

**HAMAMATSU**

## WIDE DYNAMIC RANGE MICROCHANNEL PLATES F6584 SERIES

### 20 $\mu$ A Output Current is Available \*

The F6584 series is a wide dynamic range MCP that offers more than ten - fold increase in maximum output current compared to conventional MCPs. This increased current capability is due to low plate resistance. When operated in pulse counting mode, the F6584 series MCPs also provide maximum counting capability that is more than ten - fold higher than conventional MCPs. The design is optimized to prevent resistance reduction resulting from high power consumption or high temperature operation.

The F6584 series MCPs therefore offer excellent stability and reliability even during high current or high temperature operations. This results in a very wide dynamic range, making these MCPs ideal for various applications such as mass spectrometers and usage for high counting PMTs.

#### FEATURES

- Wide Dynamic Range Typ. 20  $\mu$ A Maximum Output Current \*
- Operable in high temperature condition (+350°C Max. <sup>①</sup>)
- High Gain and Low Noise

\* When the MCP resistance is less than 10 M $\Omega$ .

#### APPLICATIONS

● MS Detector	● ICP-MS
● GC-MS	● LC-MS
● ESCA	● Mössbauer Detector

#### SPECIFICATIONS

##### GENERAL

Parameter	F6584-01	F6584-09	Unit
Outer Diameter	24.9		mm
Effective Diameter	20		mm
Plate Thickness	0.48	0.43	mm
Channel Diameter	12	10	$\mu$ m
Channel Pitch	15	12	$\mu$ m
Bias Angle	5,15		degree
Open Area Ratio	60		%
Electrode Material	Inconel	—	

##### CHARACTERISTICS (at 1000V, $1.3 \times 10^{-4}$ Pa( $1 \times 10^{-6}$ Torr), +25°C)

Gain	More than $10^4$	—
Plate Resistance	2 to 30	M $\Omega$
Maximum Dark Current	$5 \times 10^{-13}$	A/cm <sup>2</sup>
Maximum Linear Output Signal	10 to 20% of the strip current <sup>②</sup>	—

##### MAXIMUM RATINGS (Absolute Values)

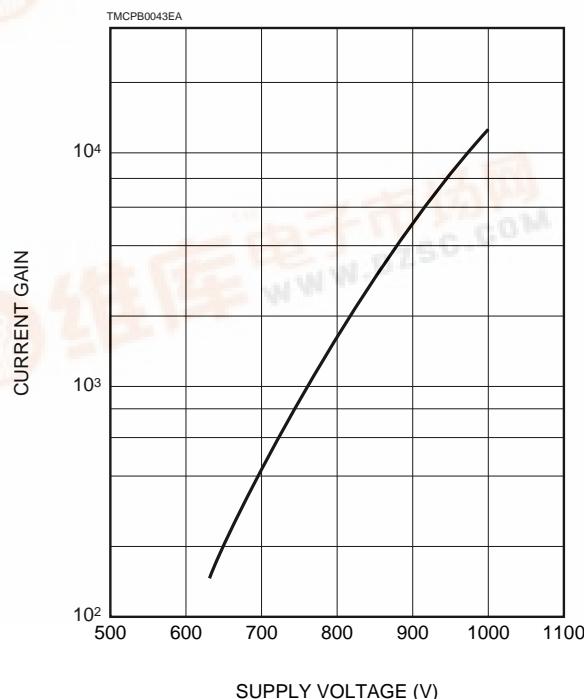
Supply Voltage <sup>③</sup>	1000	V
Ambient Temperature <sup>④</sup>	-50 to +350	°C

NOTE: ①: The strip current is the current flowing through the channel walls, which supplies the current released from the channel walls. It is given by : Supply voltage / Plate resistance.

②: At a vacuum of  $1.3 \times 10^{-4}$  Pa( $1 \times 10^{-6}$  Torr) or less.

③: Single plate operation

Figure 1: Typical Current Gain vs. Supply Voltage



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Figure 2: MCP Saturation Characteristics (D.C. MODE)

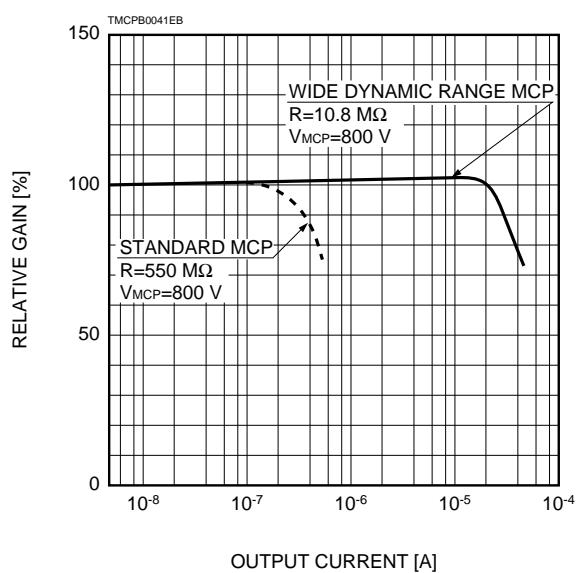


Figure 3: MCP Saturation Characteristics (COUNTING MODE)

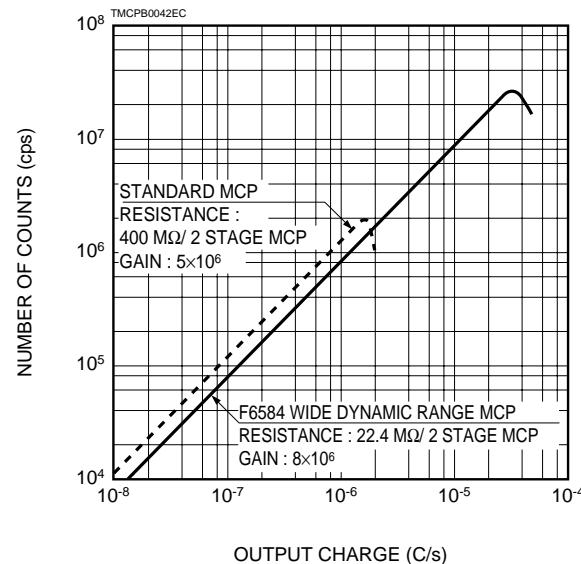
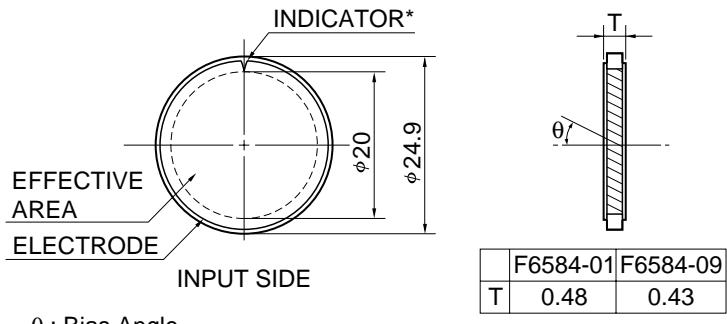


Figure 4: MCP Dimensional Outline (Unit : mm)



## PRECAUTIONS FOR USE

- Avoid touching the MCP or MCP assembly with bare hands.
- Handle the MCP only in a clean room since dust and humidity may adversely affect MCP characteristics.
- The MCP should be operated in vacuum below  $1.33 \times 10^{-4}$  Pa ( $1 \times 10^{-6}$  torr).
- The MCP should be kept in vacuum or dry nitrogen gas atmosphere during long periods of storage.
- When outgassing from the MCP occurs, baking the MCP at 400°C maximum in a vacuum system is recommended. In addition electron bombarding may be effective.

**HAMAMATSU**

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