

# SPECIFICATION

DESCRIPTION: Pyroelectric Infrared Sensor

MODEL: PIR500B

1. Part No.: PIR500B
2. Usage: Universal big window probe, can be used for automatic lighting automatic door toy into alarming, etc
3. Sensitive type: double type series
4. Size: TO-5 packaging, pls see chart 1.
5. Performance index

## 5.1 electric properties

Project	Testing Condition	Specification
signal output	ambient temperature 25°C blackbody temperature 420K( 147°C ) modulation frequency 1HZ magnification 72.5 dB ( operational amplifier 5000X ) Vd= 5V, Rs=47K Ω	≥ 3 Vp-p
Noise	ambient temperature 25°C magnification 72.5 dB ( operational amplifier 5000X ) Vd= 5V, Rs=47K Ω	<170mVp-p Max. (Typ. 100mVp-p)
degree of balance <sup>[*]</sup>	blackbody temperature 420K( 147°C ) magnification 72.5 dB ( operational amplifier 5000X ) Vd= 5V, Rs=47K Ω	<15%

Mains voltage		3~15V
Source Voltage	Vd= 5V, Rs=47K Ω	0.4~1.1V
response time	Plus electric signal stability after the time required for output	<15S

[\*] degree of balance =  $V_{AB}/|V_A+V_B| \times 100\%$

$V_{AB}$ = double sensitivity (mVp-p)

$V_A$  = A 'sensitivity ( mVp-p )

$V_B$  = B 'sensitivity ( mVp-p )

Testing way, pls see chart 2、 3.

### 5.2 optical property

Project	Specification
View Angle	X: 140° Y: 130°; pls see chart 4
Accept wavelength	5.5~14 μ m; pls see chart 5
cut-off wavelength	5.2±0.5 μ m; pls see chart 5
Average transmittance	>72%, 7~14 μ m
Filter materials	silicon
Thickness of filter	0.50mm

### 5.3 Environmental performance

Project	Specification
Operating temperature	-30—70°C
Storage Temperature	-35—80°C

## 6. reliability evaluation

test project	Testing condition	tester	Testing standard
high-temperature working	70°C 72hours	temperature-regulated oven	After the test, put the sensor in the natural environment 3hours, then test
sweat resistance	60°C , 95 % RH , 72hours	temperature and humidity regulator	
LTST	-40°C 72hours	temperature-regulated	

		oven	electrical performance measurement. 1. appearance no change 2. keep electric performance parameters within 20%
HTST	70°C 72hours	temperature-regulated oven	
Thermal shock	-40°C , 1hour→Room Temperature , 1hour→70°C, 1hour 10 个 recycle	temperature-regulated oven	
natural aging	Outside 30days	Test prototype	
soldering resistance	260±5°C, 10s Dip depth 3.0mm	soldering furnace	
seal	133.3 pascal, 1minute	vacuum pump	No bubble

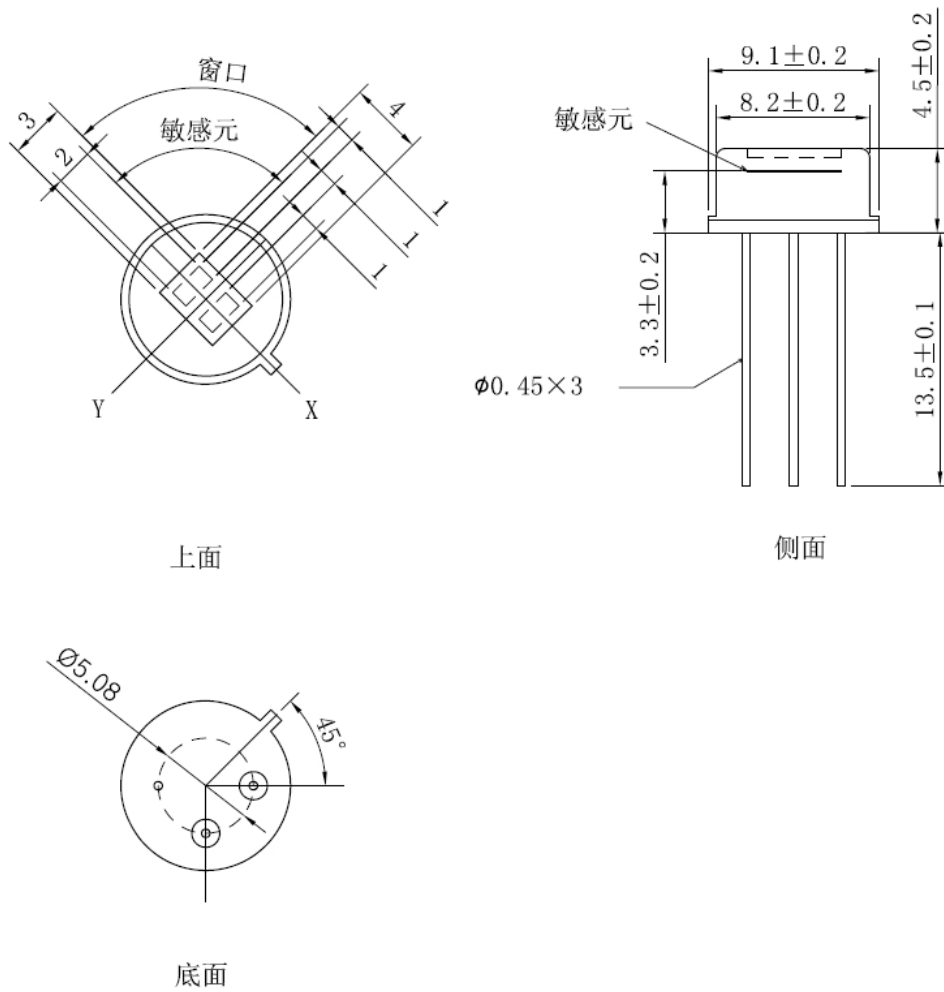
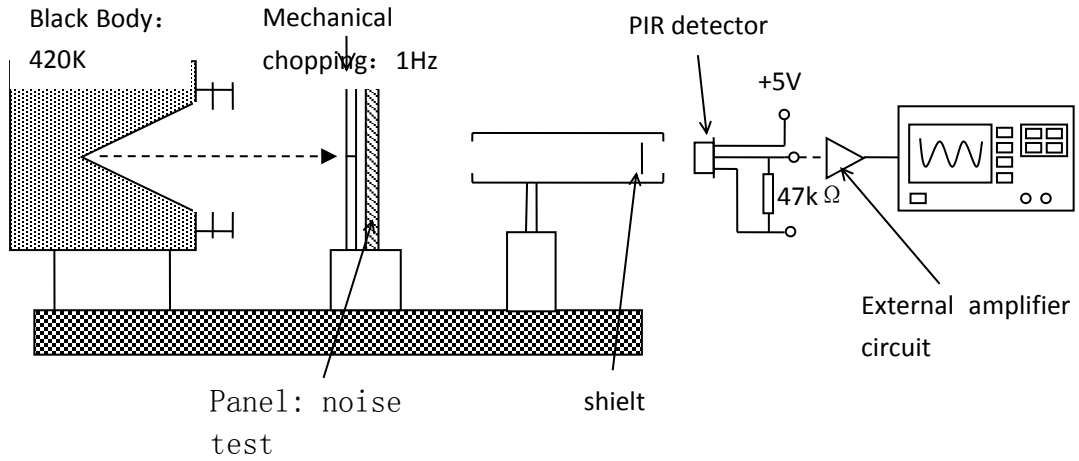


Chart 1.: Specification of the sensor



The distance between black body and PIR sensor: 200mm  
 Amplifier circuit: 72.5 dB

Chart 2: Testing Schematic plot

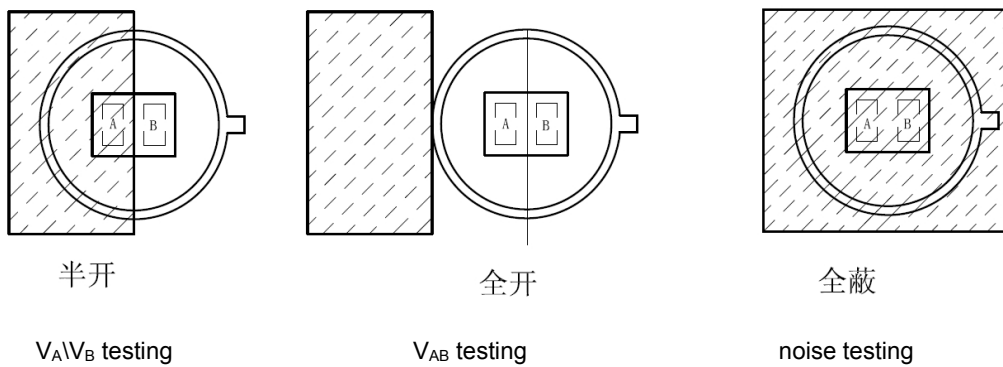


Chart 3. PIR sensor testing Schematic plot

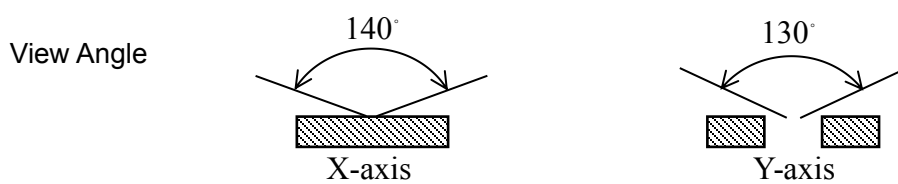


Chart 4: View angle testing Schematic plot

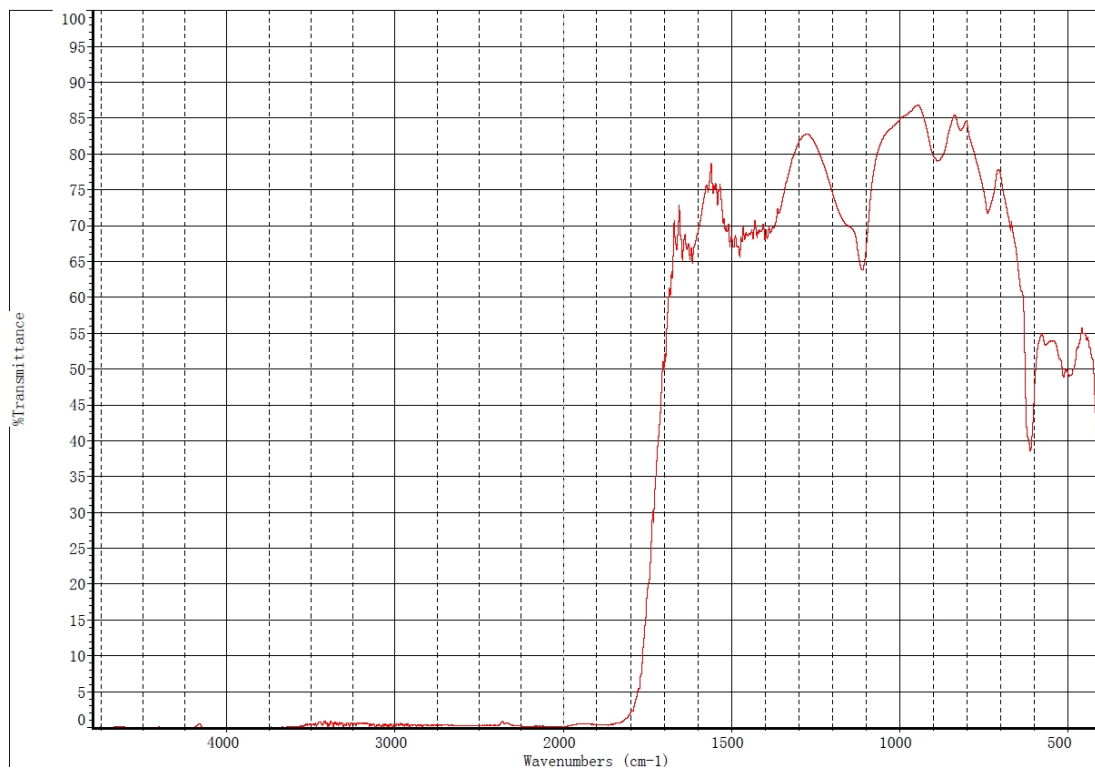


Chart 5: : filter through characteristic curve