

## Miniature Advanced Performance Time-Of-Flight Detector

### Application

- ✓ Fast timing detectors for field portable TOF mass spectrometry

### Features

- ✓ Improved mass resolution
- ✓ Sub-nanosecond pulse widths
- ✓ 8mm Ø collection
- ✓ Bakeable to 150°C
- ✓ Low profile 50Ω conical anode



The PHOTONIS **Miniature Advanced Performance Time-of-Flight Detector** offers previously unobtainable levels of mass resolution, dynamic range, and detection sensitivity specifically designed for field portable Time-of-Flight Mass Spectrometry. This high performance TOF detector had been incorporated into the smallest package available anywhere in the world.

This new TOF detector may be operated at up to 100°C and vacuum baked at up to 150°C. This allows rapid chamber degassing and ultra quiet instrument operation.

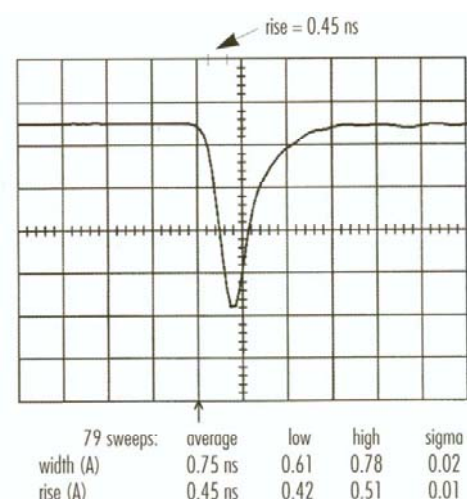
PHOTONIS exclusive small pore (five micron diameter) microchannel plates (MCPs) offer one of the highest channel densities of any MCP in the world. This channel density provides **dynamic range improvements** of up to ten times that of conventional microchannel plates. The combination of the new microchannel plate technology and a low profile, 50Ω, impedance-matched anode extends the dynamic range far beyond previously attainable levels.

These MCPs also give the new Miniature Time-of-Flight detector **superior sensitivity and the best temporal resolution available anywhere**. The flat input surface provides uniform ion conversion and the higher aspect ratio of the MCPs provides gains in excess of 10<sup>6</sup>.

Each Detector utilizes two Long-Life™, small pore, Extended Dynamic Range microchannel plates (arranged as a Chevron™) mounted on a compact vacuum flange for easy installation.

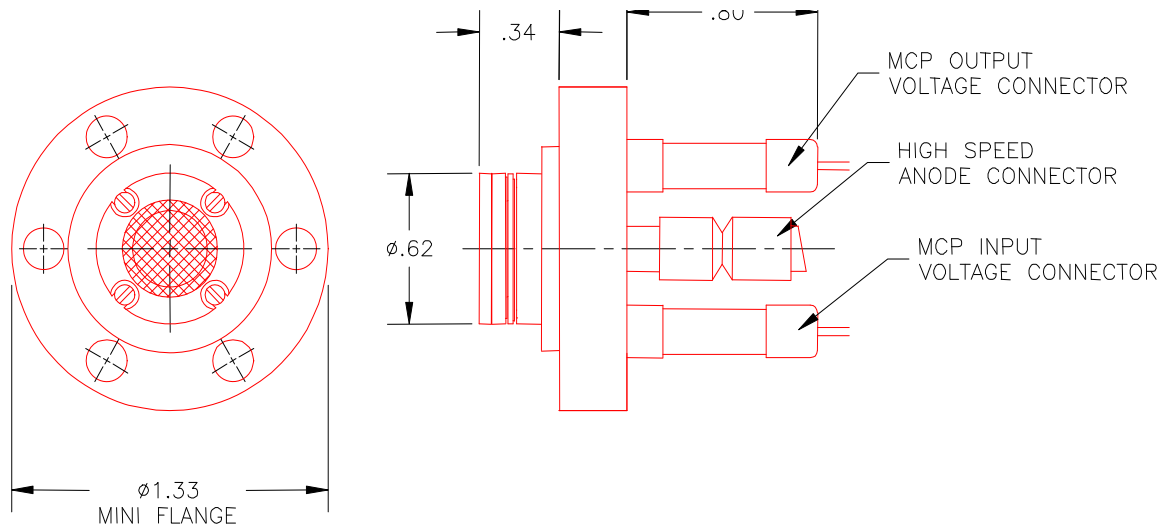
| General Specifications                       |  | Unit                     |
|--|--|--------------------------|
| Microchannel Plate                           | Two Long-Life™ Extended Dynamic Range™ MCP |                          |
| Gain (minimum at 2000V)                      | 1 x 10 <sup>6</sup>                        |                          |
| Dark Count (maximum at 2400 V)               | 2.5  | cps/cm <sup>2</sup>      |
| Resistance (reference)                       | 66 - 400                                   | MΩ                       |
| Detection Diameter                           | 8  | mm                       |
| Operating Temperature Range                  | -50 to 100                                 | °C                       |
| Bake out Temperature (maximum)               | 150  | °C                       |
| Operating Pressure (maximum)                 | 1.0 x 10 <sup>-5</sup>                     | Torr                     |
| Vacuum Flange                                | 1.33" Mini-Conflat                         |                          |
| Electrical Connections:                      | High Voltage:                              | φ 0.032" Cu Posts        |
|  | Output Signal                              | SMB (connector provided) |
| DC Offset Voltage On Output Signal (maximum) | 500  | V                        |

### Typical Pulse Width



## Detector Configuration

(dimensions in inches except when specified)



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