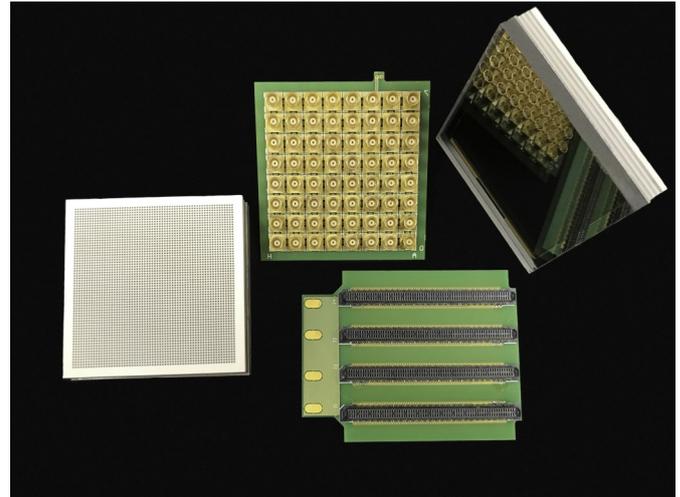




MAPMT253 *Multi-Anode MCP-PMT*



The AuraTek MAPMT253 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 4096 individual anodes are arranged in a 64 x 64 pattern with 0.88 mm pitch, resulting in a 53 mm square active area. The overall tube is 59 mm square, enabling efficient tiling of multiple MAPMT253s to cover large areas. 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 readout configurations of the full 4096 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
- ◆ Highest anode density of any PMT with 0.828mm pitch and 4096 anodes
- ◆ 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

- ◆ Ring Imaging Cherenkov (RICH)
- ◆ Detection of Internally Reflected Cherenkov (DIRC)
- ◆ Sampling Calorimeter Readout
- ◆ Wavelength Shifting Fibre Readout
- ◆ Scintillating/Cherenkov Fibre Readout
- ◆ Beam Monitor
- ◆ High Content Screening
- ◆ Time Resolved Spectroscopy
- ◆ LIDAR
- ◆ Standoff Chemical/Biological Detection
- ◆ Microplate Readout

PRODUCT OVERVIEW

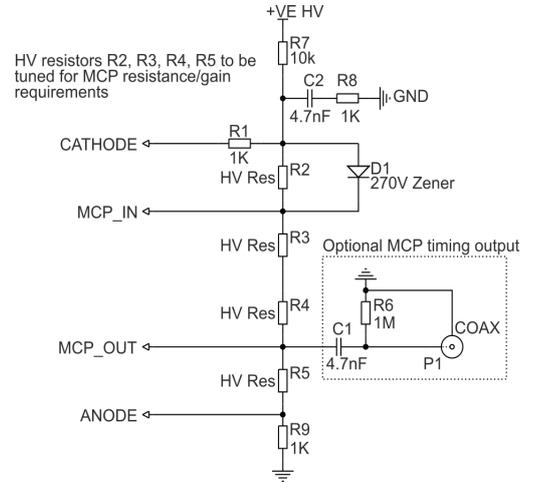
General Characteristics

Window	Fused Silica (Optional Fibre Optic)
Active Area	53 x 53 mm
Electron Multiplier	Dual MCP
Anode Format	64 x 64 (Reconfigurable)
Anode Pitch	0.828 mm
Photocathode	Solar Blind, Bi-Alkali, S20, S25

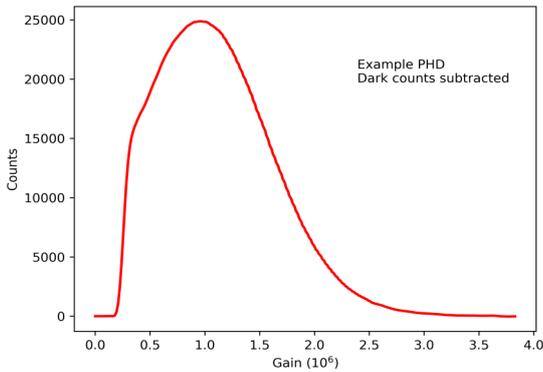
SPECIFICATIONS

Single Photon Response	Typical
Dark Counts per Anode	< 2 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

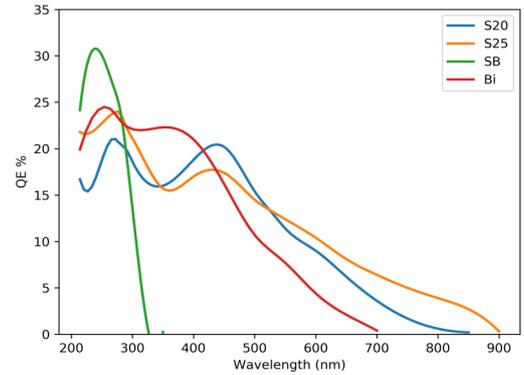
Maximum Ratings	
Overall Voltage	< 3500 V
Operating Temperature	-50 to +50°C
Storage Temperature	-50 to +50°C



Typical dropper chain example

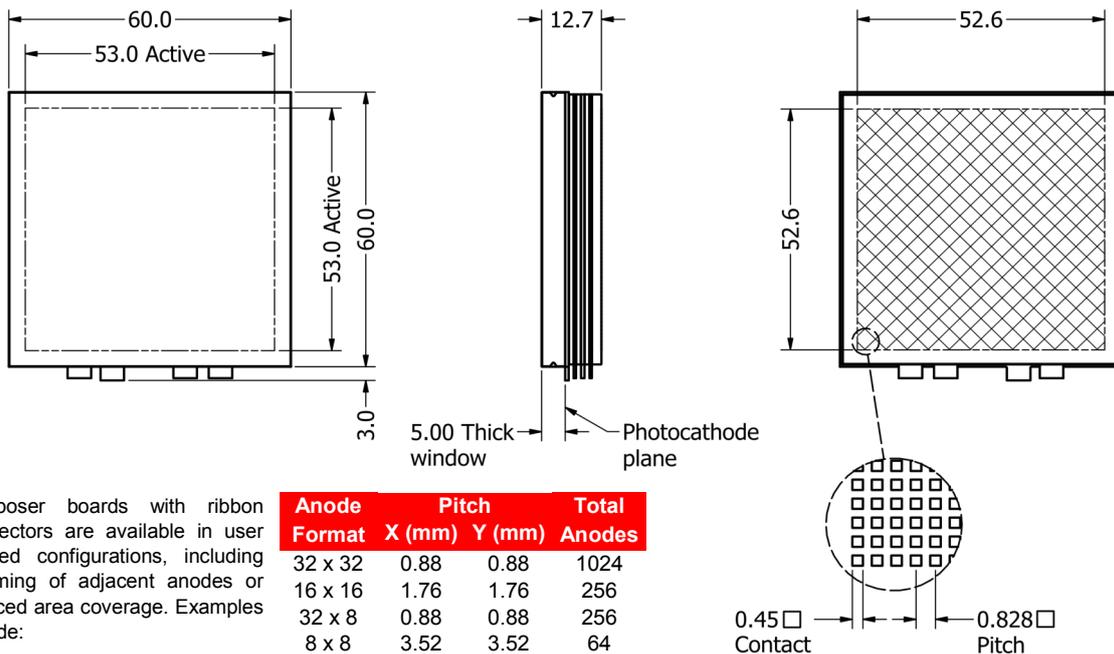


Pulse height distribution using single photon illumination with 60 second integration. Mean gain calibrated to be 1.0×10^6 .



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: