

# NEW

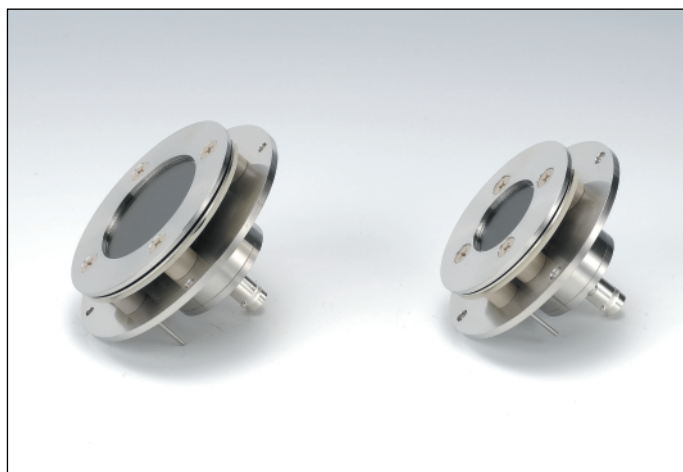
# MCP ASSEMBLY

## 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

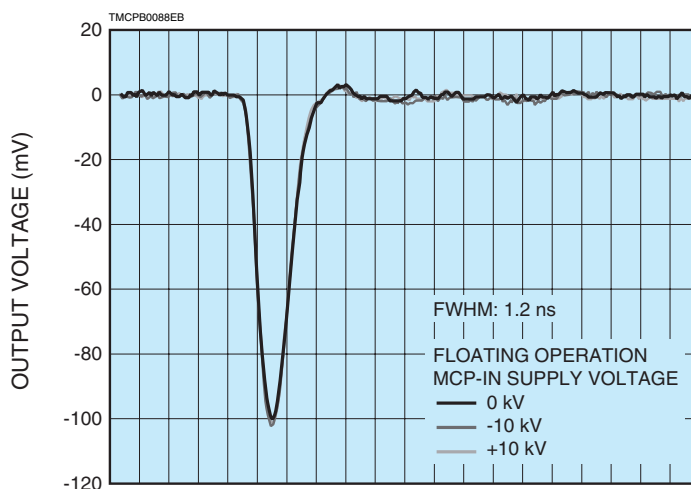


#### OVERVIEW

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.)

# 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)

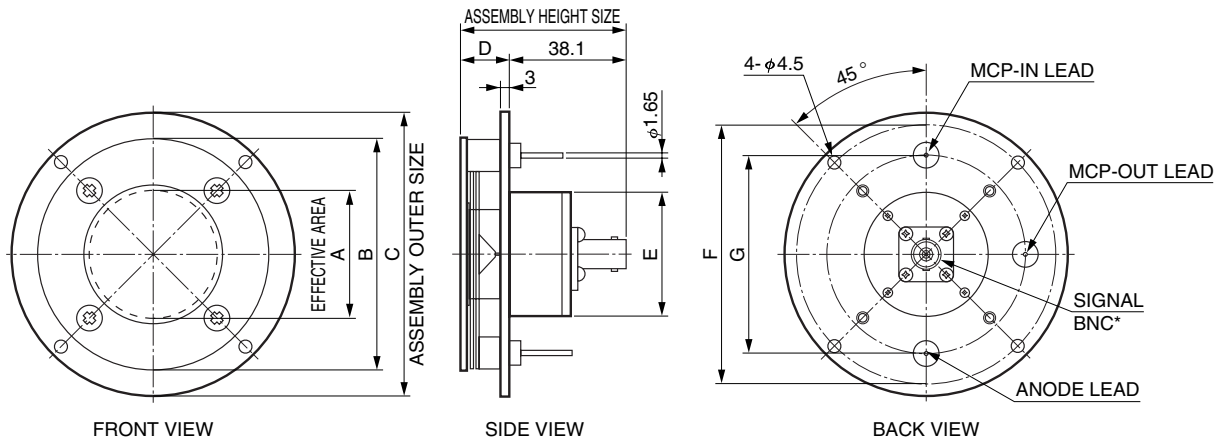
Parameter	F9890-11	F9890-12	F9892-11	F9892-12	Unit
Gain (Min.)	$1 \times 10^6$				—
Plate Resistance per MCP	10 to 40		8 to 32		MΩ
Dark Count (Max.)	3				$s^{-1} \cdot cm^{-2}$
Pulse Width (FWHM) (TYP.)	0.9		1.2		ns

## 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>(A)</sup>				Pa

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

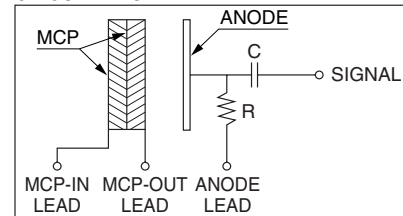
## DIMENSIONAL OUTLINES (Unit: mm)



\* 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			

### CIRCUIT DIAGRAM



TMCPA0072EA

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HAMAMATSU PHOTONICS K.K., Electron Tube Division

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation, 360 Foothill Road, P. O. Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: [usa@hamamatsu.com](mailto:usa@hamamatsu.com)

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658 E-mail: [info@hamamatsu.de](mailto:info@hamamatsu.de)

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: [infos@hamamatsu.fr](mailto:infos@hamamatsu.fr)

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road Welwyn Garden City Hertfordshire AL7 1BW, United Kingdom, Telephone: 44-(0)1707-294888, Fax: 44(0)1707-325777 E-mail: [info@hamamatsu.co.uk](mailto:info@hamamatsu.co.uk)

North Europe: Hamamatsu Photonics Norden AB: Smidsvägen 12, SE-171-41 SOLNA, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: [info@hamamatsu.se](mailto:info@hamamatsu.se)

Italy: Hamamatsu Photonics Italia: S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741 E-mail: [info@hamamatsu.it](mailto:info@hamamatsu.it)

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