General Purpose PIR Controller

Features

- Operating voltage: 5V~12V
- Standby current: 100μA (Typ.)
- On-chip regulator
- Adjustable output duration
- CDS input
- 40 second warm-up
- ON/AUTO/OFF selectable by MODE pin
- Override function
- Auto-reset if the ZC signal disappears over 3 seconds
- 16-pin DIP package

Applications

- PIR light controllers
- Motion detectors
- Alarm systems
- Auto door bells

General Description

The HT761X is a CMOS LSI chip designed for use in automatic PIR lamp control. It can operate with a 2-wire configuration for triac applications or with a 3-wire configuration for relay applications. The chip is equipped with operational amplifiers, a comparator, timer, a zero crossing detector, control circuit, a voltage regulator, a system oscillator, and an output timing oscillator.

Its PIR sensor detects infrared power variations induced by the motion of a human body and transforms it to a voltage variation. If the PIR output voltage variation conforms to the criteria (refer to the functional description), the lamp is turned on with an adjustable duration.

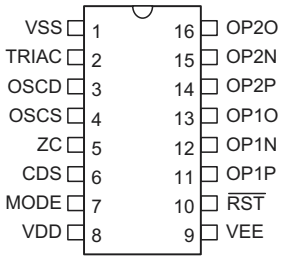
The HT761X offers three operating modes (ON, AUTO, OFF) which can be set through the MODE pin. While the chip is working in the AUTO mode the user can override it and switch to the TEST mode, or manual ON mode, or return to the AUTO mode by switching the power switch.

Selection Table

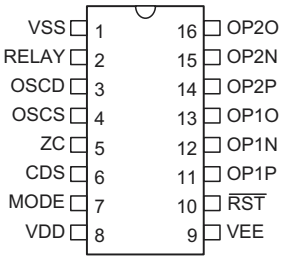
Part No.	ZC Off/On for Override	Flash on Mode Auto-change	Override ON Duration	Comparator Window	Effective Trigger Width
HT7610A HT7610B	2 times	Flash	8 hrs	$\frac{1}{16}(V_{DD}-V_{EE})$	>24ms
HT7611A HT7611B	1 time	No flash	8 hrs	$\frac{1}{16}(V_{DD}-V_{EE})$	>24ms

Note: Part numbers suffixed with A are for Relay application while those suffixed with B are for Triac application.

Pin Assignment

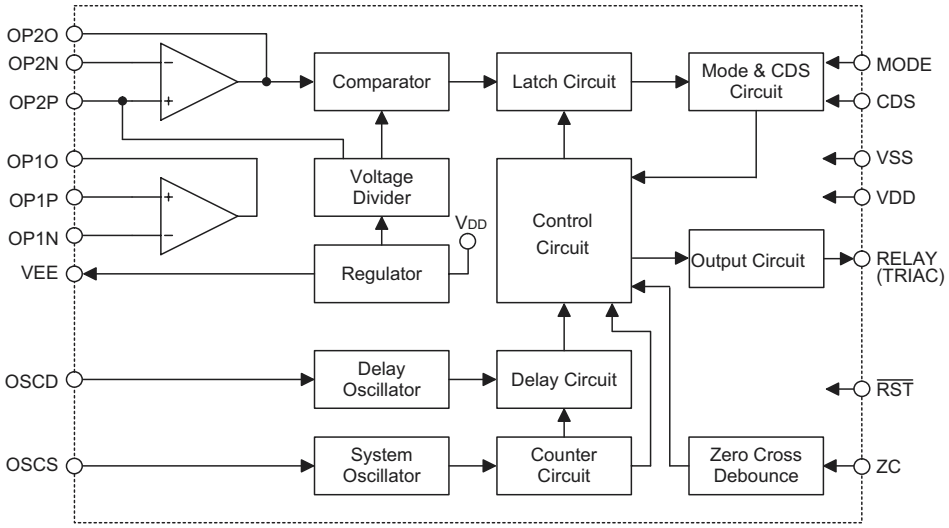


HT761XB
– 16 DIP-A
TRIAC VERSION



HT761XA
– 16 DIP-B
RELAY VERSION

Block Diagram



Pin Description

Pin Name	I/O	Internal Connection	Description
VSS	—	—	Negative power supply, ground
RELAY	O	CMOS	RELAY drive output through an external NPN transistor, active high.
TRIAC	O	CMOS	TRIAC drive output The output is a pulse output when active.
OSCD	I/O	PMOS IN NMOS OUT	Output timing oscillator I/O It is connected to an external RC to adjust output duration.
OSCS	I/O	PMOS IN NMOS OUT	System oscillator I/O OSCS is connected to an external RC to set the system frequency. The system frequency is at 16kHz for normal application.
ZC	I	CMOS	Input for AC zero crossing detection
CDS	I	CMOS	CDS is connected to a CDS voltage divider for daytime/night auto-detection. Low input to this pin can disable the PIR input. CDS a Schmitt Trigger input with 5-second input debounce time.
MODE	I	CMOS	Operating mode selection input: VDD: Output is always ON VSS: Output is always OFF Open: Auto detection
VDD	—	—	Positive power supply
VEE	O	NMOS	Regulated voltage output The output voltage is –4V with respect to VDD.
$\overline{\text{RST}}$	I	Pull-High	Chip reset input, active low
OP1P	I	PMOS	Noninverting input of OP1
OP1N	I	PMOS	Inverting input of OP1
OP1O	O	NMOS	Output of OP1
OP2P	I	PMOS	Noninverting input of OP2
OP2N	I	PMOS	Inverting input of OP2
OP2O	O	NMOS	Output of OP2

Absolute Maximum Ratings

Supply Voltage .....–0.3V to 13V
Input Voltage .....V_{SS}–0.3V to V_{DD}+0.3V
Zero Crossing Current .....Max. 300μA
Storage Temperature .....–50°C to 125°C
Operating Temperature .....–25°C to 70°C

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

Symbol	Parameter	Test Condition		Min.	Typ.	Max.	Unit
		V_{DD}	Condition				
V_{DD}	Operating Voltage	—	—	5	9	12	V
V_{EE}	Regulator Output Voltage	12V	V_{DD-VEE}	3.5	4	4.5	V
I_{DD}	Operating Current	12V	No load, OSC on	—	100	350	μA
I_{OH1}	OUTPUT Source Current (RELAY, TRIAC)	12V	V_{OH}=10.8V	–6	12	—	mA
I_{OL1}	OUTPUT Sink Current (RELAY, TRIAC)	12V	V_{OL}=1.2V	40	80	—	mA
I_{OL2}	VEE Sink Current	12V	V_{DD-VEE}=4V	—	—	—	mA
V_{IH}	"H" Input Voltage	—	—	0.8V_{DD}	—	—	V
V_{IL}	"L" Input Voltage	—	—	—	—	0.2V_{DD}	V
V_{TH1}	CDS "H" Transfer Voltage	12V	—	6.4	8	9.6	V
V_{TL1}	CDS "L" Transfer Voltage	12V	—	3.7	4.7	5.6	V
V_{TH2}	ZC "H" Transfer Voltage	12V	—	4.7	6.7	8.7	V
V_{TL2}	ZC "L" Transfer Voltage	12V	—	1.3	1.8	2.3	V
V_{OS}	OP Amp Input Offset Voltage	12V	No load	—	10	35	mV
f_{SYS}	System Oscillator Frequency	12V	R_{OSCS}=560kΩ C_{OSCS}=100pF	12.8	16	19.2	KHz
f_d	Delay Oscillator Frequency	12V	R_{OSCD}=560kΩ C_{OSCD}=100pF	12.8	16	19.2	KHz
A_{VO}	OP Amp Open Loop Gain	12V	No load	60	80	—	dB

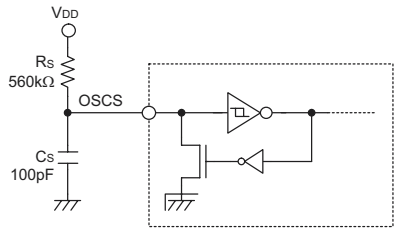
Functional Description

VEE

VEE supplies power to the analog front end circuit with a normally stabilized voltage of –4V with respect to VDD.

OSCS

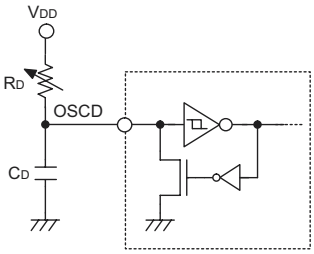
OSCS is a system oscillator input pin. When it is connected to an external RC, a system frequency of 16kHz can be generated.



System oscillator

OSCD

OSCD is an output timing oscillator input pin. It is connected to an external RC to obtain the desired output turn-on duration. Variable output turn-on durations can be achieved by selecting various values of RC or using a variable resistor.



$$T_D = \frac{1}{f} \times 21504$$

Output timing oscillator

RELAY (TRIAC)

RELAY is an output pin set as a RELAY driving (active high) output for the HT761XA, or as a TRIAC driving (active low) output for the HT761XB.

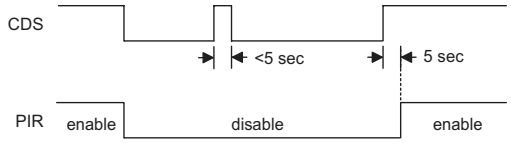
The output active duration is controlled by the OSCD oscillating period.

	HT761XA	HT761XB
OUTPUT	RELAY	TRIAC

CDS

CDS is a CMOS Schmitt Trigger input structure. It is used to distinguish between day time and night time. When the input voltage of CDS is high the PIR input is enabled. On the other hand, when CDS is low the PIR input is disabled. The input disable to enable debounce time is 5 seconds. Connect this pin to VDD when this function is not used. The CDS input is ignored when the output is active.

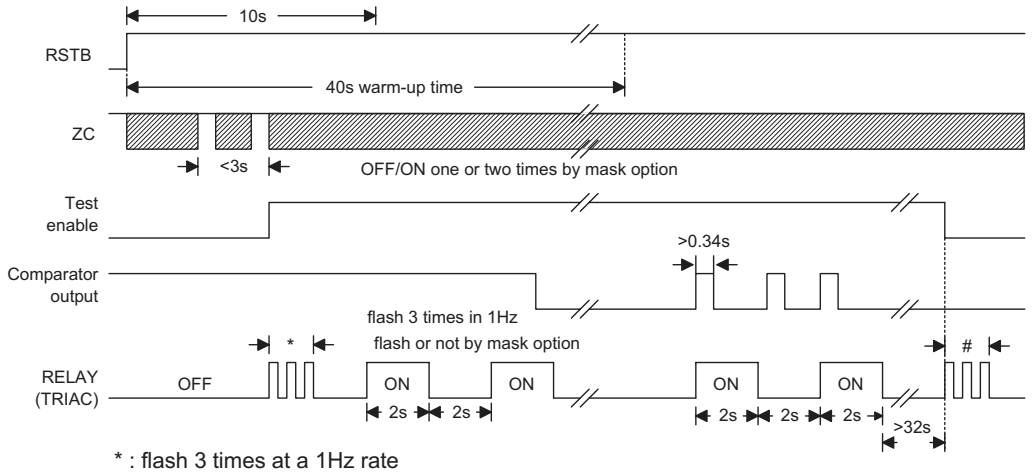
CDS	Status	PIR
LOW	Day Time	Disabled
HIGH	Night	Enabled



MODE

MODE is a tristate input pin used to select the operating mode.

MODE Status	Operating Mode	Description
VDD	ON	Output is always ON: RELAY outputs high for relay driving. TRIAC pulse train output is synchronized by ZC for triac driving.
VSS	OFF	Output is always OFF: RELAY outputs low for relay driving. TRIAC outputs high for triac driving.
Open	AUTO	Outputs remain in the off state until activated by a valid PIR input trigger signal. When working in the AUTO mode, the chip allows override control by switching the ZC signal.



* : flash 3 times at a 1Hz rate
flash or not by mask option
\# : flash 3 times at a 2Hz rate
flash or not by mask option

ZC

ZC is a CMOS input structure. It receives AC line frequency and generates zero crossing pulses to synchronize the triac driver. By effective ZC signal switching (switch OFF/ON 1 or 2 times within 3 seconds by mask option), the chip provides the following additional functions:

- Test mode control
  Within 10 seconds after power-on, effective ZC switching will force the chip to enter the test mode. During the test mode, the outputs will be active for a duration of 2 seconds each time a valid PIR trigger signal is received. If a time interval exceeds 32 seconds without a valid trigger input, the chip will automatically enter the AUTO mode.
- Override control
  When the chip is working in an AUTO mode (MODE=open), the output is activated by a valid PIR trigger signal and the output active duration is controlled by an OSCD oscillating period. The lamp can be switched always to "ON" from the AUTO mode by either switching the MODE pin to VDD or switching the ZC signal by an OFF/ON operation of the power switch (OFF/ON once or twice within 3 seconds by mask option). The term "override" refers to the change of operating mode by switching the power switch. The chip can be toggled from ON to AUTO by an override operation. If the chip is overridden to ON and there is no further override operation, it will automatically return to AUTO after an internal preset ON time duration has elapsed. This override ON time duration can be set to 4 or 6 or 8 hours by mask option. The default is 8 hours.
  The chip provides a mask option to determine the output flash times (3 times) when changing the operating mode. It will flash 3 times at a 1Hz rate each time the chip changes from an AUTO mode to another mode or flash 3 times at a 2Hz rate when returning to the AUTO mode. But if the AUTO mode is changed by switching the MODE switch it will not flash.

$\overline{\text{RST}}$

$\overline{\text{RST}}$ is used to reset the chip. It is internal pull-high and active low.

The use of C_{RST} can extend the power-on initial time. If the $\overline{\text{RST}}$ pin is an open circuit (without C_{RST}), the initial time is the default (40 secs).

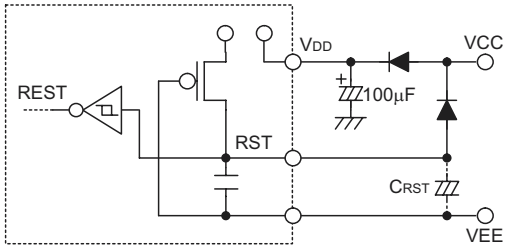


Fig.1 $\overline{\text{RST}}$ application example

Power on initial

The PIR signal amplifier requires a warm up period after power-on. The input should be disabled during this period.

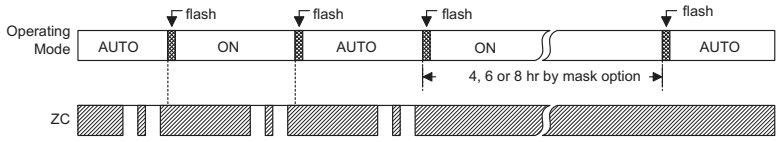
In the AUTO mode within the first 10 seconds of power-on initialization, the chip allows override control to enter the test mode. After 40 seconds of the initial time the chip allows override control between ON and AUTO. It will remain in the warm up period if the total initial time has not elapsed after returning to AUTO.

In case that the ZC signal disappears for more than 3 seconds, the chip will restart the initialization operation. However, the restart initial time is always 40 seconds and cannot be extended by adding C_{RST} to the $\overline{\text{RST}}$ pin as shown in the Fig.1.

Mask options

The HT761X offers mask options to select the output flash (3 times) when changing the operating mode. The chip will flash 3 times at a 1Hz rate each time it changes from AUTO to another mode and flash 3 times at a 2Hz rate when it returns to the AUTO mode. However the chip will not flash if the mode is changed by switching the MODE switch.

- 4, 6, or 8 hour options to return to AUTO from override ON. The default is 8 hours.
- Options for effective override: Once or twice OFF/ON operation of power switch within 3 seconds. The default is OFF/ON twice.
- Options for output flash to indicate effective override operation. The default is to flash.
- Options for effective PIR trigger pulse width: >24mS, >32mS or >48mS. The default is 24ms.



ZC override timing

- Options for setting the comparator window to be $\frac{1}{16}$, $\frac{1}{11.3}$ or $\frac{1}{9}$ (V_{DD}–V_{EE}).

  The default is $\frac{1}{16}$ (V_{DD}–V_{EE}).

PIR amplifier

Consult the diagram below for details on the PIR front end amplifier.

In the Fig.2 below there are 2 op-amps with different applications. OP1 can be used independently as a first stage inverting or non-inverting amplifier for the PIR.

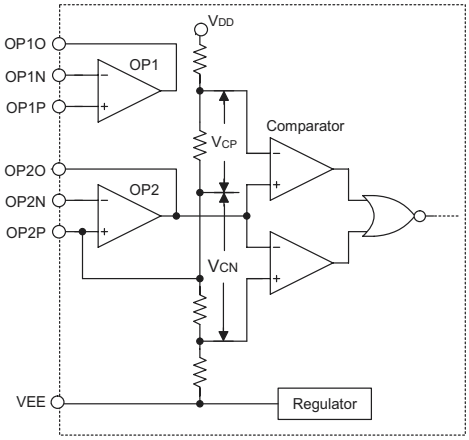


Fig.2 PIR amplifier

As the output of OP2 is directly connected to the input of the comparator, it is used as a second stage amplifying device. The non-inverting input of OP2 is connected to the comparator's window center point and can be used to check this voltage and to provide a bias voltage that is equal to the center point voltage of the comparator. In Fig.2 the comparator can have 3 window levels set by mask option. 1. $\frac{1}{16}$ (V_{DD}–V_{EE}), 2. $\frac{1}{11.3}$ (V_{DD}-V_{EE}), 3. $\frac{1}{9}$ (V_{DD}–V_{EE}).

If the window level fails to be specified the default window is set to $\frac{1}{16}$ (V_{DD}–V_{EE}). The preset voltage of V_{DD}–V_{EE} is 4V. The default values of V_{CP} and V_{CN} are therefore 0.25V, ($\frac{4}{16}$ V).

Second stage amplifier

Usually the second stage PIR amplifier is a simple capacitively coupled inverting amplifier with a low pass configuration. The noninverting input terminal is biased to the center point of the comparator window and the output of the second stage amplifier is directly coupled to the comparator center point.

In Fig.3 OP2P is directly connected to the comparator window center, and with the C3 filter it can act as the bias for OP2. For this configuration $A_V = \frac{R1}{R2}$, low cutoff frequency $f_L = \frac{1}{2\pi R1C1}$, high cutoff frequency $f_H = \frac{1}{2\pi R2C2}$. By changing the value of R2 the sensitivity can be varied. C1 and C3 should be of low leakage types to prevent the DC operating point from changing due to current leakage.

Each op-amp current consumption is approximately 5μA with the op-amps and comparator's working voltage all provided by the regulator.

Consult the following diagrams for typical PIR front end circuit.

First stage of PIR amplifier

Fig.4 shows a typical first stage amplifier. C2 and R2 form a simple low pass filter with cut off frequency at 7Hz. The low frequency response is governed by R1 and C1 with cut-off frequency at 0.33Hz.

$$A_V = \frac{(R1 + R2)}{R1}$$

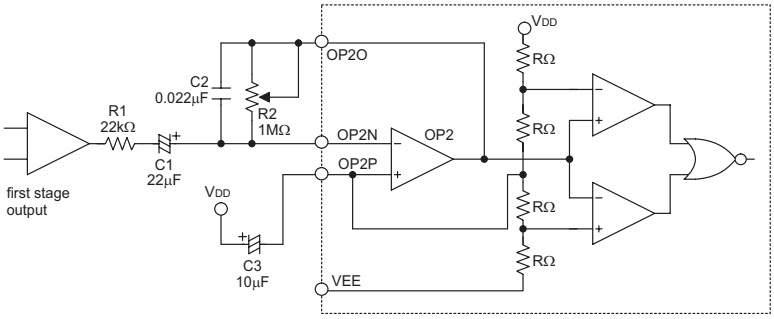


Fig.3 Typical second stage amplifier

Fig.4 and Fig.5 are similar but in Fig.5 the input signal of amplifier is taken from the drain of the PIR. This has higher gain than that in Fig.4. Since OP1 is a PMOS input VD, it has to be greater than 1.2V for adequate operation.

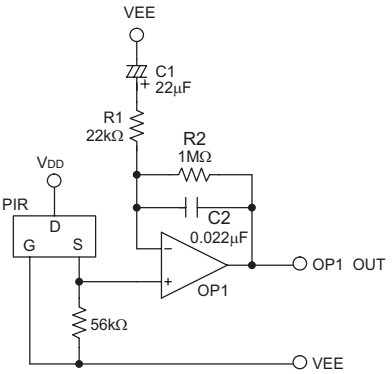


Fig. 4 Typical first-stage PIR

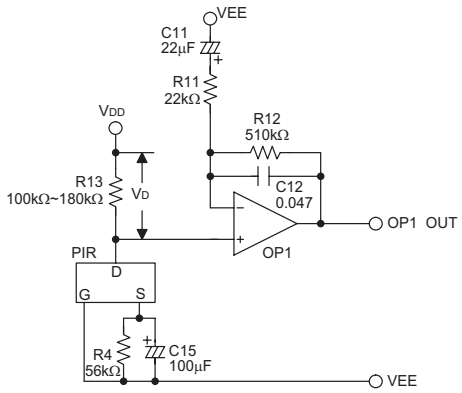
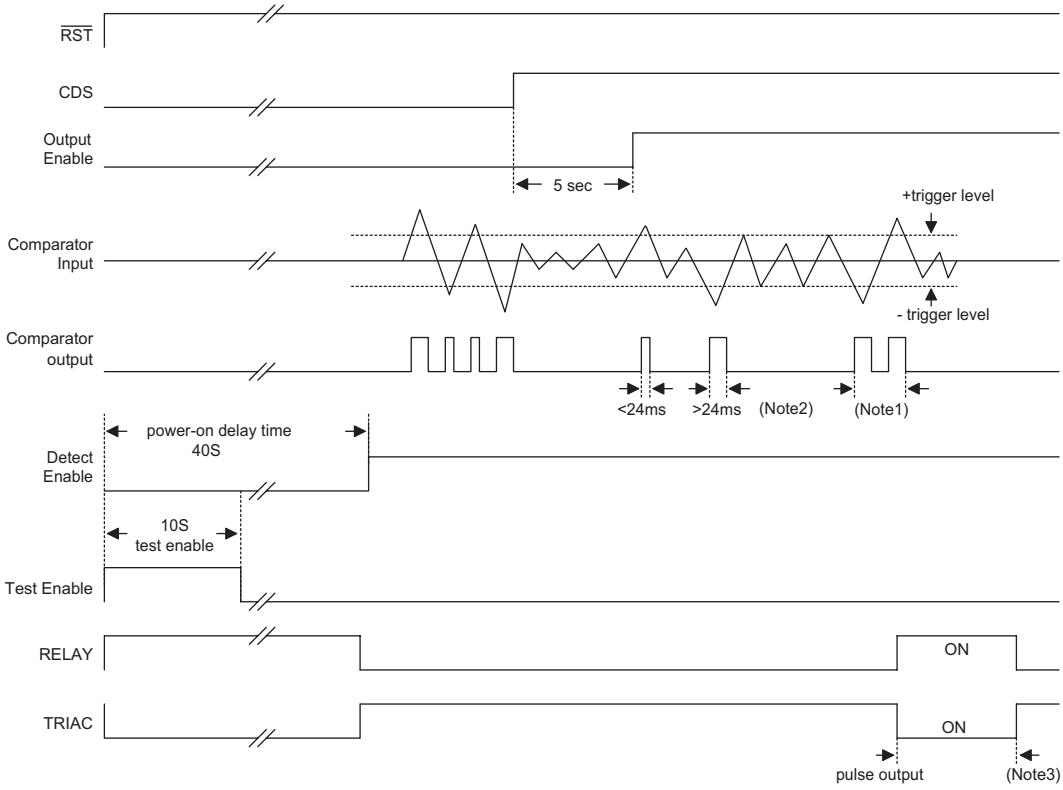


Fig.5 High gain first stage

Timing Diagram



Note: The output is activated if the trigger signal conforms to the following criteria:

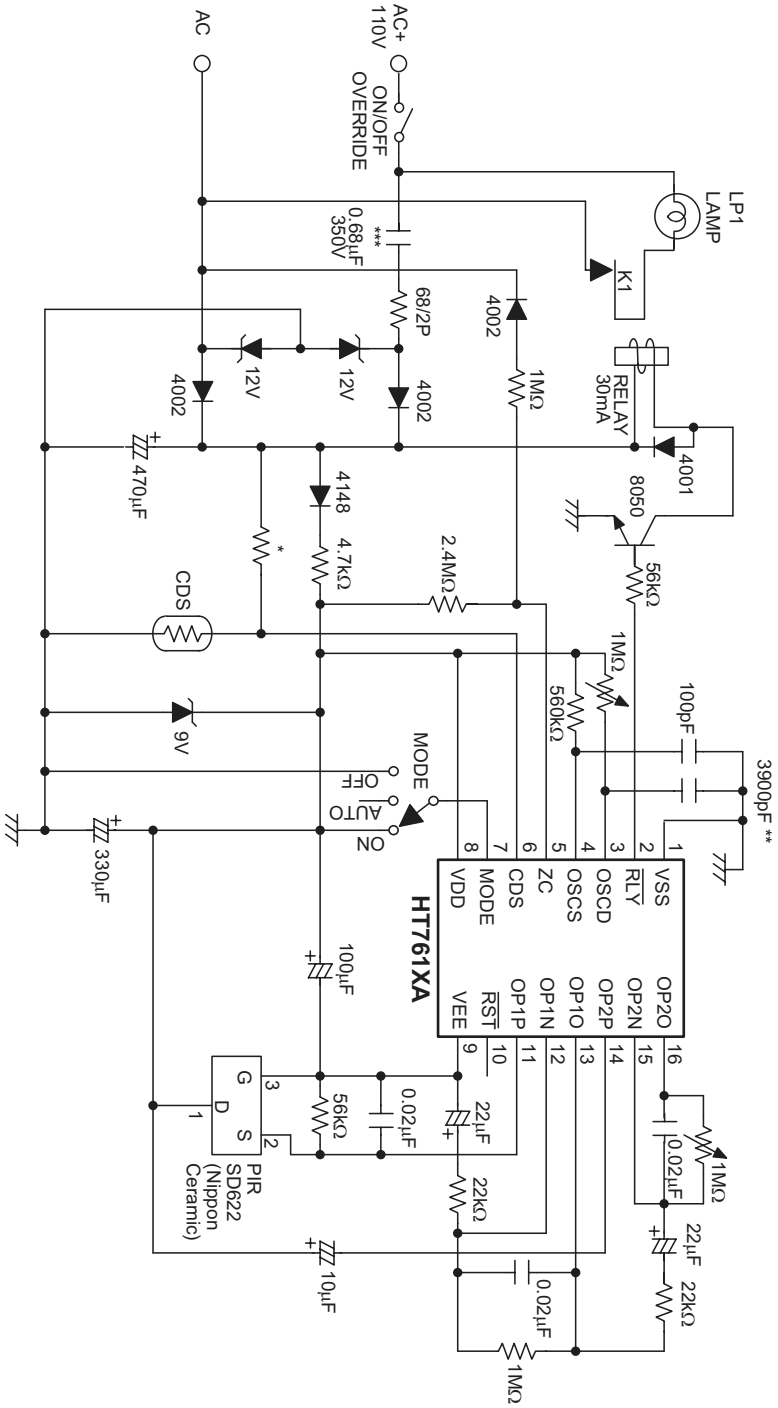
- More than 3 triggers within 2 seconds
- A trigger signal sustain duration ≥ 0.34 secs
- 2 trigger signals within 2 secs with one of the trigger signal sustain ≥ 0.16 secs.

The effective comparator output width can be selected to be 24ms or 32ms or 48ms by mask option. The default is 24ms (system frequency=16kHz).

The output duration is set by an external RC that is connected to the OSCD pin.

Application Circuit

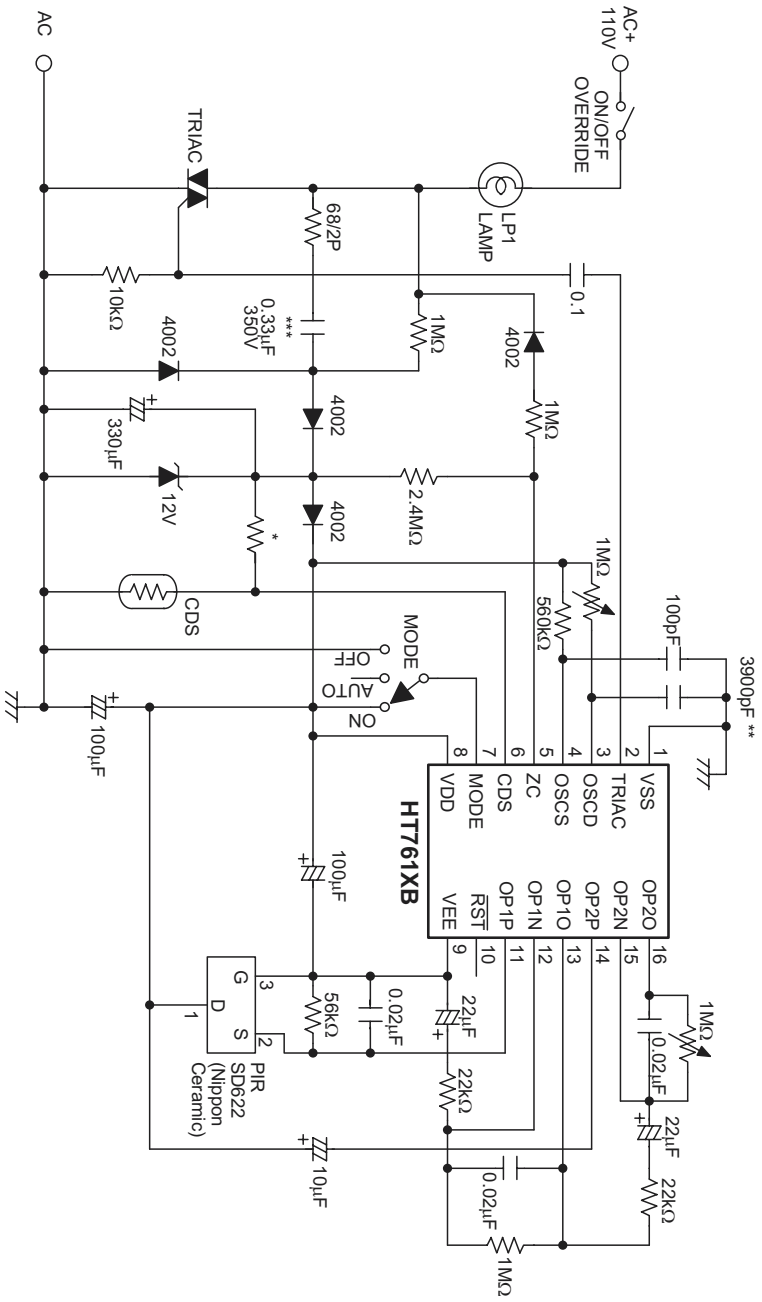
HT761XA relay application



Note: Adjust "*" to fit various CDS.

Change "**" to obtain the desired adjusting range of output duration.

Change the value of "***" to 0.33μF/ 600V for AC 220V application.



Note: Adjust "*" to fit various CDS.

Change "**" to obtain the desired adjusting range of output duration.

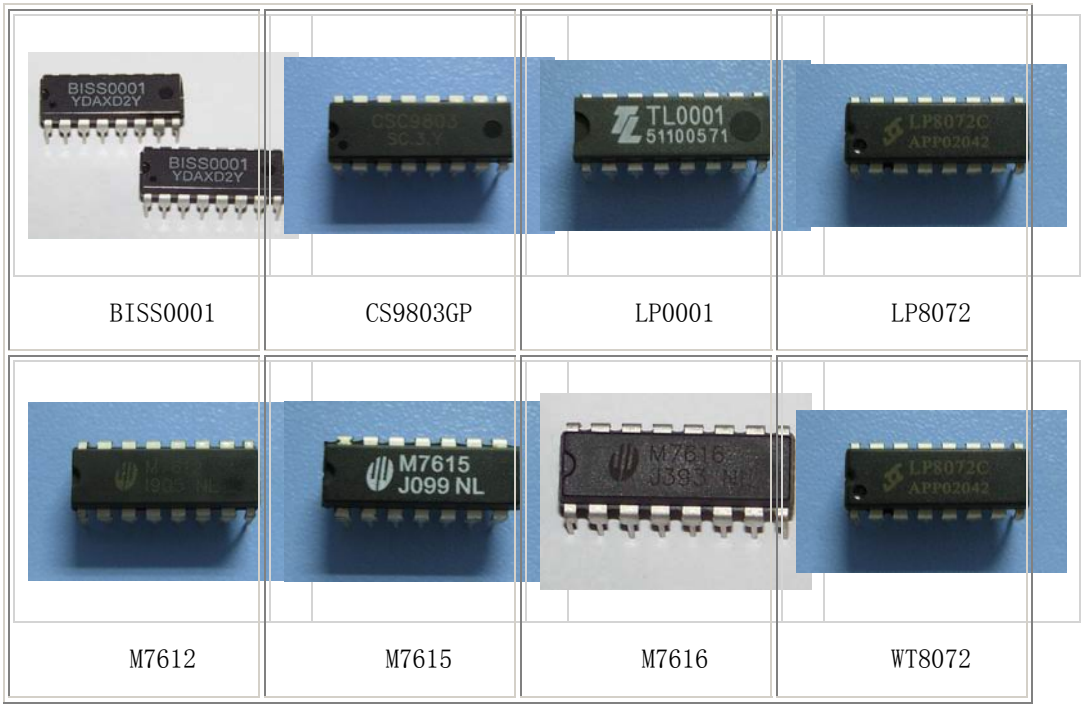
Change the value of "***" to 0.15μF/ 600V for AC 220V application.

深圳市商斯达实业有限公司荣誉出品
欢迎索取免费详细资料、设计选型指南和光盘、样品；产品繁多未能尽录，欢迎来电查询。
中国传感器科技信息网：HTTP：//WWW.SENSOR-IC.COM/
工控安防网：HTTP：//WWW.PC-PS.NET/
消费电子专用电路网：HTTP://WWW.SUNSTARE.COM/
E-MAIL： xjr5@163.com szss20@163.com
MSN: suns8888@hotmail.com
QQ: 195847376
地址： 深圳市福田区福华路福庆街鸿图大厦 1602 **室**
电话：0755-83376549 83376489 83387030 83387016
传真：0755-83376182 83338339 **邮编：**518033 **手机：**(0)13902971329
深圳展销部：深圳华强北路赛格电子市场 2583 **号** TEL/FAX：0755-83665529 25059422
北京分公司：北京海淀区知春路 132 **号中发电子大厦** 3097 **号**
TEL：010-81159046 82615020 13501189838 FAX：010-82613476
上海分公司：上海市北京东路 668 **号上海赛格电子市场** 2B35 **号**
TEL：021-28311762 56703037 13701955389 FAX：021-56703037
西安分公司：西安高新开发区 20 **所(中国电子科技集团导航技术研究所)**
西安劳动南路 88 **号电子商城二楼** D23 **号**
TEL：029-81022619 13072977981 FAX:029-88789382
成都：TEL:(0)13717066236
技术支持：0755-83394033 13501568376

SUNSTAR 精工制造系列红外感应、防盗报警、自动控制、安防消防器件

热释电红外传感器 IC 是由运算放大器、电压比较器和状态控制器、延时时间定时器、封锁时间定时器、及参考电压源等构成的数模混合专用集成电路。有贴片的，也有直插的。

BISS0001,CSC9803,CS9803GP,M7615,M7616,M7612 等各种型号



BISS0001	CS9803GP	LP0001	LP8072
M7612	M7615	M7616	WT8072

热释红外传感信号处理集成电路 BISS0001

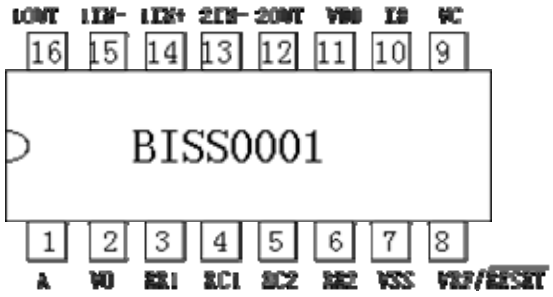
产品介绍： BISS0001 是我公司自主设计地红外传感信号处理器专用集成电路，它配以热释电红外传感器和少量外元器件可以构成被动式红外开关。它能自动快速开启各类白炽灯、荧光灯、蜂鸣器、自动门、电风扇、烘干机和自动洗手池等装置。是一种高技术产品。已经广泛用于企业，宾馆、商场、库房及家庭的过道、走廊等敏感区域，或用于安全区域的自动灯光、照明和报警系统。

性能特点：

- CMOS 数模混合专用集成电路。
- 具有独立的高输入阻抗运算放大器，可与多种传感器匹配，进行信号与处理。

- 双向鉴幅器，可有效抑制干扰。
- 内设延迟时间定时器和封锁时间定时器，结构新颖，稳定可靠，调解范围宽。
- 内置参考电压。
- 工作电压范围+3V—+5V。
- 采用 16 脚 DIP 和 SOP 封装。

外引脚图：



红外传感信号处理集成电路 BISS0002

产品介绍： BISS0002 是由我公司开发的红外传感信号处理集成电路。相对 BISS0001，BISS0002 自带了稳压电路、抗干扰性更好。

工艺特点：

◆COMS 数据混合型专用集成电路。

◆具有独立的低功耗、高输入阻抗运算放大器，可与多种传感器匹配，进行信号处理。

◆双向鉴幅器，可有效抑制干扰。

◆内置稳压电源，可供外部传感器使用。

◆可驱动可控硅或继电器工作。

◆直流或交流工作模式并自动鉴别 50HZ 或 60HZ，切换同步脉冲。

◆交流工作模式可控硅输出，可选弱点灯或强点灯，具有调光输出功能。

◆电源 ON 后，可确保 0.5 秒内无输出。

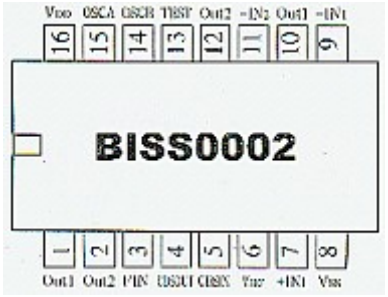
◆具有 180 秒测试工作模式及可重复触发或不可重复触发工作模式。

◆外接零件少，抗噪声能力强。

◆采用 16 脚 DIP 或 SOP 封装。

外引脚图：

（红外传感信号处理集成电路采用标准 DIP16 和 SOP16 两种封装形式，客户可以根据使用情况选择）



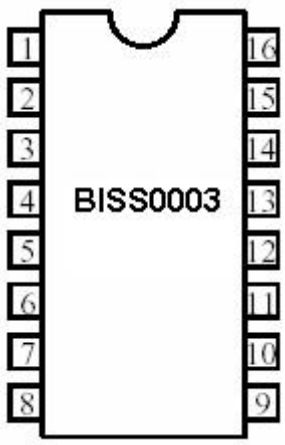
热释红外传感信号配套集成电路 BISS0003

产品介绍： BISS0003 是为热释电红外传感器配套设计的专用集成电路，采用 CMOS 工艺制造。其外围器件大大减少，节约了空间和成本及调试时间，提高整机可靠性，可广泛应用于照明控制、马达和电磁阀控制，防盗报警等领域。

性能特点：

- 工作电压为 4.0V～5.5V （ DC ），工作电流小于 1mA。
- 外接振荡电阻、电容。
- 外接有硫化镉 （ CDS ） 传感器，白天抑制输出。
- 输出可驱动继电器或可控硅。
- 内置两级运放，增益可调。
- 控制时间可调。
- 内置稳压输出 3.1V 直接驱动 PIR。
- 集成过零检测，交流电流同步触发，降低电源污染。
- 与 WELTREND 公司 WT8072 兼容。
- DIP16 封装。

外引脚图：



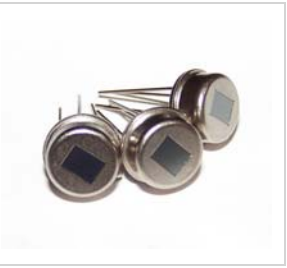
引脚说明

序号	符号	功能描述	序号	符号	功能描述
1	UOU1	运放输出 1	9	CDS	CDS 检测
2	NII1	运放正输入 1	10	TRIAC	TRIAC 输出
3	II1	运放负输入 1	11	RELAY	RELAY 输出
4	VREF	参考电压	12	ZCD	过零检测

5	GND	地	13	VDD	电源
6	TB	系统时钟	14	II2	运放负输入 2
7	QTEST	测试	15	NII2	运放正输入 2
8	TCI	定时时钟	16	UOU2	运放输入 2

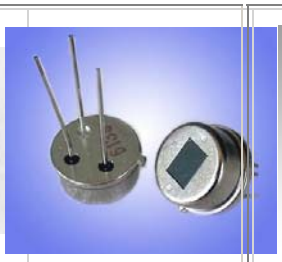
SUNSTAR 精工制造系列红外感应、防盗报警、自动控制、安防消防器件

热释电红外传感器主要是由一种高热电系数的材料，如锆钛酸铅系陶瓷、钽酸锂、硫酸三甘钛等制成尺寸为 2*1mm 的探测元件。在每个探测器内装入一个或两个探测元件，并将两个探测元件以反极性串联，以抑制由于自身温度升高而产生的干扰。由探测元件将探测并接收到的红外辐射转变成微弱的电压信号，经装在探头内的场效应管放大后向外输出。为了提高探测器的探测灵敏度以增大探测距离，一般在探测器的前方装设一个菲涅尔透镜，该透镜用透明塑料制成，将透镜的上、下两部分各分成若干等份，制成一种具有特殊光学系统的透镜，它和放大电路相配合，可将信号放大 70 分贝以上，这样就可以测出 10~20 米范围内人的行动。品种全、型号多，可供选择的余地大。应用于人体感应开关、报警器等自动开关领域。



KP500B

KP506B



RE200B

D203S

D203B

LHI968

LHI778

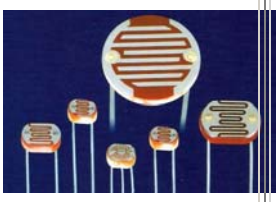
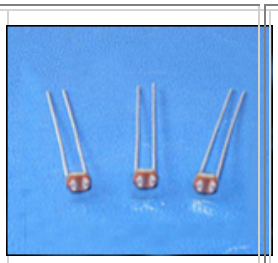
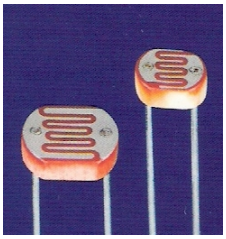
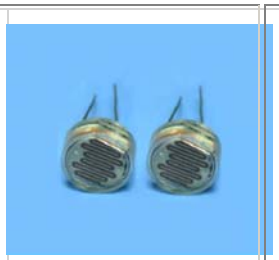
D204S

LHI878

光敏电阻器（photovaristor）又叫光感电阻，是利用半导体的光电效应制成的一种电阻值随入射光的强弱而改变的电阻器；入射光强，电阻减小，入射光弱，电阻增大。光敏电阻器一般用于光的测量、光的控制和光电转换（将光的变化转换为电的变化）。

通常，光敏电阻器都制成薄片结构，以便吸收更多的光能。当它受到光的照射时，半导体片（光敏层）内就激发出电子—空穴对，参与导电，使电路中电流增强。

本公司光敏电阻性能稳定，一致性好，光谱特性好、型号齐全，广泛应用于验钞机、监控摄像机、背景调光、开关电路、玩具等。

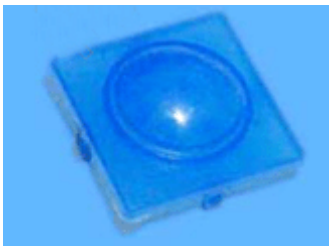
			
光敏电阻	光敏电阻 3MM	光敏电阻 4MM	光敏电阻 5MM
			
光敏电阻 7MM	光敏电阻 12MM	光敏电阻 20MM	金属壳光敏电阻 1
			
金属壳光敏电阻 2	塑料壳光敏电阻		

光敏传感器是具有光敏特性的PN 结受到光辐射时，形成光电流，由此产生的光生电流由基极进入发射极，从而在集电极回路中得到一个放大了相当于β倍的信号电流。，与光敏二极管相比，具有很大的光电流放大作用，即很高的灵敏度。 具备了光敏电阻的特性，在开关电路中可以代替光敏电阻，最大的优点就是环保、一致性好。

型号：8709SM
焦距：24.5
角度：97.6°
距离：10m
尺寸：23*46.5

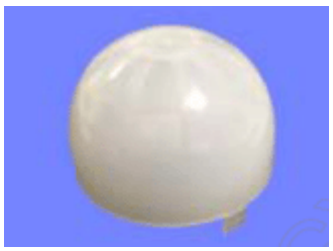
型号：NL-01
焦距：10.05
角度：100°
距离：10m
尺寸：Φ24 高度 14

型号：8360
直径：20mm
焦距：36mm
厚度：0.7mm
距离比：12:1
材料：HDPE
感应距离：10m



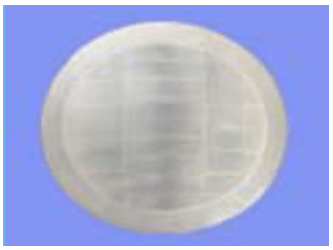
型号：8109
直径：24mm
焦距：9mm
厚度：0.7mm

型号：9002
焦距：12
角度：116°
距离：7m
尺寸：24*16.7



型号：NL-02
焦距：10.05
角度：100°
距离：10m
尺寸：Φ23.5 高度 14.70

型号：8280
直径：20mm
焦距：28mm
厚度：0.7mm
距离比：8:1
材料：HDPE
感应距离：10m



型号：0512H
直径：60*52mm
焦距：31mm
厚度：0.7mm

型号：8307-4
焦距：12
角度：90°
距离：6m
尺寸：外径 17 内径 15

型号：8403-3
焦距：20
角度：180°
距离：6m
尺寸：29*19

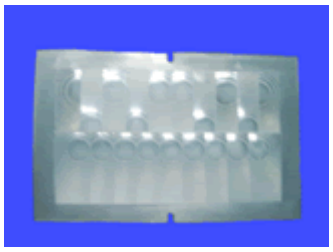
型号：8222
直径：22mm
焦距：20mm
厚度：0.6mm
距离比：6:1
材料：HDPE
感应距离：10m

型号：8605-3
外径：45mm 内径：32.5mm
焦距：15mm
厚度：0.7mm

角度：100°
感应距离：10m

角度：垂直 120° 水平 60°
感应距离：12m

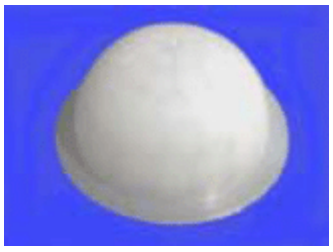
角度：360°
感应距离：5m



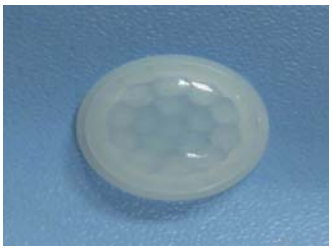
型号：7805
焦距：22
角度：125°
距离：12m
尺寸：35.6*56.6

型号：8204-1(窄角度远距离透镜)
焦距：25
角度：10°
距离：40m
尺寸：44*56.2

型号：8204-3(窄角度远距离透镜)
焦距：25
角度：10°
距离：40m
尺寸：64*52

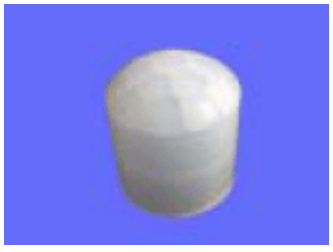


型号：003
焦距：13.50
角度：180°
距离：10m
尺寸:外径 43 内径 35.2

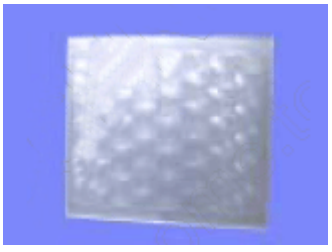


型号：8016
焦距：6
角度：120°
距离：5m
尺寸：Φ16 高度 6.00

型号：M650
焦距：30
角度：120°
距离：12m
尺寸：46*20



型号：8308-2(圆柱形)
焦距：9.5
角度：140°
距离：8m
尺寸：Φ12.5 高度 14.30

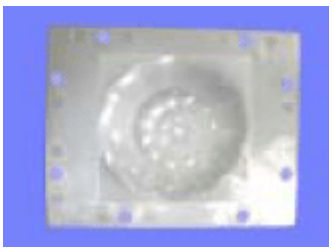


型号：8403-2
焦距：20
角度：100°
距离：10m
尺寸:26.5*23.8 厚度:0.7

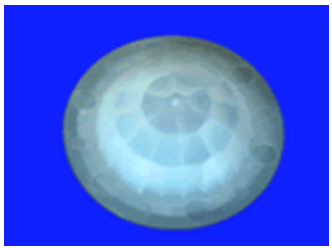
型号：M651
焦距：12
角度：120°
距离：12m
尺寸：43.2*19.7

型号：7810
焦距：21.1
角度：152°
距离：12m
尺寸：57*33

型号：7706-1
焦距：30
角度：114°
距离：28m
尺寸：60*50

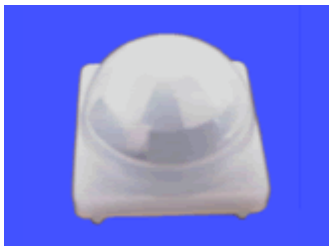


型号：8102-1
焦距：15
角度：120°
距离：7m
尺寸：64*52

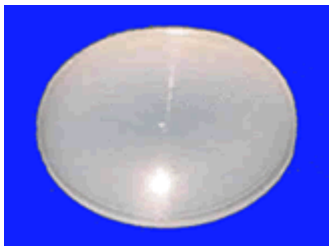


型号：8603-4
焦距：17.50
角度：360°
距离：5m
尺寸：Φ45.6

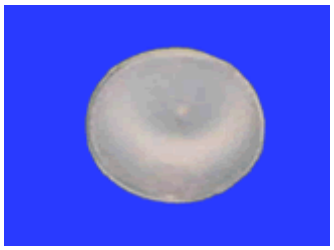
型号：8603-5
焦距：12
角度：116°
距离：5m
尺寸：Φ35



型号：8002-2
焦距：12
角度：100°
距离：5m
尺寸：Φ23



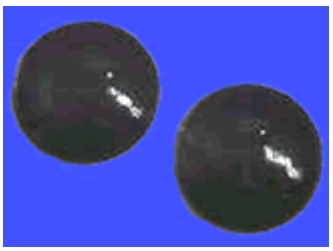
型号：8200(平板形)
焦距：20
角度：120°
距离：10m
尺寸：Φ20 厚度:0.6



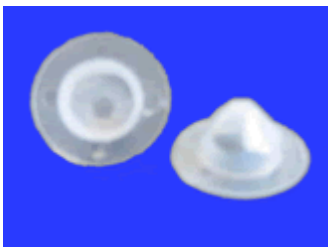
型号：8208(平板形)
焦距：8
角度：120°
距离：10m
尺寸：Φ12 厚度:0.6

型号：8310
焦距：10.5
角度：100°
距离：10m
尺寸：Φ23 厚度:0.5

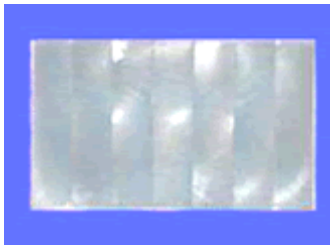
型号：2814
焦距：10.5
角度：140°
距离：6m
尺寸：Φ28 厚度:0.6



型号：8201-9
焦距：20
角度：180°
距离：10m
尺寸：Φ20 厚度:0.6

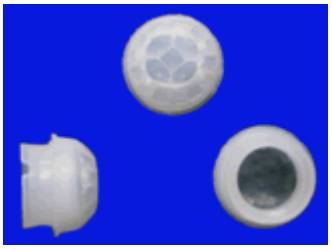


型号：8140
焦距：8
角度：140°
距离：6m
尺寸：Φ8 厚度:0.6

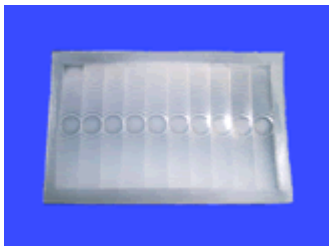


型号：ML002(幕帘式透镜)
焦距：30
角度：幕帘
距离：10m
规格：34*55.5

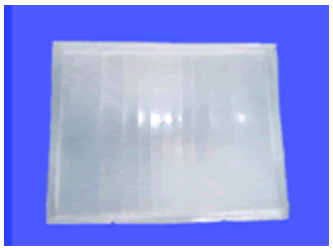
型号：HL001
焦距：
角度：
距离：
规格：71.5*38.5



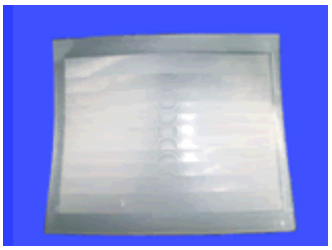
型号：8120
焦距：6
角度：120°
距离：8m
尺寸：Φ12.7 厚度:0.6



型号：8719
焦距：25
角度：90°
距离：10m
尺寸：53.5×34



型号：8203-1
焦距：25
角度：110°
距离：12m
尺寸：56×44

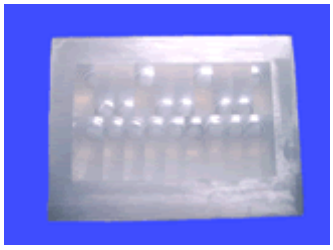


型号：7809
焦距：25
角度：90°
距离：12m
尺寸：49×57

型号：7708-1
焦距：29.7
角度：79.8°
距离：10m
尺寸：56.82×44.8

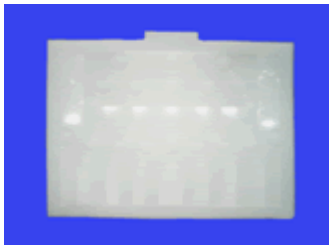
型号：7706
焦距：30
角度：79.8°
距离：28m
尺寸：49×69.20

型号：7706-3
焦距：30
角度：114°
距离：28m
尺寸：69.2×37.4

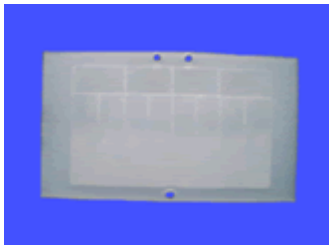


型号：7704
焦距：23.00
角度：103°
距离：12m
尺寸：46.2×61.5

型号：7805
焦距：22
角度：125°
距离：12m
尺寸：36×57



型号：7708-10
焦距：23
角度：120°
距离：16m
规格：66.5*49.7



型号：7803-1
焦距：20
角度：89°
距离：7m
尺寸：40×22.8

型号：7708-3
焦距：29.7
角度：79.8°
距离：10m
尺寸：58×45

型号：8745-2B
焦距：22
角度：110°
距离：12m
规格：57×25

SUNSTAR商斯达实业集团是集研发、生产、工程、销售、代理经销 、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一,是一家专业代理和分銷世界各大品牌IC芯片和電子元器件的连锁经营綜合性国际公司。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。 我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。**专业以现代信息产业（计算机、通讯及传感器）三大支柱之一的传感器为主营业务，专业经营各类传感器的代理、销售生产、网络信息、科技图书资料及配套产品设计、工程开发。我们的专业网站——中国传感器科技信息网（全球传感器数据库） www.SENSOR-IC.COM 服务于全球高科技生产商及贸易商，为企业科技产品开发提供技术交流平台。欢迎各厂商互通有无、交换信息、交换链接、发布寻求代理信息。欢迎国外高科技传感器、变送器、执行器、自动控制产品厂商介绍产品到 中国，共同开拓市场。**本网站是关于各种传感器-变送器-仪器仪表及工业自动化大型专业网站,深入到工业控制、系统工程计 测计量、自动化、安防报警、消费电子等众多领域，把最新的传感器-变送器-仪器仪表买卖信息,最新技术供求,最新采购商,行业动态，发展方向，最新的技术应用和市场资讯及时的传递给广大科技开发、科学研究、产品设计人员。本网站已成功为石油、化工、电力、医药、生物、航空、航天、国防、能源、冶金、电子、工业、农业、交通、汽车、矿山、煤炭、纺织、信息、通信、IT、安防、环保、印刷、科研、气象、仪器仪表等领域从事科学研究、产品设计、开发、生产制造的科技人员、管理人员 、和采购人员提供满意服务。 **我公司专业开发生产、代理、经销、**销售各种传感器、变送器、敏感元器件、开关、执行器、仪器仪表、自动化控制系统： 专门从事设计、生产、销售各种传感器、变送器、各种测控仪表、热工仪表、现场控制器、计算机控制系统、数据采集系统、各类环境监控系统、专用控制系统应用软件以及嵌入式系统开发及应用等工作。如热敏电阻、压敏电阻、温度传感器、温度变送器、湿度传感器、 湿度变送器、气体传感器、 气体变送器、压力传感器、 压力变送、称重传感器、物（液）位传感器、物（液）位变送器、流量传感器、 流量变送器、电流（压）传感器、溶氧传感器、霍尔传感器 、图像传感器、超声波传感器、位移传感器、速度传感器、加速度传感器、扭距传感器、红外传感器、紫外传感器、 火焰传感器、激光传感器、振动传感器、轴角传感器、光电传感器、接近传感器、干簧管传感器、继电器传感器、微型电泵、磁敏（阻）传感器 、压力开关、接近开关、光电开关、色标传感器、光纤传感器、齿轮测速传感器、 时间继电器、计数器、计米器、温控仪、固态继电器、调压模块、电磁铁、电压表、电流表等特殊传感器 。 同时承接传感器应用电路、产品设计和自动化工程项目。

更多产品请看本公司产品专用销售网站:
商斯达中国传感器科技信息网：http://www.sensor-ic.com/
商斯达工控安防网：http://www.pc-ps.net/
商斯达电子 元器件网：http://www.sunstare.com/
商斯达微波光电产品网:HTTP://www.rfoe.net/
商斯达消费电子产品网://www.icasic.com/
商斯达军工产品网:http://www.junpinic.com/
商斯达实业科技产品网://www.sunstars.cn/传感器销售热线：
地址：深圳市福田区福华路福庆街鸿图大厦 1602 室
电话：0755-83607652 83376489 83376549 83370250 83370251 82500323
传真：0755-83376182 （0）13902971329 MSN: SUNS8888@hotmail.com
邮编：518033 E-mail:szss20@163.com QQ: 195847376
深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422
技术支持：0755-83394033 13501568376
欢迎索取免费详细资料、设计指南和光盘 ；产品凡多，未能尽录，欢迎来电查询。
北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号
TEL：010-81159046 82615020 13501189838 FAX：010-62543996
上海分公司：上海市北京东路 668 号上海賽格电子市场 D125 号
TEL：021-28311762 56703037 13701955389 FAX：021-56703037
西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)
西安劳动南路 88 号电子商城二楼 D23 号
TEL：029-81022619 13072977981 FAX:029-88789382