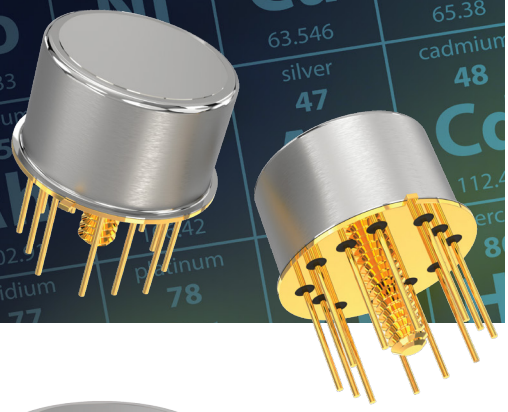
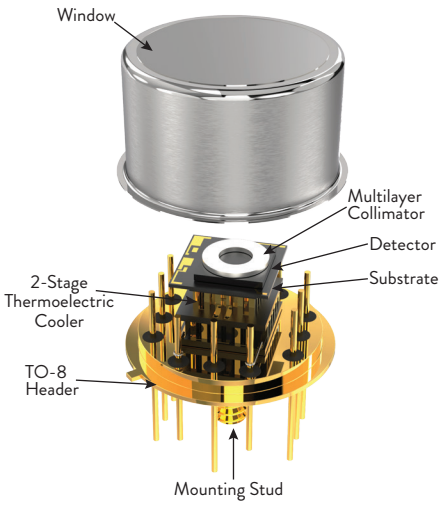
SI-PIN X-RAY DETECTOR

HIGH PERFORMANCE, RELIABLE XRF DETECTION WITHOUT COOLING LIMITATIONS



The Si-PIN is a high-performance, thermoelectrically cooled X-ray detector designed for cost-sensitive applications requiring moderate energy resolution and count rates. Ideal for laboratory X-ray spectroscopy, it integrates seamlessly with various preamplifier and digital pulse processor configurations. Its versatility makes it well-suited for X-ray fluorescence (XRF) applications, including metal alloy identification, RoHS/WEEE compliance verification, and lead detection in paint.

With an energy resolution ranging from 139 to 190 eV FWHM, the Si-PIN delivers reliable performance for X-ray energies between 1.5 and 30 keV, operating best at count rates below 30 kcps. It features a fully depleted 500 µm Si-PIN photodiode and offers 1 or 0.5 mil Be window options, ensuring flexibility across various analytical needs.

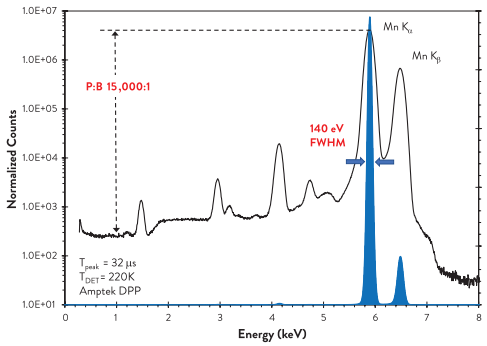


Why Choose Si-PIN Detectors?

- **High Performance, Low Cost:** Provides lab-quality detection at a fraction of the cost.
- **Thermoelectrically Cooled:** Ensures low noise and high resolution without the need for cryogenic cooling.
- **Versatile Applications:** Ideal for XRF, environmental monitoring, mining, and material analysis.
- **Superior Energy Resolution** – Ranges from 139 to 190 eV FWHM, optimized for precise X-ray detection.
- **Compact & Easy to Integrate** – Vacuum-sealed TO-8 package with beryllium window options.

Key Features

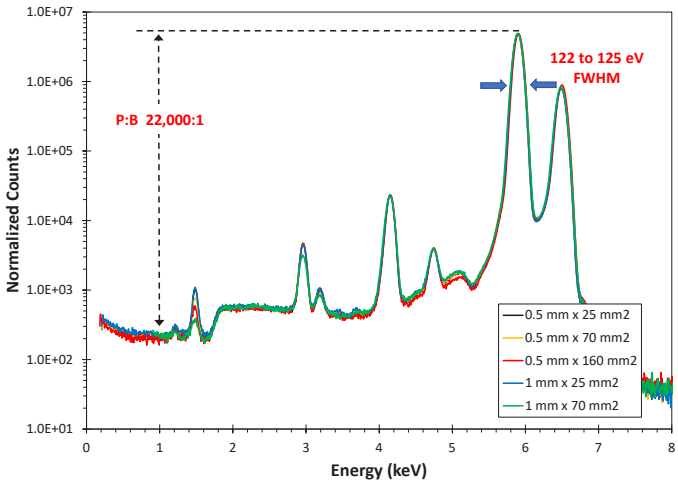
- **Si-PIN Photodiode** – Fully depleted 500 µm silicon for maximum sensitivity.
- **Thermoelectric Cooling** – Maintains optimal operating temperatures for reduced noise.
- **Beryllium Window** – Corrosion-resistant for long-lasting performance.
- **Compact & Durable** – Hermetically sealed TO-8 package for reliable operation.
- **Low Power Consumption** – Ideal for OEMs, handheld XRF, and portable instruments.



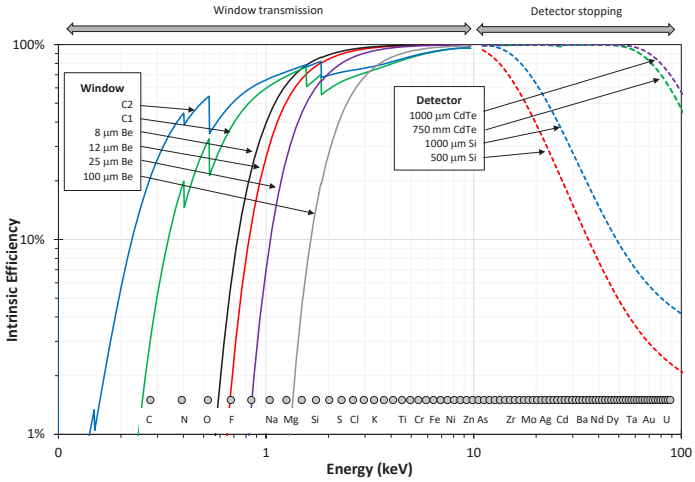
Parameters	Hardware Specifications
Detector Type	Si-PIN
Detector Size	6mm², 13mm², 25mm²
Silicon Thickness	500 µm
Collimator	Internal Multilayer Collimator (ML)
Energy Resolution@5.9 keV (55Fe)	145 eV FWHM to 230 eV FWHM depending on detector and shaping time constant
Peak to Background	20,000 : 1 for Be window
Detector Window Option	Be window: 1 mil(25 µm)
Charge Sensitive Preamplifier	CMOS
Gain Stability	<20 ppm/°C (typical)
Size Detector Module	TO-8 package (0.640 in. high including pins, 0.600 in. diameter)
Weight Detector Module	0.14 oz (4.1 g)
Total Power	<1 Watt
Warranty Period	1 Year
Device Lifetime	Typical 5 to 10 years, depending on use
Operation Condition	0°C to +40°C
Bias Voltage	

State-of-the-Art XRF Detection. Reliable Performance. Affordable Excellence.

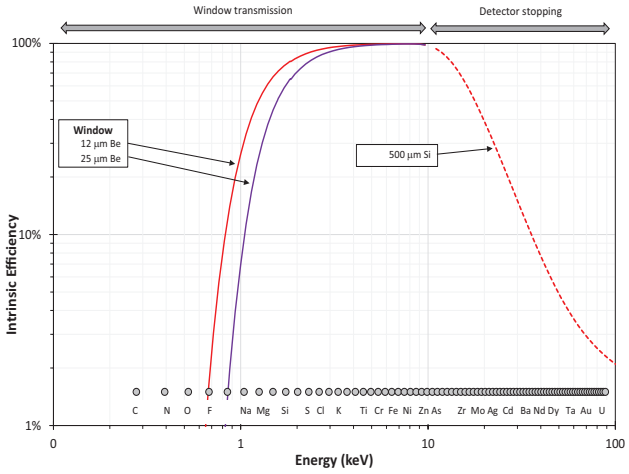
High Count Rate Plot showing >1MCPS at peaking time of 0.1 µs



Typical performance of a 13 mm² and 25 mm² Si-PIN Detector

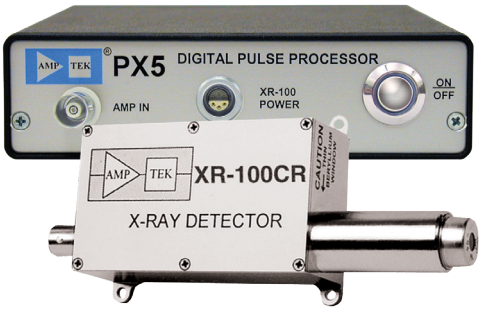


Compound Attenuation Plot:
Transmission rates of different windows + Stopping Power of standard 0.5 mm thick detector



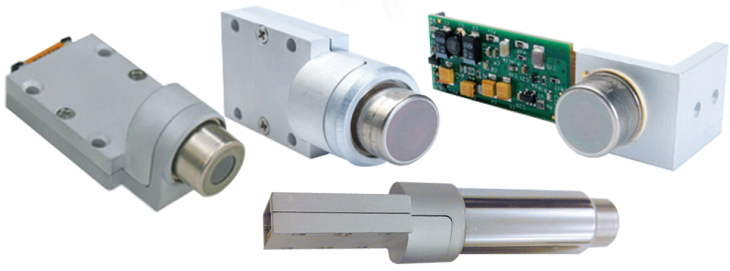
Choose Your Perfect Setup:-

XR-100CR



X-Ray Detector and Digital Pulse Processor with MCA

OEM SI-PIN DETECTORS



The SiPin with its preamplifier is available in several OEM configurations

Ready to Elevate Your X-Ray Spectroscopy?

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