

Technical Data Sheet

Infrared Remote control Receiver Module

SGR2838H-2

■ Features

- Photo detector and preamplifier in one package
- Internal filter for PCM frequency
- Improved inner shielding against electrical field disturbance
- TTL and CMOS compatibility
- Low power consumption
- Improved immunity against ambient light
- Suitable burst length ≥ 10 cycles/burst
- Long reception distance.
- Pb free
- The product itself will remain within RoHS compliant version.



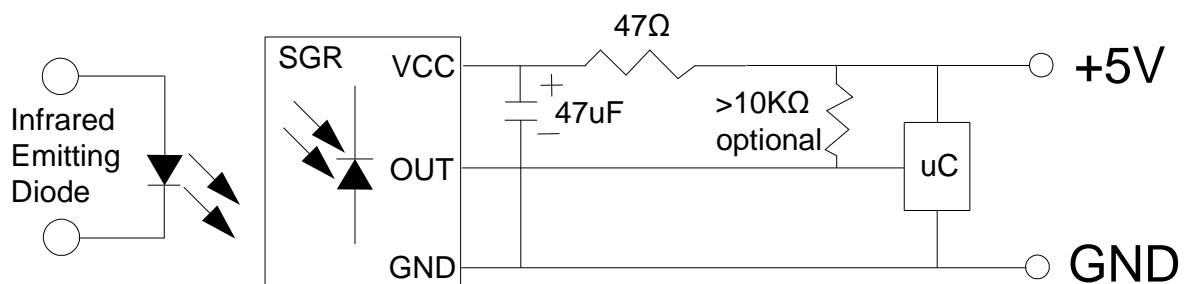
■ Descriptions

The SGR2838H-2 is 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. SGR2838H-2 is the standard IR remote control receiver, supporting all major transmission codes.

■ Applications

- ◆ AV instruments such as Audio, TV, VCR, CD, MD, etc.
- ◆ Home appliances such as Air-conditioner, Fan , etc.
- ◆ Light detecting portion of remote control
- ◆ CATV set top boxes
- ◆ Multi-media Equipment
- ◆ The other equipments with wireless remote control

■ Application Circuit:



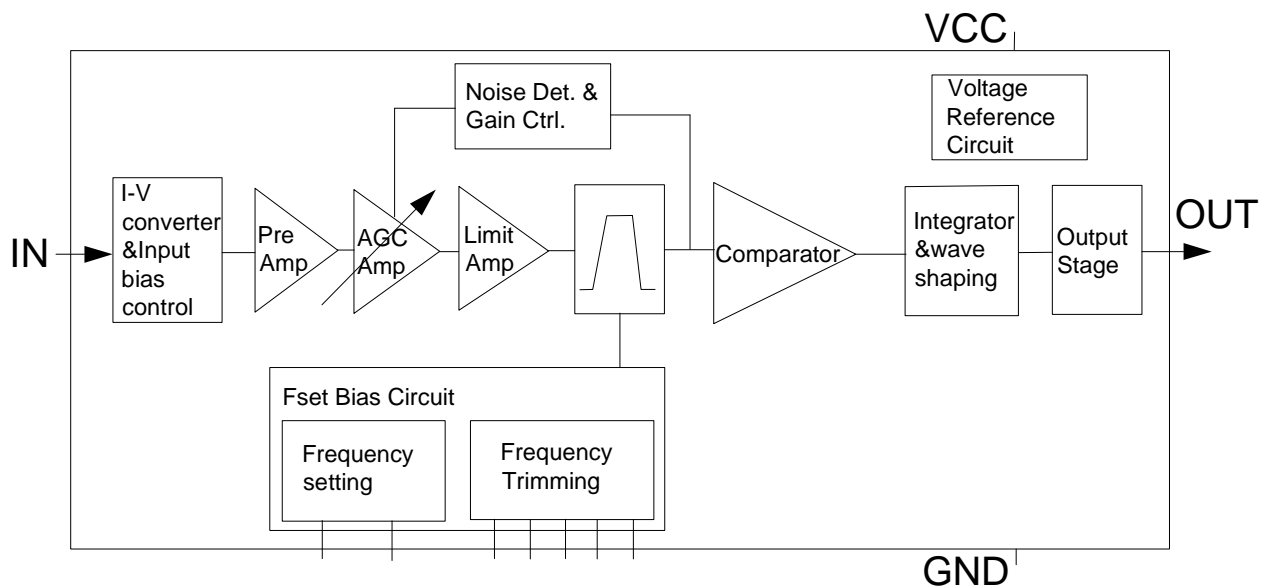
RF Filter should be connected closely between Vcc pin and GND pin.

SGR2838H-2 Code Property :

Data format		Data format	
NEC	O	Zenith	O
GRUNDIG	O	RCA _ Thomson	X
RC5 _ Philips	O	SHARP	O
RC6 _ Philips	O	SONY 12BIT	O
RCMM	X	SONY 15BIT	X
Matsushita	O	SONY 20BIT	X
Toshiba	O	Mitsubishi	O
RCS-80	O	High data rate(4000 bit/s)	X

Notes: O: Recommended X: Not recommended

■ Block Diagram:



■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	MIN.	MAX.	Unit
Supply Voltage	V _{CC}	0	6.0	V
Output Voltage	V _{out}	0	6.0	V
Output Current	I _{out}	0	2.5	mA
Operating Temperature	T _{opr}	-20	80	°C
Storage Temperature	T _{st}	-40	125	°C

■ Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Voltage	V_{CC}	2.5	5.0	5.5	V
Input Frequency	F_{in}	30	37.9	60	kHz
Operating Temperature	T_{opr}	-20	25	80	°C

■ Electro-Optical Characteristics ($T_a=25^{\circ}C$, and $V_{cc}=3V/5V$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Current	I_{CC}	--	0.9	1.2	mA	$I_{in}=0 \mu A, V_{cc}=3V$
			1.0	1.5		$I_{in}=0 \mu A, V_{cc}=5V$
High Level Output Voltage	V_{OH}	$V_{CC}-0.3$	V_{CC}	--	V	$V_{cc}=3V, V_{cc}=5V$
Low Level Output Voltage	V_{OL}	--	0.2	0.4	V	$I_{sink}=2.5mA$
Reception Distance	L_0	15	--	--	m	$\theta=0^{\circ}$
	L_{45}	8	--	--		$\theta=45^{\circ}$
Half Angle(Horizontal)	θ_h	-	45	-	deg	
Half Angle(Vertical)	θ_v	-	30	-	deg	
Peak Wavelength	λ_p	-	940	-	nm	
High Level Pulse Width	T_1	500	600	800	μs	$F_{in}=37.9kHz, 600\mu s$
Low Level Pulse Width	T_2	500	600	800	μs	$F_{in}=37.9kHz, 600\mu s$
Center Frequency	f_c	-	37.9	-	kHz	

■ Test Method :

The specified electro-optical characteristics is satisfied under the following Conditions at the controllable distance.

◆ Measurement place:

A place that is nothing of extreme light reflected in the room.

◆ External light:

Project the light of ordinary white fluorescent lamps which are not high Frequency lamps and must be less then 10 Lux at the module surface. ($E_e \leq 10Lux$)

◆ Standard transmitter:

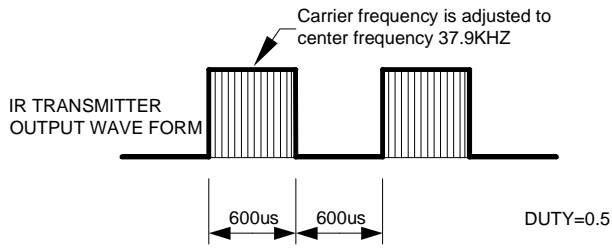
Standard transmitter: A transmitter whose output is so adjusted as to $V_o=400mVp-p$ and the output Wave form shown in Fig.-1. According to the measurement method shown in Fig.-2 the standard transmitter is specified.

However , the infrared photodiode to be used for the transmitter should be $\lambda_p=940nm, \Delta\lambda =50nm$. (Standard light / Light source temperature $2856^{\circ}K$).

◆ Measuring system:

According to the measuring system shown in Fig.-3

Fig.-1 Transmitter Wave Form



D.U.T output Pulse

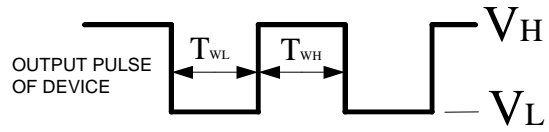


Fig.-2 Measuring Method

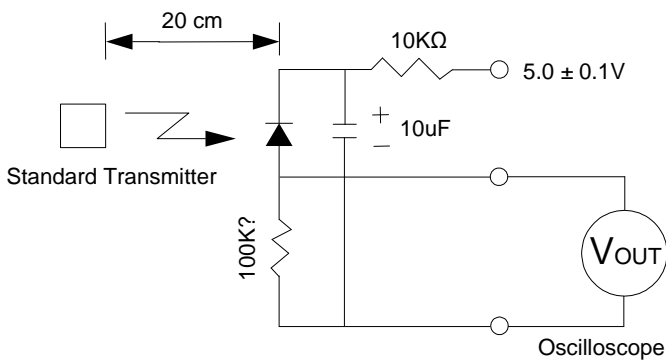
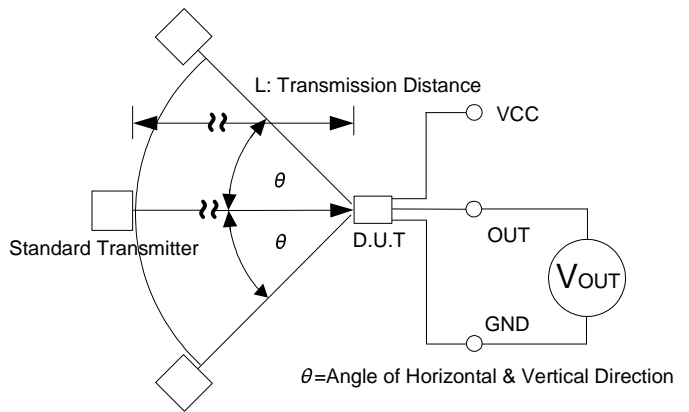


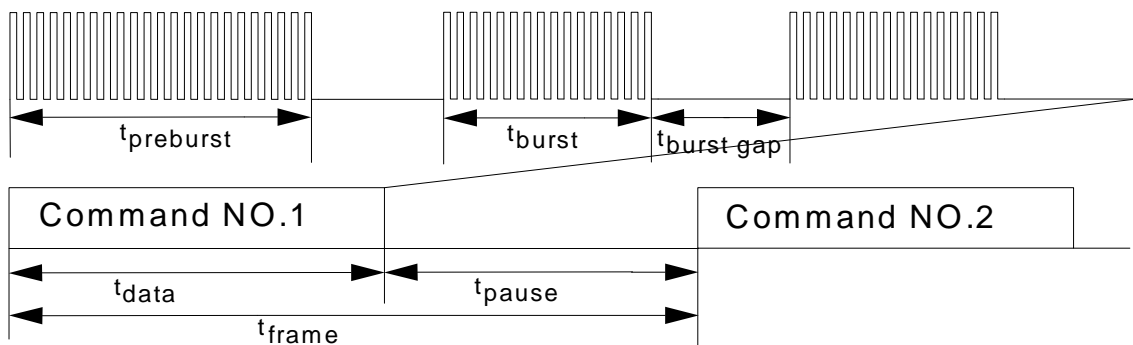
Fig.-3 Measuring System



■ The Notice of Application:

Transmission of remote control signal consist of four parts: Encode Part, IR Transmitter Source, SGR device, Decode Part

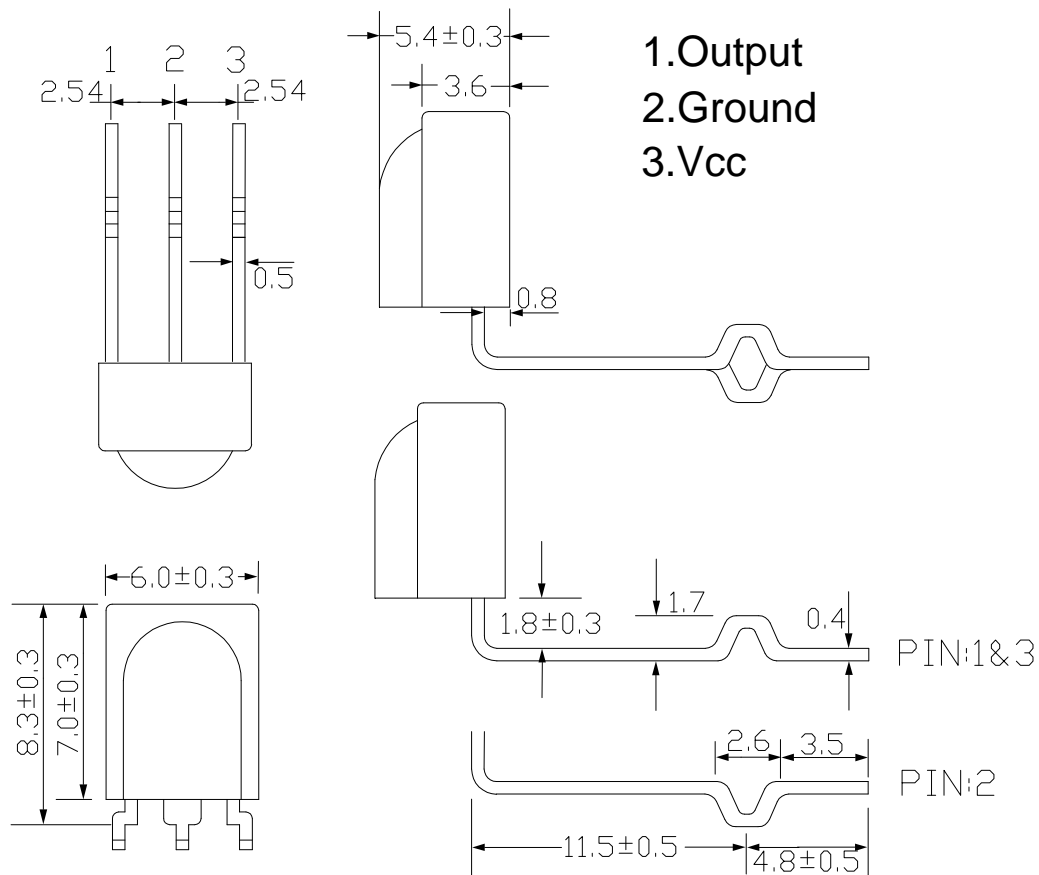
1. Strong or weak light of IR Transmitter can affect distance of transmission.
2. When using the SGR2838H-2, it requires the composition of code pattern to reach the demand as follows:



Minimum t_{burst} (number of pulses per burst)	Minimum t_{burst_gap} (number of pulses between two burst)	Minimum t_{pause}
10 pulses	14 pulses	50 msec

3. It needs to ensure the translation range of decode part if it is applied to the pulse-width range. If the above items hardly assure of its application, it'll cause NG(no good) message from the edge of signal.

■ Package Dimensions



Note: 1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.25 mm

■ Packing Quantity Specification

250 PCS/1 Bag