

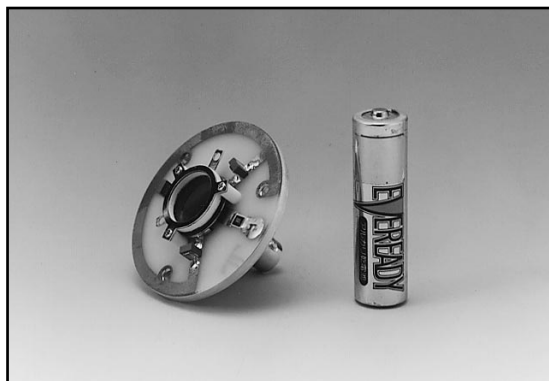
High Speed Detection of Positive / Negative Ion or Electron

FEATURES

- Detection of Positive/Negative Ion or Electron
- High Speed Response
- High Gain
- High S/N Ratio
- High Pulse Height Resolution
- Wide Dynamic Range
- Compact and Lightweight

APPLICATION

- TOF Detector



TMCPF0068

F4655-12 is the best suited detector for a TOF measurement with positive/negative ion or electron. It allows to detect a charged particles (ions, electron, etc.) having any polarity in a high speed with keeping a high gain and wide dynamic range of F4655 series. Its output will give a high speed output waveform without a ringing. In addition, the potential of output connector can be the ground even an MCP anode is high voltage like an electron detection due to a coupling capacitor, which allows the handling very easy.

SPECIFICATIONS

● GENERAL

Parameter	Description/Value	Unit
Assembly Outer Diameter	50.0	mm
Effective Diameter	14.5	mm
Maximum Height	35.2	mm
MCP Channel Diameter	12	μm
MCP Stage Number	2	stage

● MAXIMUM RATINGS

Parameter	Description/Value	Unit
MCP Supply Voltage (In-Out)	2.5	kV
MCP Out - Anode Voltage	0.5	kV
Electric Potential of Each Terminal	± 3.0	kV
Operating Vacuum Condition	1.3×10^{-3} (1×10^{-5})	Pa (Torr)
Ambient Temperature	+10 to +40	$^{\circ}\text{C}$
Baking Temperature	—*	$^{\circ}\text{C}$
Baking Time	—*	hours
Vacuum Condition for Baking	—*	Pa (Torr)

*F4655-12 is not allowed to be baked.

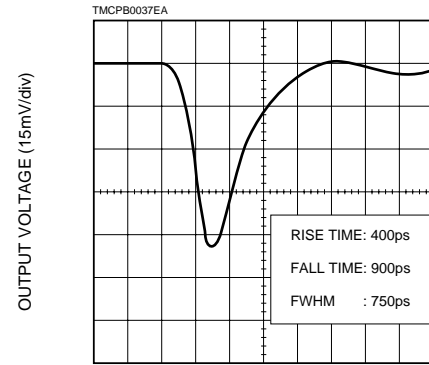
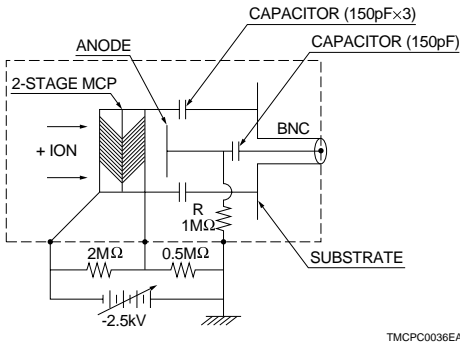
● TYPICAL CHARACTERISTICS (Vacuum condition 1.3×10^{-4} Pa (1×10^{-6} Torr), Ambient Temperature: +25 $^{\circ}\text{C}$)

Parameter	Description/Value	Unit
Gain at 2.4 kV	5×10^7	—
Pulse Height Resolution (FWHM) at 2.4 kV	50	% Max.
Plate Resistance (2-stage MCP)	60 to 140	$\text{M}\Omega$
Maximum Linear Output	1	μA
Dark Count at 2.4 kV	3	cps/cm^2
Rise Time	400	ps
Pulse Width (FWHM)	750	ps

COMPACT MCP ASSEMBLY FOR TOF (TIME OF FLIGHT) F4655-12

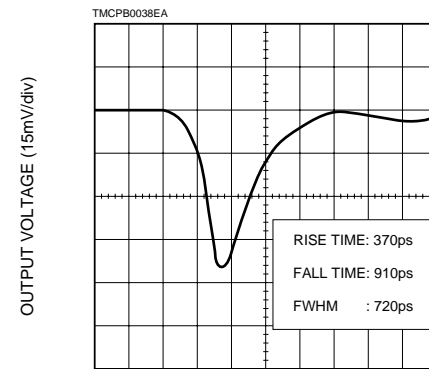
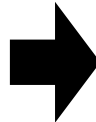
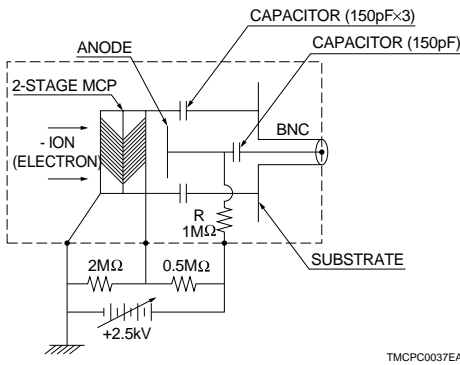
Figure 1: Wiring Examples and Output Waveform

● POSITIVE ION



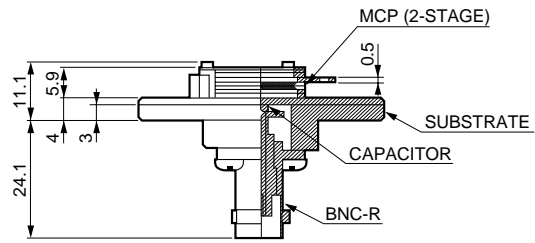
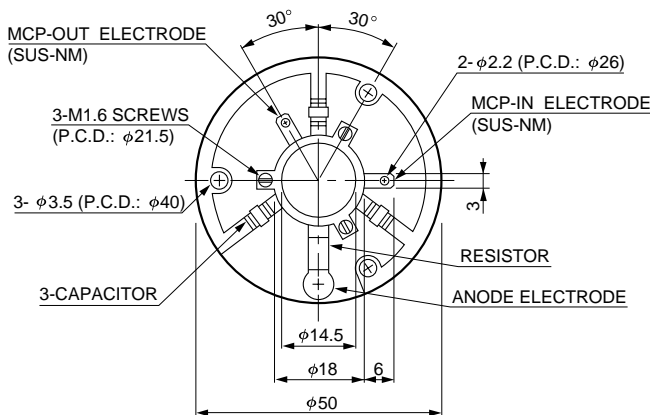
RESPONSE TIME (500ps/div)

● NEGATIVE ION (or ELECTRON)



RESPONSE TIME (500ps/div)

Figure 2: Dimensional Outline (Unit: mm)



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