

SPECIFICATION FOR APPROVAL

MODEL : NAT80D-1-P

PYROELECTRIC INFRARED SENSOR

CUSTOMER:

APPROVED BY:

DATE:

TYPE: NAT80D-1-P

PAGE: 1 /6

CHART:

EDITION: A

NICERA SENSOR CO.,LTD

TYPE OF SENSOR

QUAD ELEMENT

PHYSICAL CONFIGURATION

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

ELECTRICAL CHARACTERISTICS (AT 25±5℃)

- | | |
|--------------------------------|---|
| (1) CIRCUIT CONFIGURATION | SEE FIGURE D |
| (2) SUPPLY VOLTAGE | 2.2~15 V DC (Drain-Ground)
(Rs: 47K Ω) |
| (3) OFFSET VOLTAGE | 0.5~1.4 V
TYP 0.7 V (V _D =10V, Rs=47K Ω) |
| (4) SIGNAL OUTPUT | Min 3.2 Vp-p
TYP 5.6 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 | 4800 V/W |
| (6) DETECTIVITY (420K,1Hz,1Hz) | 1.55×10^8 cmHz ^{1/2} /W |
| (7) BALANCE OUTPUT | Max 15% (Source-Ground)
(BLACK BODY 420K; CHOPPER
FREQUENCY 1Hz: MEASUREMENT
AMP. 0.3~3.0Hz、72.5db(AT 1Hz))
SEE FIGURE G
 SA-SB / SA+SB |

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- | | |
|------------------------|--|
| (8) NOISE OUTPUT | Max 250mV
TYP 140 mV (Source-Ground)
(MEASUREMENT AMP. 0.3~3.0Hz、
72.5db(AT 1Hz))
SEE FIGURE H |
| (9) NEP (420K,1Hz,1Hz) | 1.1×10^{-9} W |

OPTICAL CHARACTERISTICS

- | | |
|-----------------------|--|
| (1) FIELD OF VIEW | 138° × 138°
SEE FIGURE I |
| (2) SPECTRAL RESPONSE | Si Filter Cuton WL $5.0 \pm 0.5 \mu m$
Thickness 0.5mm
Average T>75%
Pass Band 6.0~14 μm |

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.

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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)
- 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

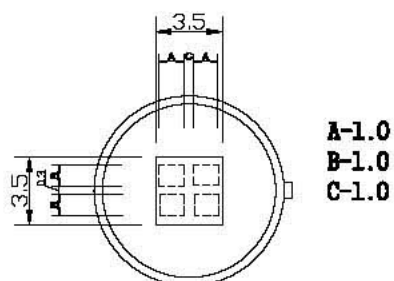
TO PREVENT SENSOR MALFUNCTIONS, OPERATIONAL FAILURE. APPEARANCE DAMAGE OR ANY DETERIORATION OF ITS CHARACTERISTICS. DO NOT EXPOSE THIS SENSOR TO THE FOLLOWING OR SIMILAR, HANDLING AND STORAGE CONDITIONS.

- 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.

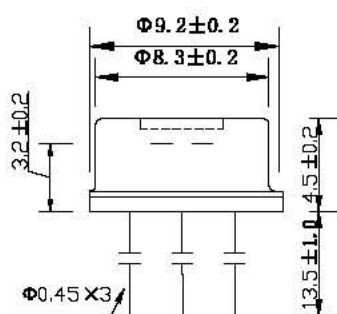
SENSOR TROUBLES RESULTING FROM MISUSE. INAPPROPRIATE HANDLING OR STORAGE ARE NOT THE MANUFACTURER ' S RESPONSIBILITY.

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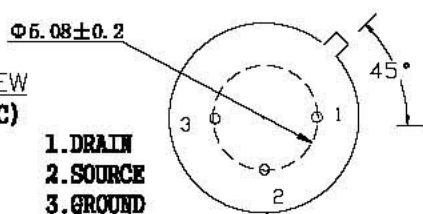
TOP VIEW
(FIGURE A)



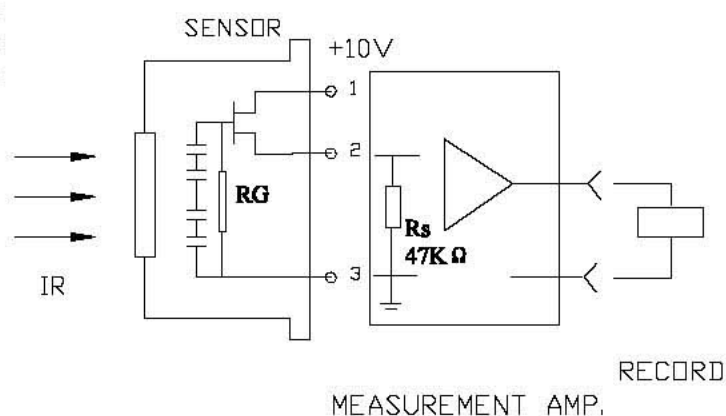
SIDE VIEW
(FIGURE B)



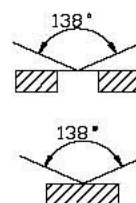
BASE VIEW
(FIGURE C)



CIRCUIT CONFIGURATION
(FIGURE D)



FIELD OF VIEW
(FIGURE I)



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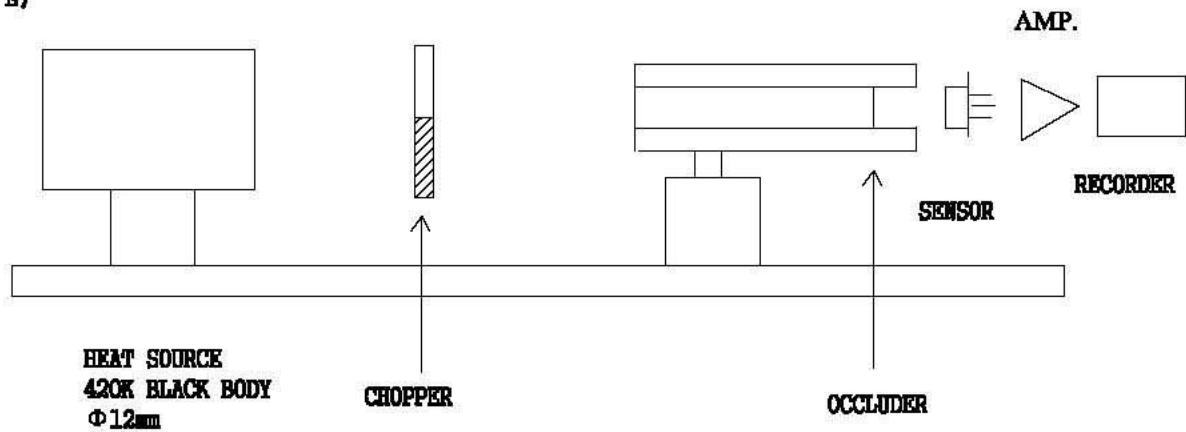
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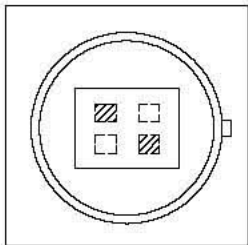
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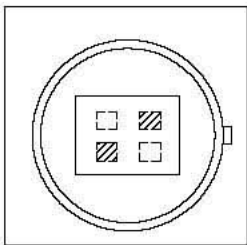
TEST DIAGRAM
(FIGURE E)



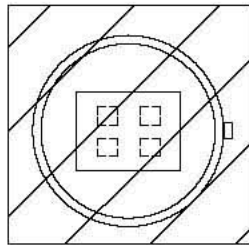
OCCLUDER POSITION



SIGNAL A OUTPUT
(FIGURE F)



SIGNAL B OUTPUT
(FIGURE G)



NOISE OUTPUT
(FIGURE H)

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