



MWA 4100 SERIES

LITHIUM TANTALATE PYROELECTRIC DETECTOR

High Performance with Integrated Voltage Mode Amplifier

Description

The MWA 4100 Series Lithium Tantalate Pyroelectric Detectors are new devices from our family of high performance IR detectors. The specially processed sensing element and the integrated low noise JFET voltage mode preamplifier all in a TO5 transistor package provide high voltage responsivity and low noise and a high D^* . The preamplifier can operate at very low voltages and currents thus allowing battery powered operation

The Lithium Tantalate crystal (LTO) with it's very high Currie temperature (~600 C.) and low sensitivity to ambient temperature (<0.2%/ deg C.) allow operation over a wide temperature range without the need for temperature control. LTO is non hygroscopic and can thus be supplied and operated in a "windowless" configuration

The very wide spectral sensitivity (U.V. to 1,000 μ) and high speed is achieved with a proprietary low thermal mass absorbing coating. (Spectral sensitivity is limited in practice by the window selection or optical filters).

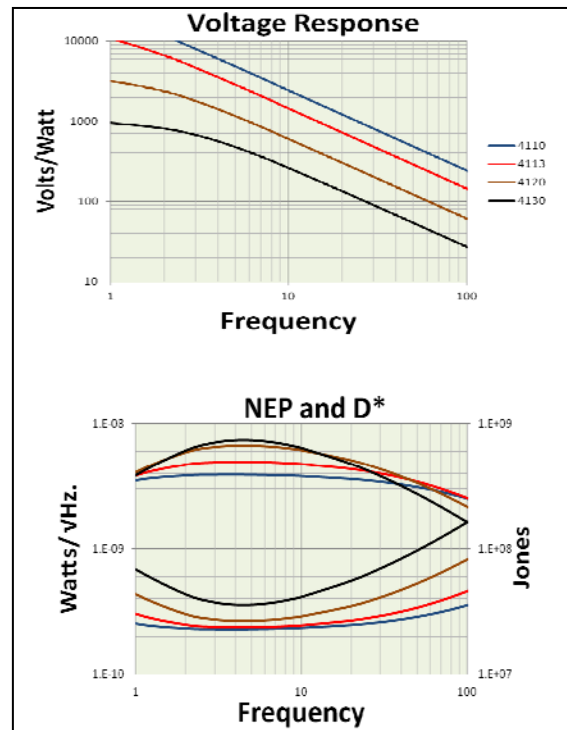
These devices can be supplied in many different configurations including element geometry and size and amplifier response characteristics. Other packages and configurations are available.

Applications

- Spectroscopy (Prism or Grating)**
- NDIR Process Control**
- NCTM**
- Gas Analysis**
- Flame Detection**

Features

- Integrated Voltage Mode Preamp.**
- Large Voltage Responsivity**
- High D^* at higher frequencies**
- Wide Spectral Range: 0.1 - >1,000 μ m**
- Low Thermal Sensitivity**



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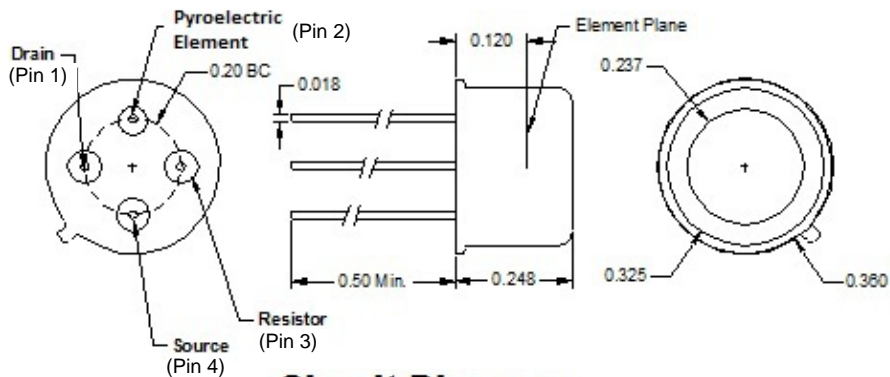
SUNSTAR自动化 <http://www.sensor-ic.com/> TEL: 0755-83376489 FAX:0755-83376182 E-MAIL:szss20@163.com

TYPICAL SERIES 4100 PERFORMANCE SPECIFICATIONS					
(Standard TO-5 Package with 1 x 10 ¹¹ Ohms Load Resistor @ 1,000K BB)					
41XX		10	13	20	30
Element Dimensions	Dia. mm	1.0	1.3	2.0	3.0
Responsivity @ 10 Hz	V/W	2400	1400	600	260
Thermal Time Constant	ms	150	—————▶		
NEP (10, 1)	W	2.3x10 ⁻¹⁰	2.4 x10 ⁻¹⁰	2.9 x10 ⁻¹⁰	4.2 x10 ⁻¹⁰
D* (10, 1)	Jones	3.8 x10 ⁸	4.7 x10 ⁸	6.1 x10 ⁸	6.4 x10 ⁸
Operating Voltage	VDC	+ 3 - +18	—————▶		
Operating Current (Typical)	μA	5.0	—————▶		
Recommended Operating Temperature	°C	-20 to 100	—————▶		

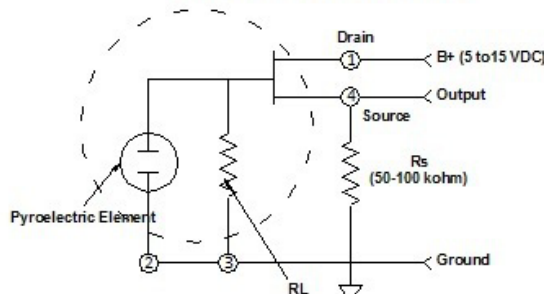
Options

- Element Shape Circular, Square, Rectangular
- Windows KBr, Csl, 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 (41XXTE) (TO 99, TO37 & TO66 Package)
- Units with Thermal Compensation (41XXTC)
- Other Packages and Pinouts Available
- Non Standard Special Tests and Measurements

Mechanical Data



Circuit Diagram



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