



勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
Http://www.100y.com.tw

F M-

## 6038LM-5A

### General Description

The photo IC is a complete IR receiver for data communication developed and optimized for use in carrier frequency modulated transmission applications. Its function can be described using the block diagram (see figure 1). The input stage meets two main functions. First, it provides a suitable bias voltage for the PIN diode. Secondly, the pulsed photo-current signals are transformed into a voltage by a special circuit which is optimized for low noise applications. After amplification by a controlled gain amplifier (CGA), the signals have to pass a tuned integrated narrow bandpass filter. The demodulator is used to convert the input burst signal into a digital envelope output pulse and to evaluate the signal information quality, i.e. unwanted pulses will be suppressed at the output pin. All this is done by means of an integrated dynamic feedback circuit which varies the gain as a function of the present environmental condition (ambient light, modulated lamps etc.). Other special features are used to adapt to the current application to secure best transmission quality.

### Features

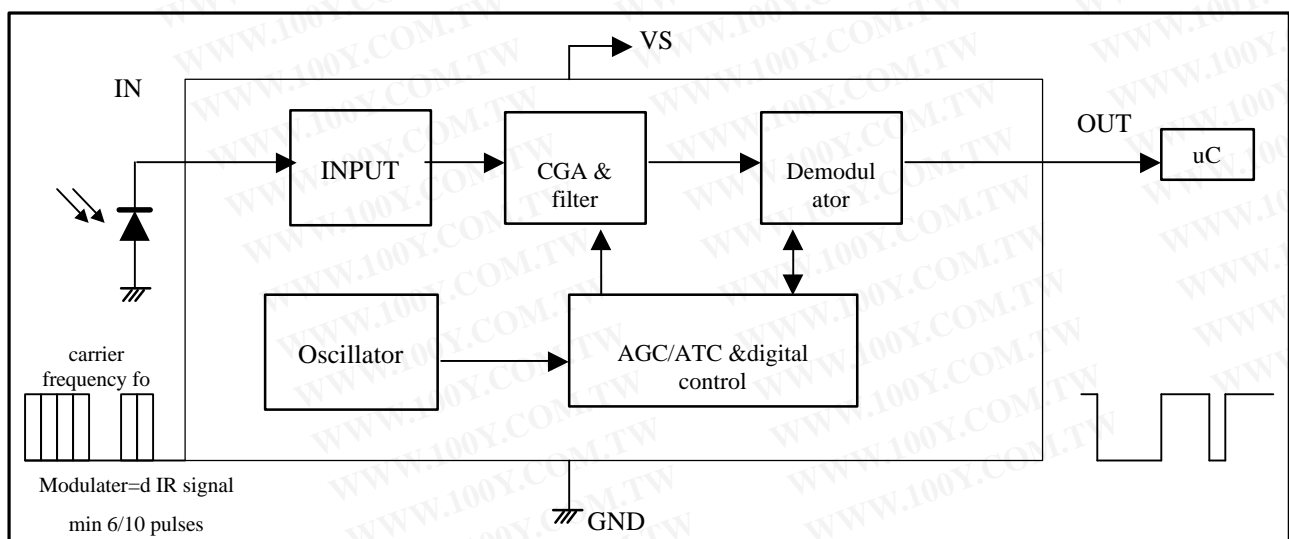
- No external components except PIN diode
- Supply-voltage range: 4.5V to 5.5V
- Automatic sensitivity adaptation (AGC)
- Automatic strong signal adaptation (ATC)
- Enhanced immunity against ambient light disturbance
- TTL and CMOS compatible
- Suitable min. burst length  $\geq 10$  pulses/burst

### Application

- Audio video applications
- Home appliances
- Remote control equipment

### Block Diagram

Figure 1.





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**Absolute Maximum Ratings**

(at 25 Unless otherwise note)

Parameter	Symbol	Ratings	Unit
Supply voltage	Vs	-0.3 to 5.5	V
Supply current	Is	5	mA
Input Voltage	Vin	-0.3 to Vs	V
Input DC current at Vs=5V	Iin	0.6	mA
Output voltage	Vo	-0.3 to 5.5	V
Storage temp.	Tstg	-40 to +125	
Operating temp.	Tamb	-25 to +85	
Power dissipation at Tamb=25°C	Ptot	30	mW
Soldering temp. *1	Tsd	260	

\*1. t 5s, 2mm from lead foundation.

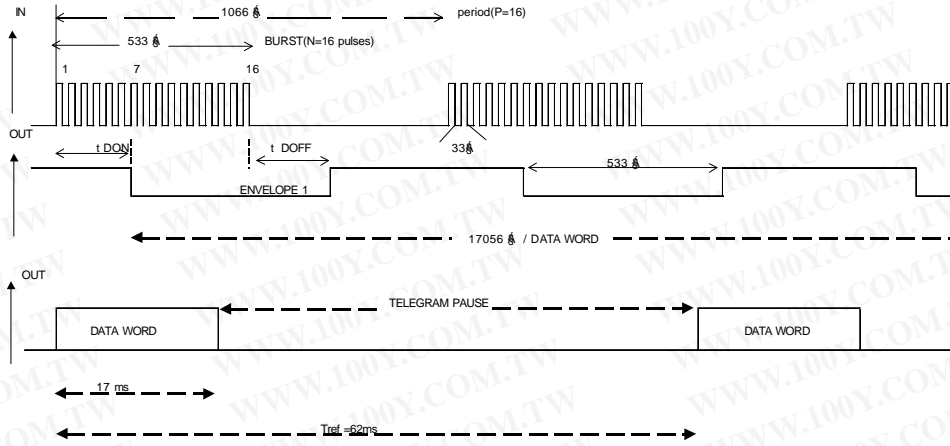
**Absolute Maximum Ratings**

Tamb= -25 to 85 , Vs=4.5 to 5.5V unless otherwise spe

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Supply voltage		Vs	4.5		5.5	V
Supply current(without Iin)	Iin=0	Is		1		mA
Internal pull-up resistor		Rpu		30~40		k
Output voltage low	IOL=2mA	VOL	-		250	mV
Output voltage high		VOH	Vs-0.25		Vs	V
Max. DC output current	R2=2.4k	Vodc			2	mA
Output current clamping	R2=0	IocL		7.5		mA
Max. input DC current	Vin=0	Vin			600	μ A
AC input current at 100 Hz		I100			I	μ A
Detection threshold current signal square peak to peak	38KHz	IEemin		500	1500	pA
Max. detection threshold current	Signal is square pp	IEemax		100		μ A
Frequency		f	-	38	-	KHz
Center frequency zapping accuracy	T=25	fo	fo-1.5%	fo	fo+1.5%	KHz
Center frequency of bandpass		fo	fo-3%	fo	fo+3%	KHz
Arrival distance	200 ±50 Lux	0°	10	15	-	m
		±45°	7	10	-	

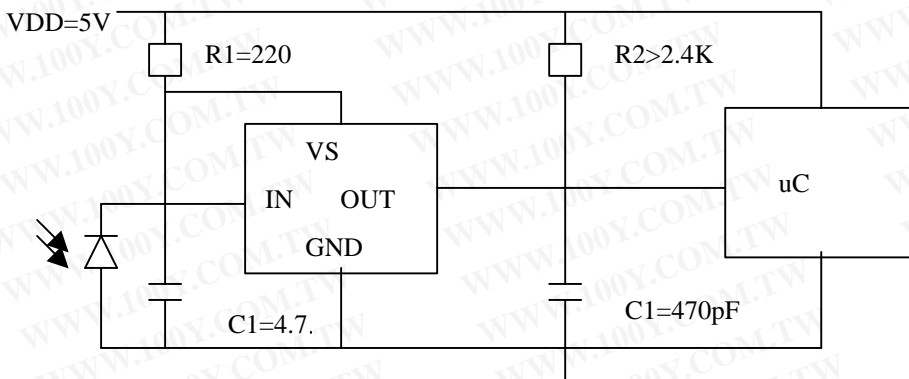
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**Ustration of used terms**

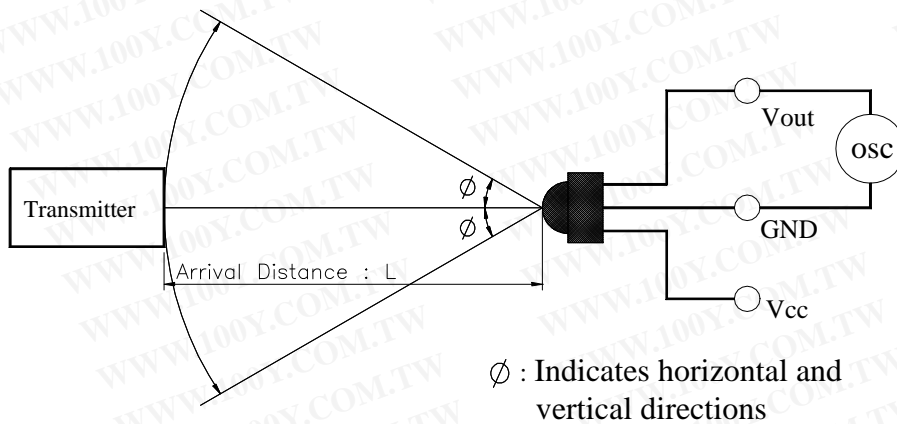


Example:  $f=30\text{kHz}$ , burst with 16 pulses, 16 periods

**Application circuit**



**Test condition of arrival distance**



[ Measurement condition for arrival distance ]

- Ambient light source : Detecting surface illumination shall be irradiate  $200 \pm 50\text{Lux}$  under ordinary white fluorescence lamp without high frequency lighting

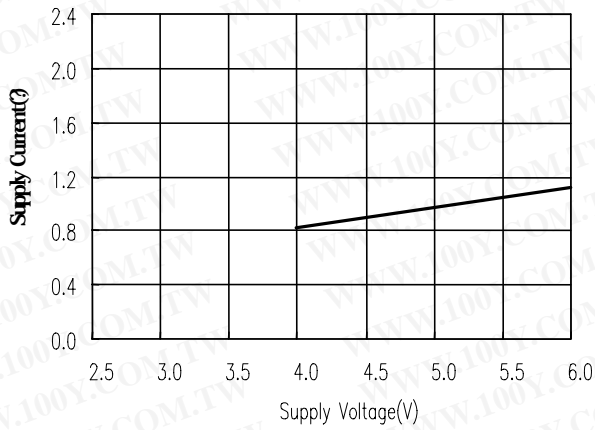


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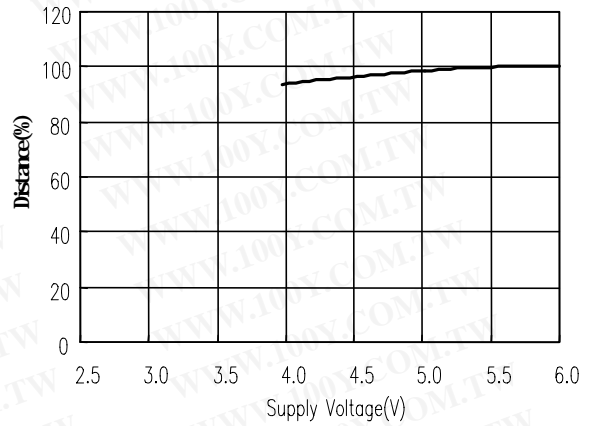
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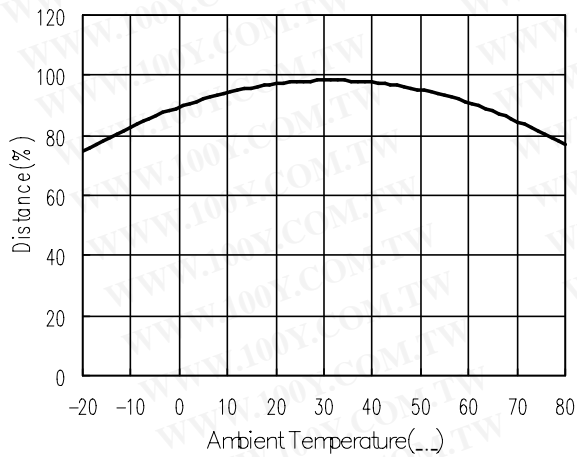
Typical Characteristics (Tamb = 25 )



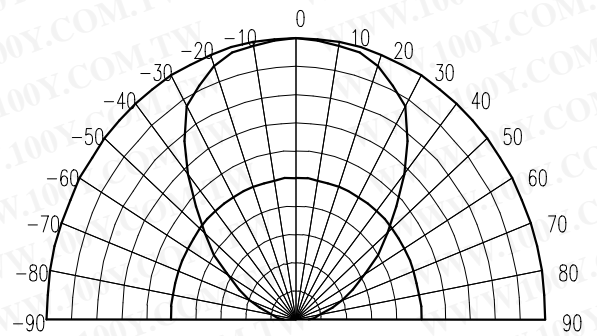
Supply Current vs. Supply Voltage



Relative Distance vs. Supply Voltage



Relative Distance vs. Ambient Temperature



Sensitivity Angle Characteristics for Reference



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NOTE:

1. PIN CONFIG

- (1)Vout
- (2)GND
- (3)Vcc

2. G.T  $\pm 0.3$

(UNIT: mm)

