

# NEW

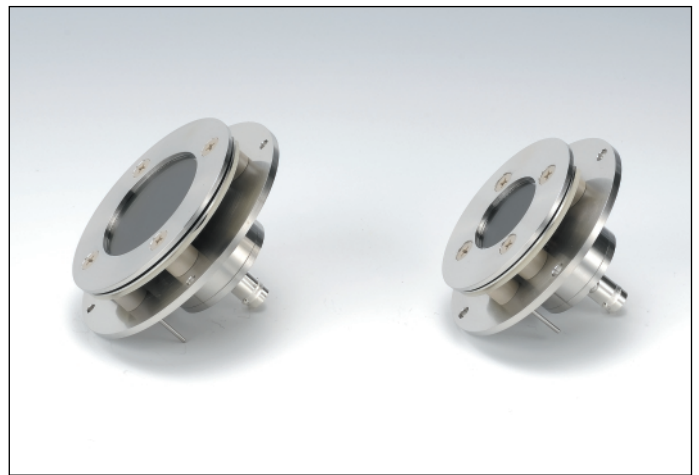
# MCP ASSEMBLY

## F9890-11/-12, F9892-11/-12

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

#### FEATURES

- **High voltage floating operation**  
MCP-IN  $\pm 10$  kV
- **Fast time response**
- **Large effective area**  
F9890-11/-12  $\phi 27$  mm  
F9892-11/-12  $\phi 42$  mm
- **Excellent MCP flatness**
- **Robust MCP**
- **Less ringing**
- **Small time jitter**

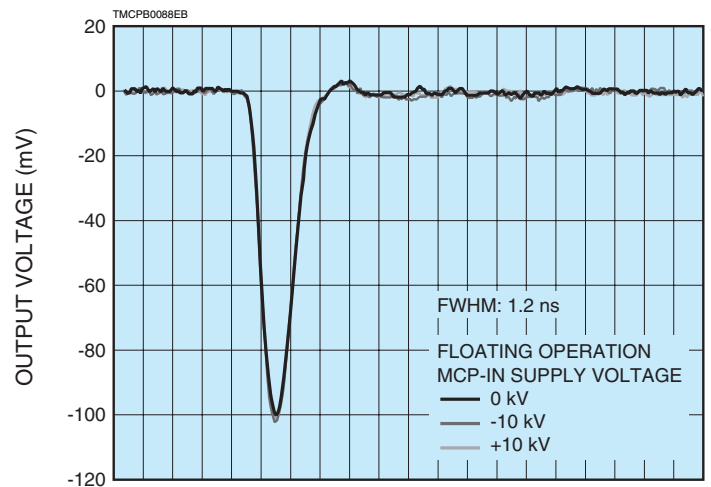


#### OVERVIEW

The F9890-11/-12 and F9892-11/-12 are ideal detectors with 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 1.2 ns (FWHM: F9892-11/-12) with negligible ringing at both  $\pm 10$  kV high voltage floating operation.

Figure 1: Typical Output Waveform (F9892-12)



RESPONSE TIME (1 ns/div.)

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# SPECIFICATIONS

## GENERAL

Parameter	F9890-11	F9890-12	F9892-11	F9892-12	Unit
MCP Channel Diameter	12	6	12	6	μm
Bias Angle	12				degree
Effective Area	φ27		φ42		mm
Assembly Outer Size	φ81		φ92		mm
Assembly Height Size	54.1	53.7	54.1	53.7	mm
Number of MCPs	2				—

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

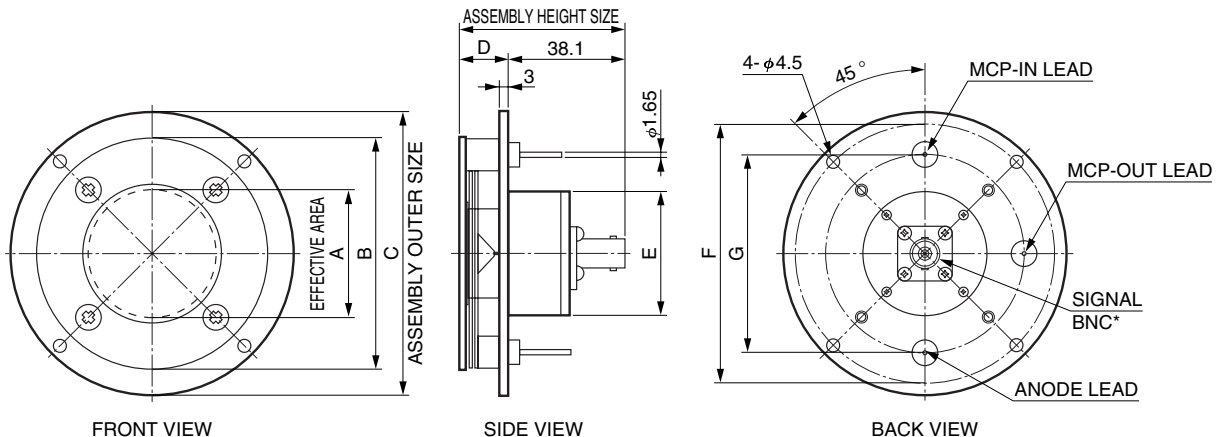
Parameter	F9890-11	F9890-12	F9892-11	F9892-12	Unit
Gain (Min.)	$1 \times 10^6$				—
Plate Resistance per MCP	10 to 40		8 to 32		MΩ
Dark Count (Max.)	3		3		$s^{-1} \cdot cm^{-2}$
Pulse Width (FWHM) (TYP.)	0.9		1.2		ns

## RATINGS

Parameter	F9890-11	F9890-12	F9892-11	F9892-12	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.)	$1.3 \times 10^{-4}$ <sup>Ⓐ</sup>				Pa

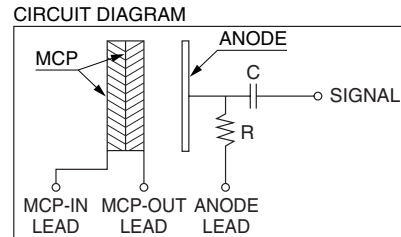
NOTE: <sup>Ⓐ</sup> Better vacuum than  $1.3 \times 10^{-4}$  Pa.

## DIMENSIONAL OUTLINES (Unit: mm)



\* SMA connector type also available.

Type No.	A	B	C	D	E	F	G
F9890-11	φ27	φ63	φ81	16	φ35	φ72	φ52
F9890-12				15.6			
F9892-11	φ42	φ75	φ92	16	φ40	φ84	φ64
F9892-12				15.6			



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