

**Photo Module for PCM Remote Control Systems**

**Description**

The HM4238D is a miniaturized receiver for use in Infrared carrier frequency PCM remote control systems. A high quality photo diode and a low noise preamplifier are assembled on lead frame, and 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**

- Photo detector and Preamplifier in one package
- Internal filter for PCM frequency
- TTL and CMOS compatibility
- Output active low
- Suitable burst length • 6 cycles/burst
- Low current consumption 0.35mA 3V
- Operates down to 2.2 Volt
  
- Lead-Free component in accordance with RoHS directives

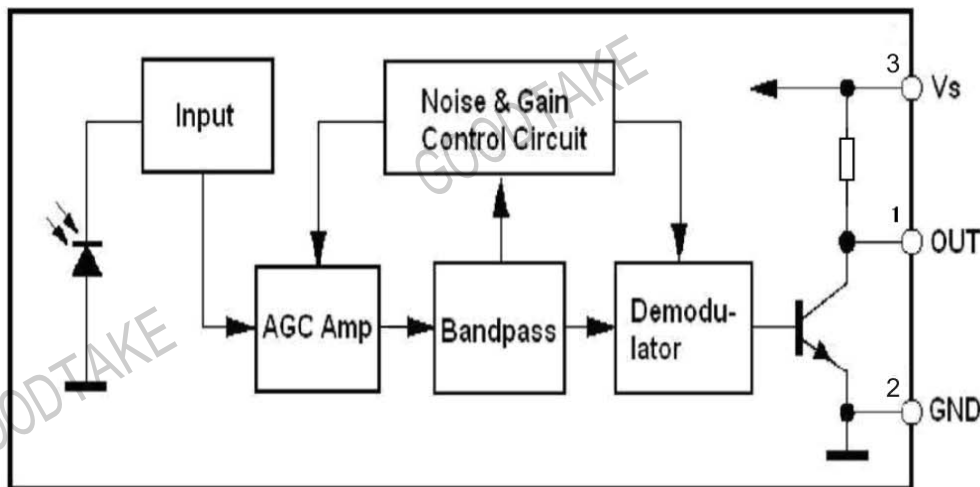
**Special Features**

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

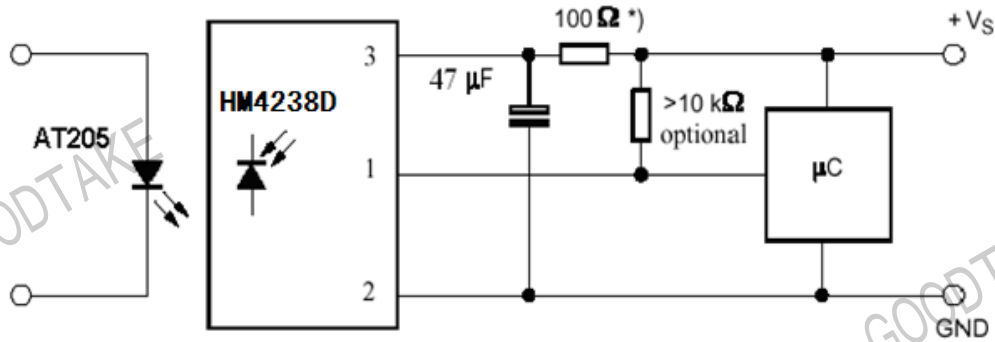
**Applications**

TV, Set top box, DVD, AV equipments, Air Conditioner, and IR Remote Control system

**Block Diagram**



**Application Circuit**



\*) recommended to suppress power supply disturbance

**Absolute Maximum Ratings**

Tamb = 25 °C

Parameter	Test Conditions	Symbol	Value	Unit
Supply Voltage	(Vs)	Vs	0---6.0	V
Supply Current	(Vs)	Is	5	mA
Output Voltage	(OUT)	Vo	0---6.0	V
Output Current	(OUT)	Io	2.5	mA
Storage Temperature Range		Tstg	-30---+85	°C
Operating Temperature Range		Tamb	-25---+85	°C
Power Consumption	( Tamb ≤ 85°C )	Ptot	10	mW
Soldering Temperature	t ≤ 5s 1mm from case	Tsd	260	°C

**Basic Characteristics**

Tamb = 25 °C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Supply Voltage (Vs)	Recommended operating	Vs	2.5		5.5	V
Supply Current (Vs)	Vs = 5V	Is	0.25	0.5	0.9	mA
Transmission Distance	IR diode AT205, IF=0.4A	d	20			m
Output Voltage High (Pin1)	Vs = 5V Cycle 1.2mS , 50% duty	VOSH	45			V
Output Voltage Low (Pin1)		VOSL			250	mV
Level Output Pulse Width	Burst Wave= 600µs , Cycle 1.2mS , 50% duty	TWH	400		800	µs
Level Output Pulse Width		TWL	400		800	µs
Carrier frequency		fo		37.9		kHz
Peak Wavelength		λ		940		nm
Directivity	Angle of 1/2 transmission distance	θ 1/2		± 45		deg

Package Outline

Dimensions in mm: tolerance±0.3mm

