



MAPMT228 *Multi-Anode MCP-PMT*



The AuraTek MAPMT228 is a next generation Multi-Anode Micro-Channel Plate Photo-Multiplier Tube (MCP-PMT). It can be configured as a multi-channel single photon counter or analog photon pulse analyzer. The 1024 individual anodes are arranged in a 32 x 32 pattern with 0.88 mm pitch, resulting in a 28.16 mm square active area. Connection of the high density anode output is made using Photek's proprietary interconnect process based on an Anisotropic Conductive Film (ACF). Customers can request custom configurations of the full 1024 anodes via high density connectors, or group the anodes to form unique readout geometries. The timing performance is state-of-the-art, with pulse rise-time of <175 ps and single photon transit time spread of < 40 ps rms per channel. Ask our experts to help you select the best readout electronics for your application.



KEY ATTRIBUTES

- ◆ True noiseless photon counting
- ◆ 430 ps FWHM pulse width
- ◆ Transit time spread of < 40 ps rms
- ◆ Extremely low dark counts
- ◆ High density anode having 1024 pixels on 0.88mm pitch
- ◆ Customer configurable anode readout and interconnect via proprietary ACF technology
- ◆ Variety of high QE, low noise photocathodes covering full UV to visible wavelengths
- ◆ Immunity to magnetic fields
- ◆ Assistance with selection of optimal readout electronics

APPLICATIONS

- ◆ High Content Screening
- ◆ Time Resolved Spectroscopy
- ◆ Wide Field Time Correlated Single Photon Counting
- ◆ Fluorescence Lifetime Imaging Microscopy (FLIM)
- ◆ Forster Resonance Energy Transfer (FRET)
- ◆ LIDAR
- ◆ Wavelength Shifting Fibre Readout
- ◆ Scintillating/Cherenkov Fibre Readout
- ◆ Microplate Readout
- ◆ Beam Monitor

PRODUCT OVERVIEW

General Characteristics

Window	Fused Silica (Optional Fibre Optic)
Active Area	28.16 x 28.16 mm
Electron Multiplier	Dual MCP
Anode Format	32 x 32 (Reconfigurable)
Anode Pitch	0.88 mm
Photocathode	Solar Blind, Bi-Alkali, S20, S25

SPECIFICATIONS

Analog Response

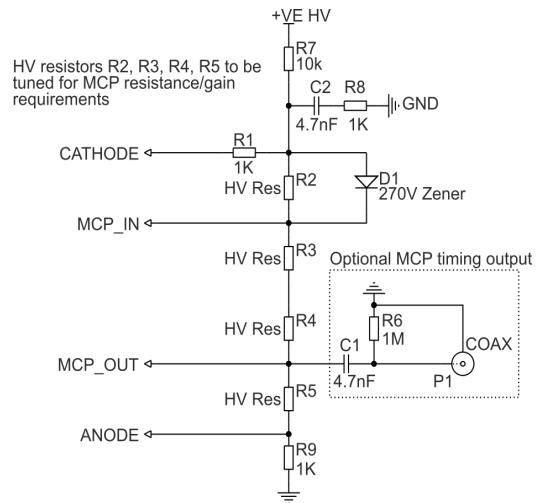
Voltage for 10^6 Gain < 2700 V

Single Photon Response

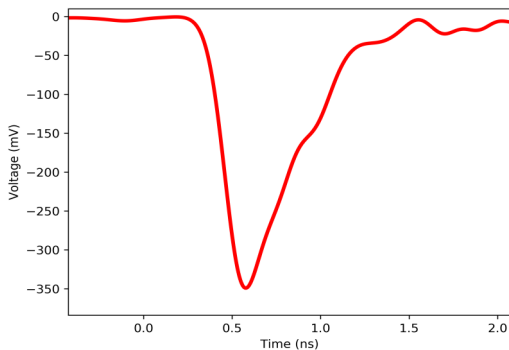
Dark Counts per Anode < 2.25 cps
 Pulse Risetime (10% to 90%) < 175 ps
 Pulse Width < 430 ps FWHM
 Transit Time Spread < 40 ps RMS
 Pulse Height Distribution 100% FWHM
 Linear Total Count Rate Up to 10 MHz

Maximum Ratings

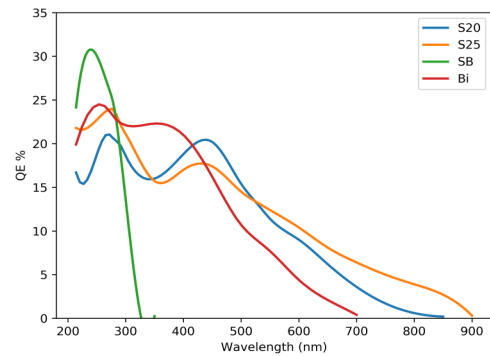
Overall Voltage < 3000 V
 Operating Temperature -50 to +50°C
 Storage Temperature -50 to +50°C



Typical dropper chain example

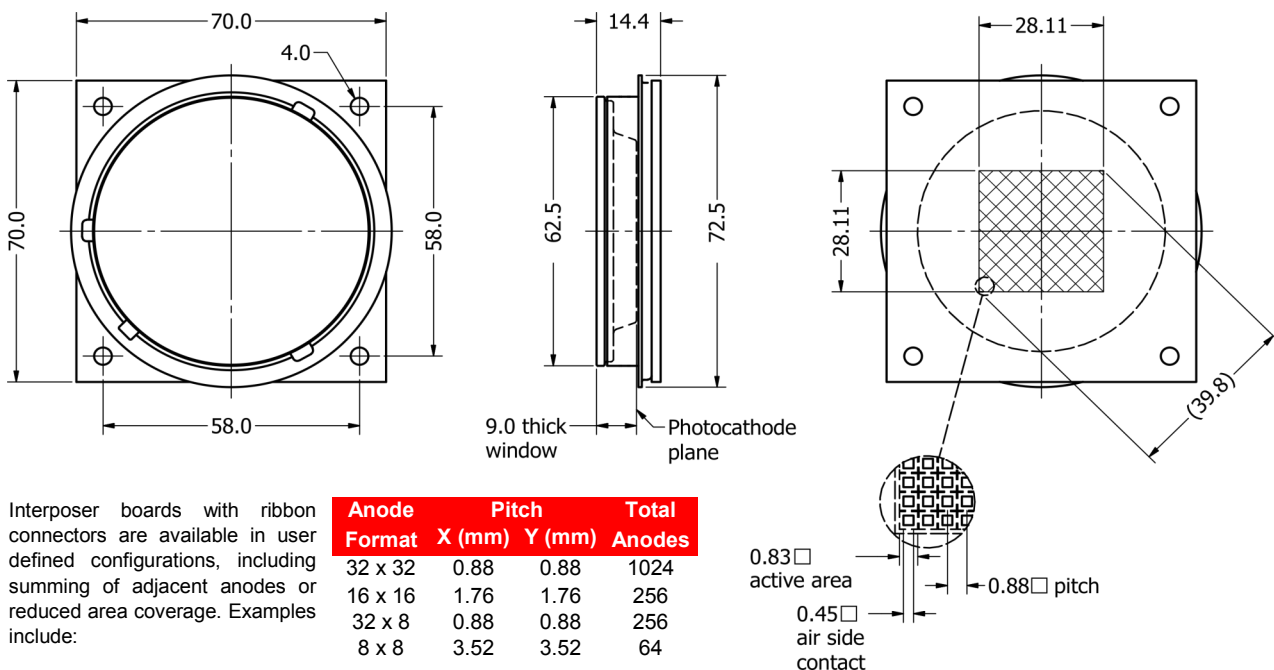


Average of 50 single photon pulses measured on 5 GHz, 20 GS/s LeCroy oscilloscope, using $\sin(x)/x$ interpolation and illuminated using a Photek LPG-405 pulsed laser.



Available photocathodes on fused silica window. Optional fibre optic window will reduce sensitivity and no response below 300 nm.

OUTLINE DRAWING



Interposer boards with ribbon connectors are available in user defined configurations, including summing of adjacent anodes or reduced area coverage. Examples include:

Anode Format	Pitch X (mm)	Pitch Y (mm)	Total Anodes
32 x 32	0.88	0.88	1024
16 x 16	1.76	1.76	256
32 x 8	0.88	0.88	256
8 x 8	3.52	3.52	64