

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

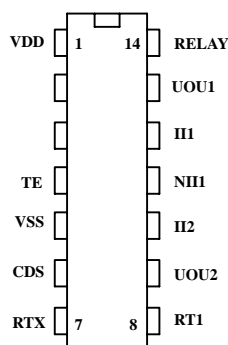
- High noise immunity.
- Low stand-by current < 90uA
- Drive either Relay.
- Adjustable play on duration and latch duration.
- On-chip voltage regulator.
- 20 second warm-up.
- CDS input conditionally.
- 14 pin DIP or SOP package.

APPLICATIONS 產品應用

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

PIN ASSIGNMENT

M7615-P14



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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 nd stage OP amp output.	9
II2	I	2 nd stage OP amp negative input.	10
NI1	I	1 st stage OP amp positive input.	11
II1	I	1 st stage OP amp negative input.	12
RELAY	O	To drive relay , active high.	13
UOU1	I	1 st 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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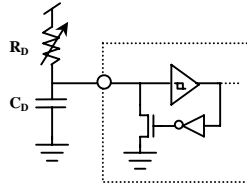


Fig.1 Timing Oscillator

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

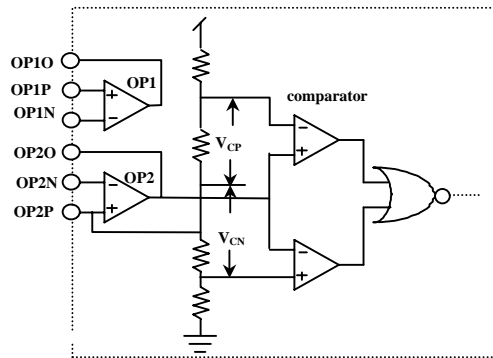
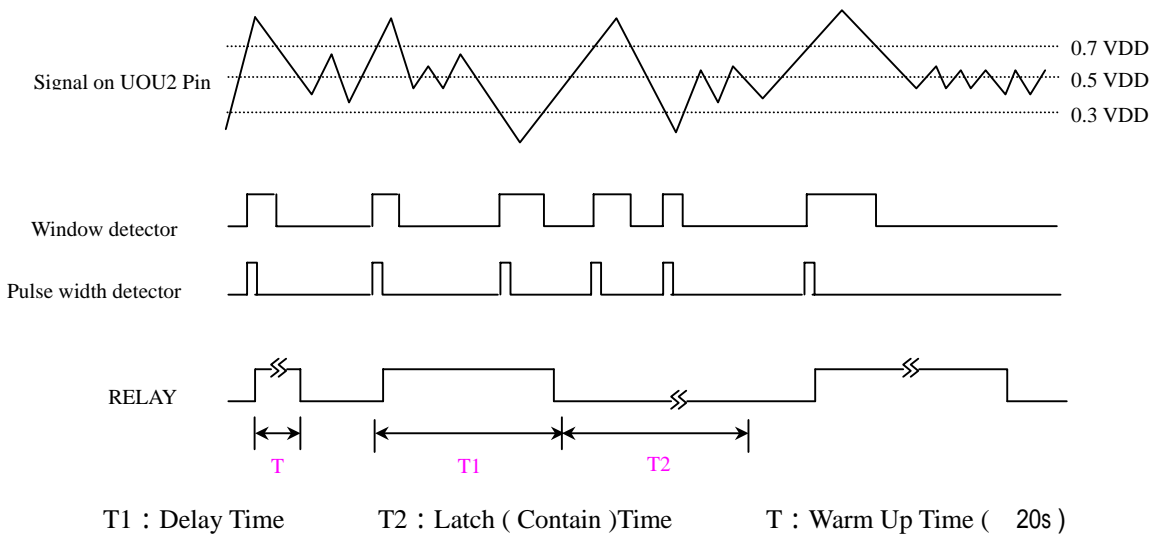


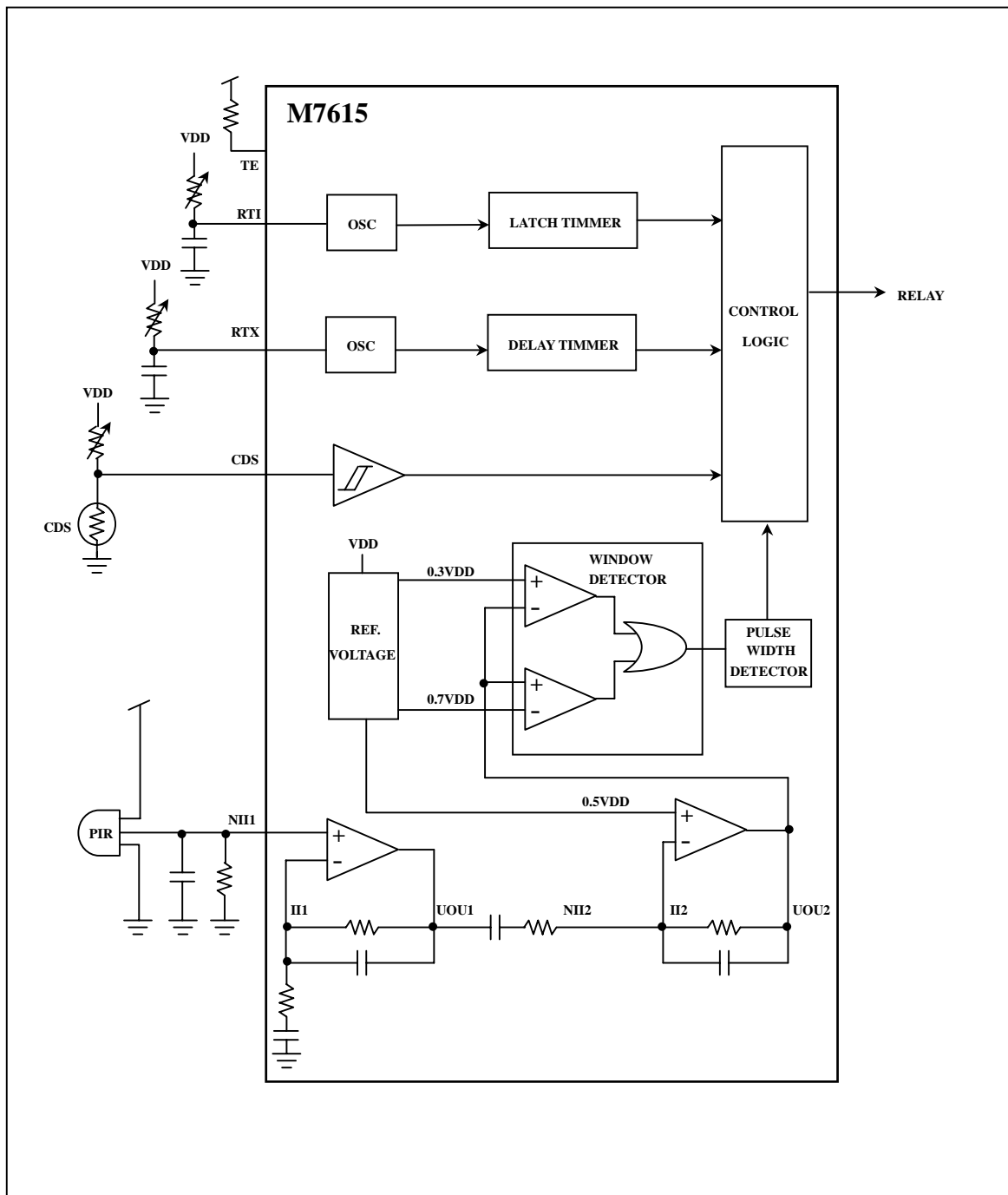
Fig.2 PIR Amplifier Block Diagram

TIMING RELATIONSHIP :



BLOCK DIAGRAM

DC PIR CONTROLLER



ABSOLUTE MAXIMUM RATING

(TA=25)

Parameter	Sym.	Rating	Unit
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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	

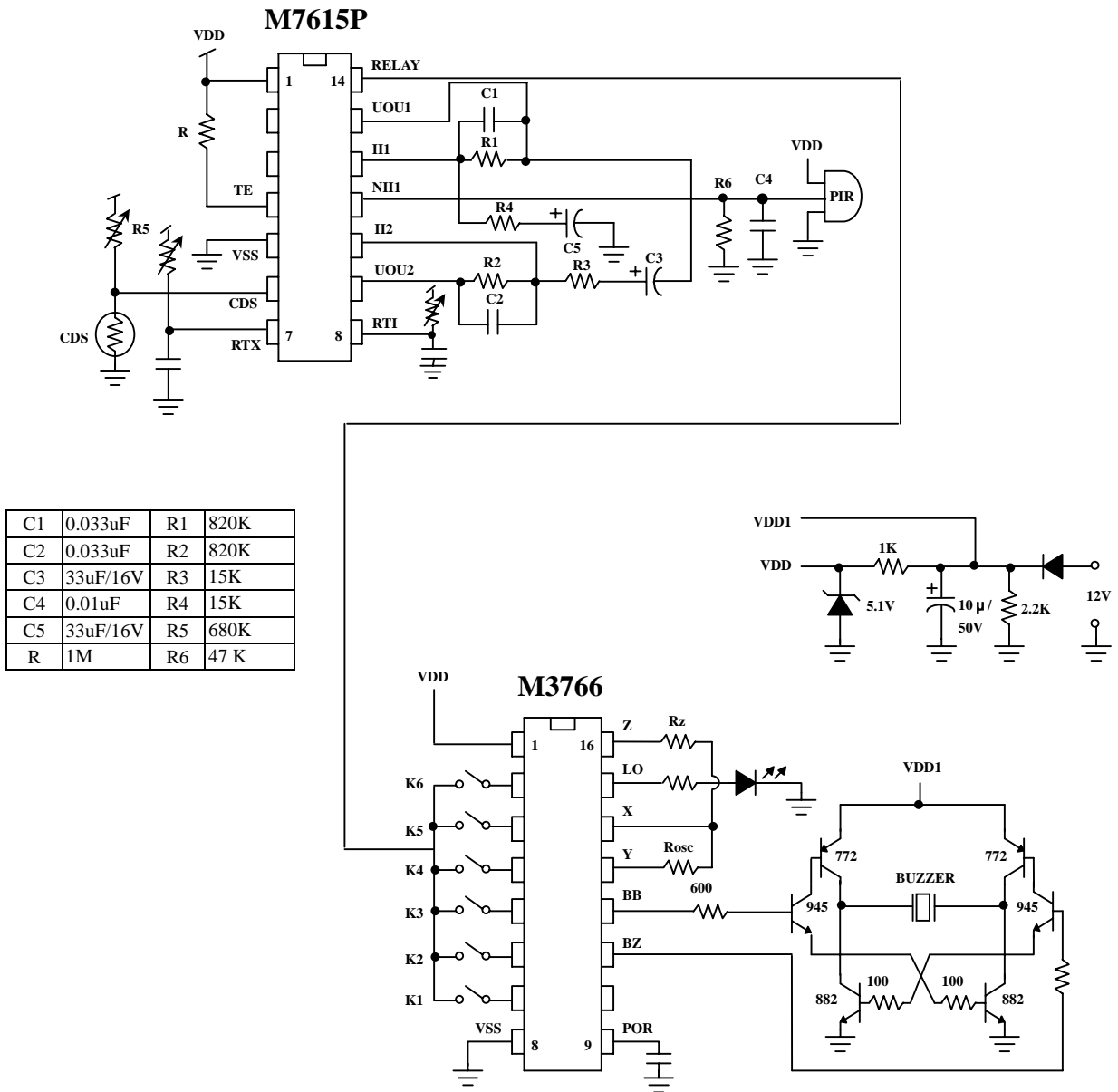
ELECTRICAL CHARACTERISTICS

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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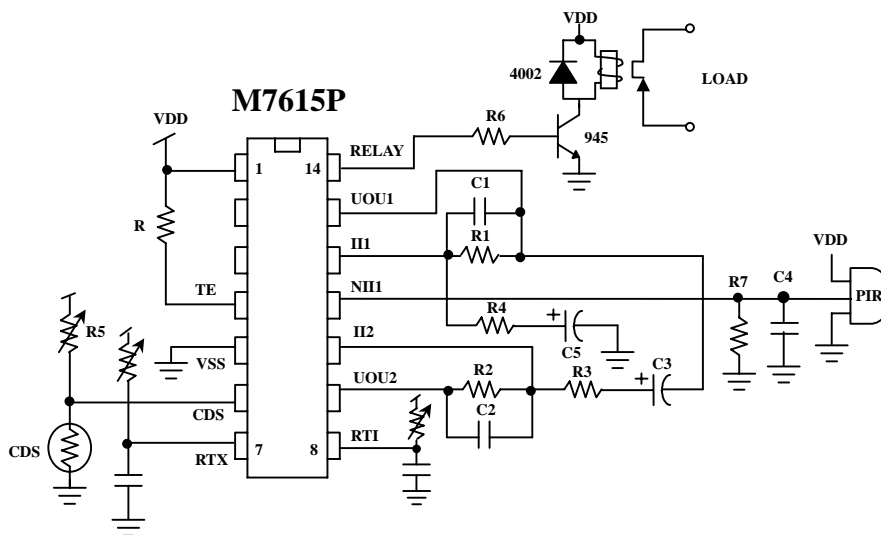
APPLICATION DIAGRAM 参考電路圖

(A)



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)