD, air conditioner, etc.

PIN CONGURATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (unless otherwise stated, Tamb=25°C)

Characteristics	Symbol	Test Condition	Value	Unit
Supply Voltage	VCC		0.3~6.0	V
Supply Current	ICC		3	mA
Input Voltage	VIN		-0.3~VCC	V
Input DC Current(VCC=5V)	IIN		0.75	mA
Output Voltage	Vo		-0.3~Vcc	V
Output Current	Io		0~2.5	mA
Operating temperature	Tamb		-10~+75	°C
Storage temperature	Tstg		-25~+85	°C
Power Consumption	Ptot	(Tamb≤85°C)	30	mW
Soldering Temperature	Tsd	t≤10s, 1mm from case	260	°C

Note: Stress above those listed under Absolute Maximum Rating may cause permanent damage of device.

DC ELECTRICAL CHARACTERISTICS (Tamb=25°C)

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Operating Voltage	VCC		4.5	--	5.5	V
Supply Current	ICC	IIN=0	0.8	1.1	1.3	mA
Output Pulse Width	tPW1	Fin=37.9kHz, burst wave Vin=500μVp-p note*1	500	600	700	μs
	tPW2	Fin=37.9kHz, burst wave Vin=500mVp-p note*1	500	600	700	μs
Low Level Output Voltage	VOL			--	250	mV

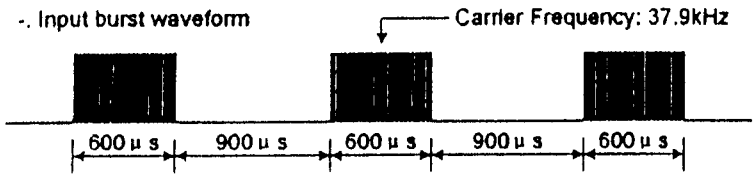
(To be continued)

(Continued)

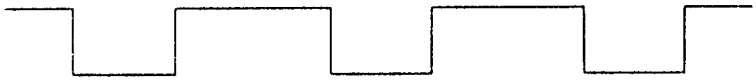
Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
High Level Output Voltage	VOH		VCC-0.25	--	--	V
Transmission Distance	d	Ev=200±50Lx, test signal see fig.2, IR diode TSIP5201, IF=400mA	--	35	--	m
Irradiance (30~40kHz)	Eemin	Pulse width tolerance: tpi-5/fo < tpo < tpi+6/fo Test signal (see fig.2)	--	0.35	0.5	mW/m^2
Irradiance (56kHz)	Eemin	Pulse width tolerance: tpi-5/fo < tpo < tpi+6/fo Test signal (see fig.2)	--	0.4	0.6	mW/m^2
Irradiance	Eemax		30	--	--	mW/m^2
Directivity	φ1/2	Angle of half transmission distance	--	±45	--	deg
Center frequency (B.P.F)	f0		--		--	KHz
			--		--	
			--		--	
			--		--	
		H3638	--	38	--	
			--		--	
			--		--	
			--		--	
			--		--	
Peak wavelength	λp		--		--	nm

Note 1:

-. Input burst waveform

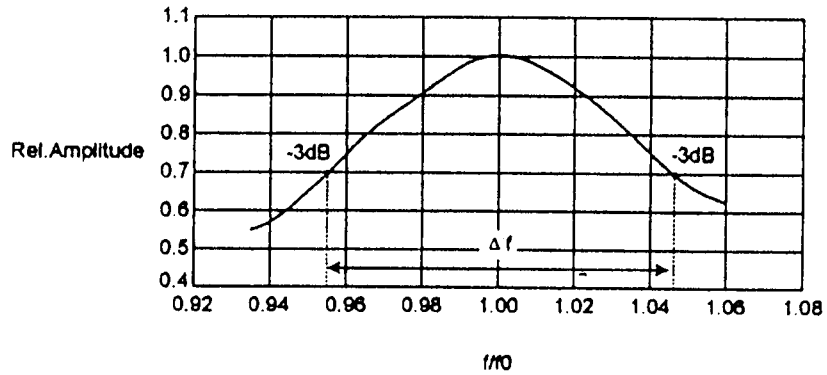


-. Output pulse



TYPICAL CHARACTERISTICS (Tamb = 25°C unless otherwise specified)

Figure1. Typical bandpass curve



Q=f0/ Δ f; Δ f=-3dB Values.

Figure 2. Center frequency vs. Temperature

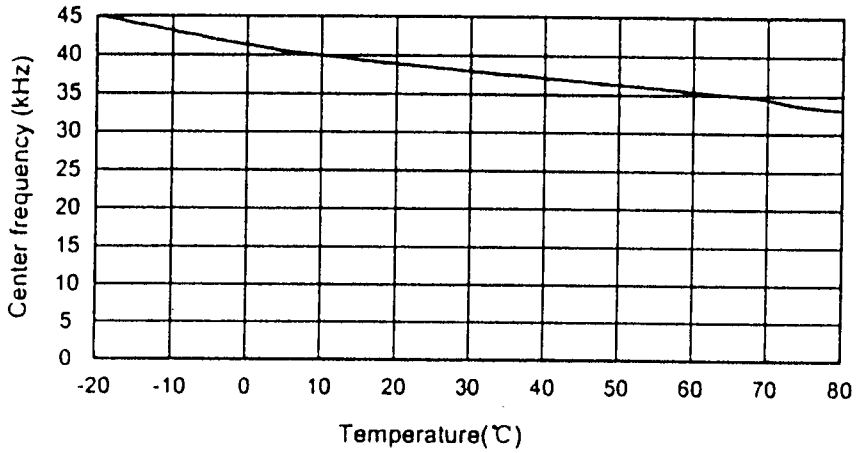


Figure 3. Relative Spectral Sensitivity vs. Wavelength

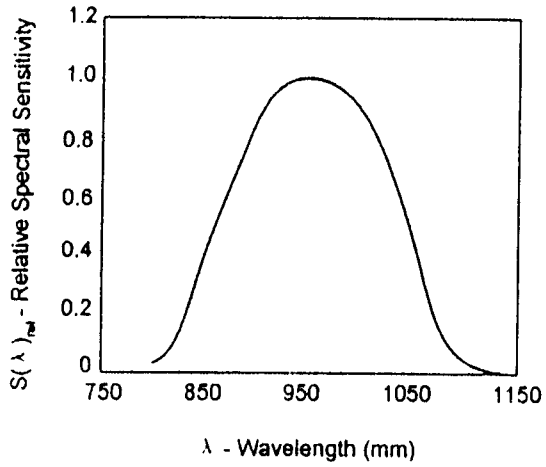
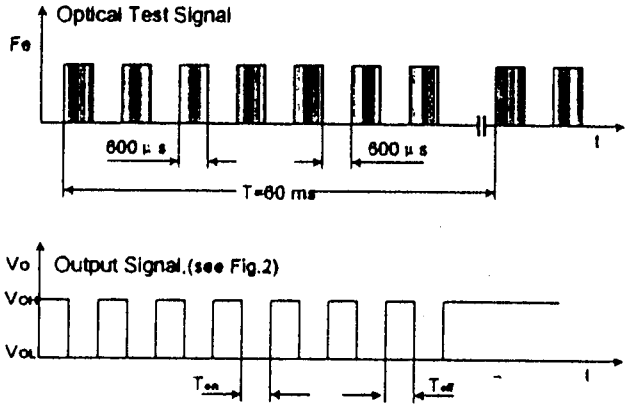


Figure 4. Output Function



TEST METHOD

A. Standard transmitter

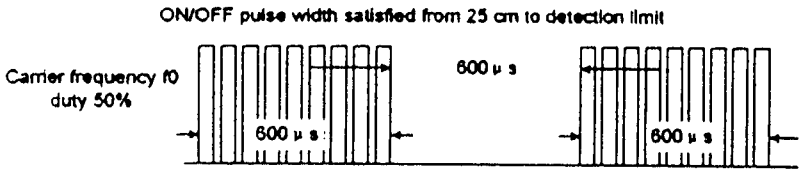


Fig 5. Burst wave

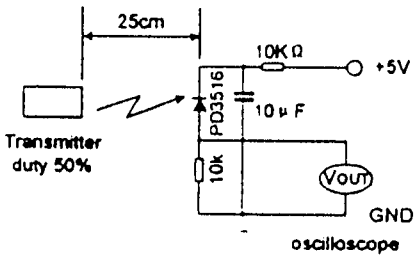
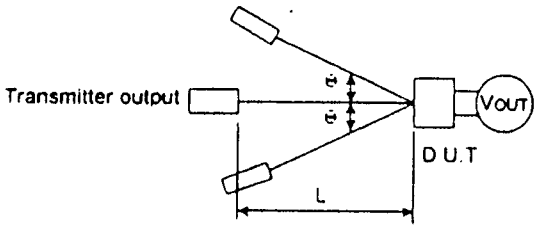


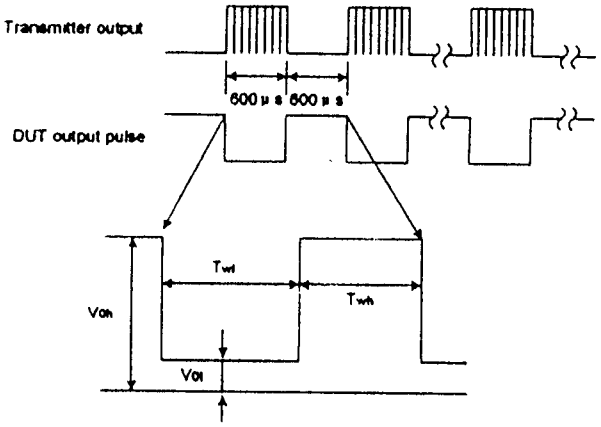
Fig 6. Standard transmitter measurement circuit

B. Detection length test



θ :indicates horizontal and vertical directions

C. Pulse width test



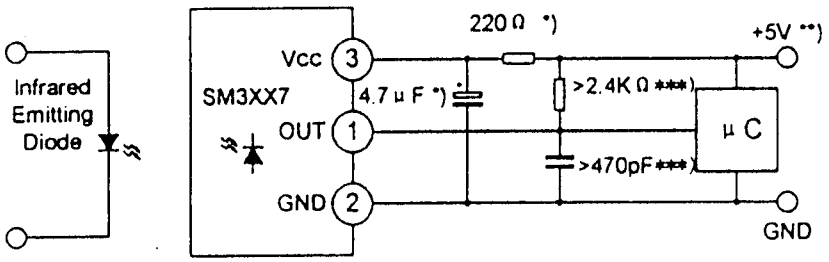
RELIABILITY

Test item	Test condition		Standard
High temperature	Tamb=+60°C, VCC=5.0V	t=240H	Note 1
High temp.& high humi.	Tamb=+40°C, 90%RH	t=240H	Note 1
Low temperature	Tamb=-10°C, VCC=5.0V	t=240H	Note 1
Heat cycle	-20°C(0.5H) ~+75°C(0.5H) 20cycle		Note 1
Dropping (note)	Test devices shall be dropped 3 times naturally onto hard wooden board from a 75cm height position		Note 2

NOTE : 1. (electro-optical characteristics) shall be satisfied after leaving 2 hours in the normal temperature .

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

APPLICATION CIRCUIT



*): Recommended to suppress power supply disturbances.

**): Tolerated supply voltage range: 4.5V<VS<5.5V.

***): Select by option.

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±50Lux under ordinary hite fluorescence lamp of no high frequency lighting.

(3) Standard transmitter ... Burst wave indicated in Fig 6. of standard transmitter shall be arranged to 50mVp-p under the measuring circuit specified in Fig 5.

PACKAGE OUTLINE

IRM-3 UNIT: mm