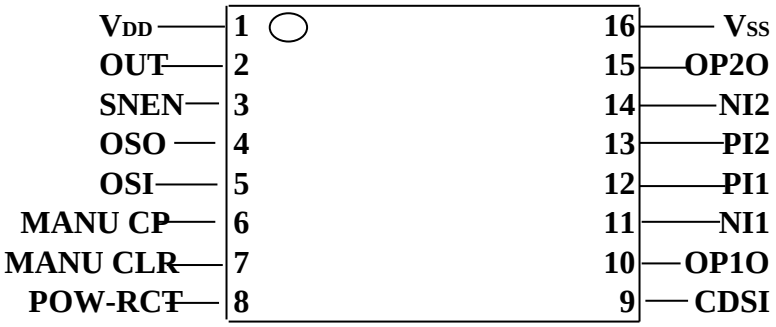
AS516 (Power save type)

PIR Lighting control IC's series.

Features:

*Aoutomatic PIR trigger LAMP controler.
*Manual ON/OFF switch equipped.
*Adjustably play on duration (in Auto PIR trigger mode).
*C.D.S. input conditionally.
*Built in hi-performance CMOS operation amplifier.
*RELAY Driver only.



AS516

PIN DESCRIPTION:

PIN Specified	I / O	DESCRIPTIONS
OUTPUT		Relay output.
VDD,Vss		Positive power supply / Negative power supply.
OSI,OSO	**I**	Output timing oscillator connected to external RC to adjust output active duration when was trigged.
CDSI	**I**	CDS device condition input.
POW-RCT	**I**	When goes high, make output flag to be low.
SNEN	**I**	Premit PIR to be trigged in.
MANU CP	**I**	When goes high then low, set output flag to be high actively. However PIR has been trigged or not.
MANU CLR	**I**	When goes high. Output flag set back in auto mode operating.
OP1O,OP2O	**O**	CMOS operation amplifier output node.
PI1, PI2	**I**	Operation amplifier non-inverting input.
NI1,NI2	**I**	Operation amplifier inverting input.

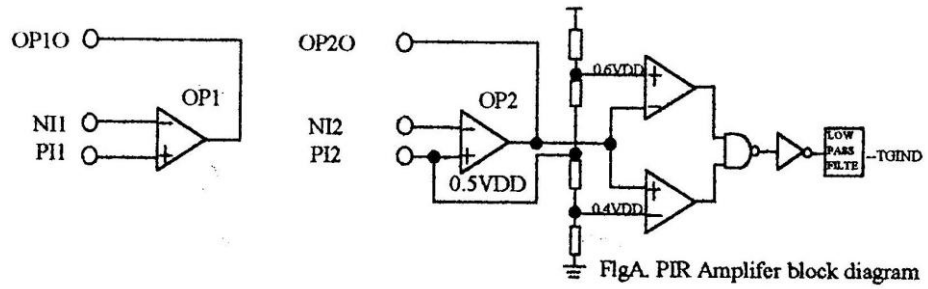
ELECTRICAL CHARACTERISTICS:

SYMBOL	PARAMETER	CONDITION	MIN.	TYP.	MAX.	UNIT
V_{DD}	Operating voltage.		**2.7**	**4.5**	**5.5**	V
Idd	Operating current.	V_{DD}=4V	—	**30**		μA
V_{CDSH}	CDS"H" transfer voltage.	V_{DD}=5V	—	**3.2**	—	V
V_{CDSL}	CDS"L" transfer voltage.	V_{DD}=5V	—	**1.8**	—	V
V_{OPRV}	PIR reference voltage.	V_{DD}=5V	**2.5**	—	**2.7**	V
V_{LFH}	50/60 Hz"H" transfer voltage.	V_{DD}=5V	—	**3.2**	—	V
V_{LFL}	50/60 Hz"L" transfer voltage.	V_{DD}=5V	—	**1.8**	—	V
V_{SNENH}	Sensor enable"H"transfer voltage.	V_{DD}=5V	—	**3.2**	—	V
V_{SNENL}	Sensor enable"L"transfer voltage.	V_{DD}=5V	—	**1.8**	—	V
V_{OSIH}	Oscillator "H"transfer voltage.	V_{DD}=5V	—	**3.75**	—	V
V_{OSIL}	Oscillator "L"transfer voltage.	V_{DD}=5V	—	**1.35**	—	V
I_{O1SC}	Output source current.	V_{DD}=5V	—	**−2.0**	—	mA
		V_{DS}=1V2	—	—	—	—
I_{O1SIN}	Output sink current.	V_{DD}=5V	—	—	—	—
		V_{DS}=1V2	—	**4.0**	—	mA

ABSOLUTE MAXIMUM RATING:

Supply voltage …… **- 0.5V to 5.5V.**
Input voltage…… **Vss - 0.5V to V_{DD} + 0.5V.**
Operating temperature…… **- 25℃ to 75℃.**
Storage temperature…… **- 45℃ to 125℃.**

PIR AMPLIFIER



FlgA. PIR Amplifer block diagram

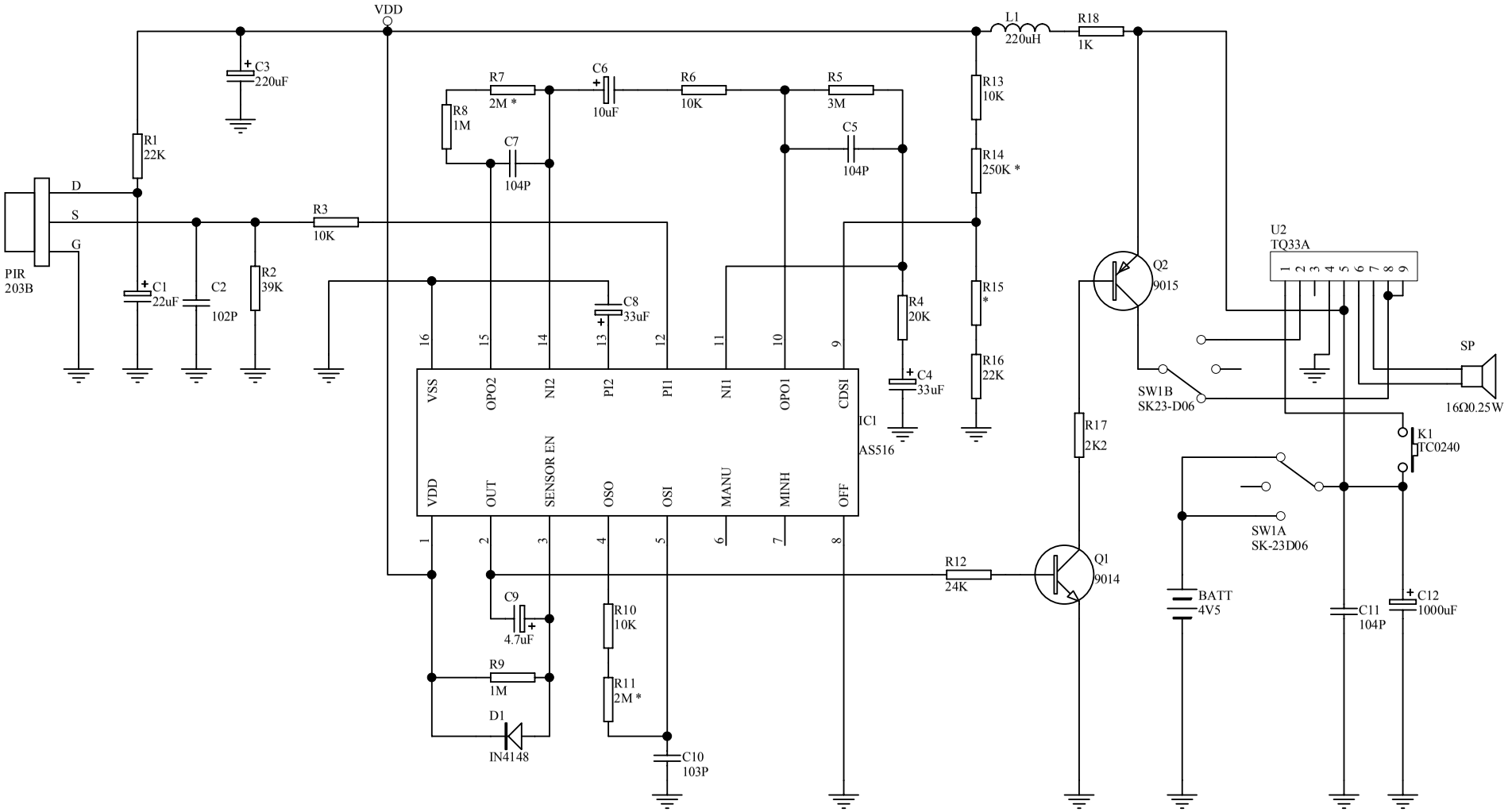
There are 2 OP-AMPS with different applications. OP1 be used independently as a first stage-inverting or non-inverting amplifier for PIR. As the output of OP2 is directly connected to the comparator input, OP2 is used as a second stage amplifier device. The comparator offers a check window, window's middle point connected to OP2's non-inverting input (about 1/2 V_{DD}), the up limit of check window is 0.6V_{DD} but the low limit set at 0.4 V_{DD}. Therefore the combination of device be used to provide a bias-voltage. That operate to equal to the center point voltage of the comparator about 1 / 2 V_{DD}.

APPLICATIONS:

Lighting controller.
Security System.
Other Intelligent Automation System.

O.P 特性參考 ：Test condition (V_{DD} =4V5, RL=15K, TA=25C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Input offset voltage.	V_{IO}	——	——	**5**	**mV**
Input offset current.	I_{IO}	——	**5**	**150**	**pA**
Input bias current.	I_{IB}	——	**15**	**500**	**pA**
Supply current.	I_{CC}	——	**20**	——	**μA**
Large signal voltage gain.	A_{VOL}	**10**	**100**	——	**V/mA**
Output voltage swing.	V_{OR}	**0.05**	——	**4.2**	**V**
Output current source.	I_{OSC}	——	50	——	**μA**
Output current sink.	I_{OSN}	——	500	——	**μA**
Common-Mode rejection ratio.	C_{MRR}	60	75	——	**dB**
Power supply rejection ratio.	P_{SRR}	65	100	——	**dB**


VDD
L1
220uH
R18
1K
C3
220uF
R7
2M *
C6
10uF
R6
10K
R5
3M
R13
10K
R8
1M
C7
104P
C5
104P
R14
250K *
R1
22K
D
S
G
PIR
203B
R3
10K
C1
22uF
C2
102P
R2
39K
C8
33uF
R4
20K
C4
33uF
R15
*
R16
22K
IC1
AS516
VSS
OPO2
NI2
PI2
PI1
NI1
OPO1
CDSI
VDD
OUT
SENSOR EN
OSO
OSI
MANU
MINH
OFF
Q2
9015
U2
TQ33A
SP
16Ω0.25W
SW1B
SK23-D06
R17
2K2
K1
TC0240
SW1A
SK-23D06
BATT
4V5
C11
104P
C12
1000uF
R12
24K
Q1
9014
C9
4.7uF
R10
10K
R9
1M
R11
2M *
D1
IN4148
C10
103P