



## MWA5500 SERIES PYROELECTRIC DETECTOR

### High Frequency Premium Performance for Use with FTIR

#### Description

The MWA 5500 Series Single Element DLATGS Pyroelectric Detectors are our premium performance devices, which are optimized for FTIR applications. The wide spectral sensitivity from the U.V. to 1,000 microns and high speed is achieved with a proprietary low thermal mass absorbing coating. In addition the sensing elements are especially thinned to achieve the highest performance

The DLATGS crystal used to produce the sensing element is the latest development in pyroelectric materials. Its polarization is "locked in" thus no longer requiring a poling voltage to maintain the output signal level.

Supplied with an integral FET Voltage Mode Preamplifier which utilizes a very low noise JFET which and produces the highest  $D^*$ .

State of the art manufacturing techniques are used in the manufacture of the 5500 series resulting in reduced sensitivity to microphonics.

These can be supplied in a variety of sealed transistor style packages and with a TE cooler. Broadband spectral sensitivity is limited in practice by the window selection.

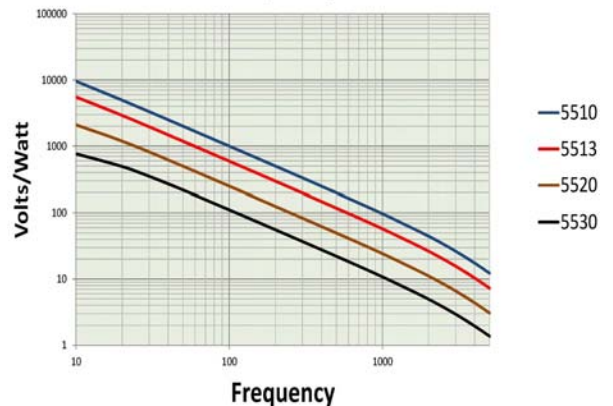
#### Applications

- High Speed Spectroscopy (FTIR)
- Gas Analysis
- Laser Modulation Studies
- Interferometry

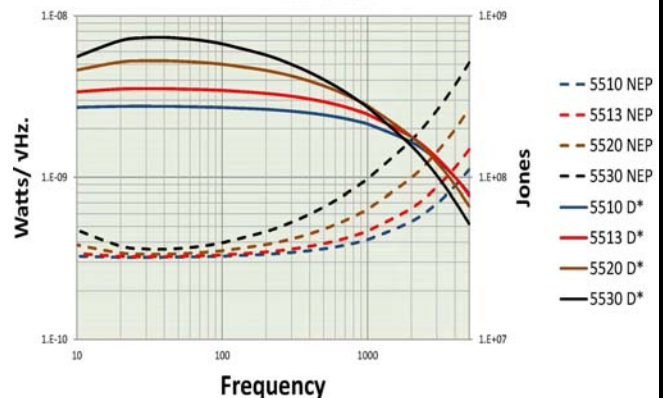
#### Features

- Optimized Performance from 1 Hz to 4 kHz
- High  $D^*$  at higher frequencies
- Low Thermal Mass Absorbing Coating
- Wide Spectral Range: 0.1 - >1,000  $\mu\text{m}$
- Permanently Poled

Voltage Response



NEP and  $D^*$



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## TYPICAL SERIES 5500 PERFORMANCE SPECIFICATIONS

(Standard TO-39 Package 1 x 10<sup>10</sup> Ω Load Resistor @ 1,000K BB, No Window)

55XX		10	13	20	30
Element Diameter	mm	1.0	1.3	2.0	3.0
Responsivity @ 1 kHz	V/W	100	60	25	10
NEP (1000, 1)	W/√Hz	4.2 x 10 <sup>-10</sup>	4.6 x 10 <sup>-10</sup>	6.6 x 10 <sup>-10</sup>	1.0 x 10 <sup>-9</sup>
D* (1000, 1)	Jones	2.1 x 10 <sup>8</sup>	2.5 x 10 <sup>8</sup>	2.7 x 10 <sup>8</sup>	2.6 x 10 <sup>8</sup>
Output Impedance	Ohms	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>4</sup>
Thermal Time Constant	msec	< 25	< 25	< 25	< 25
Recommended Operating Temperature	°C	-20 to 55	-20 to 55	-20 to 55	-20 to 55
Storage Temperature	°C	-20 to 70	-20 to 70	-20 to 70	-20 to 70

### Options

Element Shape Circular, Square, Rectangular

Windows KBr, CsI, Ge, BaF, ZnSe (Many others Window Materials and Filters Available)

Other Standard Package Styles TO-37, TO-66 and many others

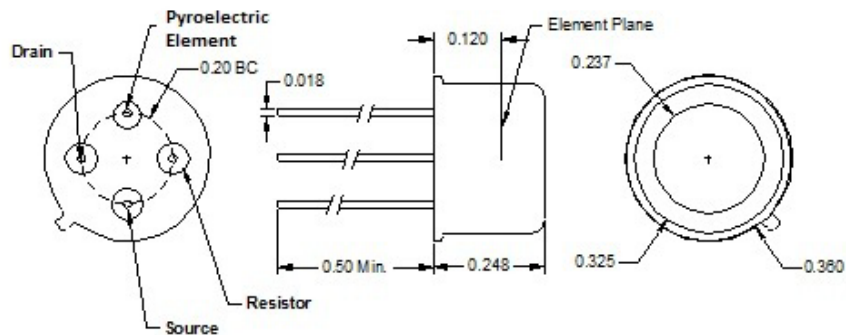
Low Noise, Variable Gain Preamplifier (PYPA) and Power Supply (PYPS)

Thermo Electric Cooling Available (55XTE) (TO 99, TO37 & TO66 Package)

Other Packages and Pinouts Available

Non Standard Special Tests and Measurements

### Mechanical Data



### Circuit Diagram

