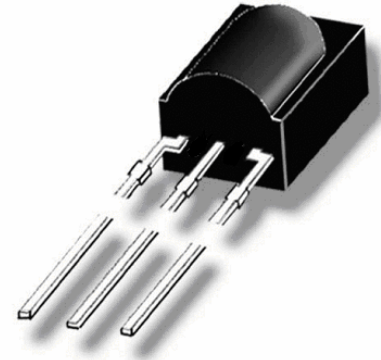


# Photo Module for PCM Remote Control Systems

## Description

The **HM338** is miniaturized receiver for use infrared carrier frequency PCM remote control systems. A photo PIN diode and a low noise 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.



OUT GND Vs

## Features

- Photo detector and Preamplifier in one package
- Internal filter for PCM frequency
- TTL and CMOS compatibility
- Output active low
- Wide supply voltage & low current dissipation
- Suitable burst length  $\geq 10$  cycles/burst

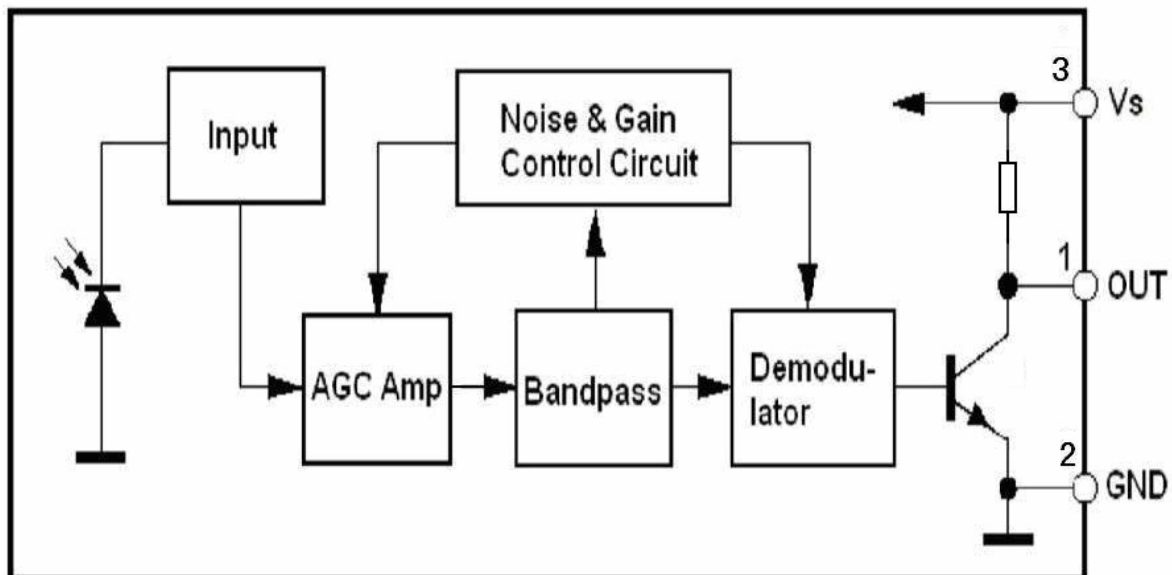
## Special Features

- Enhanced immunity against all kinds of disturbance light
- No occurrence of disturbance pulses at the output

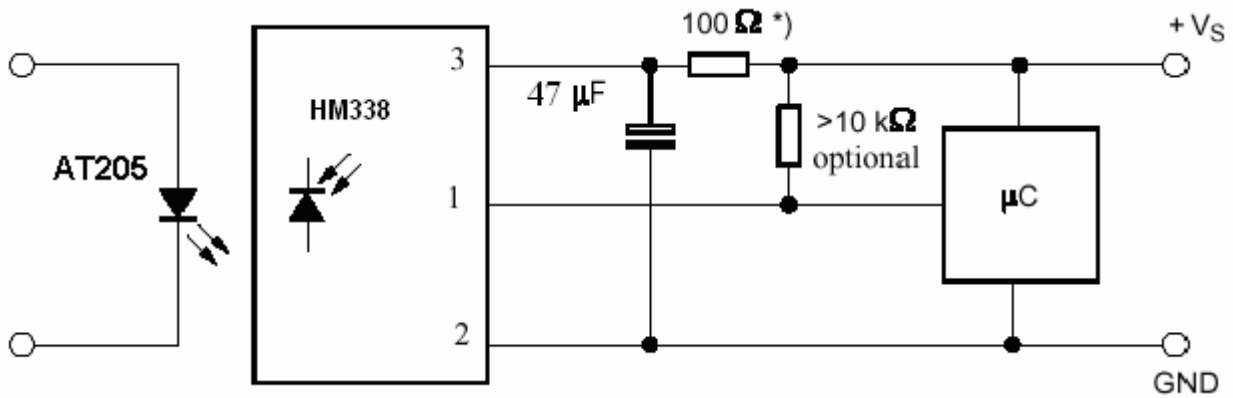
## Applications

TV, VTR, Acoustic Devices, Air Conditioner, Car Stereo Units, Computers, Interior controlling appliances, and all appliances that require remote controlling

## Block Diagram



## Application Circuit



\*) recommended to suppress power supply disturbance

## Absolute Maximum Ratings

Tamb = 25

Parameter	Test Conditions	Symbol	Value	Unit
Supply Voltage	(Pin 3)	Vs	6.0	V
Supply Current	(Pin 3)	Is	5	mA
Output Voltage	(Pin 1)	Vo	6.0	V
Storage Temperature Range		Tstg	-30...+105	
Operating Temperature Range		Tamb	-25...+85	
Power Consumption	(Tamb = 85 )	ptot	50	mW
Soldering Temperature	t = 5s , 1 mm from case	Tsd	260	

## Basic Characteristics

Tamb = 25

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Supply Current (Pin3)	Vs = 5V, Ev = 0	ISD	0.7	1.1	2	mA
Supply Voltage (Pin3)		Vs	2.7		5.5	V
Transmission Distance	IR diode AT205, If = 400 mA	d	20			m
Output Voltage High (Pin1)	Vs = 5V	VOSH	4.5			V
Output Voltage Low (Pin1)	IosL = 2 mA, f = fo, tp/T = 0.4	VOSL			250	mV
Level Output Pulse Width	Burst Wave= 600µs, Period= 1.2ms Ee=0.3~200mW/cm <sup>2</sup>	TWH	500		800	µs
Level Output Pulse Width		TWL	500		800	µs
Carrier frequency		fo		37.9		kHz
Peak Wavelength		λ		940		nm
Directivity	Angle of half transmission distance	φ1/2		±45		deg

**Reliability Test**

TEST ITEM	TEST CONDITION	TEST TIME	SAMPLE NUM	OK NUM
High Temperature Storage	Ta=+85	t=240H	22	22
Low Temperature Storage	Ta=-25	t=240H	22	22
Resistance to soldering heat	Soak into solder tub of Tsd=260	1cycle 5sec	22	22
Electro Static Discharge	HBM C=100pF, R=1.5kΩ, 2kV,	each pin test once	22	22
High Temperature/Humidity*	Ta=+85 , 90%RH	t=240H	22	22
Heat Cycle*	-25 ~+85 (0.5H)	20cycle	22	22

**Note** : \*(electro-optical characteristics) shall be satisfied after leaving 2 hours in the normal temperature

**Package Outline**

Note: tolerance ±0.3mm

Dimensions in mm:

