

MCP

MCP ASSEMBLY MIGHTION[®]

F14845-11

FEATURES

- Hybrid: MCP and avalanche diode
- Fast time response
- High output linearity
- Long life

APPLICATIONS

- Mass spectrometry
 - TOF-MS
 - MALDI TOF-MS

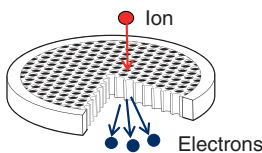
OVERVIEW

An ion detector consisting of a MCP (microchannel plate) and an AD (avalanche diode). It has various unique features as a hybrid type detector, such as fast time response, wide dynamic range and long life time.

STRUCTURE

MCP

- Ion-electron conversion
- Multiplication of small current (Gain: 1 to 10^4)



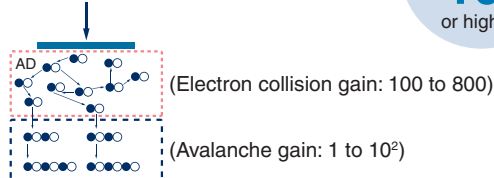
Aperture

φ 1 mm

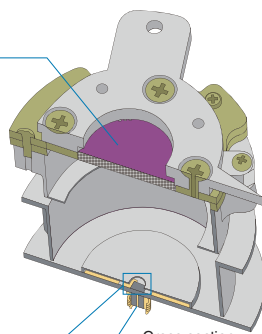
AD

- Multiplication of large current

Electron 3 keV to 5 keV



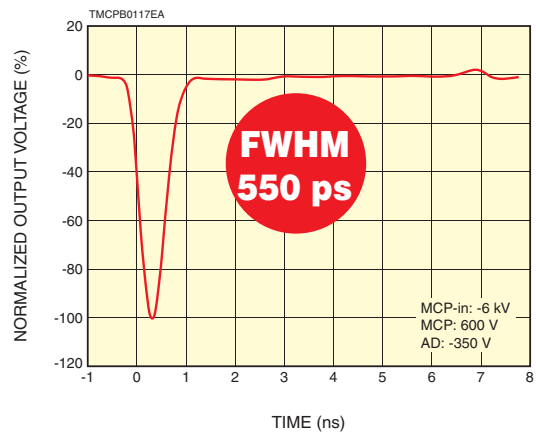
Total gain
10⁶
or higher



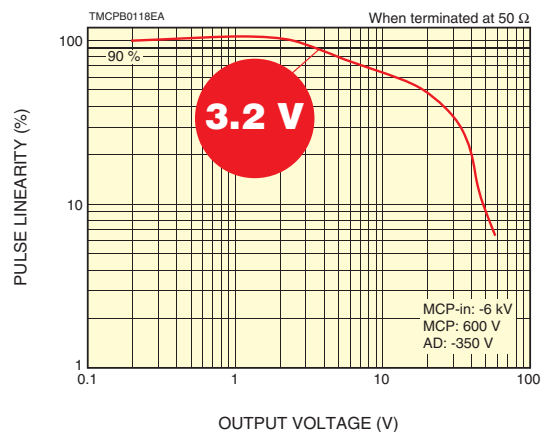
TMCP0108EA



TYPICAL OUTPUT WAVEFORM



PULSE LINEARITY



SPECIFICATIONS

GENERAL

Parameter	Value	Unit
MCP channel diameter	12	μm
Bias angle	12	degree
Effective area	φ25	mm
Number of MCPs	1	—
Open area ratio (Typ.)	60	%

ELECTRICAL CHARACTERISTICS

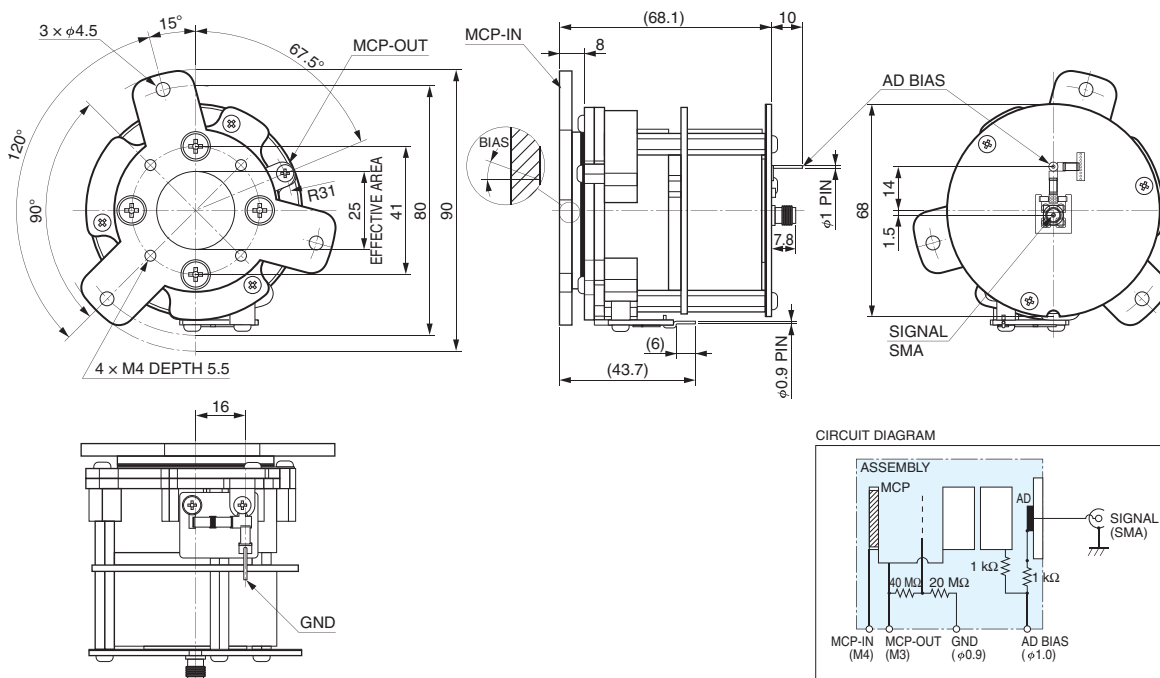
Parameter	Value	Unit
Gain (Min.) [Ⓐ]	1×10^6	—
Resistance (Typ.) [Ⓐ]	6.6 to 33.3	MΩ
Dark count (Max.) [Ⓐ]	3	s ⁻¹ .cm ⁻²
Pulse width (FWHM)(Typ.)	550	ps
Operating temperature	0 to 50	°C
Pulse linearity at 50 Ω (Max.)	3.2	V
Life	10 or more	C/cm ²

RATINGS

Parameter	Value	Unit
MCP supply voltage (Max.)	1.0	kV
MCP-in to GND supply voltage (Max.)	7.0	kV
MCP-out to signal supply voltage (Max.)	6.0	kV
Operating vacuum condition (Max.)	1.3×10^{-4}	Pa
Operating temperature	0 to 50	°C

NOTE: [Ⓐ]Supply voltage: 1.0 kV/1 MCP, Vacuum pressure: 1.3×10^{-4} Pa, Operating ambient temperature: +25 °C

DIMENSIONAL OUTLINES (Unit: mm)



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