

# MCP

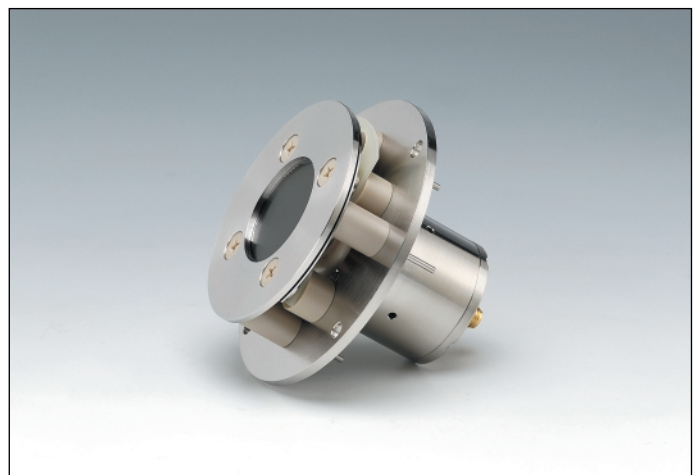
# MCP ASSEMBLY

## F9890-31/-32

### HIGH TIME RESOLUTION TOF-MS DETECTOR HIGH VOLTAGE FLOATING OPERATION

#### FEATURES

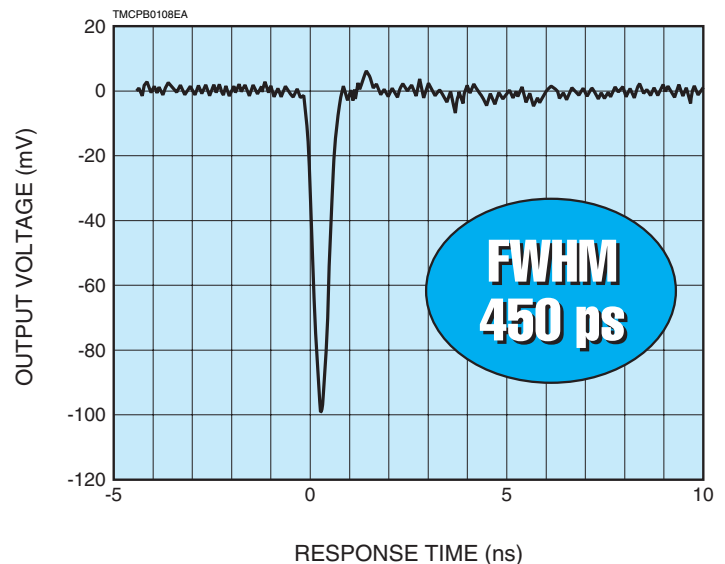
- **High voltage floating operation**  
MCP-IN  $\pm 10$  kV
- **Fast time response**  
450 ps Typ. (FWHM)
- **Large effective area**  
 $\phi 27$  mm
- **Excellent MCP flatness**  
 $\pm 10$   $\mu$ m Typ.
- **Robust MCP**
- **Small ringing**



#### OVERVIEW

The F9890-31/-32 are ideal detectors with a large effective area for TOF-MS (Time of Flight Mass Spectrometry). Our own advanced technology in optimizing the assembly design with flat MCP allows excellent time resolution of 450 ps (FWHM) with negligible ringing at both  $\pm 10$  kV high voltage floating operation.

Figure 1: Typical Output Waveform (F9890-32)



# SPECIFICATIONS

## GENERAL

Parameter	F9890-31	F9890-32	Unit
MCP Channel Diameter	12	6	μm
Bias Angle		12	degree
Effective Area		φ27	mm
Assembly Outer Size		φ81	mm
Assembly Height Size	64.7	64.4	mm
Number of MCPs		2	—

## TYPICAL ELECTRICAL CHARACTERISTICS (Supply Voltage: 2 kV, Vacuum: $1.3 \times 10^{-4}$ Pa, Operating Ambient Temperature: +25 °C)

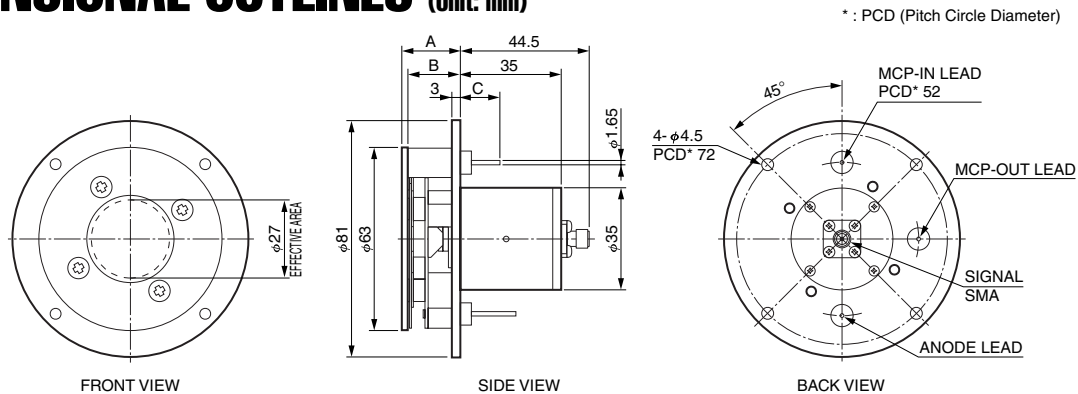
Parameter	F9890-31	F9890-32	Unit
Gain (Min.)		$1 \times 10^6$	—
Resistance		20 to 80	MΩ
Dark Count (Max.)		3	$s^{-1} \cdot cm^{-2}$
Pulse Width (FWHM) (TYP.)		450	ps

## RATINGS

Parameter	F9890-31	F9890-32	Unit
MCP Supply Voltage (Max.)		2.0	kV
MCP-OUT to Anode Supply Voltage (Max.)		0.5	kV
MCP-IN Supply Voltage (Max.)		±10	kV
Operating Vacuum Condition (Max.)		$1.3 \times 10^{-4}$ (A)	Pa

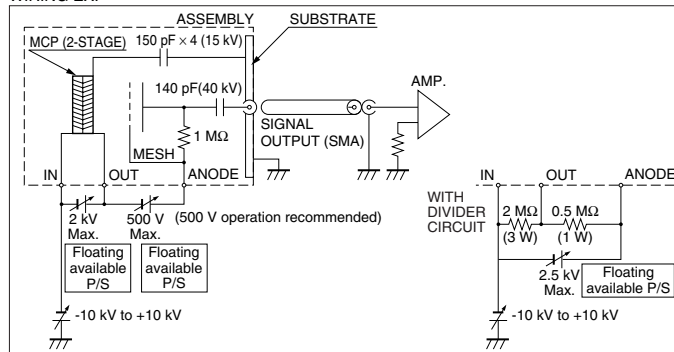
NOTE: (A) Better vacuum than  $1.3 \times 10^{-4}$  Pa.

## DIMENSIONAL OUTLINES (Unit: mm)



Type No.	A	B	C		
			MCP-IN LEAD	MCP-OUT LEAD	ANODE LEAD
F9890-31	20.2	18.2	13.5		
F9890-32	19.9	17.9	13.9	15.2	19.4

### WIRING EX.



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