



PIR CONTROLLER
M7617

PIR CONTROLLER For Energy Saving Lamp Applications

GENERAL DESCRIPTION

The M7617 is a low power PIR (passive infra-red) controller LSI designed for automatic PIR lamp control. It can operate with 2 wire configurations for TRIAC applications for Energy saving lamp or with 3 wire configurations for relay applications.

The chip contains operation amplifiers, comparators, timer, a voltage regulator, 3 oscillator and control circuits. A CDS device is installed externally to cut off the operation of M7617 during the daytime.

FEATURES

- High noise immunity.
- 20 second warm-up.
- Drive either RELAY or TRIAC
- Adjustable OFF timer and Latch timer
- CDS input conditionally.
- Suitable for 110V/60Hz and 220V/50Hz applications
- 16 pin DIP or SOP package.

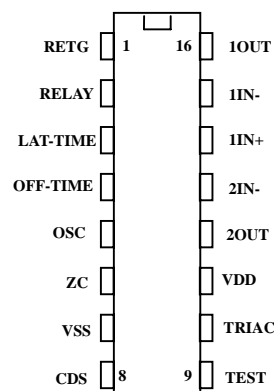
APPLICATIONS

- PIR light controller, Motion Detector, Alarm system, Auto-door bell.

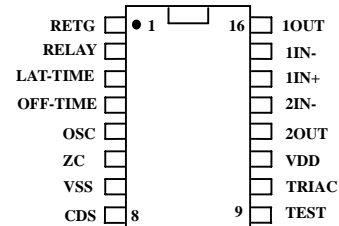
PIN DESCRIPTION

PIN	Pin Name	I/O	Description
1	RETG	I	Trigger type selection ; VDD : Retrigger ; VSS : Non-Retrigger
2	RELAY	O	To drive relay, active high
3	LAT-TIME	I	Latch Timer adjustment
4	OFF-TIME	I	OFF Timer adjustment.
5	OSC	I	Time Base Operating Frequency.
6	ZC	I	Input pin for AC zero crossing detecting.
7	VSS	—	Negative power supply.
8	CDS	I	Connect to the CDS voltage divider for daytime/night auto-detecting.
9	TEST	I	Test pin, Connect to VDD IC Enter quick test mode (For production testing) You can shorten the off (delay) time.
10	TRIAC	O	To trigger TRIAC, active low; Sink current : 15mA max.
11	VDD	—	Positive power supply.
12	2OUT	O	2 nd Stage Operation amplifier output.
13	2IN-	I	2 nd Stage Operation amplifier negative input.
14	1IN+	I	First Stage Operation amplifier positive input.
15	1IN-	I	First Stage Operation amplifier negative input.
16	1OUT	O	First Stage Operation amplifier output.

M7617-L16



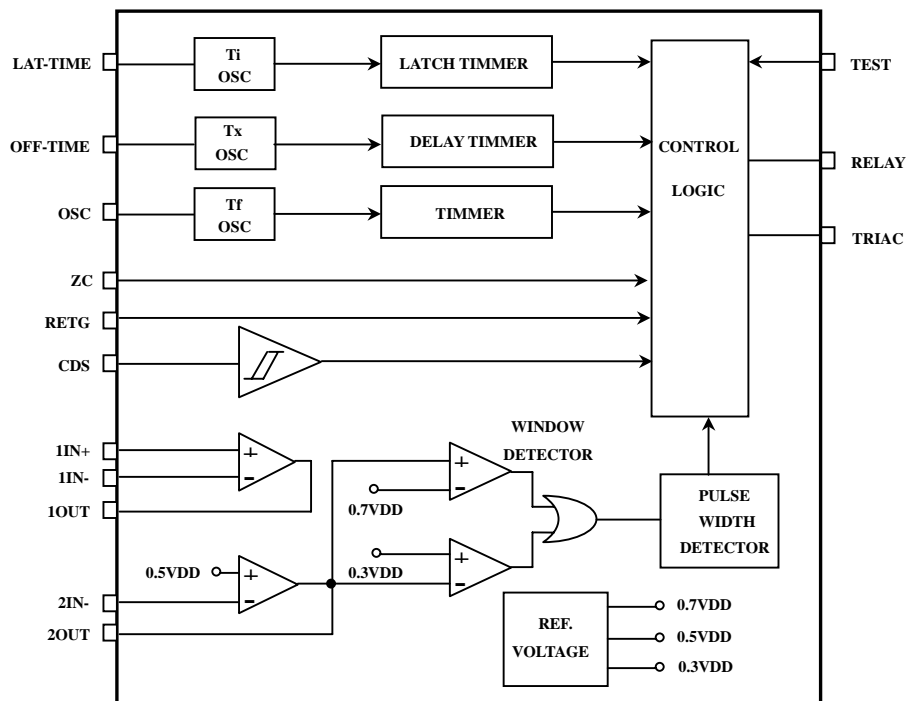
M7617-S16





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BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATING

(TA=25°C)

Parameter	Sym.	Rating	Unit
Power Supply V _{DD} With Respect to V _{SS}	V _{DD} - V _{SS}	6	V
Voltage On Any Pin		-0.3 to 6	V
Operating Temperature	Top	-20 to 70	°C
Storage Temperature		-65 to 150	°C

ELECTRICAL CHARACTERISTICS

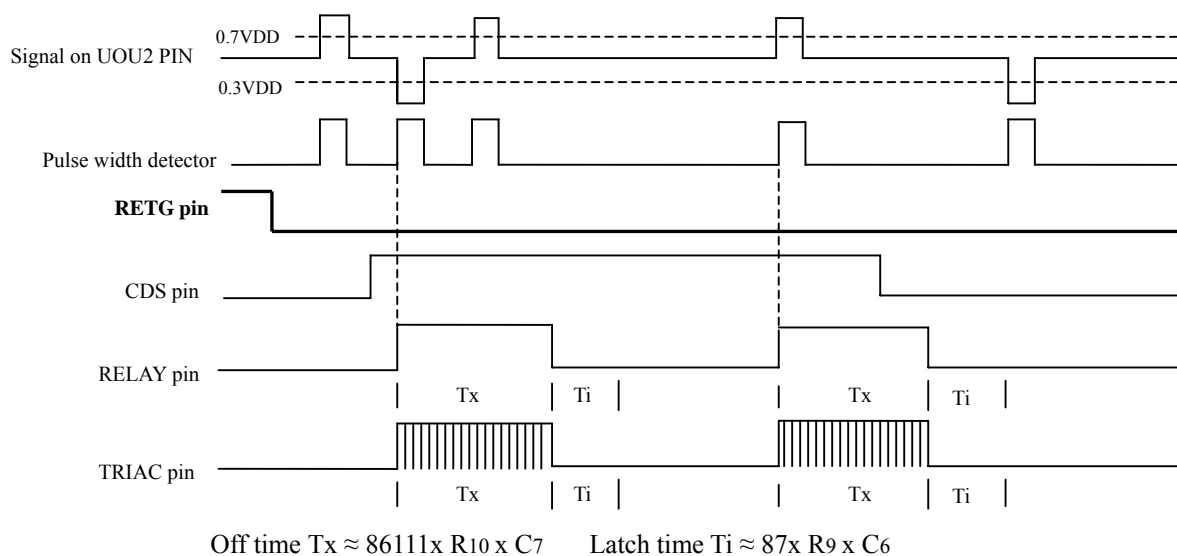
(TA=25°C)

Characteristics	Sym.	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	V _{DD}	2.0	4.5	5.5	V	
Stand by Current	I _{ST}	0.9	1.0	1.2	mA	
Operating Current	I _{DD}	1.8	—	2.5	mA	No load
“H” Transfer Voltage	V _{IH}	—	0.7 V _{DD}	—	V	
“L” Transfer Voltage	V _{IL}	—	0.3 V _{DD}	0.3 V _{DD}	V	
Time Base Operating Frequency	F _{OSC}	43	48	53	KHz	Rosc~1.1MΩ
OP Amp Open Loop Gain	A _{VO}	60	80	—	dB	No load
OP Amp Input Offset Voltage	V _{OS}	—	10	35	mV	No load
CDS Operating Trigger	V _{T+}	1.3	1.7	2.1	V	
CDS Operating Trigger	V _{T-}	0.6	0.9	1.1	V	
Relay Source Current	I _{RS}	—	—	10	mA	
TRIAC Sink Current	I _{TSINK}	—	—	15	mA	
TRIAC Source Current	I _{TSOURCE}	—	—	50	uA	

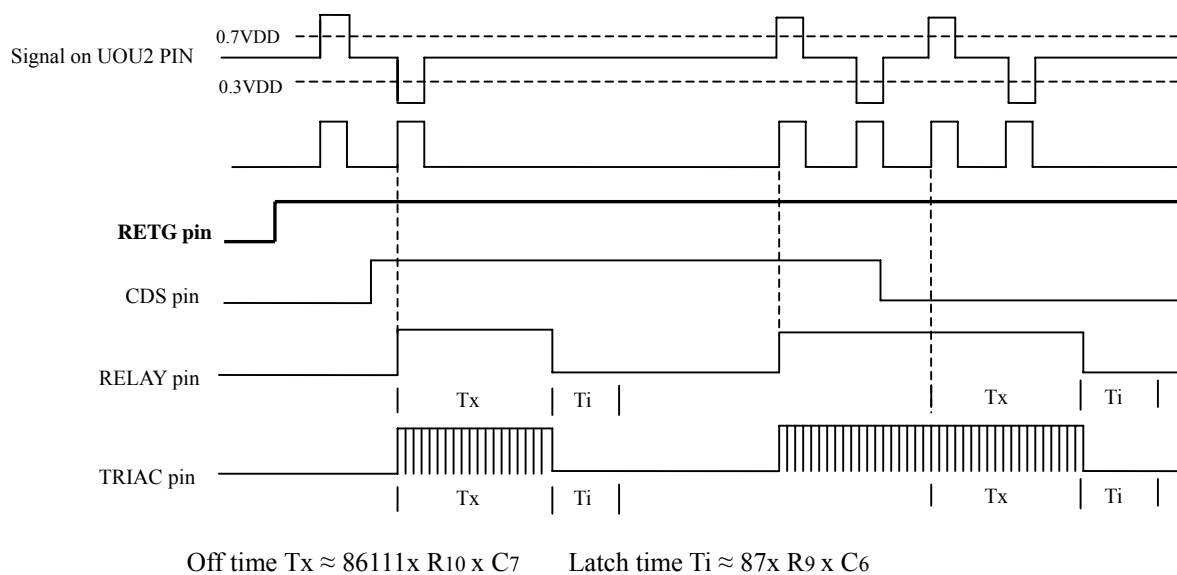


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NON-RETRIGGER (RETG=VSS)



RETRIGGER (RETG=VDD)

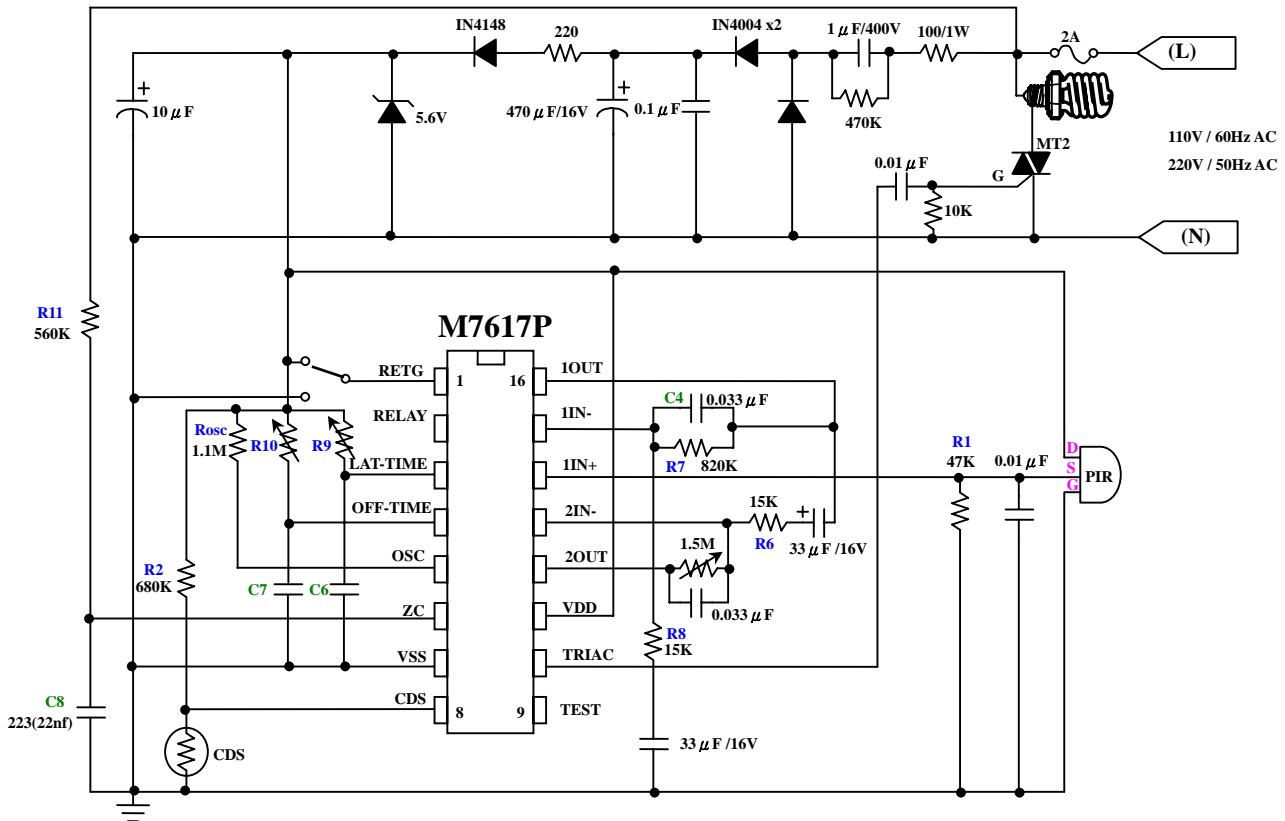




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APPLICATION DIAGRAM

*** TRIAC APPLICATION FOR ENERGY SAVING LAMP**



※ Latch Time

R9 (KΩ)	C6 (μF)	TI (Sec)
820	0.1	7.6
750	0.1	6.8
680	0.1	6.3
560	0.1	5
430	0.1	3.72
360	0.1	3.12
300	0.1	2.58
270	0.1	2.3

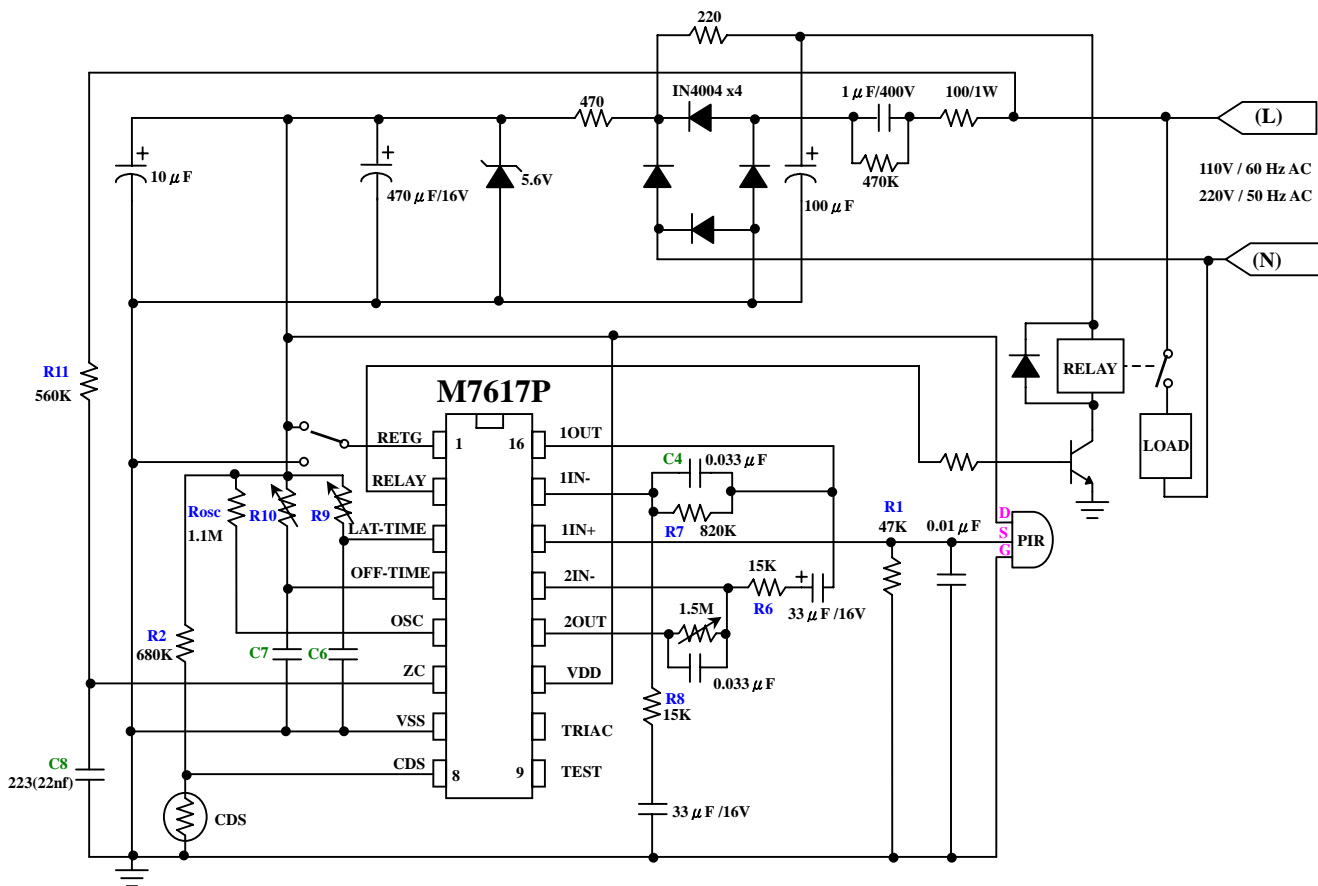
※ Off Time

R10 (KΩ)	C7 (pF)	Tx (Sec)
820	100	5.6
750	100	5.24
680	100	4.92
560	100	4.24
430	100	3.36
360	100	3.1
300	100	2.78
270	100	2.58
180	100	2.06



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*** RELAY APPLICATION**



※ Latch Time

R9 (KΩ)	C6 (µF)	TI (Sec)
820	0.1	7.6
750	0.1	6.8
680	0.1	6.3
560	0.1	5
430	0.1	3.72
360	0.1	3.12
300	0.1	2.58
270	0.1	2.3

※ Off Time

R10 (KΩ)	C7 (pF)	Tx (Sec)
820	100	5.6
750	100	5.24
680	100	4.92
560	100	4.24
430	100	3.36
360	100	3.1
300	100	2.78
270	100	2.58
180	100	2.06

* All specs and applications shown above subject to change without prior notice.
(以上電路及規格僅供參考,本公司得逕行修正)