



## **MWA5000 SERIES PYROELECTRIC DETECTOR**

### **Premium Performance Detector Element**

#### **Description**

The MWA 5000 Series DLATGS Pyroelectric Element Detector. is supplied in a hermetically sealed transistor package and can be integrated with many different amplifiers or impedance converters

The DLATGS crystal used to produce these sensing elements is the latest development in pyroelectric materials. Its polarization is "locked in" thus no longer requiring a poling voltage to maintain an output signal. The Curie temperature is has also been raised to above 60 C. allowing many new industrial applications. Additionally the sensing elements are especially thinned to achieve the highest performance.

These single element devices offer superior performance when operated from 1 Hz to 4000 Hz. They are supplied with a choice of packages with a choice of several optical windows or custom optical filters. The wide spectral sensitivity from the U.V. to 1,000 microns is achieved with a proprietary absorbing coating. They can be easily interfaced to an external FET (voltage mode) or to a low noise operational amplifier (current mode.)

State of the art manufacturing and mounting techniques are used in the manufacture of the 5000 series resulting in reduced sensitivity to microphonics and shock. They are optimized for wide spectral sensitivity from the U.V. to 1,000 microns with MWA's proprietary broadband absorbing coating.

These devices can also be supplied in a variety of hermetically sealed transistor style packages including TO5 and TO18 Styles and with any of various IR transmissive windows or optical filters (Broadband spectral sensitivity is limited in practice by the window selection).

Versions with Integral preamplifiers and thermoelectric (TE) temperature control elements and high megohm load or feedback resistors are available.

#### **Applications**

Non Dispersive Spectroscopy

Non-Contact Temperature Measurement

Precision Spectroscopy

Gas Analysis

Flame detection

Laser Modulation Studies

Interferometry

#### **Features**

Highest D\* possible

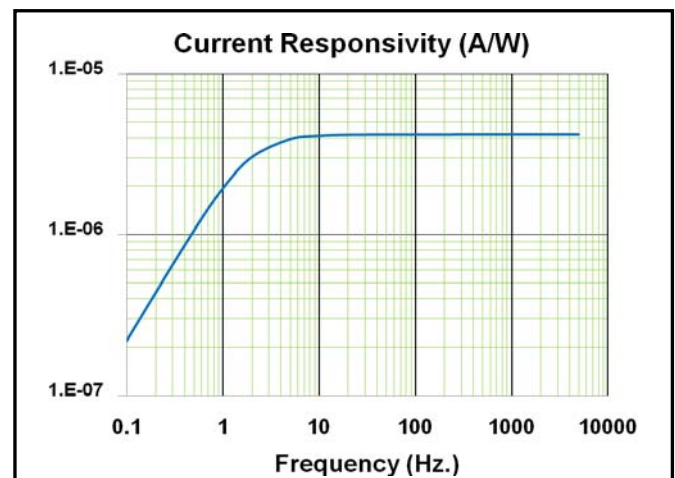
Optimized Performance from 1 Hz to 4000 Hz

Wide Spectral Range: 0.1 - >1,000  $\mu\text{m}$

permanently Poled

Preamplifiers, TE Coolers and many active areas available.

Large selection of windows available.



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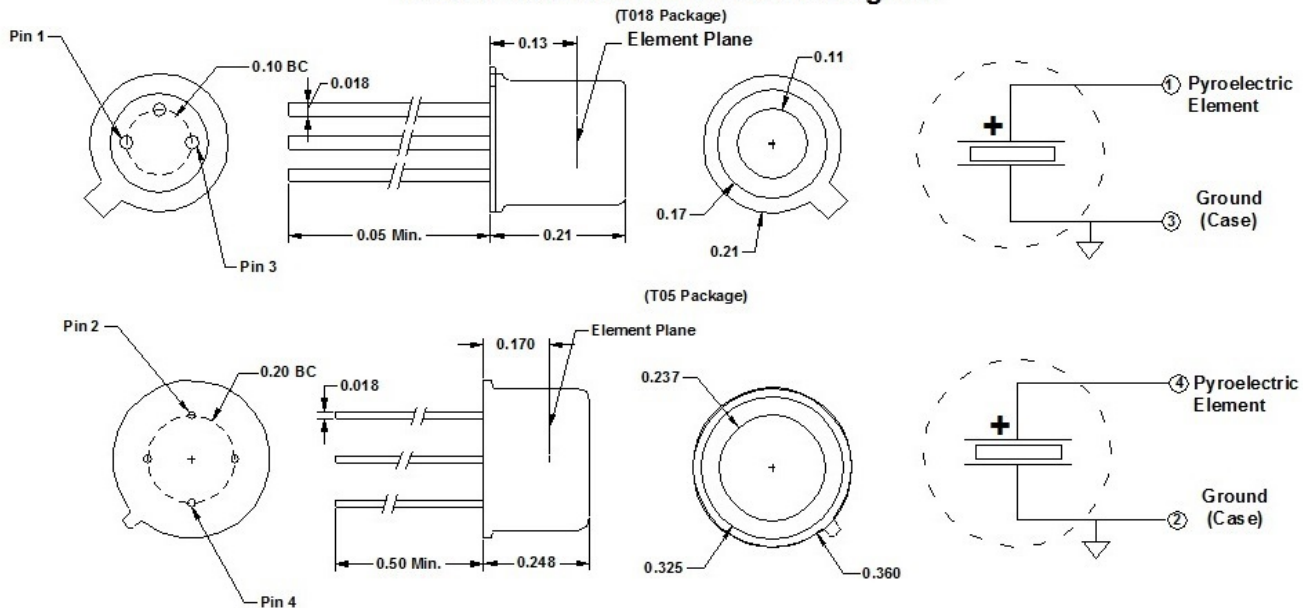
TYPICAL 5000 SERIES PERFORMANCE SPECIFICATIONS					
(Low noise JFET, 1 x 10 <sup>11</sup> Ohms Load Resistor @ 1,000K BB, 1 Hz. BW)					
50XX		10	13	20	30
Element Dim. (Diameter)	mm	1.0	1.3	2.0	3.0
Current Resp. @ 10Hz	A/W	4.1x10 <sup>-6</sup>	4.1x10 <sup>-6</sup>	4.1x10 <sup>-6</sup>	4.1x10 <sup>-6</sup>
D* (10, 1)	cm √Hz/W	9.7x10 <sup>8</sup>	1.1x10 <sup>9</sup>	1.6x10 <sup>9</sup>	2.2x10 <sup>9</sup>
Element Capacitance	pF	8	11	25	51
Output Impedance	Ohms	>10 <sup>12</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>
Thermal Time Constant	msec	< 100	< 100	<100	< 100
Recommended Operating Temperature	°C	-20 to 55	- 20 to 55	-20 to 55	-20 to 55

### Options

- Element Shape                      Square, Rectangular, Circular
- Window                                KBr, Csl, Ge, BaF, ZnSe Others Available.
- Package                                TO-37, TO-8 custom designs
- Preamplifiers                        Voltage mode or Current Low Noise Preamp/Buffer

Thermo Electric Cooling Available (TO37 Package)  
 Non Standard Pin Outs, Special Tests and Measurements Available

### Mechanical Data and Circuit Diagram



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