



MWA4000 SERIES PYROELECTRIC DETECTOR **(Detector Element)** **Premium Performance For Use With NDIR**

Description

The MWA 4000 Series is a high performance single element permanently poled Lithium Tantalate pyroelectric IR detector. These single element devices offer superior performance when operated from 1 Hz to 100 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 techniques are used in the manufacture of the 4000 series resulting in reduced sensitivity to microphonics. The sensing elements are especially thinned to achieve the highest performance.

Broadband spectral sensitivity is limited in practice by the window selection.

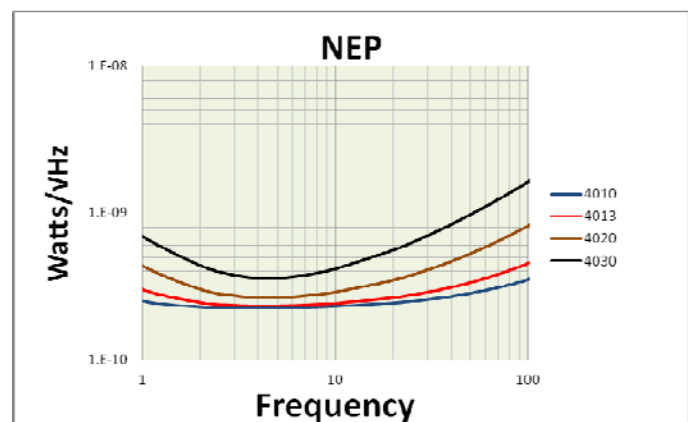
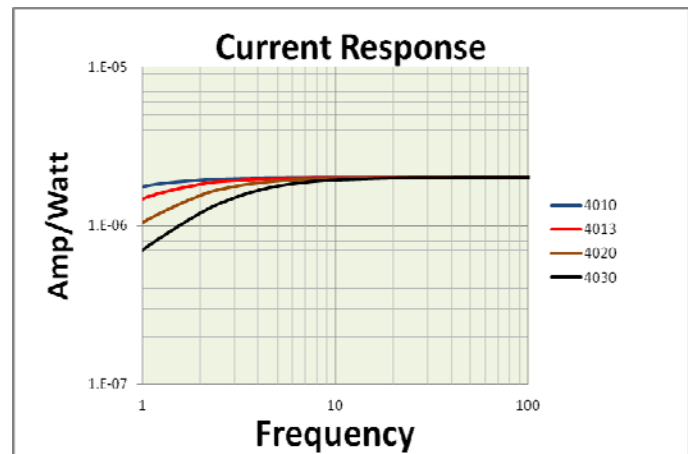
These can be supplied in a variety of sealed transistor style packages including TO5 and TO18 Styles.

Applications

- NDIR Process Control
- Non Contact Temperature
- Spectroscopy
- Gas Analysis
- Flame Detection
- Laser Power Meters

Features

- Optimized Performance from 1 to 100Hz
- Broad Band Absorbing Coating
- Wide Spectral Range: 0.1 - >1,000 μm
- Permanently Poled



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TYPICAL SERIES 4000 PERFORMANCE SPECIFICATIONS					
(Performance Measured with Low noise JFET and $1 \times 10^{11} \Omega$ RL @ 1,000K BB)					
40XX		10	13	20	30
Element Diameter	mm	1.0	1.3	2.0	3.0
Current Responsivity @ 10 Hz	$\mu\text{A/W}$	2.0	—————	—————	—————
Loss Tangent	δ	.001	—————	—————	—————
NEP (10, 1)	$\text{W}/\sqrt{\text{Hz}}$	2.4×10^{-10}	2.8×10^{-10}	4.2×10^{-10}	2.6×10^{-10}
Element Capacitance	pF	24	36	56	125
Thermal Time Constant	ms	140	—————	—————	—————
Recommended Operating Temperature	$^{\circ}\text{C}$	-30 to 80	—————	—————	—————

Options

- Element Aspect Square, Rectangular, Circular
- Window KBr, Csl, Ge, BaF, ZnSe Sapphire, KRS5 (Others Available) and Windowless
- Package Style TO-5, TO18, (also available as "Chips")
- Preamplifiers Low Noise, Variable Gain Available Separately
- Non Standard Pin Out Consult Factory
- Special Testing Consult Factory

Mechanical Data and Circuit Diagram

