

DC PIR CONTROLLER

**GENERAL DESCRIPTION 功能敘述**

The M7615 is a low power PIR ( passive infra-red ) controller with hi level output , paired with M3766 for battery power door bell/ relay /alarm application. With special noise immunity technique , M7615 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.

**FEATURES 產品特長**

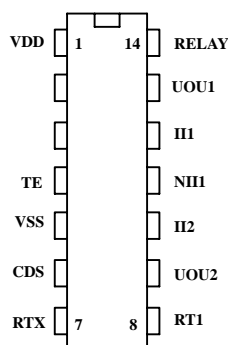
- High noise immunity.
- Low stand-by current < 90uA
- Drive either Relay.
- Adjustable play on duration and latch duration.
- On-chip voltage regulator.
- 20 second warm-up.
- CDS input conditionally.
- 14 pin DIP or SOP package.

**APPLICATIONS 產品應用**

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

**PIN ASSIGNMENT**

**M7615-P14**



DC PIR CONTROLLER

PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.
VDD		Operation voltage : 5V , Stand by current : 80~90uA	1
TE	I	TE = 1M	4
VSS		System ground.	5
CDS	I	Connect to a CDS for inhibit , when Vinhi = 0 disable , Vinhi = 1 enable trigger	6
RTX	I	Delay timer oscillator input The delay time of receiving PIR signal to trigger Encoder or a high signal to trigger relay. The range for : RTX=2 K ~ 5 M CTX=100P~0.01UF FOR 100P or 0.01uf delay time=45000 R*C FOR 1000P delay time=35000 R*C Delay Time : 20 ms ~ 2250s Ex : CTX=100p , RTX=680K , Delay Time=3.1s CTX=1000p , RTX=100K , Delay Time=3.5s CTX=0.01uf , RTX=10K , Delay Time=4.5s	7
RTI	I	Latch timer oscillator input The latch time of the range for : RTI=100 K ~ 1 M CTI=0.1UF(fix) Contain Time=35 R*C Contain time : > 0.5s ~ Ex : CTI=0.1uf , RTI=1M , Contain Time=3.5s	8
UOU2	O	2 <sup>nd</sup> stage OP amp output.	9
II2	I	2 <sup>nd</sup> stage OP amp negative input.	10
NI1	I	1 <sup>st</sup> stage OP amp positive input.	11
II1	I	1 <sup>st</sup> stage OP amp negative input.	12
RELAY	O	To drive relay , active high.	13
UOU1	I	1 <sup>st</sup> stage OP amp output.	14

Delay timing and Latch timing oscillator input pin, connect to external RC to obtain desired delay duration.

Variable delay(latch) duration can be obtained by selecting various values of RC or using a variable resistor.

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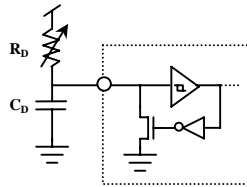


Fig.1 Timing Oscillator

The PIR signal amplifier needs a warm up period after power-on, so during this time the input should be disabled

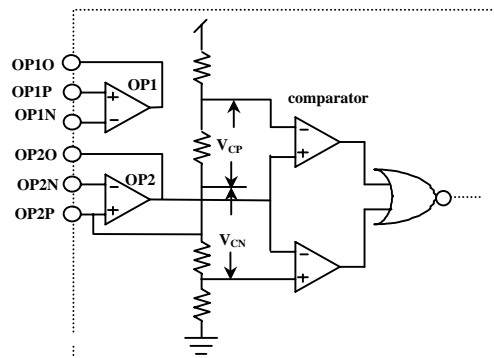
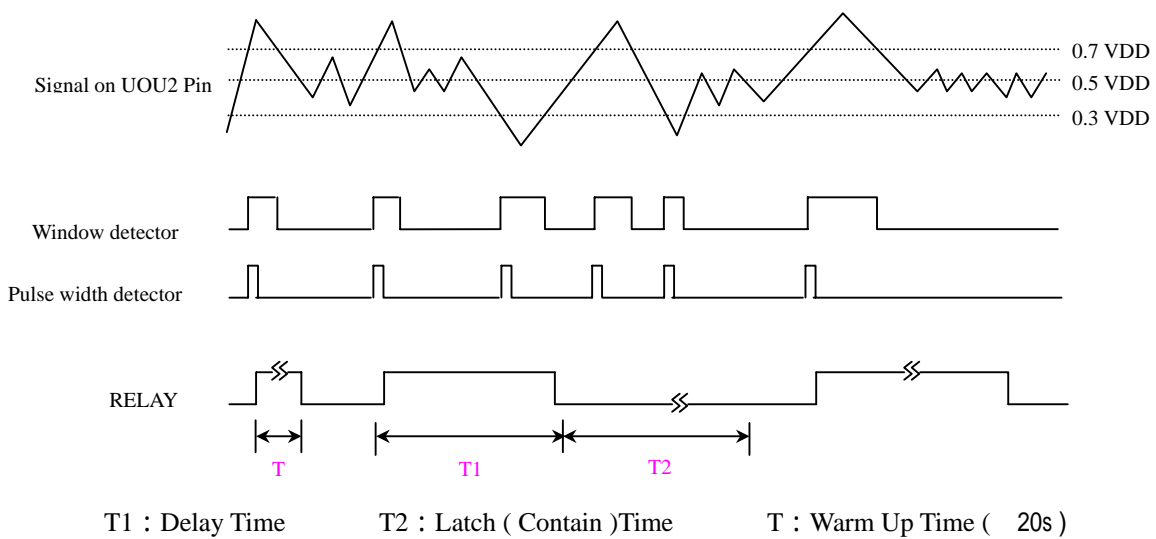


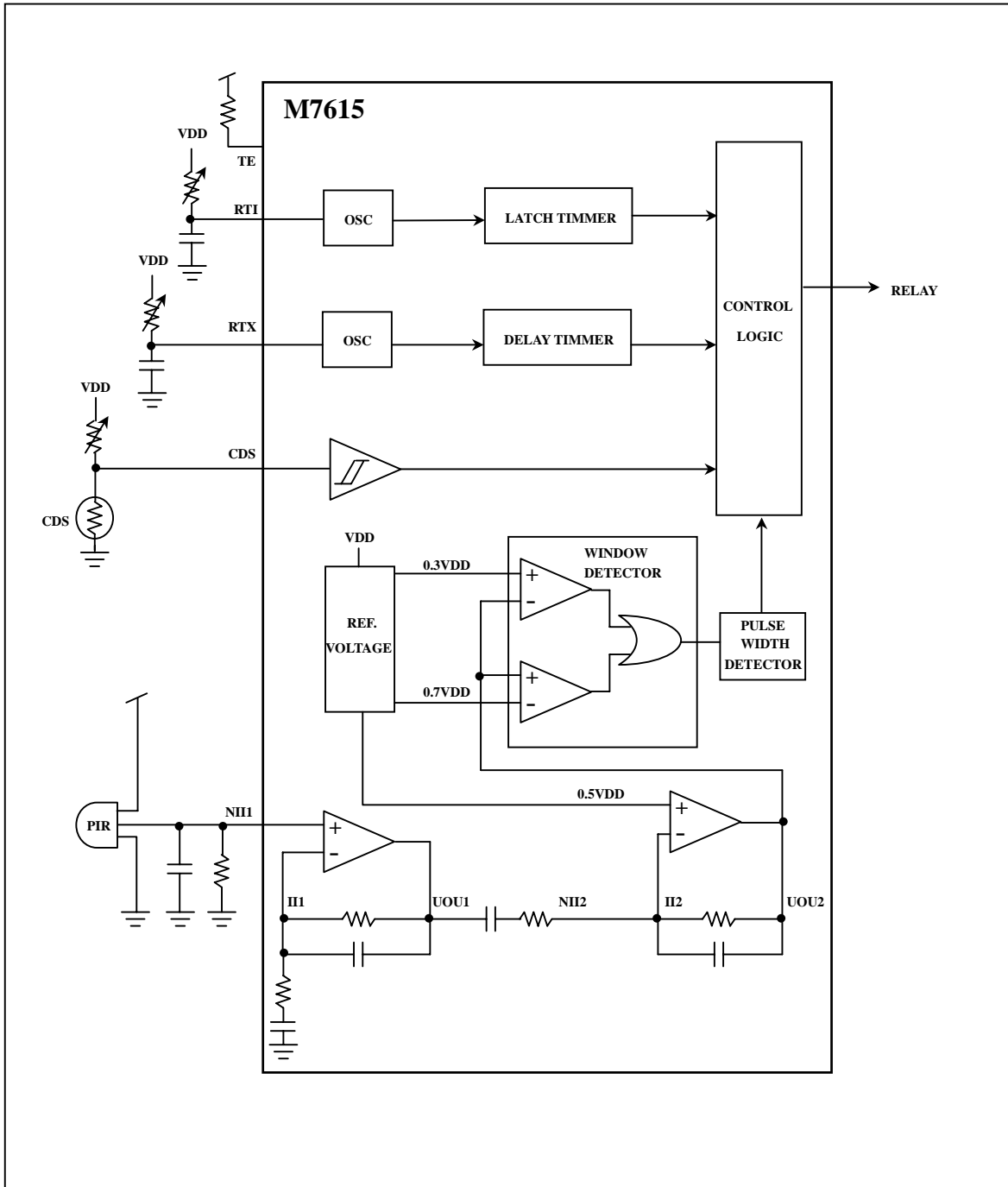
Fig.2 PIR Amplifier Block Diagram

### TIMING RELATIONSHIP :



### BLOCK DIAGRAM

DC PIR CONTROLLER



ABSOLUTE MAXIMUM RATING

(TA=25 )

Parameter	Sym.	Rating	Unit
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DC PIR CONTROLLER

Power Supply $V_{DD}$ With Respect to $V_{SS}$	$V_{DD} - V_{SS}$	5.6	V
Voltage On Any Pin		-0.3 to 5.6	V
Operating Temperature	Top	-20 to 70	
Storage Temperature		-65 to 150	

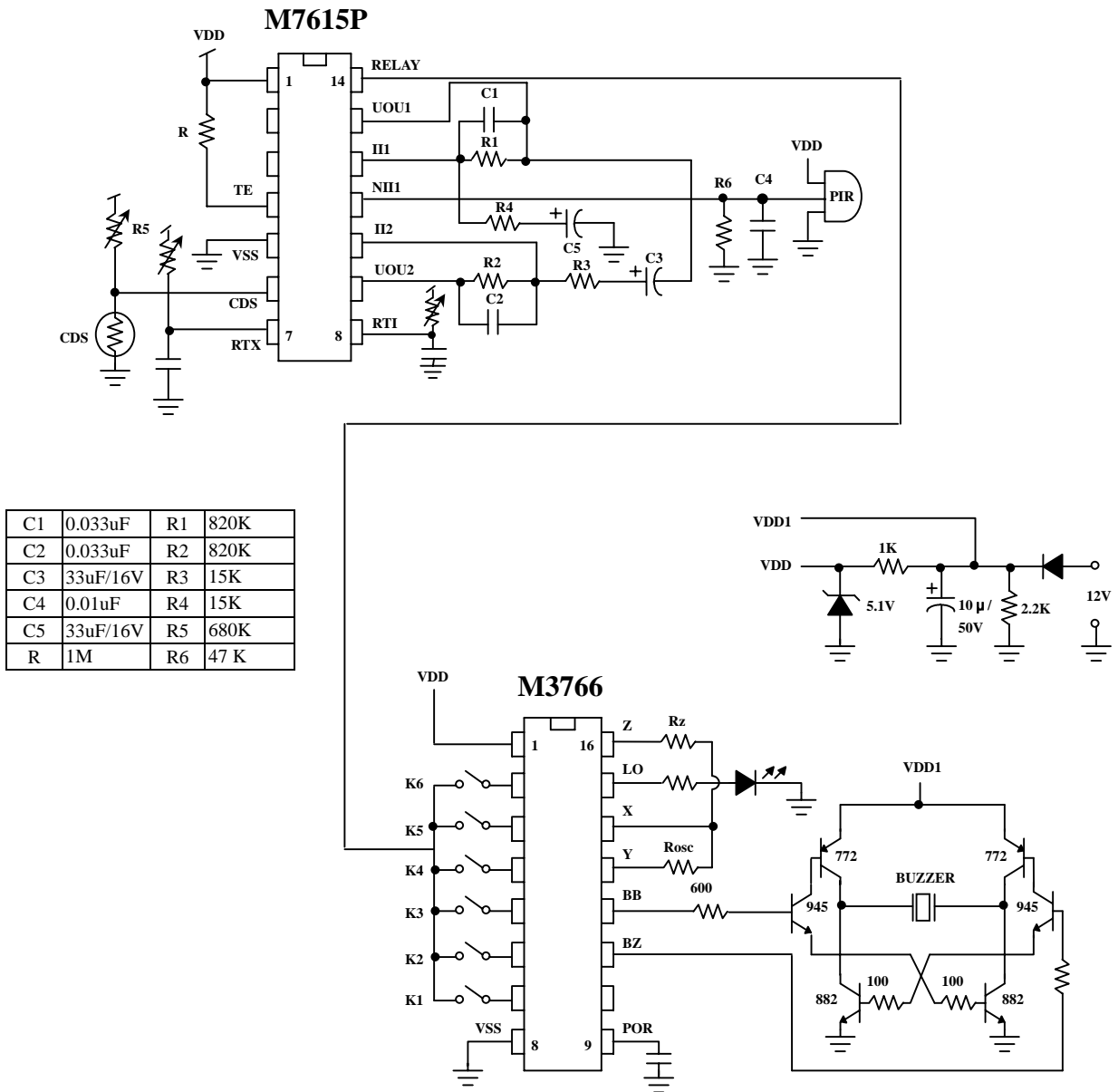
ELECTRICAL CHARACTERISTICS

Characteristics	Sym.	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	$V_{DD}$	4.2	5	5.5	V	
Stand by Current	$I_{ST}$	—	—	100	uA	
Operating Current	$I_{DD}$	1.8	—	2.5	mA	
Stable Voltage	$V_{REF}$	2.1	2.5	2.75	V	$V_{DD} > 4.2V$
Source Current of $V_{REF}$	$I_{REF}$	200	—	—	uA	
Ripple of $V_{REF}$		—	—	0.5	mV	
Input and Output Regulation of $V_{REF}$		—	—	0.3%		
Time Delay Frequency	$F_{RTX}$	15	16	17	KHz	For Delay 3s
Time Latch Frequency	$F_{RTI}$	15	16	17	Hz	For Contain 3s
CDS Operating Trigger	$V_{T+}$	1.3	1.7	2.1	V	
CDS Operating Trigger	$V_{T-}$	0.6	0.9	1.1	V	
CDS Source Current	$I_{CDS}$	2.6	3.5	4.4	uA	
CDS Output Source Current	$I_{SOURCE}$	9	10.4	17.4	mA	
CDS Output Sink Current	$I_{SINK}$	11.6	13	21	mA	
Relay Source Current	$I_{RS}$	—	—	10	mA	
Relay Sink Current	$I_{RSINK}$	—	—	10	mA	
Relay Operating Voltage	$V_{RO}$	13.1	—	18.8	V	

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### APPLICATION DIAGRAM 參考電路圖

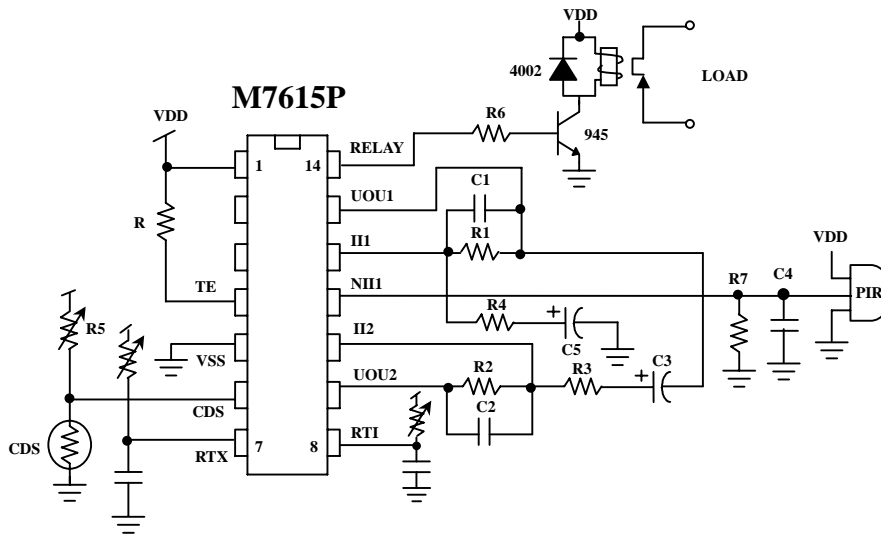
(A)



\*ALARM : M3766

## DC PIR CONTROLLER

(B)



C1	0.033uF	R1	820K
C2	0.033uF	R2	820K
C3	33uF/16V	R3	15K
C4	0.01uF	R4	15K
C5	33uF/16V	R5	680K
R	1M	R6	22 K
		R7	47 K

\* 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)