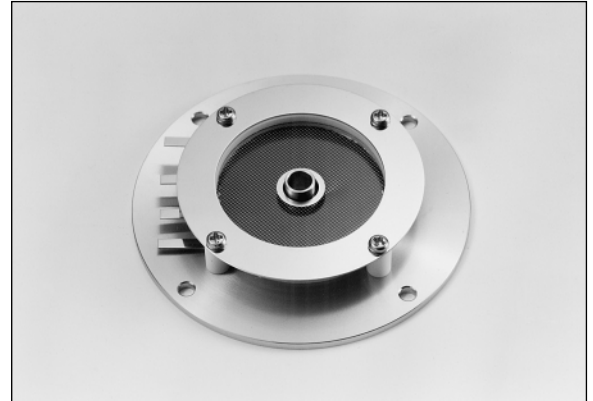


This MCP assembly is a suitable detector for an electron or ion beam in SEM, SIM or Lithography.

It is possible to detect some signal from a sample with high sensitivity, that can be performed with the compactness and the center hole of this assembly. It allows to set this assembly at close position to the sample and gives better efficiency in the beam detection.



TMCPF0020

FEATURES

- High Sensitivity
- High S/N Ratio
- Wide Dynamic Range
- Center Hole for Beam Line
- Compact and Lightweight

APPLICATIONS

- Scanning Electron Microscopy
- Scanning Ion Microscopy
- Electron Lithography
- Mask Aligner
- Electron Beam Measuring System
- Ion Scattering Spectroscopy

SPECIFICATIONS

GENERAL

Parameter	Value	Unit
Assembly Outer Size	$\phi 56.5$	mm
Effective Area	$\phi 27.0$	mm
Height (Max.)	8.6	mm
MCP Channel Diameter	12	μm
Number of MCPs	2	—
MCP Center Dead Area	$\phi 8$	mm

RATINGS

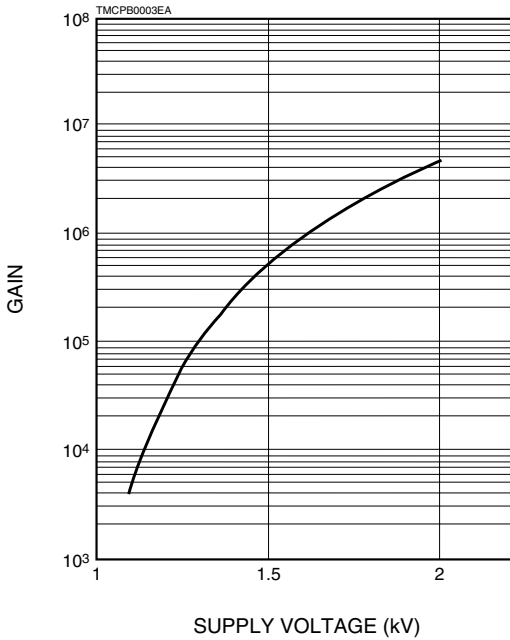
MCP Supply Voltage (Max.)	2	kV
MCP-Out to Anode Supply Voltage (Max.)	0.5	kV
Mesh to MCP-In Supply Voltage	0.5	kV
Anode to Substrate Supply Voltage	3	kV
Operating Vacuum Condition (Max.)	1.3×10^{-4}	Pa
Ambient Temperature	+10 to +40	$^{\circ}\text{C}$
Baking Temperature	300	$^{\circ}\text{C}$
Baking Time	10	Hours
Vacuum Condition for Baking (Max.)	1.3×10^{-4}	Pa

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

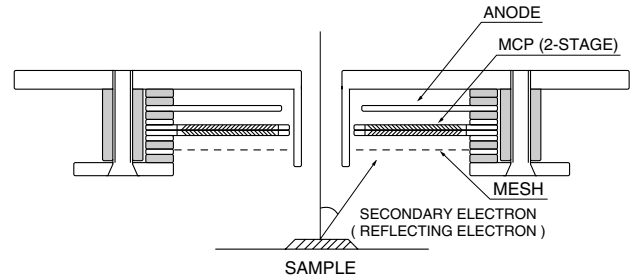
Gain at 1.8 kV (Min.)	1×10^6	—
Plate Resistance	20 to 40	$\text{M}\Omega / \text{MCP}$
Maximum Linear Output	7 % of strip current under uniform input into whole MCP effective area	—
Dark Current	20	$\text{pA} \cdot \text{cm}^{-2}$

MCP ASSEMBLY F2223-21SH

GAIN CHARACTERISTIC



CONSTRUCTION AND APPLICATION EXAMPLE



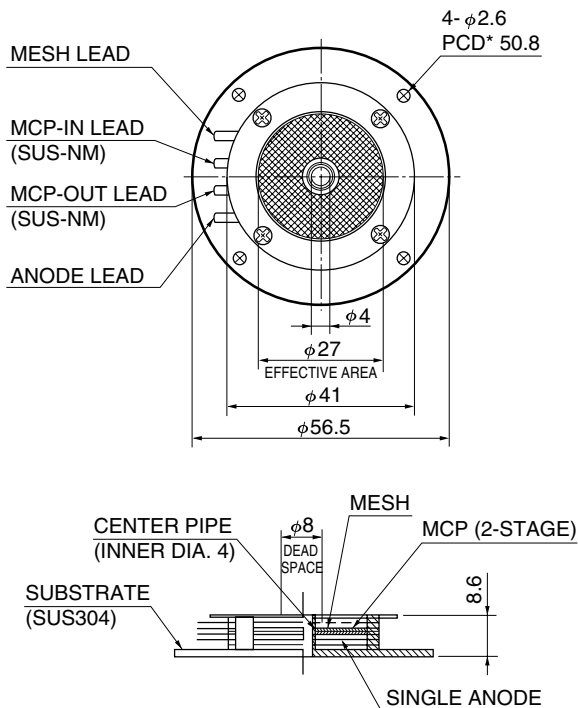
TMCP0001EA

WIRING POTENTIAL EXAMPLE

MESH	+200 V
MCP-IN	+500 V
MCP-OUT	+2300 V
ANODE	+2400 V
CENTER PIPE AND SUBSTRATE	GND
SAMPLE	GND

* This is an example potential to detect secondary electrons. For other applications, please consult to our sales office.

DIMENSIONAL OUTLINES (Unit: mm)



* PCD (Pitch Circle Diameter)

TMCPA0002EE

HAMAMATSU

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