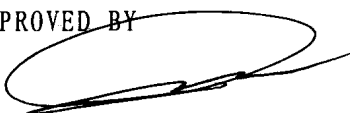

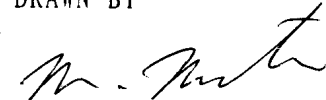


SPECIFICATION  
OF  
PYROELECTRIC PASSIVE  
INFRARED SENSOR

MODEL NO. RE200B

PART NO. \_\_\_\_\_

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	NIPPON CERAMIC CO., LTD.		
APPROVED BY 	CHECKED BY 	DRAWN BY 	

## SCOPE

THIS SPECIFICATION DESCRIBES A PYROELECTRIC PASSIVE INFRARED SENSOR SUPPLIED BY NIPPON CERAMIC CO., LTD.

## TYPE OF SENSOR

BALANCED DIFFERENTIAL (SERIES OPPOSED TYPE.)

## PHYSICAL CONFIGURATION

- 1) PACKAGE : TO-5 METAL CAN WITH DIMENSIONS SHOWN IN FIGURE 1-C (NICKEL-PLATED)
- 2) ELEMENT GEOMETRY : TWO SENSITIVE AREAS 2.0 mm LONG, 1.0 mm WIDE AND SPACED 1.0 mm APART.
- 3) ELEMENT ORIENTATION : SEE FIGURE 1-B
- 4) LEAD CONFIGURATION : SEE FIGURE 1-C, 1-D

## ELECTRICAL CHARACTERISTICS (AT 25 ± 5 °C)

- 1) CIRCUIT CONFIGURATION : THREE-TERMINAL SENSOR WITH SOURCE FOLLOWER  
SEE FIGURE 2
- 2) OPERATING VOLTAGE : 3 ~ 10 V DC (Rs: 47KΩ)
- 3) SOURCE VOLTAGE : 0.3 ~ 1.5 V (VD: 5V, Rs: 47KΩ)
- 4) SIGNAL OUTPUT : MIN. 2.5 Vp-p (TYP. 4.0 Vp-p)

SIGNAL OUTPUT IS MEASURED AT CHOPPER FREQUENCY OF 1 Hz WHEN CONNECTED TO THE AMPLIFIER OF GAIN 72.5 dB (AT 1 Hz) AND SUBMITTED TO THE EMISSION OF INFRARED ENERGY OF 13  $\mu\text{W}/\text{cm}^2$  FROM 420 K BLACK BODY.  
SEE FIGURE 3

- 5) NOISE OUTPUT : MAX. 250 mVp-p (TYP. 90 mVp-p)

NOISE OUTPUT SHALL BE MEASURED FOR 20 SECONDS WHEN CONNECTED TO THE AMPLIFIER OF GAIN 72.5 dB AND SHUT OUT FROM INFRARED ENERGY.  
SEE FIGURE 3

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6) BALANCE OUTPUT : MAX. 15 %

$$[ BO / | SA+SB | ] \leq 0.15$$

BO : BALANCE OUTPUT

SA : SIGNAL OUTPUT ON ELEMENT A

SB : SIGNAL OUTPUT ON ELEMENT B

BALANCE OUTPUT IS MEASURED AT CHOPPER FREQUENCY OF 1 Hz WHEN CONNECTED TO THE AMPLIFIER OF GAIN 72.5 dB (AT 1 Hz) AND SUBMITTED TO THE EMISSION OF INFRARED ENERGY OF  $13 \mu W/cm^2$  FROM 420 K BLACK BODY.  
SEE FIGURE 3

7) FREQUENCY RESPONSE : 0.3 Hz TO 3.0 Hz /  $\pm 10$  dB

### OPTICAL CHARACTERISTICS

- 1) FIELD OF VIEW : 138° FROM CENTER OF ELEMENT ON AXIS X  
: 125° FROM CENTER OF ELEMENT ON AXIS Y  
: SEE FIGURE 1-A
- 2) FILTER SUBSTRATE : SILICON
- 3) CUT ON (5 %T ABS) :  $5.0 \pm 0.5 \mu m$
- 4) TRANSMISSION :  $\geq 70$  % AVERAGE 7~14  $\mu m$

### ENVIRONMENTAL REQUIREMENTS

- 1) OPERATING TEMPERATURE : -30 °C TO +70 °C
- 2) STORAGE TEMPERATURE : -40 °C TO +80 °C
- 3) RELATIVE HUMIDITY :  
THE SENSOR SHALL OPERATE WITHOUT INCREASE IN NOISE OUTPUT WHEN EXPOSED TO 90 ~ 95 % RH AT 30 °C CONTINUOUSLY.
- 4) HERMETIC SEAL :  
THE SENSOR SHALL BE SEALED TO WITHSTAND A VACUUM OF .160 MILLIMETERS OF MERCURY.

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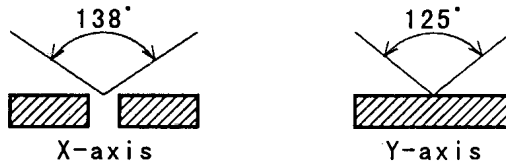
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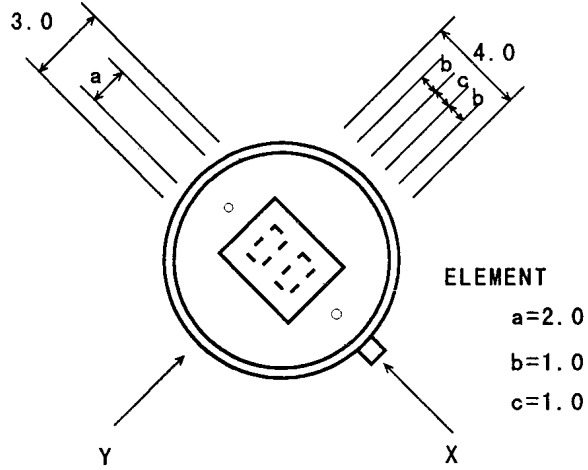
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**CONFIGURATION (FIGURE 1)**

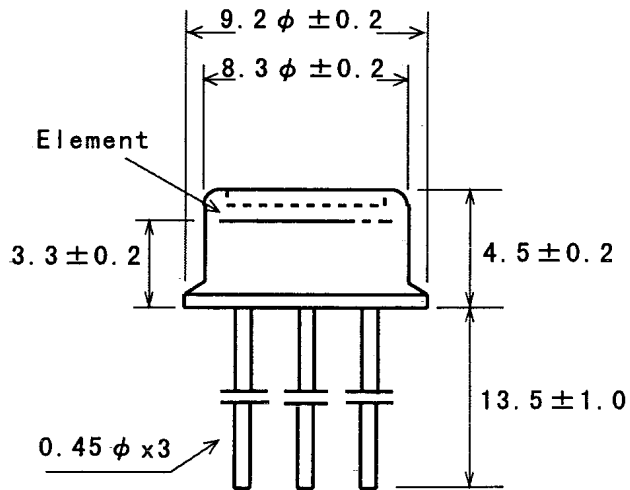
FIELD OF VIEW  
(FIGURE 1-A)



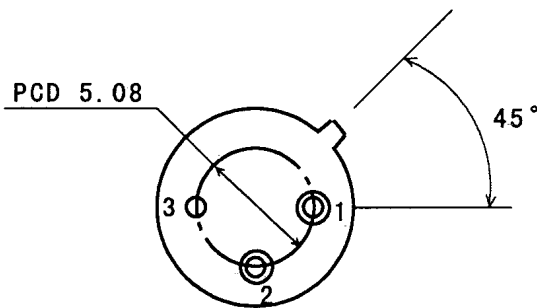
TOP VIEW  
(FIGURE 1-B)



SIDE VIEW  
(FIGURE 1-C)



BASE VIEW  
(FIGURE 1-D)



- 1: DRAIN
- 2: SOURCE
- 3: GROUND

UNIT : mm

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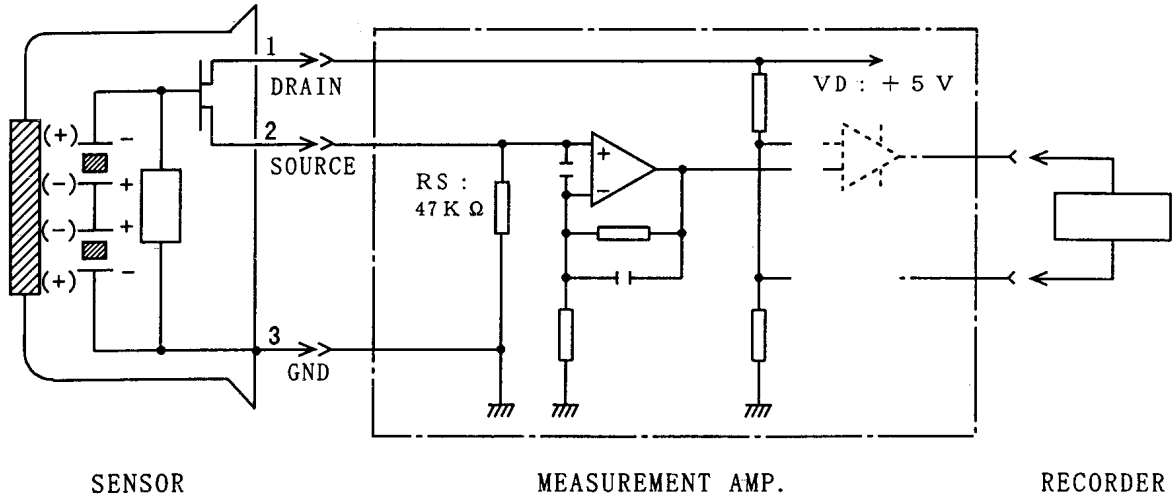
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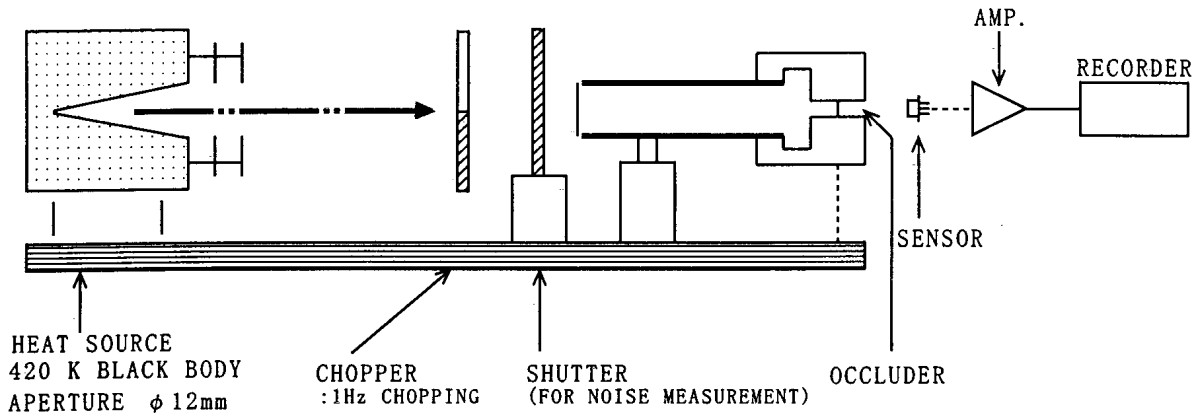
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CIRCUIT CONFIGURATION (FIGURE 2)

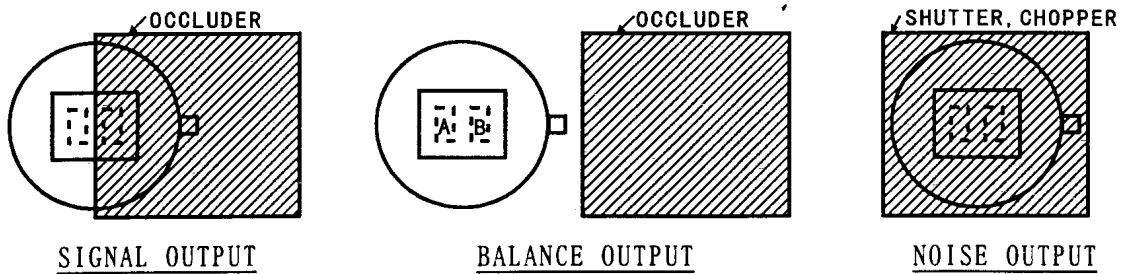


※ MEASUREMENT AMP. : NON-INVERTED TYPE, GAIN 72.5 dB AT 1 Hz 0.4~2.7 Hz / -3 dB

TEST SET-UP BLOCK DIAGRAM (FIGURE 3)



OCCLUDER POSITION



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