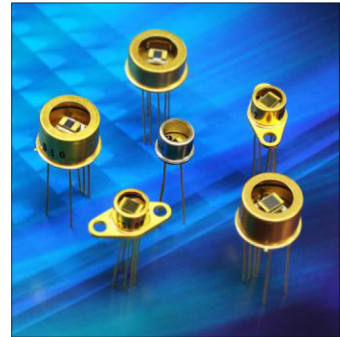


IR Detectors - B Series

High Performance Lead Selenide (PbSe) Single Channel UnCooled and Cooled Devices

Key Features

- Fast high sensitivity in 1-5 micron region
- Provides high signal to noise performance for wide measurement dynamic range
- Fastest response speed for mid-IR applications
- High reliability for long life
- Best overall performance for the 1-5 micron spectrum



The B Series single channel infrared detectors offer the best balance of performance and attributes for analyzing materials in the one to five micron spectrum. The combination of high sensitivity, fast response time, and industry leading reliability assure consistent performance where and when it is needed.

High sensitivity maximizes measurement dynamic range for applications with trace elements. Real-time measurements are easily supported with the B Series fast response time. High durability and long life minimize repair and maintenance costs. With the goal of optimizing your system's performance, Opto Diode is committed to providing high quality, reliable products.

Available in a variety of standard configurations, customers can choose an assortment of options such as element size, cooling alternatives, and package type to suit a variety of system and application requirements. Cooled units provide additional sensitivity for very low level signal detection and enhanced stability for environments where temperatures are in constant flux.

Opto Diode has been manufacturing and selling high performance PbS and PbSe infrared detectors for over 25 years. Having established a reputation for highly controlled manufacturing processes, customers can rely on consistent, repeatable performance and superior customer service. Supporting all stages of development, from early prototyping to high volume production, Opto Diode is dedicated to helping customers develop market-leading instruments. Custom requirements can be addressed by contacting the Opto Diode sales team.

Applications

- Gas analysis — CO, CO₂
 - Medical
 - Industrial
- Emissions monitoring
- Spectroscopy
- Process control systems
- Thermal imaging
- Defense and Security

B Series Specifications

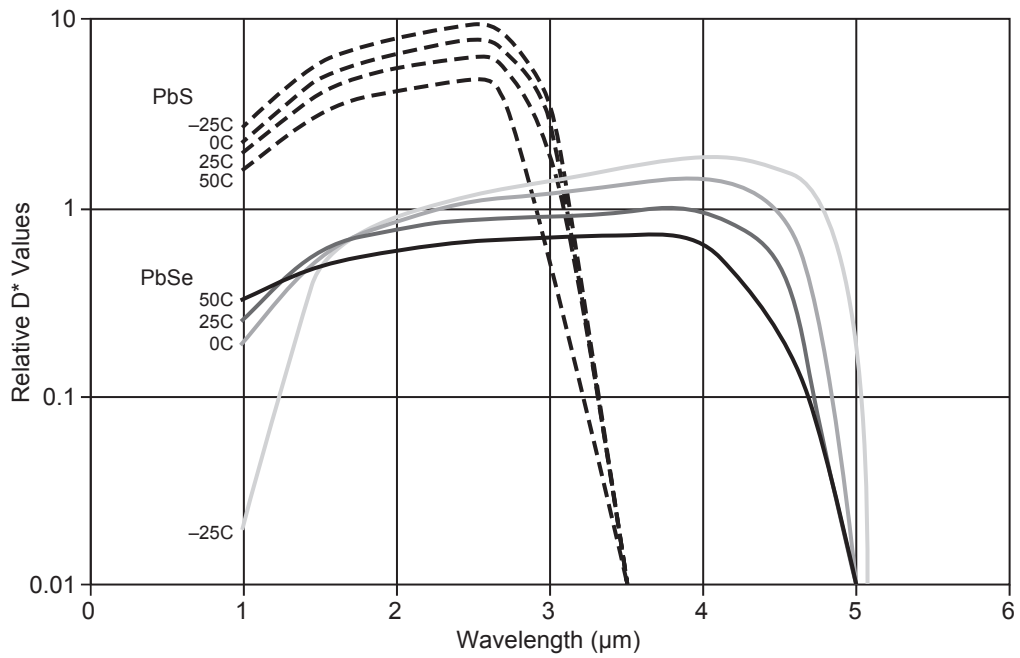
Model #	Part #	Description - Size	Package Type	Active Element Area (mm ²)	Element Operating Temp. (°C)	Peak Sensitivity Wavelength λ_p (um)	D^* λ_p , 1000Hz, 1Hz (cmHz ^{1/2} W ⁻¹)	Black-body D^* 500K, 1000Hz, 1Hz (cmHz ^{1/2} W ⁻¹)	Responsivity ¹ λ_p , 1000Hz, 35V/mm (V/W)	Resistance (MΩ/Sq)	Time Constant (μsec)	Absolute Ratings Storage & Operating Temperature (°C) ^{2,3}
BXP Series - Uncooled PbSe Packaged IR Detectors												
BXP-15	40785	1mm x 1mm	TO5	1	Ambient 23	3.6	1.0x10 ⁹	1.0x10 ⁸	1.5x10 ⁴	0.1 - 2.5	2	-40 to +85
BXP-25	40573	2mm x 2mm	TO5	4	+23	3.8	1.5x10 ¹⁰	1.5x10 ⁸	7.5x10 ³		5	
BXP-35	40333	3mm x 3mm	TO5	9					5.0x10 ³			
BXF Series - Uncooled PbSe Flat Plate IR Detectors												
BXF-1	40188	1mm x 1mm	Flat Plate	1					1.5x10 ⁴			
BXF-2	40207	2mm x 2mm	Flat Plate	4	+23	3.6	1.0x10 ⁹	1.0x10 ⁸	7.5x10 ³			
BXF-4	40204	4mm x 4mm	Flat Plate	16					3.75x10 ³			
BXF-6	40205	6mm x 6mm	Flat Plate	36			6.0x10 ⁸		2.5x10 ³			
BXT1 Series - One Stage Cooled PbSe Packaged IR Detectors												
BXT1-28T	40521	2mm x 2mm	TO8	4	-25	4.0	1.4x10 ¹⁰	1.9x10 ⁹	2.0x10 ⁴	0.5 - 10.0	6	-40 to +85
BXT1-37T	40136	3mm x 3mm	TO37	9					1.3x10 ⁴			
BXT2 Series - Two Stage Cooled PbSe Packaged IR Detectors												
BXT2-17T	40065	1mm x 1mm	TO37	1	-30	4.1	2.4x10 ¹⁰		1.2x10 ⁵			
BXT2-27	40587	2mm x 2mm	TO37	4	-30	4.3	1.8x10 ¹⁰		3.0x10 ⁴			
BXT2-37T	40071	3mm x 3mm	TO37	9	-30		1.6x10 ¹⁰	2.2x10 ⁹	2.2x10 ⁴	0.6 - 15.0	8	
BXT2-28T	40070	2mm x 2mm	TO8	4	-30		1.7x10 ¹⁰		5.5x10 ⁴			-40 to +85
BXT2S-28T	40186	2mm x 2mm	TO8	4	-45	4.3	2.0x10 ¹⁰	2.9x10 ⁹	5.0x10 ⁴	1.0 - 20.0	12	
BXT2S-38T	40203	3mm x 3mm	TO8	9	-45		3.5x10 ¹⁰		3.3x10 ⁴			
BXT2S-68T	40076	6mm x 6mm	TO8	36	-25		1.5x10 ¹⁰		1.65x10 ⁴			

¹ Specifications apply at a bias voltage of 35 V/mm directly across the detector with either a 1MΩ or 0.5 MΩ load resistor in series.

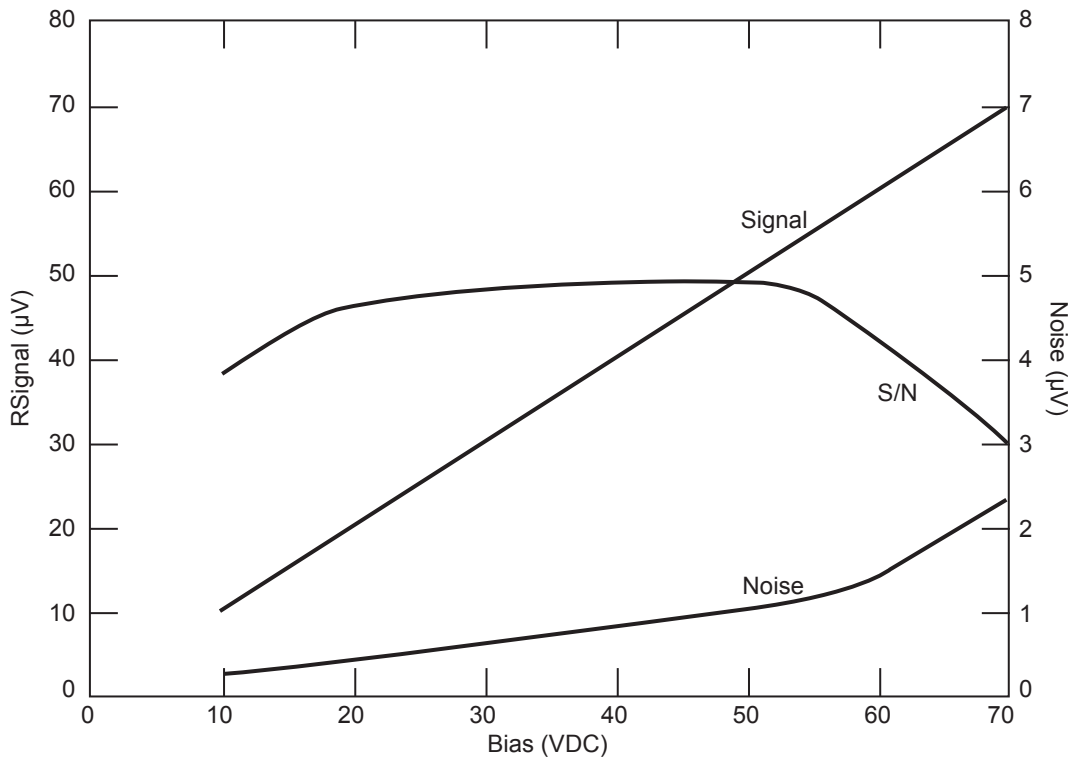
² Specifications apply at maximum cooling with a heat sink at +25°C. Typical cooler power at max cooling: BXT1 0.8W @ 1.5A, BXT2 0.8V 1.2A, BX2S 1.9V @ 1.2A.

³ Max rated element temperature is 85°C.

Detector Spectral Response

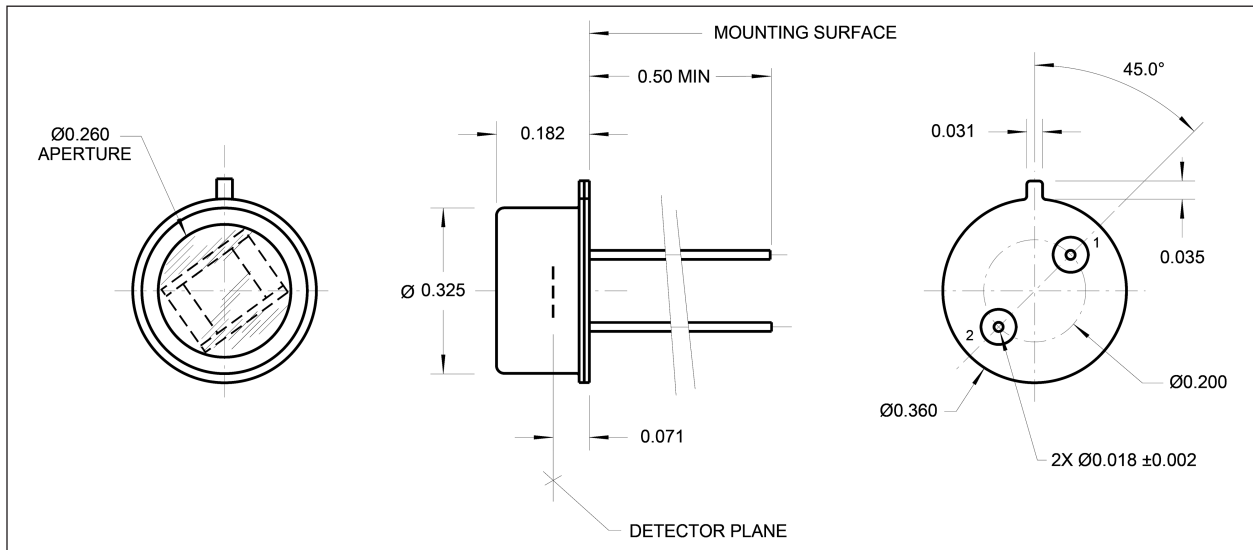


S/N versus Bias Voltage



TO5 Packages

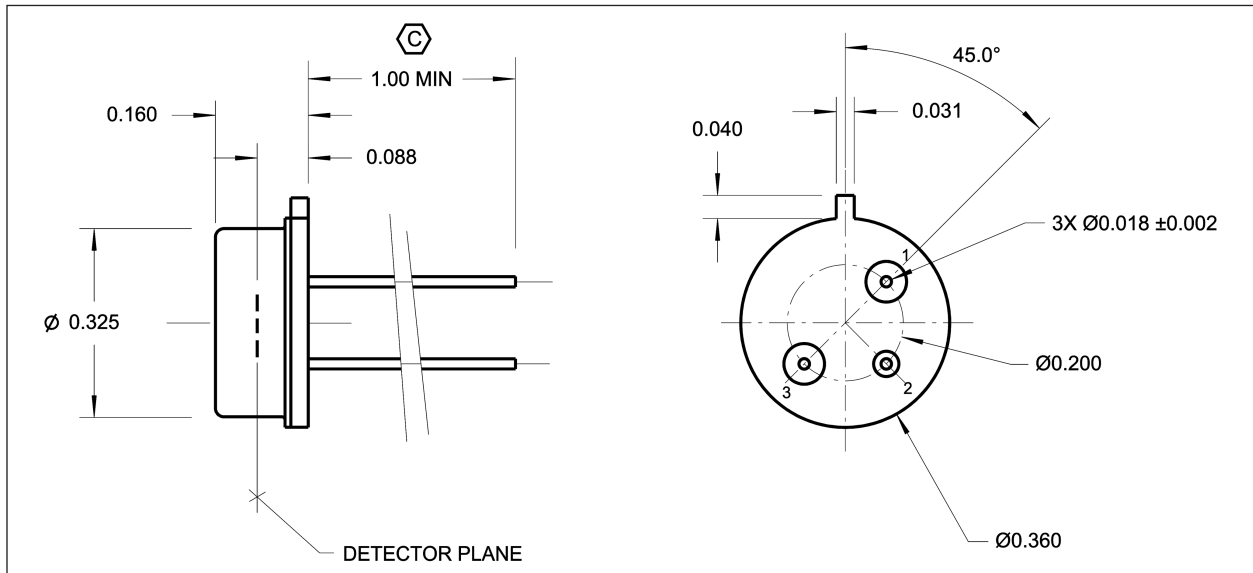
40333



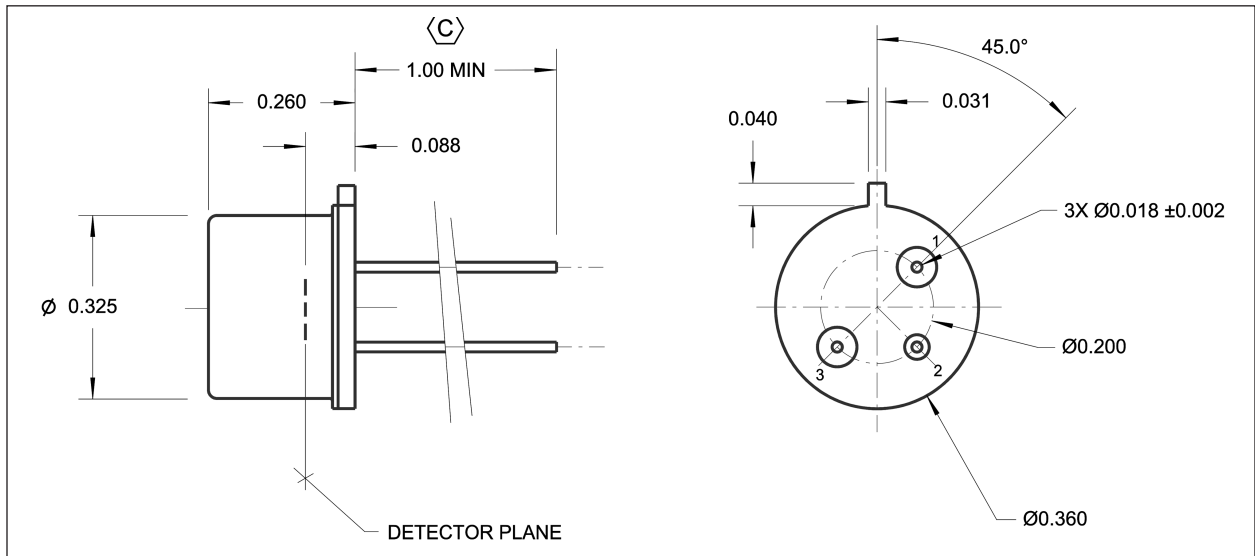
Package & Pin Out Information

Pin No.	Function
1	Detector
2	Detector/Gnd

40573



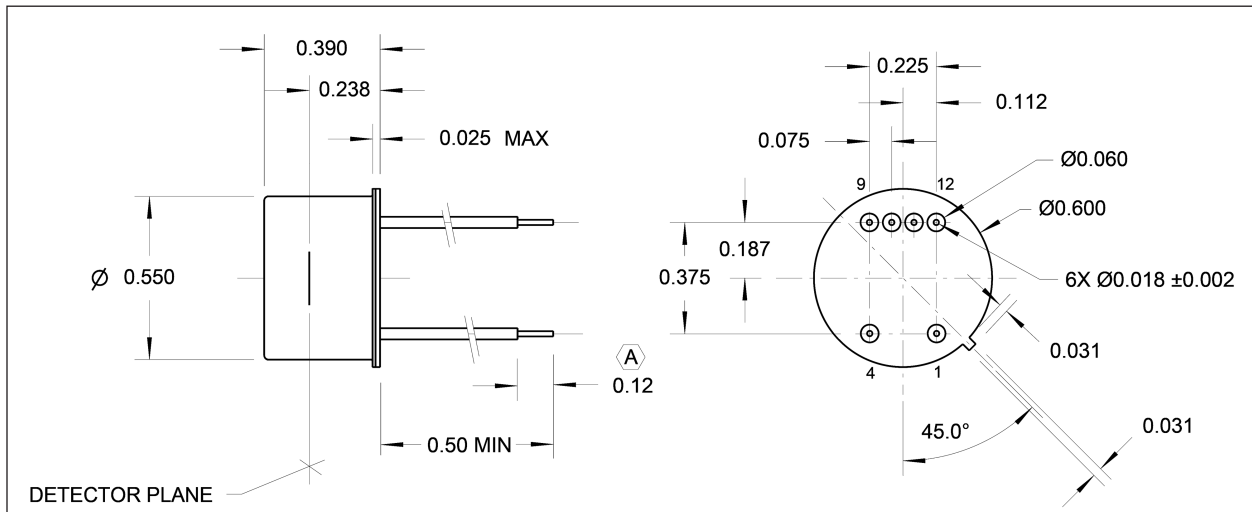
Pin No.	Function	Color
1	Detector	Bare
2	Case Gnd	Bare
3	Detector	Bare



Pin No.	Function
1	Detector
2	Case/Gnd
3	Detector

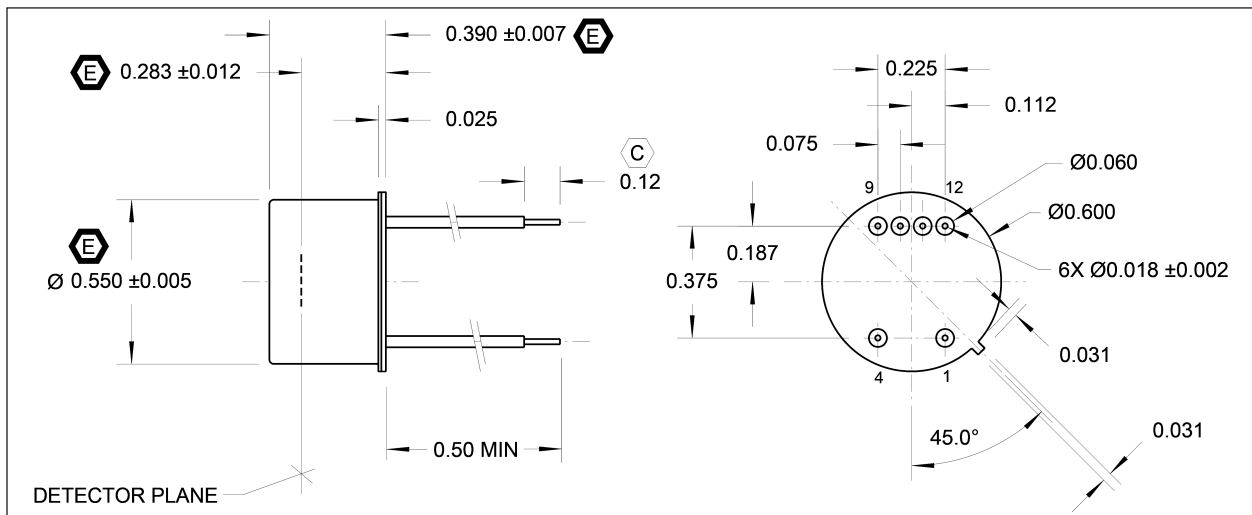
T08 Packages

40070



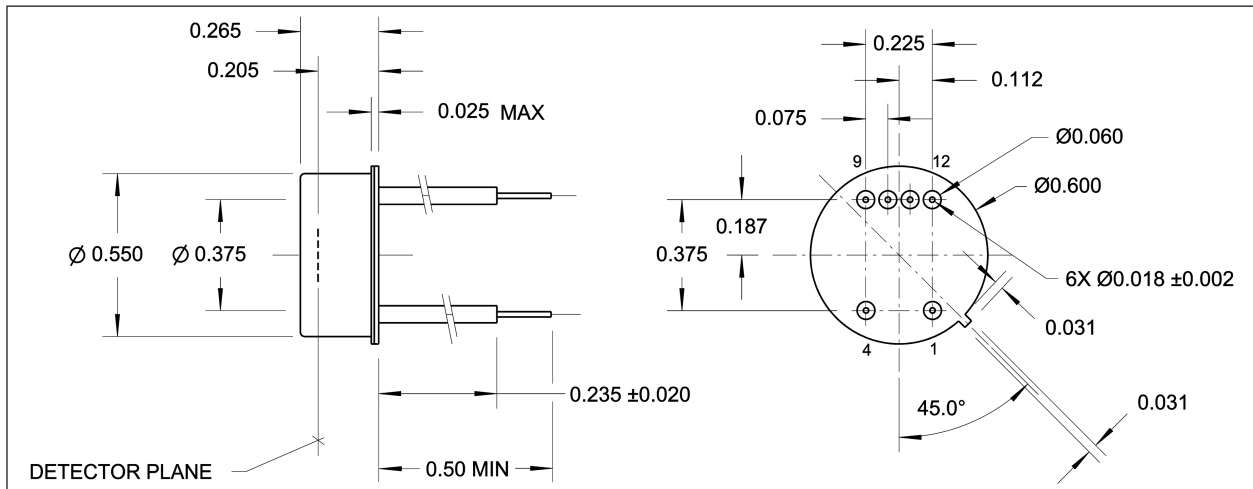
Pin No.	Function
1	Cooler (-)
4	Cooler (+)
9	Detector
10	Thermistor
11	Thermistor
12	Detector

40076, 40186, 40203



Pin No.	Function
1	Cooler (-)
4	Cooler (+)
9	Detector
10	Thermistor
11	Thermistor
12	Detector

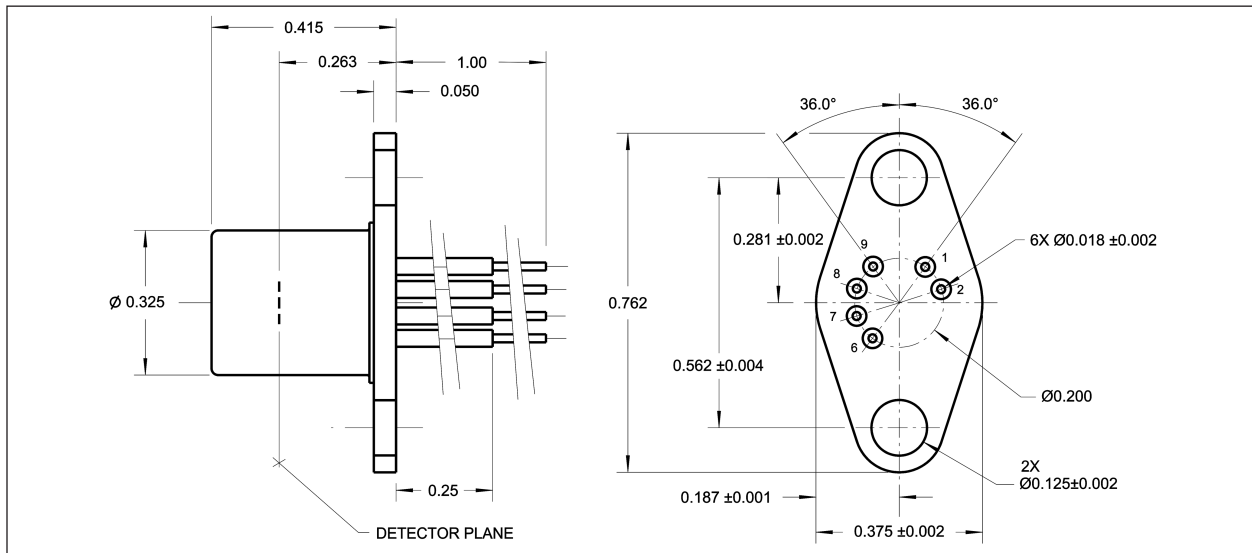
40521



Pin No.	Function
1	Cooler (-)
4	Cooler (+)
9	Detector
10	Thermistor
11	Thermistor
12	Detector

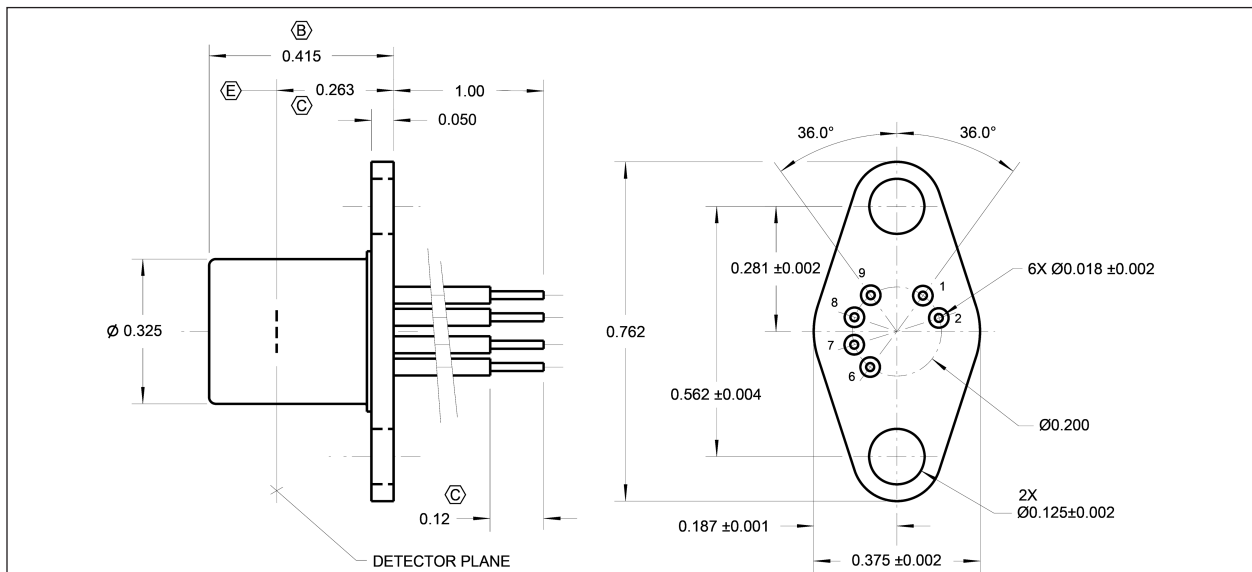
TO37 Packages

40065



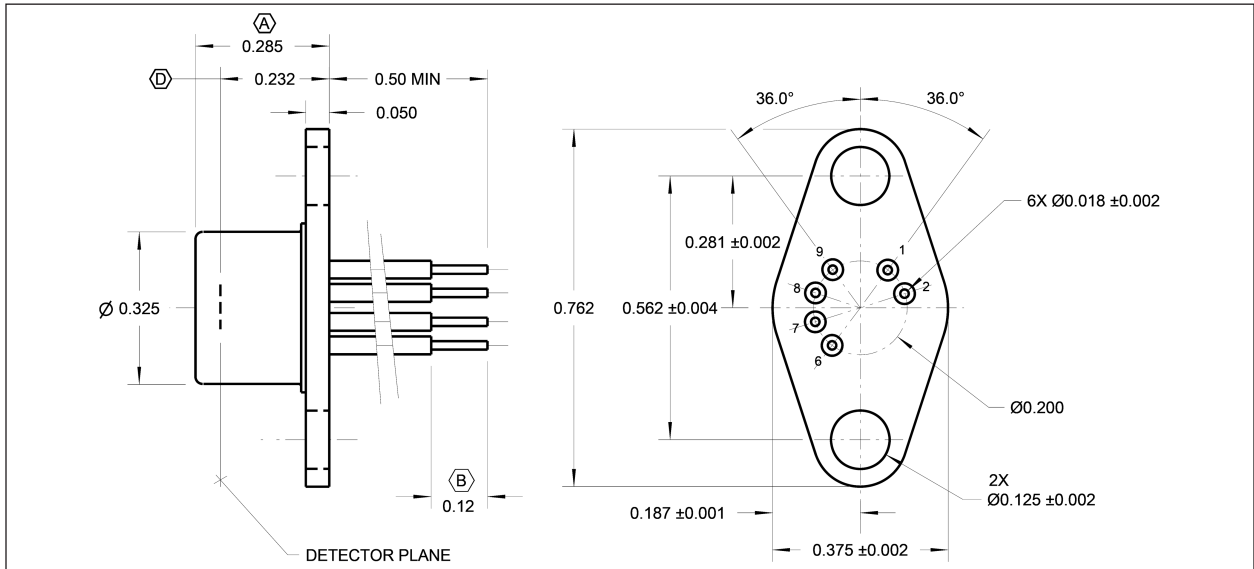
Pin No.	Function
1	Cooler (-)
4	Cooler (+)
9	Detector
10	Thermistor
11	Thermistor
12	Detector

40071



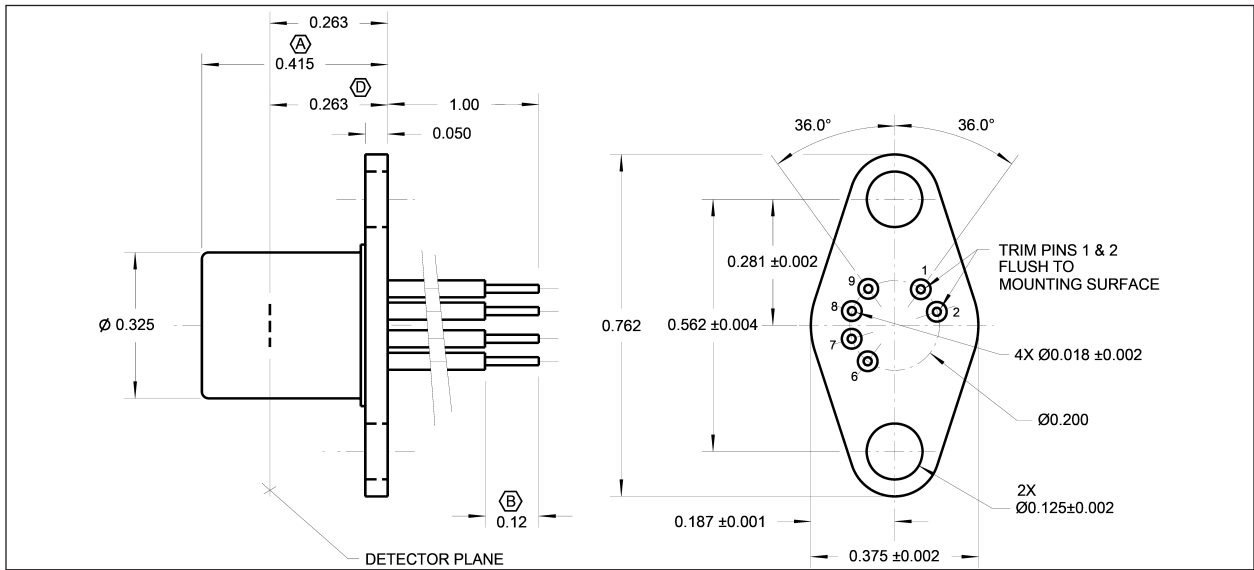
Pin No.	Function
1	Thermistor
2	Thermistor
6	Detector
7	Detector
8	Cooler (-)
9	Cooler (+)

40136



Pin No.	Function
1	Thermistor
2	Thermistor
6	Detector
7	Detector
8	Cooler (-)
9	Cooler (+)

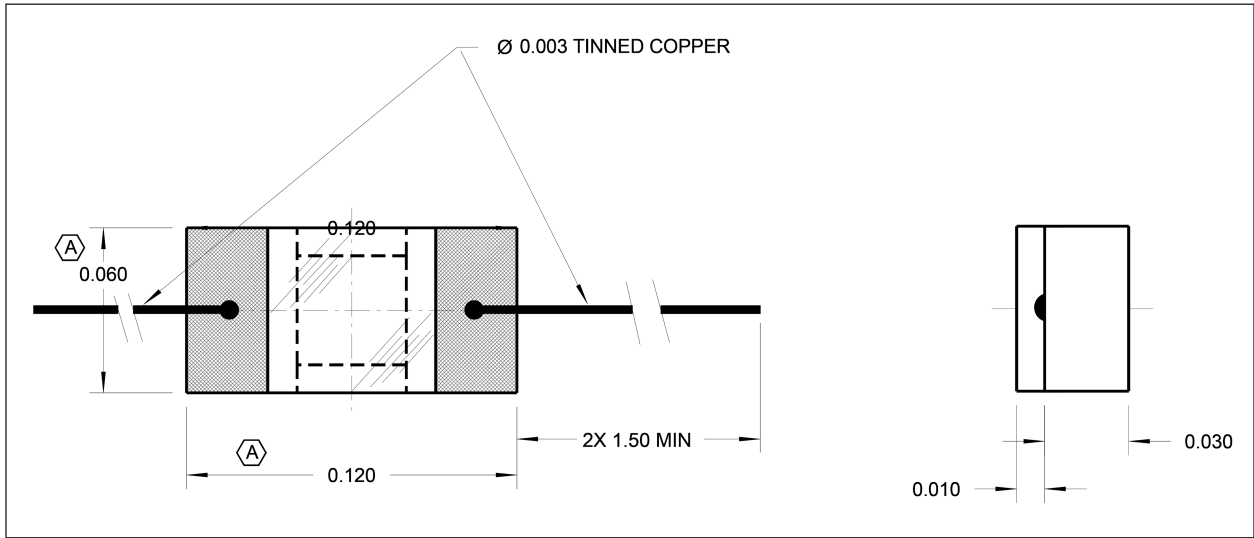
40587



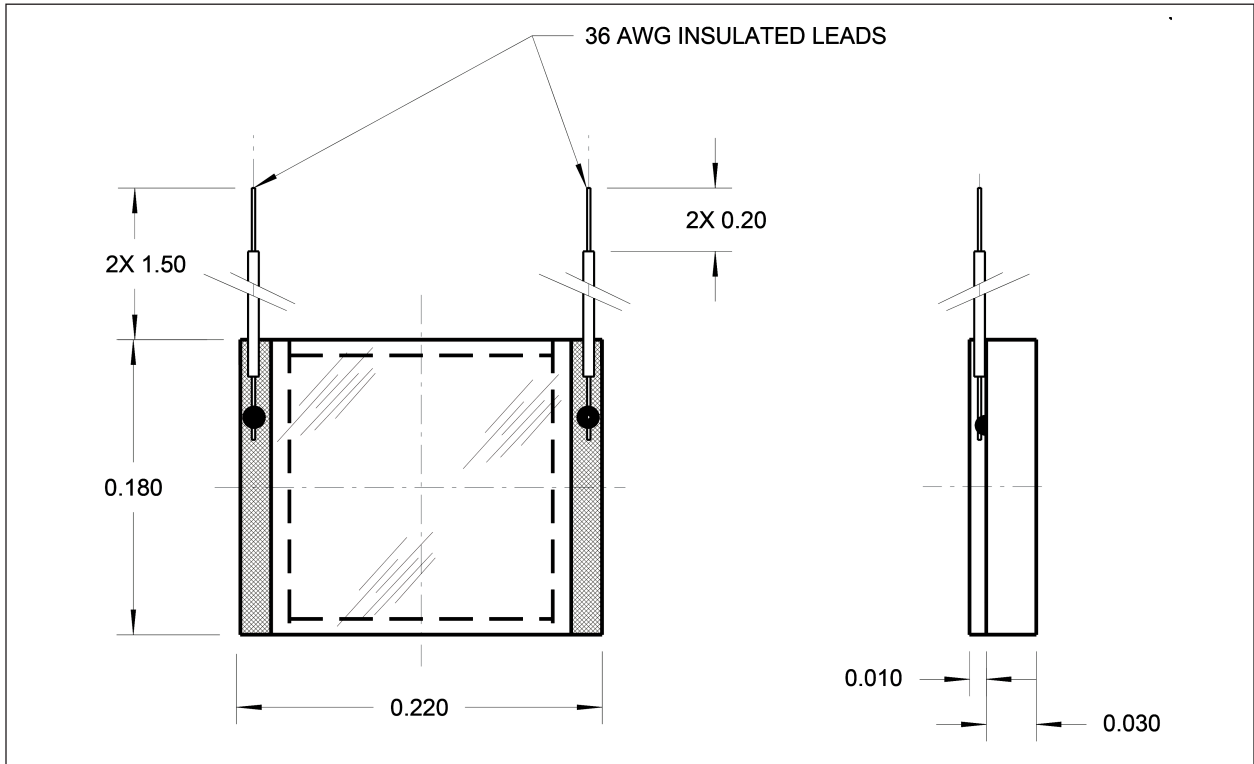
Pin No.	Function
1	(Removed)
2	(Removed)
6	Detector
7	Detector
8	Cooler (-)
9	Cooler (+)

Flateplate

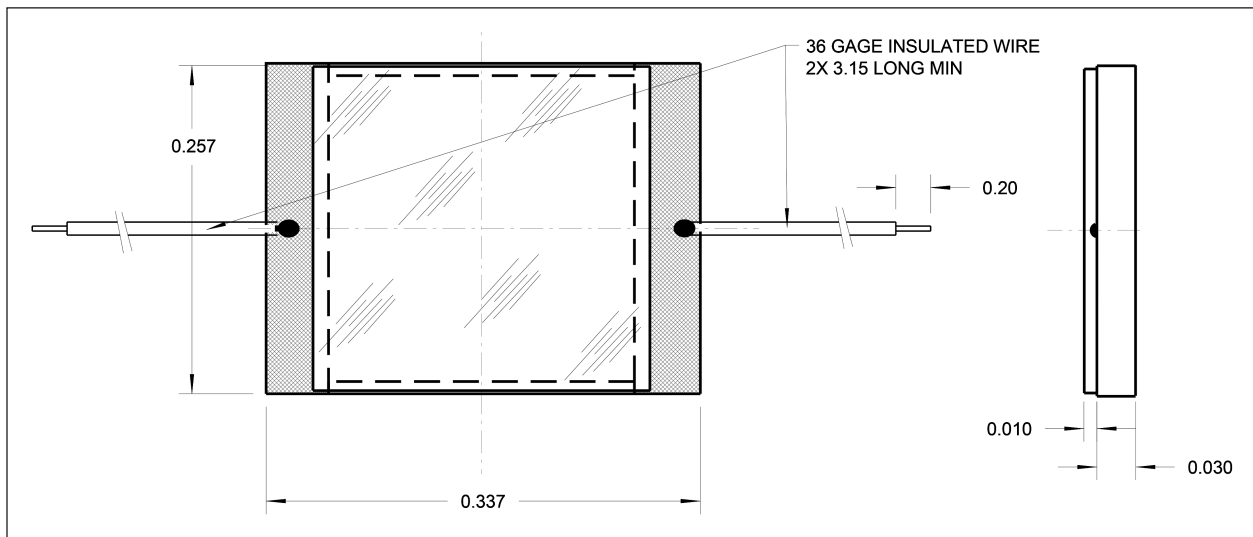
40188



40204



40205



40207

