

# NEW

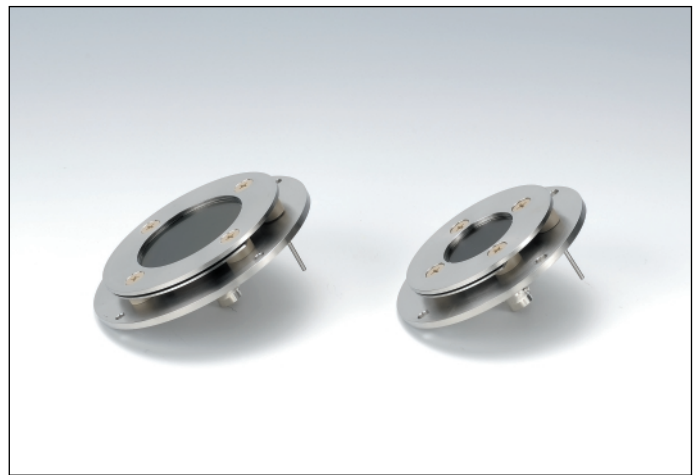
# MCP ASSEMBLY

## F9890-13/-14, F9892-13/-14

### HIGH TIME RESOLUTION TOF-MS DETECTOR ANODE GROUND TYPE

#### FEATURES

- Anode GND type for MALDI TOF-MS
- Fast time response
- Large effective area
  - F9890-13/-14  $\phi$  27 mm
  - F9892-13/-14  $\phi$  42 mm
- Excellent MCP flatness
- Robust MCP
- Less ringing
- Small time jitter

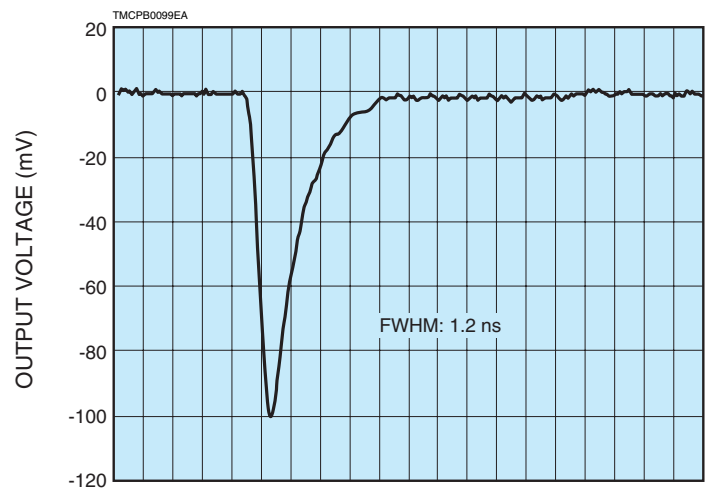


#### OVERVIEW

The F9890-13/-14 and F9892-13/-14 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: F9892-13/-14) with negligible ringing.

Figure 1: Typical Output Waveform (F9892-14)



RESPONSE TIME (1 ns/div.)

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# SPECIFICATIONS

## GENERAL

Parameter	F9890-13	F9890-14	F9892-13	F9892-14	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	33.3	32.9	33.3	32.9	mm
Number of MCPs	2				—

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

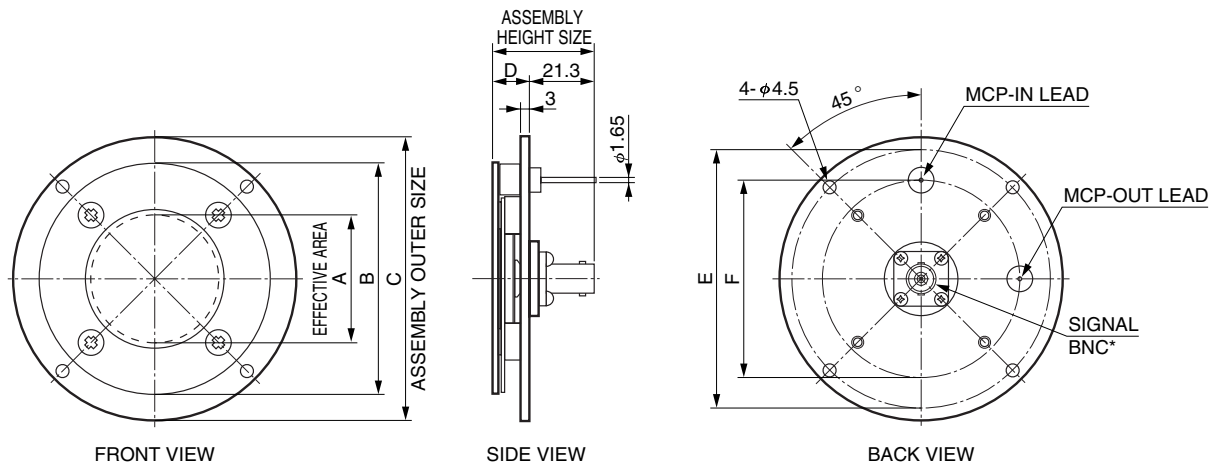
Parameter	F9890-13	F9890-14	F9892-13	F9892-14	Unit
Gain (Min.)	1 × 10 <sup>6</sup>				—
Plate Resistance per MCP	10 to 40		8 to 32		MΩ
Dark Count (Max.)	3				s <sup>-1</sup> ·cm <sup>-2</sup>
Pulse Width (FWHM) (Typ.)	0.9		1.2		ns

## RATINGS

Parameter	F9890-13	F9890-14	F9892-13	F9892-14	Unit
MCP Supply Voltage (Max.)	2.0				kV
MCP-OUT to Anode Supply Voltage (Max.)	0.5				kV
MCP-IN Supply Voltage (Max.)	-2.5				kV
Operating Vacuum Condition (Max.)	1.3 × 10 <sup>-4</sup> <sup>Ⓐ</sup>				Pa

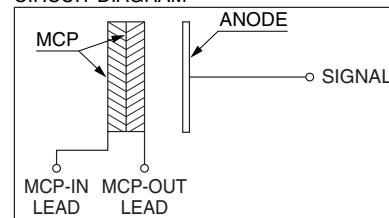
NOTE: <sup>Ⓐ</sup> Better vacuum than  $1.3 \times 10^{-4}$  Pa.

## DIMENSIONAL OUTLINES (Unit: mm)



Type No.	A	B	C	D	E	F
F9890-13	φ27	φ63	φ81	12	φ72	φ52
F9890-14				11.6		
F9892-13	φ42	φ75	φ92	12	φ84	φ64
F9892-14				11.6		

### CIRCUIT DIAGRAM



\* SMA connector type also available.

TMCPA0073EA

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