

Product Specification	AEC Electronics Company Limited	Original Date	05/02/2018
		PN:	ADSP102A



AEC Electronics Company Limited.
PRODUCT SPECIFICATION

Pyroelectric Infrared Sensor

AEC PART NUMBER / SPEC. NO: ADPS102A



This model is ROHS/PB-free compliance according to the ROHS directive 2002/95/EC

Production Name	Pyroelectric Infrared Sensor
Model No	ADPS102A
Issue Date	10 th April, 2018

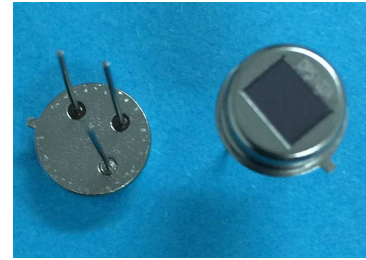
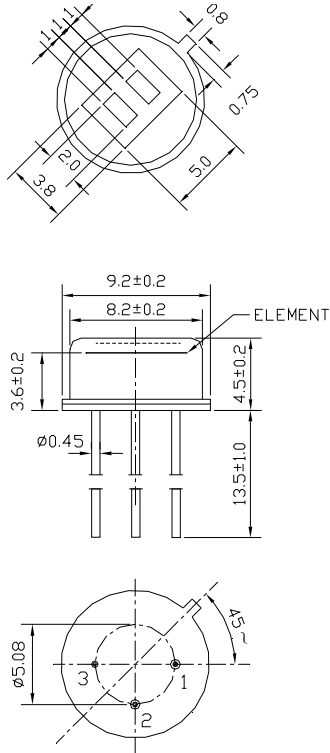
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Prepared	Inspection	Approved
<i>Nathan</i>	<i>Andy</i>	<i>Henkie</i>

1. Package Dimension

TO-5

Unit: mm



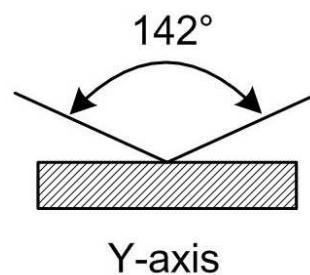
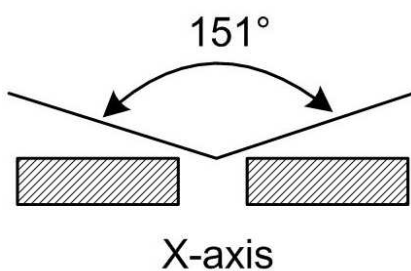
Pin No.	Function
Pin 1	Drain
Pin 2	Source
Pin 3	Ground

2. Marking

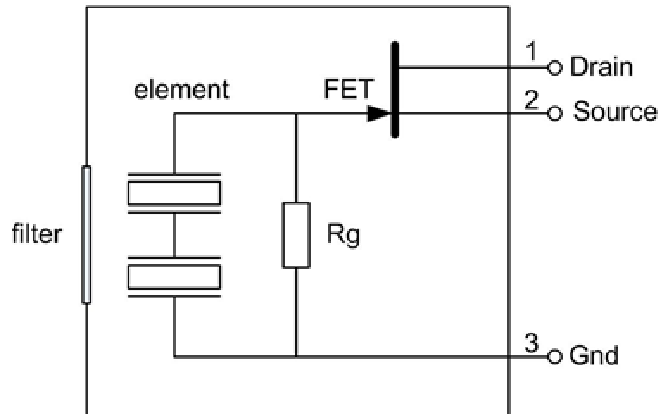
ADPS102A

1. Black Ink or Laser Marking
2. AD: Manufacture's code
3. PS: Pyroelectric Infrared Sensor
4. 102A: Model Code

3. Field of View



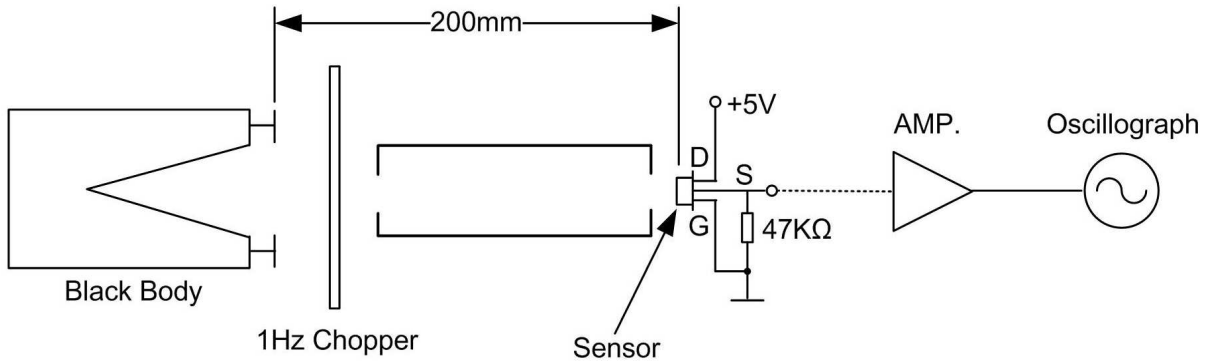
4. Equivalent Circuit



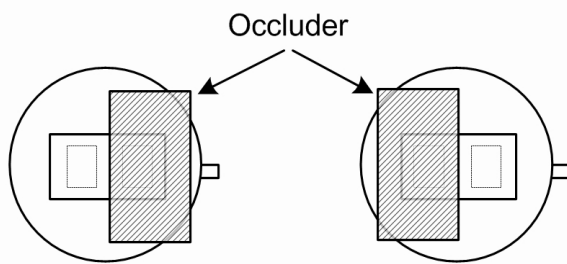
5. Performance

Item	Spec.
Element Size	2mm×1mm, 2 elements
Window Size	5mm×3.8mm
Spectral Response	5-14μm
Transmission	≥75%
Signal Output (Vp-p)	≥3500mV
Responsivity	≥3300V/W
Detectivity	≥1.4×10 ⁸ cmHz ^{1/2} /W
Noise (Vp-p)	<70mV
Offset Voltage	0.3-1.5V
Supply Voltage	3-15V
Operation Temperature	-30°C to +70°C
Storage Temperature	-40°C to +80°C

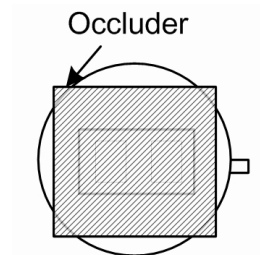
6. Test Circuit



- Note: 1) ambient temperature: 25°C
 2) black body source temperature: 420K
 3) chopper frequency: 1Hz
 4) amplifier gain: 72.5dB

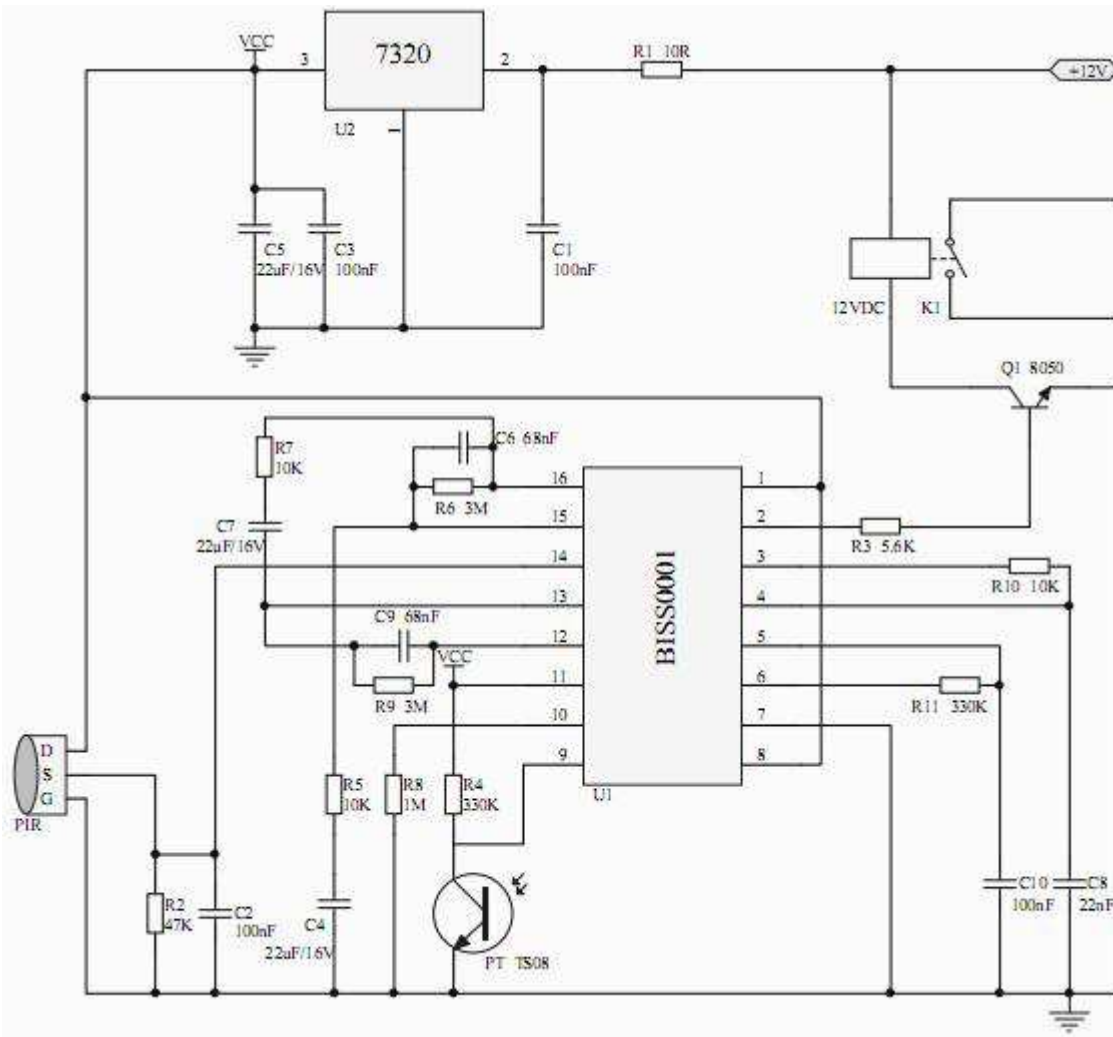


Signal Output

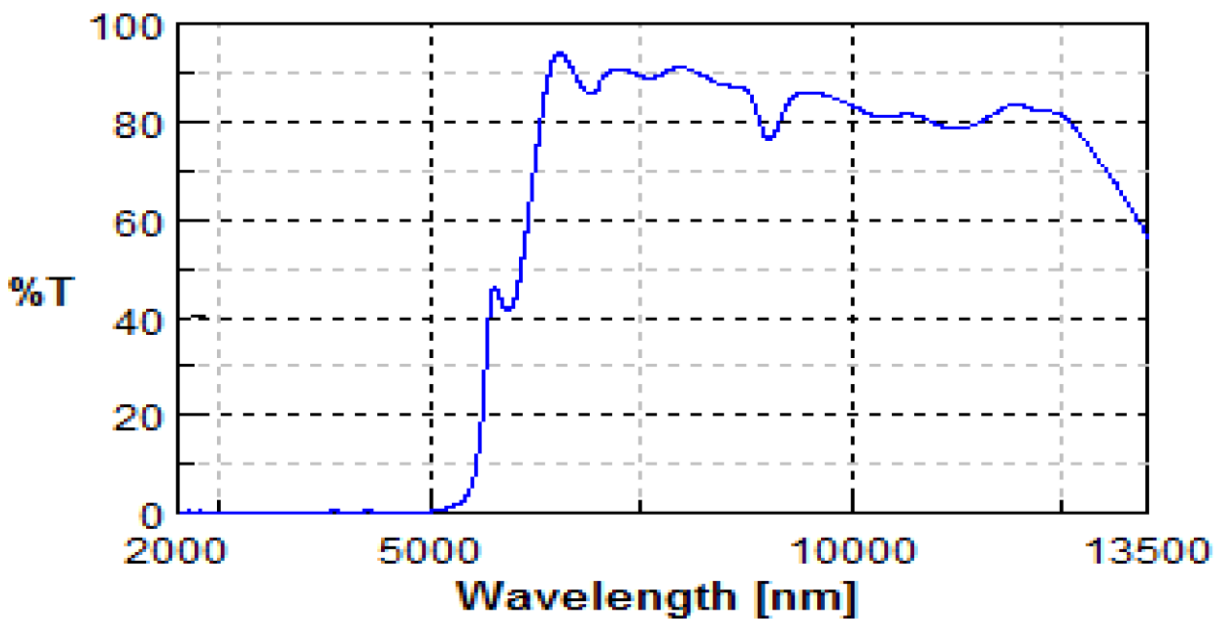


Noise Output

7 · Typical Application Circuits



8. Spectral Response of Window Materials



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9. Reliability

9.1 Resistance to Soldering heat:

The sensors shall remain within the electrical specifications after it dipped in the solder at $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 ± 1 seconds, 1.5mm below stem.

9.2 Thermal Shock:

The sensors shall remain within the electrical specifications after being kept at the condition of heat cycle conditions: $T_A = -10^{\circ}\text{C}$, $T_B = 50^{\circ}\text{C}$, $t_1 = t_2 = 30\text{min}$, switch time $\leq 3\text{min}$ & cycle time : 100 times, recovery time : $2\text{h} \pm 0.5\text{h}$.

9.3 The Temperature Storage:

9.3.1 High Temperature Storage: The sensors shall remain within the electrical specifications after being kept at the $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 500 hours, recovery time : $2\text{h} \pm 0.5\text{h}$.

9.3.2 Low Temperature Storage: The sensors shall remain within the electrical specifications after being kept at the $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 500 hours, recovery time : $2\text{h} \pm 0.5\text{h}$.

9.4 Humidity Test:

The sensors shall remain within the electrical specifications after being kept at the condition of ambient temperature $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$, and 90~95% RH for 500 hours.

9.5 Hermetic Seal

The sensors are sealed to pass a He-leakage test with maximum leak rate of 10^{-8} mbar.l.s⁻¹.

9.6 Vibration Fatigue:

The sensors shall remain within the electrical specifications after loaded vibration at 10~55Hz, amplitude 1.5mm, X, Y, Z, direction, for 2 hours.

9.7 Terminal Strength

The force 5 seconds of 9.8N is applied to each terminal.

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10. Remarks

10.1 Handling

Electrostatic charges may destroy the sensor. Please apply precautions necessary for ESD devices to avoid damage. Do not expose sensor to aggressive detergents such as freon, trichloroethylene, etc. Dirty and dusty environments that may contaminate the optical window.

10.2 Solder Conditions

Soldering irons and standard wave soldering process may be applied. Reflow soldering is not recommended. Avoid heat exposure to the top and the window of the sensor.

10.3 Cleaning

Ultrasonic vibration may cause deterioration & destruction of the sensor. Please avoid ultrasonic cleaning. Use a brush when washing.