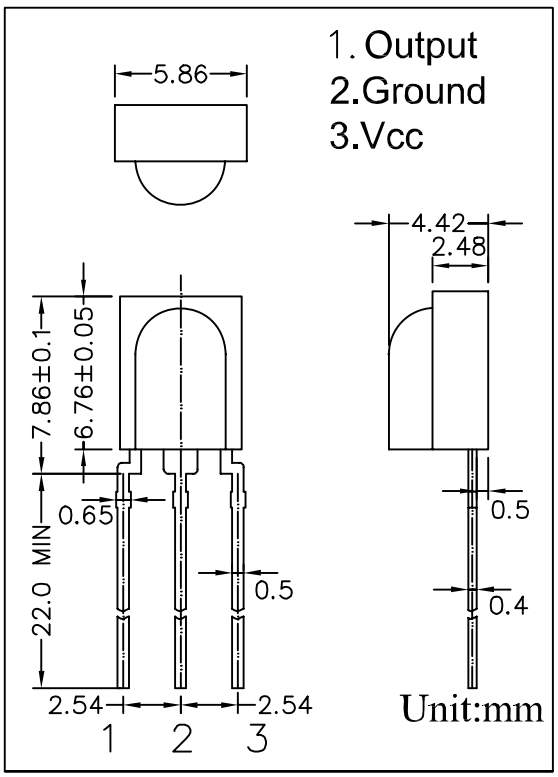
IR Receiver Modules for Remote Control Systems

Description

The DP1838 is remote control receiver modules.
Pin diode and receiver IC are assembled on one module.
Small-sized, light-weight, and low current consumption.
modules have been achieved by using resin mold.
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.

Dimensions



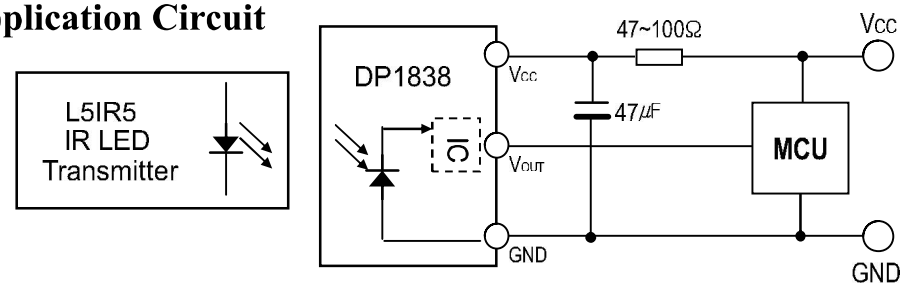
Features

- ◆Supply Voltage Range: 2.5V to 5.5 V
- ◆TTL and CMOS compatibility
- ◆Photo detector and preamplifier in one package.
- ◆Internal filter for PCM frequency
- ◆Output active low
- ◆Enhanced Immunity against all kinds of disturbance light
- ◆No occurrence of disturbance pulses at output pin with in nominal conditions.
- ◆Short settling time after power On.
- ◆Meet RoHS

Applications

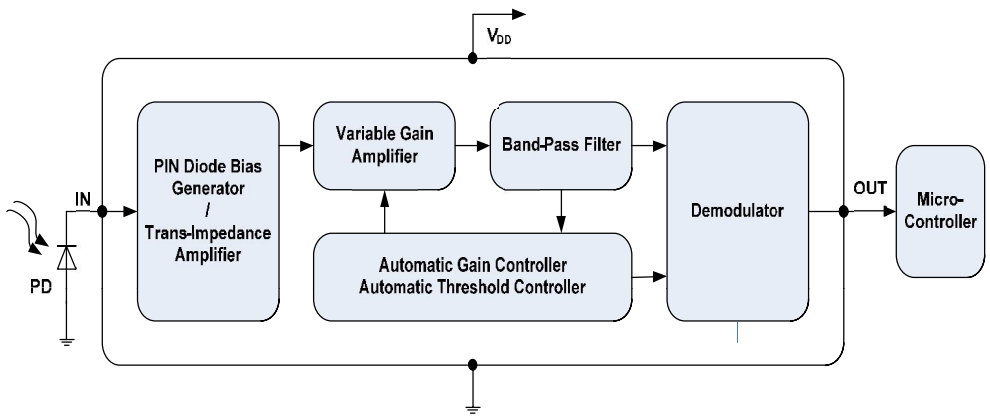
- ◆Audio video applications
- ◆Home appliances
- ◆Toy applications
- ◆Remote control equipment

Application Circuit



R-C filter recommended to suppress power supply disturbances.
R-C filter should be connected closely between Vcc pin and GND pin.

Block Diagram



Absolute Maximum Ratings

(Ta = 25℃,unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply Voltage	VDD	-0.3	--	6.0	V	
Output Voltage	Vout	-0.3	--	--	V	
Storage Temperature	Tst	-40	--	125	℃	
Soldering Temperature	Tsd	260℃±5℃, Max 5 sec			℃	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Operating Voltage	VDD	2.5	--	5.5	V	
Input Frequency	Fin	--	38	--	KHz	
Operating Temperature	Tor	-25		85	℃	

Electrical Specifications

Specifications hold over the Recommended Operating Conditions,unless otherwise noted herein.
All values are at 25℃ and VDD=3.0V

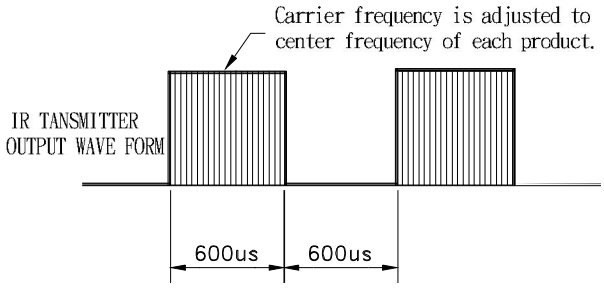
Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Consumption Current	Icc	08	10	12	mA	No signal input
Peak Wavelength	λ_p	---	940	---	nm	
Reception Distance	L_0	12	---	---	m	At the ray axis *1
	L_{45}	6	---	---		
Half Angle(Horizontal)	Θ_h	---	45	---	deg	
Half Angle(Vertical)	Θ_v	---	45	---	deg	
High Level Pulse Width	T_H	400	---	800	μs	At the ray axis *2
Low Level Pulse Width	T_L	400	---	800	μs	
High Level Output Voltage	V_H	2.5	---	---	V	
Low Level Output Voltage	V_L	---	0.2	0.5	V	

Notes:

*1:The ray receiving surface at a vertex and relation to the ray axis in the range of θ= 0° and θ=45°.

*2:A range from 30cm to the arrival distance. Average value of 50 pulses.

Fig.-1 Transmitter Wave Form



Duty=0.5

D.U.T output Pulse

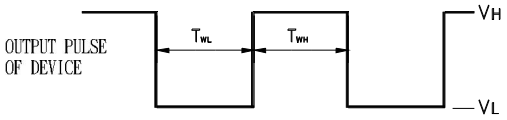


Fig.-2 Measuring Method

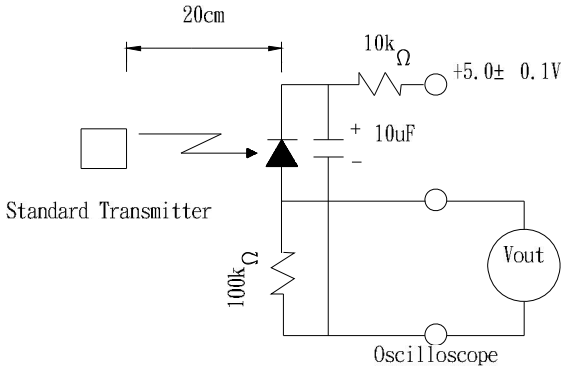


Fig.-3 Measuring System

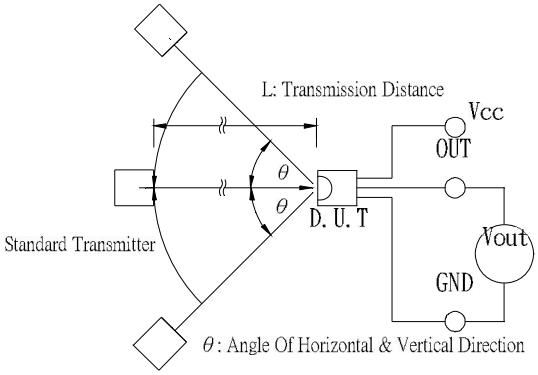
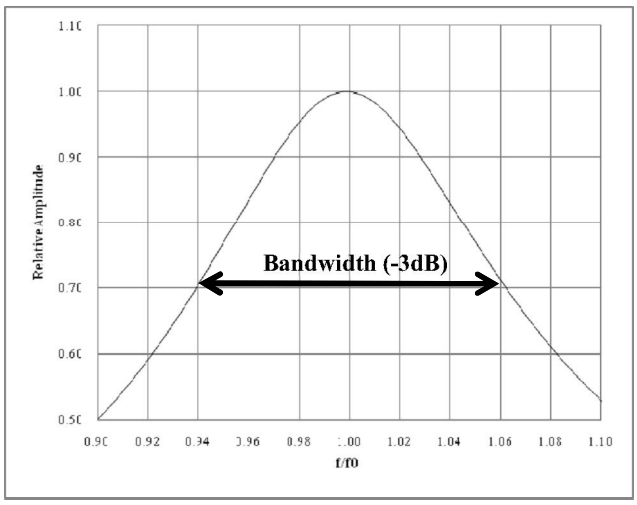
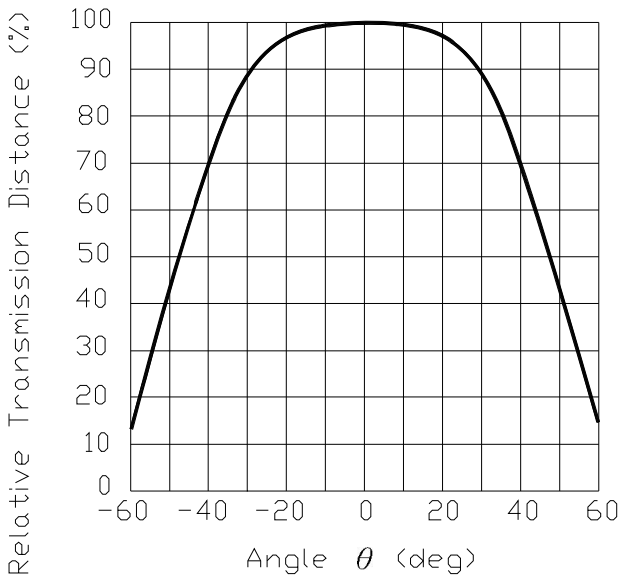


Fig.-4 Typical Band-pass Curve



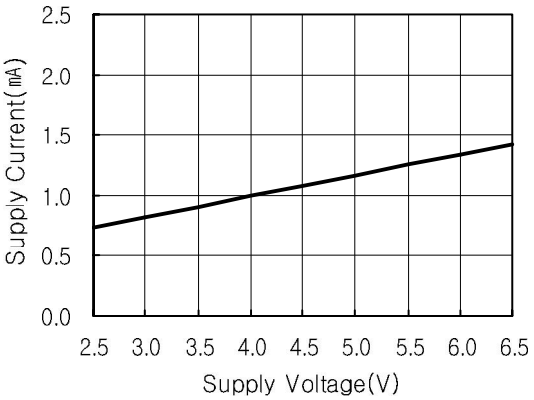
Q=f/f0/B; B=> -3dB values
Example : Q=1/(1.06-0.94)=8

Fig.-5 Relative Transmission Distance vs. Direction

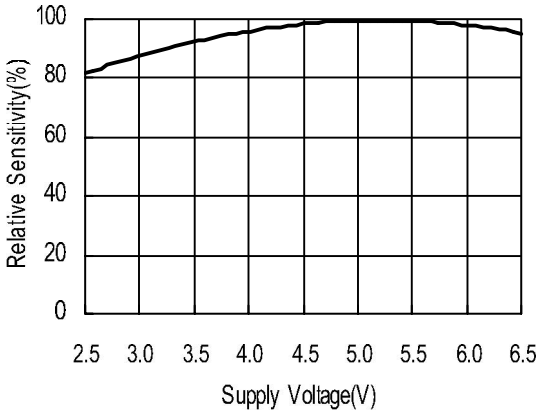


Electrical/Optical Characteristics

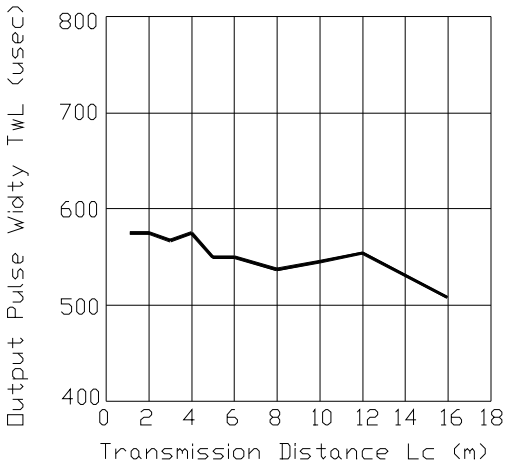
[Fig.6] Supply Current vs. Voltage



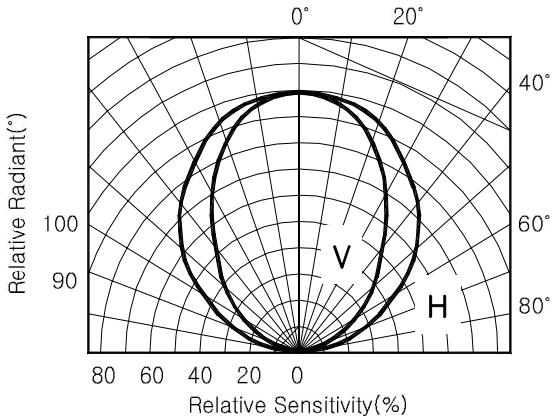
[Fig.7] Sensitivity vs. Supply Voltage



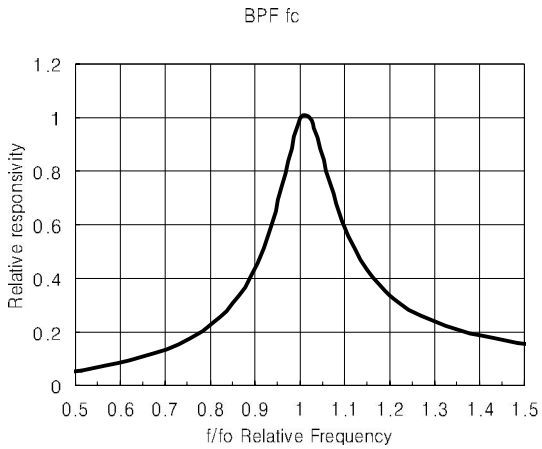
[Fig.8] Output Pulse Width vs. Distance



[Fig.9] Directivity (Horizontal)



[Fig.10] BPF Fc Curve



ESD Test Results

Parameter	Conditions	Specification	Results
Machine Model	C=200pF, R=0Ω	Min ±200V	>±200V
Human Body Model	C=100pF, R=1.5kΩ	Min ±2000V	>±2000V
Charged Device Model	R=100MΩ, 1Ω	Min ±800V	>±800V