

SPECIFICATION FOR APPROVAL

MODEL : S306-A-P

PYROELECTRIC INFRARED SENSOR

**CUSTOMER:
APPROVED BY:
DATE:**

TYPE: S306-A-P

PAGE: 1 /6

CHART:

EDITION: A

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TYPE OF SENSOR

DUAL ELEMENTS

PHYSICAL CONFIGURATION

- | | |
|------------------------|--------------------------------|
| (1) PACKAGE | TO-5 METAL CAN
SEE FIGURE A |
| (2) SENSITIVE AREA | 2.0×1.0 mm |
| (3) LEAD CONFIGURATION | SEE FIGURE B,C |

ELECTRICAL CHARACTERISTICS (AT 25±5℃)

- | | |
|--------------------------------|---|
| (1) CIRCUIT CONFIGURATION | SEE FIGURE D |
| (2) SUPPLY VOLTAGE | 3~15 V DC (Drain-Ground)
(Rs: 47K Ω) |
| (3) OFFSET VOLTAGE | 0.4~1.1 V
TYP 0.7 V (V _D =10V, Rs=47K Ω) |
| (4) SIGNAL OUTPUT | Min 2.5 Vp-p
TYP 3.9 Vp-p (Source-Ground)
(BLACK BODY 420K; CHOPPER
FREQUENCY 1Hz: MEASUREMENT
AMP. 0.3~3.0Hz、72.5db(AT 1Hz))
SEE FIGURE F |
| (5) SENSITIVITY 420K, 1Hz | 3300 V/W |
| (6) DETECTIVITY (420K,1Hz,1Hz) | 1.5×10 ⁸ cmHz ^{1/2} /W |
| (7) BALANCE OUTPUT | Max 20% (Source-Ground)
(BLACK BODY 420K; CHOPPER
FREQUENCY 1Hz: MEASUREMENT
AMP. 0.3~3.0Hz、72.5db(AT 1Hz))
SEE FIGURE G |

TYPE: S306-A-P

PAGE: 2 /6

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- | | |
|------------------------|---|
| (8) NOISE OUTPUT | Max 200mV
TYP 80 mV (Source-Ground)
(MEASUREMENT AMP. 0.3~3.0Hz、
72.5db(AT 1Hz))
SEE FIGURE H |
| (9) NEP (420K,1Hz,1Hz) | 9.6×10^{-10} W |

OPTICAL CHARACTERISTICS

- | | |
|-----------------------|---------------------------|
| (1) FIELD OF VIEW | 44° × 38°
SEE FIGURE I |
| (2) SPECTRAL RESPONSE | Si Filter 5.0~14 μ m |

ENVIRONMENTAL REQUIREMENTS

- | | |
|---------------------------|------------|
| (1) OPERATING TEMPERATURE | -30~+70 °C |
| (2) STORAGE TEMPERATURE | -40~+80 °C |

※ NOTES

1. DESIGN RESTRICTIONS/PRECAUTIONS

FOR OUTDOOR APPLICATIONS , BE SURE TO APPLY SUITABLE SUPPLEMENTARY OPTICAL FILTER AND DRIP-PROOF 。 ANTI-DEW CONSTRUCTION。 THIS SENSOR IS DESIGNED FOR INDOOR USE。 IN CASES WHERE SECONDRAY ACCIDENTS DEE TO OPERATION FAILURE OR MALFUNCTIONS CAN BE ANTICIPATED 。 ADD A FAIL SAFE FUNCTION TO THE DESIGN。

2. USAGE RESTRICTIONS/PRECAUTIONS

TO PREVENT SENSOR MALFUNCTIONS, OPERATIONAL, FAILURE OR ANY DETERIORATION OF ITS CHARACTERISTICS. DO NOT USE THIS SENSOR IN FOLLOWING, OR SIMILAR, CONDITIONS.

TYPE: S306-A-P	PAGE: 3 / 6	CHART:	EDITION: A
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- A. IN RAPID ENVIRONMENTAL TEMPERATURE CHANGES.
- B. IN STRONG SHOCK OR VIBRATION. CUSTOMERS TO USE FALL PROTECTION, CERAMIC CHIP FRAGILE.
- C. IN A PLACE WHERE THERE ARE OBSTRUCTING MATERIALS (GLASS.FOG.ETC) THROUGH WHICH INFRARED RAYS CANNOT PASS WITHIN DETECTION AREA.
- D. IN FLUID. CORROSIVE GASES AND SEA BREEZE.
- E. CONTINUAL USE IN HIGH HUMIDITY ATMOSPHERE.
- F. EXPOSED TO DIRECT SUN LIGHT OR HEADLIGHTS OF AUTOMOBILES.
- G. EXPOSED TO DIRECT WIND FROM A HEATER OR AIR CONDITIONS.
- H. PRODUCTION PROCESS, NOT THE ACCUMULATION OF STACKED PCB BOARD, THE FILTER IS EASILY DAMAGED.

3. ASSEMBLY RESTRICTIONS/PRECAUTIONS

SOLDERING-----

- A. USE SOLDERING IRONS WHEN SOLDERING.
- B. AVOID KEEPING PINS OF THIS HOT FOR A LONG TIME AS EXCESSIVE HEAT MAY CAUSE DETERIORATION OF ITS QUALITY.(E.G. WITHIN 5 SEC. AT 350℃)
- C. AVOID STATIC ELECTRICITY OR STRONG ELECTROMAGNETIC WAVES. RECOMMENDED TO WEAR A SHIELD RING.

WASHING-----

- A. BE SURE TO WASH OUT ALL FLUX AFTER SOLDERING AS REMAINDER MAY CAUSE MALFUNCTIONS.
- B. USE A BRUSH WHEN WASHING. WASHING WITH AN ULTRASONIC CLEANER MAY CAUSE OPERATIONAL FAILURE.

4. HANDLING AND STORAGE RESTRICTIONS/PRECAUTIONS

TO PREVENT SENSOR MALFUNCTIONS, OPERATIONAL FAILURE. APPEARANCE DAMAGE OR ANY DETERIORATION OF ITS CHARACTERISTICS. DO NOT EXPOSE THIS SENSOR TO THE FOLLOWING OR SIMILAR, HANDLING AND STORAGE CONDITIONS.

- A. VIBRATION FOR A LONG TIME.
- B. STRONG SHOCK.
- C. STATIC ELECTRICITY OR STRONG ELECTROMAGNETIC WAVES.
- D. HIGH TEMPERATURE AND HUMIDITY FOR A LONG TIME.
- E. CORROSIVE GASES OR SEA BREEZE.
- F. DIRTY AND DUSTY ENVIRONMENTS THAT MAY CONTAMINATE THE OPTICAL WINDOWS.

SENSOR TROUBLES RESULTING FROM MISUSE. INAPPROPRIATE HANDLING OR STORAGE ARE NOT THE MANUFACTURER ' S RESPONSIBILITY.

TYPE: S306-A-P	PAGE: 4 /6	CHART:	EDITION: A
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Technical drawing of a cylindrical component with the following dimensions:

- Top outer diameter: $\Phi 9.2 \pm 0.2$
- Top inner diameter: $\Phi 8.4 \pm 0.2$
- Top flange height: 3.3 ± 0.2
- Bottom flange height: 4.8 ± 0.2
- Bottom flange outer diameter: $\Phi 0.45 \times 3$
- Bottom flange inner diameter: 13.5 ± 1.0

IEW C)

1.DRAIN
2.SOURCE
3.GROUND

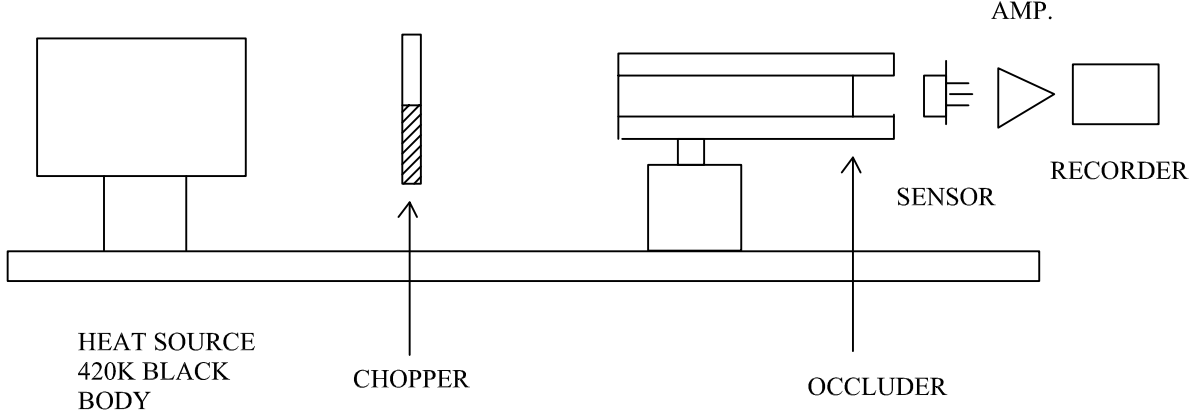
$\phi 5.08 \pm 0.2$

45°

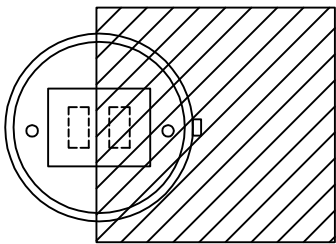
The diagram shows a sensor circuit. On the left, three horizontal arrows labeled 'IR' point towards a vertical rectangular sensor. The sensor is connected to a +10V supply at the top and ground at the bottom. Inside the sensor, there is a network of resistors, with one labeled 'RG'. The output of the sensor is connected to terminal 1 of an operational amplifier (op-amp). Terminal 2 of the op-amp is connected to terminal 3, which is grounded. A feedback resistor labeled 'Rs' with a value of '47K Ω ' is connected between terminals 1 and 2. The op-amp is represented by a triangle with an arrow pointing from terminal 1 to terminal 2. The output of the op-amp is connected to a measurement recorder, represented by a rectangle with two input terminals.

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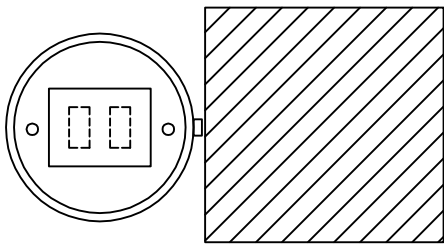
TEST DIAGRAM
(FIGURE E)



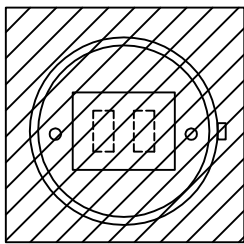
OCCLUDER POSITION



SIGNAL OUTPUT
(FIGURE F)



BALANCE OUTPUT
(FIGURE G)



NOISE OUTPUT
(FIGURE H)

TYPE: S306-A-P

PAGE: 6/6

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