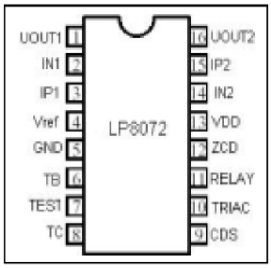
CS9803 PIR CONTROLLER

CS9803 GENERAL DESCRIPTION

CS9803 is a PIR (passive infra-red) controller, using analog mixing digital design technique and manufactures by CMOS process which can either drive TRIAC or RELAY depending on users' choice. With special noise immunity technique, CS9803 is the most stable PIR controller you can find on the market. More than this, there are few components needed in its application circuit which can reduce material cost and increase competitive.



CS9803 PIN DESCRIPTION

Pin No.	Pin Name	I/O	Description
1	UOU1		First stage OP amp output
2	NII 1		First stage OP amp positive input
3	II 1		First stage OP amp negative input
4	VREF		Stable reference voltage
5	GND		System ground
6	TB		Time base for 1. The delay time of receiving PIR singnal to sent a puls to trigger TRIAC or a high signal to trigger relay. The delay time = R x C x 32. The PIR signal patented and accepted only if the signal cycle greater than R x C x 768 .When state of relay or TRIAC is changing form active into inactive mode. It takes more than R x C x 4069, then system is able to receive PIR signal again. 2.The flash cycle show the beginning of auto mode. Note: Width of TRIAC pulse = R x C x 2. Flash cycle: R x C x 32768 10 K < R < 1M Ohm 100pF < C < 0.1 Uf (Reference Diagram 1)
7	QTEST		For testing only
8	TCI		To set up the timing of how long Triac or relay is active. During the period, if the system receives the PIR signal, then it restarts counting the timing again. The range for R: 10K < R < 1M Ohm C: 100uF< C < 0.1 uF (Reference Diagram 2)
9	CDS		Connected to a CDS for inhibiting relay or TRIAC being triggered. If TRIAC or relay has already being triggered by PIR signal and turned into active mode, then CDS can not inhibit PIR again.
10	TRIAC		To trigger TRIAC, active low Sink current: 15 mA max.
11	RELAY		To drive relay, active high Sink current: 10 mA max. Source current: 10 mA max.
12	ZCD		Detect zero cross of AC line under remote mode function.
13	VDD		Operation voltage: 5V, stand by current: 1mA
14	II2		2nd stage OP amp negative input

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15	NII2		2nd stage OP amp positive input
16	UOU2		2nd stage OP amp output

CS9803 Absolute Maximum Ratings

Parameter	SYMBOL	VALUE	Units
POWER SUPPLY Vdd WITH REPECT TO Vss	Vdd−Vss	5.6	V
VOLTAGE ON ANY PIN		−0.3−5.6	V
OPERATING TEMPERATURE	Top	0−70	C
STORAGE TEMPERATURE		−65−150	C

CS9803 ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Vdd	SUPPLY VOLTAGE		4.2	5	5.5	V
Ist	STANDY CURRENT		0.9	1.0	1.2	mA
Idd	OPERATING CURRENT	1.8mA, TRIAC 2.5mA, RELAY	1.8		2.5	mA
Vref	STABLE VOLTAGE	Vdd>4.2V	3.0	3.2	3.4	V
Iref	SOURCE CURRENT OF Vref		200			uA
	RIPPLE OF Vref				0.5	mV
	INPUT AND OUTPUT REGULATION OF Vref				0.3%	
Ftb	TIME BASE OPERATING FREQUENCY		15	16	17	KHZ
Vt+	CDS OPERATING TRIGGER		1.3	1.7	2.1	V
Vt−	CDS OPREATING TRIGGER		0.6	0.9	1.1	V
Icds	CDS SOURCE CURRENT		2.6	3.5	4.4	uA
Isource	CDS OUTPUT SOURCE CURRENT		9	10.4	17.4	mA
Isink	CDS OUTPUT SINK CURRENT		11.6	13	21	mA
Irs	RELAY SOURCE CURRENT				5	mA
Irsink	RELAY SINK CURRENT				5	mA

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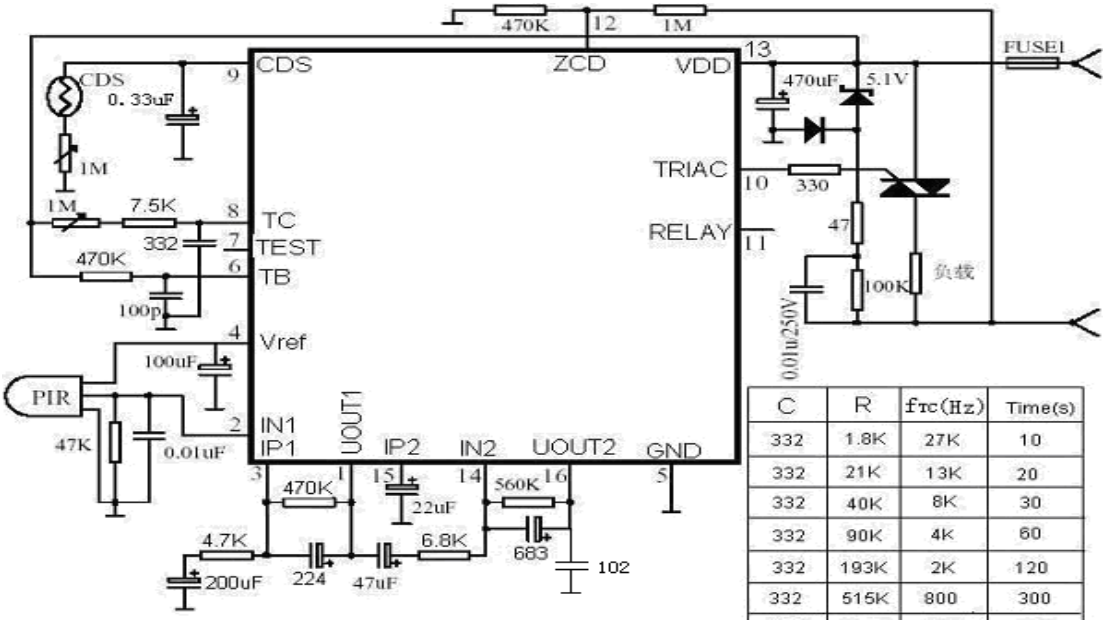
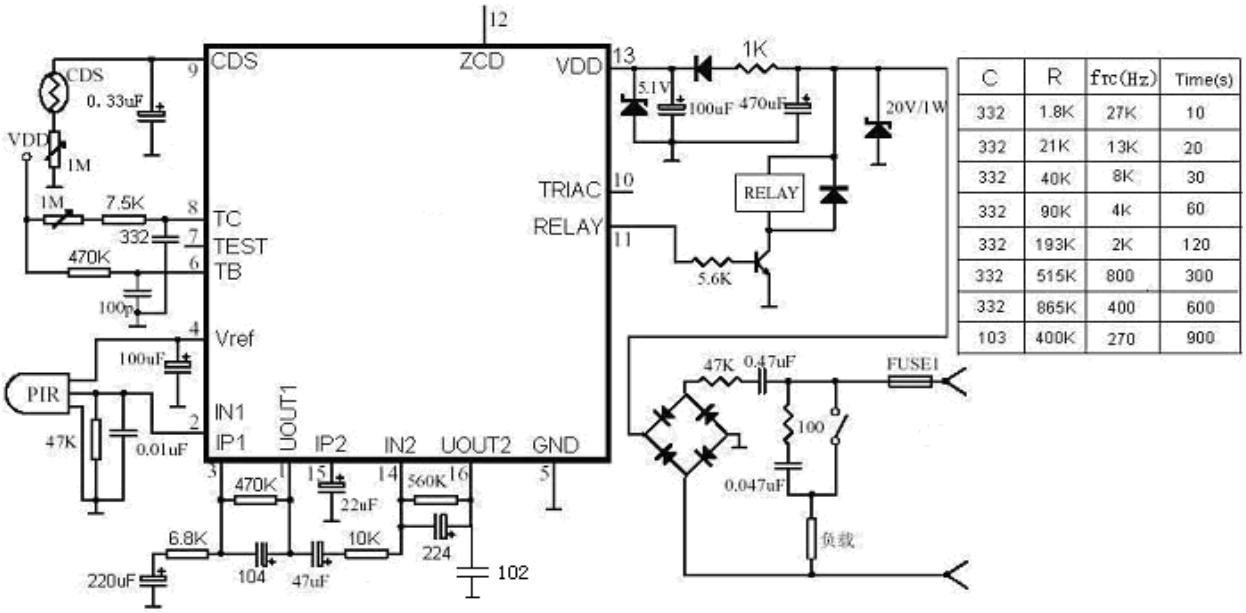
Vro	RELAY OPERATING VOLTAGE	18.8V: RELAY ON 13.1V: RELAY OFF	13.1		18.8	V
Itsink	TRIAC SINK CURRENT				15	mA
Itsource	TRIAC SOURCE CURRENT				50	uA

CS9803 TYPICAL APPLICATION



C	R	fTC(Hz)	Time(s)
332	1.8K	27K	10
332	21K	13K	20
332	40K	8K	30
332	90K	4K	60
332	193K	2K	120
332	515K	800	300
332	865K	400	600
103	400K	270	900



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