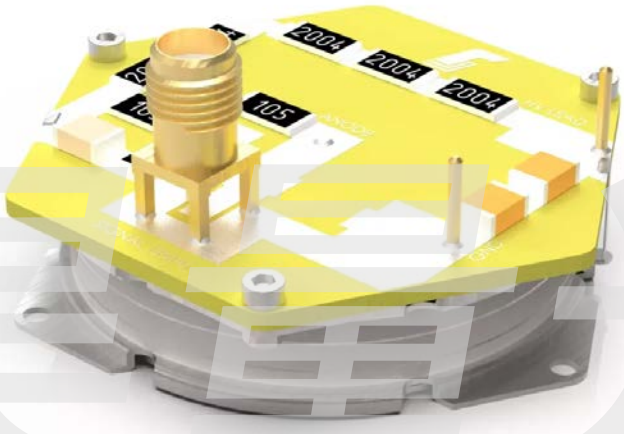
Tof-detector assembled on a Printed Circuit Board with MCP 25-10A

The detector with a voltage divider on the printed circuit board is designed for the detection of charged particle fluxes as part of a mass spectrometer.



The board on which the MCP detector is mounted consists of a detector voltage divider, components of the power supply circuit and a coaxial connector for the signal readout. The assembly of the detector on the board allows to reduce the influence of spurious inductances, and as a result, the output pulse of the MCP detector acquires a classical waveform without “ripple” with improved timing characteristics. The compact design with 2 pins for the power supply and a coaxial connector for the signal acquisition is more appropriate to the application and provides easy installation and replacement of the detector when needed.

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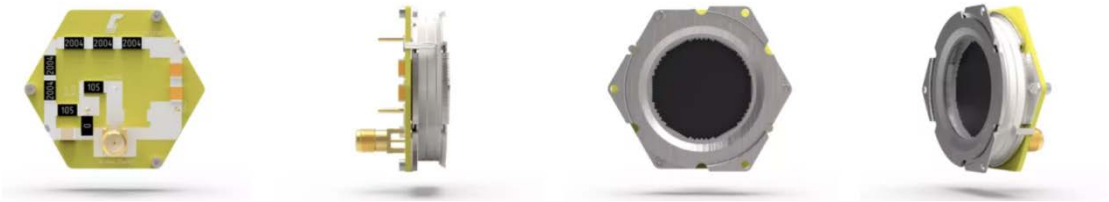
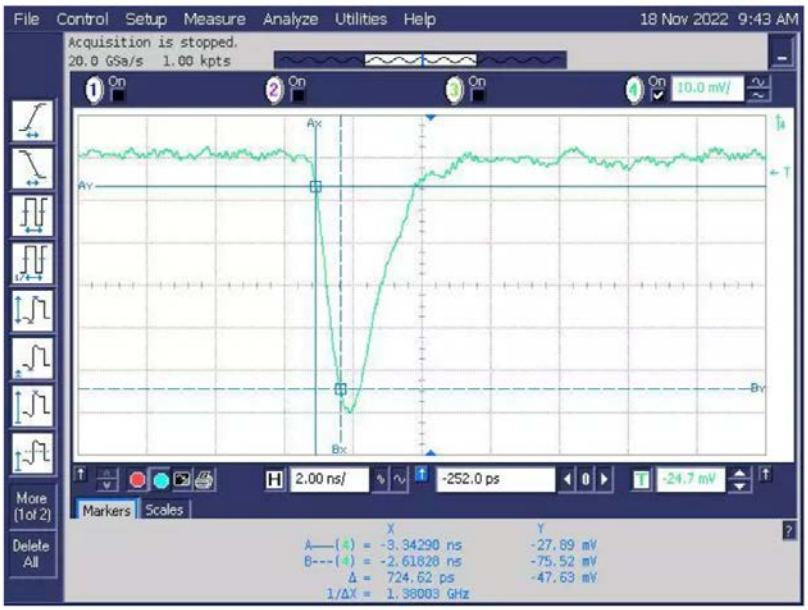


Specification

Basic parameters

Parameter, unit	Value	
	min	max
MCP active area diameter, mm	25	
Supply voltage at 1×10^7 gain, V		2400
Single electron pulse height resolution, %		135
Dark count rate density, count/sec×cm^2		3
Average pulse width (FWHM), ns		1.6
Pulse leading edge rise time, ns		0.75
Product consumption current at supply voltage, μA		250

Typical output waveform



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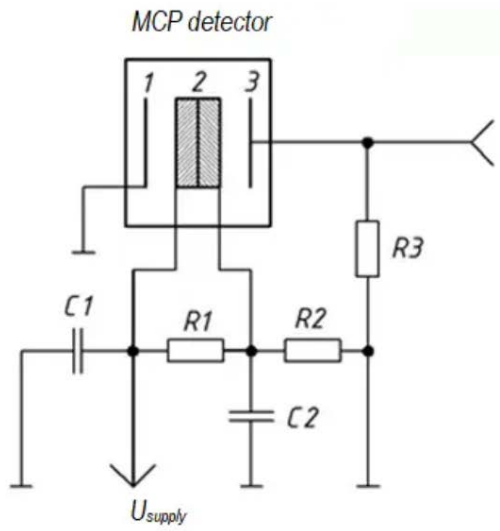
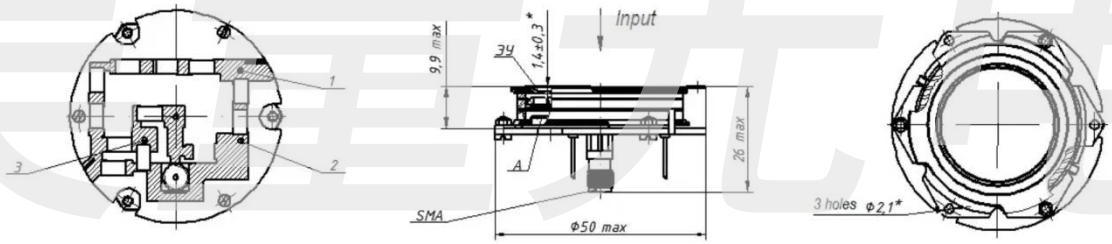
The detector electrical connection diagram



R1 = 10 MΩ;
R2 = R3 = 1 MΩ;
C1 = C2 = 470 pF;
U_{supply} = -2.4 kV, max

1 – control electrode;
2 – MCP unit;
3 – anode

General view, overall, setting and mounting dimensions of MCP detector with 25 mm active area diameter



Lead designation	
1	Supply voltage –2400 V, max
2. 3	Package
SMA	Signal output
A	Anode

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