

DPA-SDD-Pro is a high-performance new X-ray Silicon Drift Detector, using Peltier electric refrigeration technology, can achieve excellent performance without expensive cryogenic refrigeration system, which is a new break through in X-ray detector production technology.

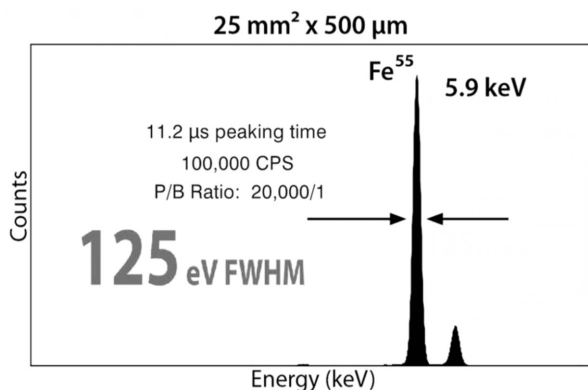
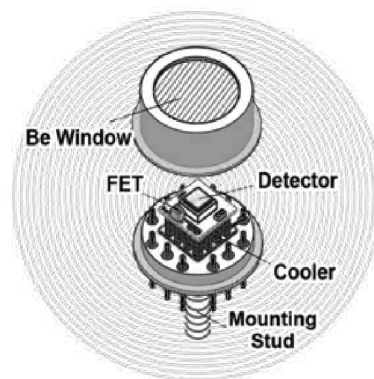
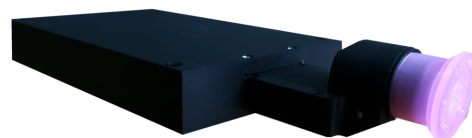


Figure 1. Fe⁵⁵ Spectrum with Silicon Drift Detector.



Features:

- 125eV FWHM Resolution @ 5.9 keV
- High Peak-to-Background Ratio 20,000:1
- 25 mm x 500 µm
- 11.2 µs Peaking Time
- 200,000CPS vs 0.8µs
- USB Controlled & RS232 Controlled
- No Liquid Nitrogen



DPA-SDD-Pro Includes:

- 1 Silicon Drift Detector and Preamplifier
- 2 Digital Pulse Analyzer (with Power)

Applications:

- X-Ray Fluorescence
- RoHS / WEEE Compliance XRF
- OEM & Special Applications
- Process Control
- Research

General Specifications

Detector Type	DPA-SDD-Pro (Silicon Drift Detector)
Detector Size	25mm ²
Silicon Thickness	500μm
Energy Resolution @5.9keV(Fe55)	125–140eV FWHM at 11.2μs peaking time
Peak to Background	20000:1 (ratio of counts from 5.9K eV to 1K eV)
Background Counts	<3 x10 ⁻³ /s, 2K eV 到 150K eV
Detector Be Window Thickness	0.5mil (12.5μm). (See Figure 5)
Collimator	Internal Multi Layer Collimator (ML)
Charge Sensitive Preamplifier	custom design with reset
Gain Stability	<20 ppm/°C (typical)
Case Size	157.6 x 71 x 26 (mm)
Weight	220g
Total Power	4.2-8.5VDC
Warranty Period	1 year
Lifetime Typical	5 to 10 years, depending on use
Storage & Shipping	Long-term Storage: 10+ years in dry environment Typical Storage & Shipping: -20°C to +50°C, 10 to 90% humidity Operation conditions noncondensing
Operation conditions	0°C -50°C

This DPA-SDD-Pro enables extremely high count rate applications with excellent energy resolution; its high performance, small size, and low cost make it the ideal detector for OEM hand-held applications to bench-top analyzers. It can also be equipped with Si-pin detector and no needs to set the relevant parameters.

Note:

SDD-Pro requires negative high voltage, and produces a positive preamplifier output. This is opposite of the standard Si-pin which requires positive high voltage and produces a negative preamplifier output. The different detector needs corresponds to different DPA hardware settings.

Use of Collimators

Most of detectors contain internal collimators to improve spectral quality. X-rays interacting near the edges of the active volume of the detector may produce small pulses due to partial charge collection.

For some applications, these pulses result in artifacts in the spectrum which obscure the signal of interest. The internal collimator restricts X-rays to the active volume, where clean signals are produced. Depending on the type of detector, collimators can improve peak to background (P/B), eliminate edge effects, and/or eliminate false peaks.

Additional System Information and Performance

Resolution for Different Peaking Times

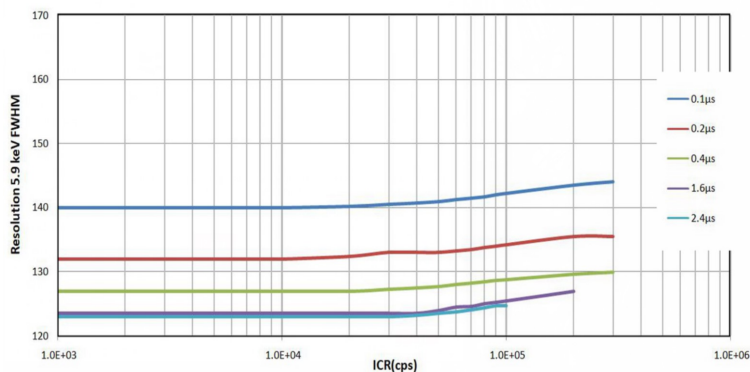


Figure 2. Resolution VS Input Count Rate (with different peaking time)

Throughput

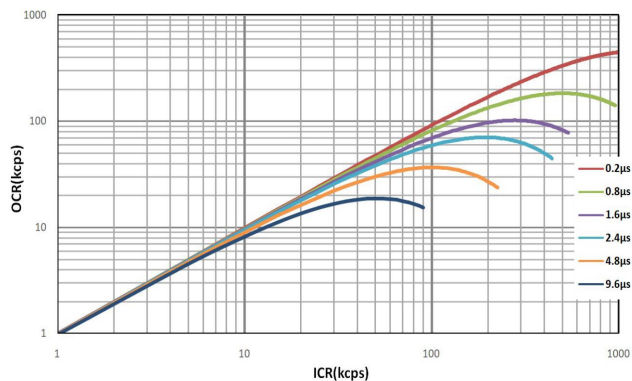


Figure 3. OCR VS ICR (with different peaking time)

Resolution vs Peaking Time

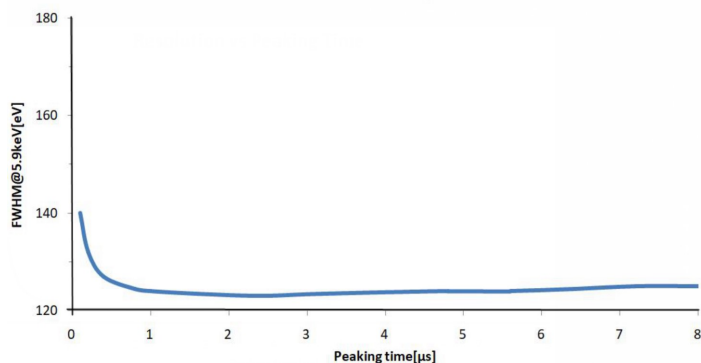


Figure 4. Resolution VS Peaking Time

Efficiency and Transmission

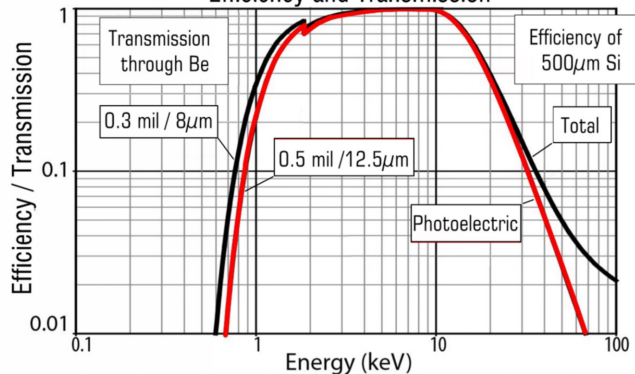
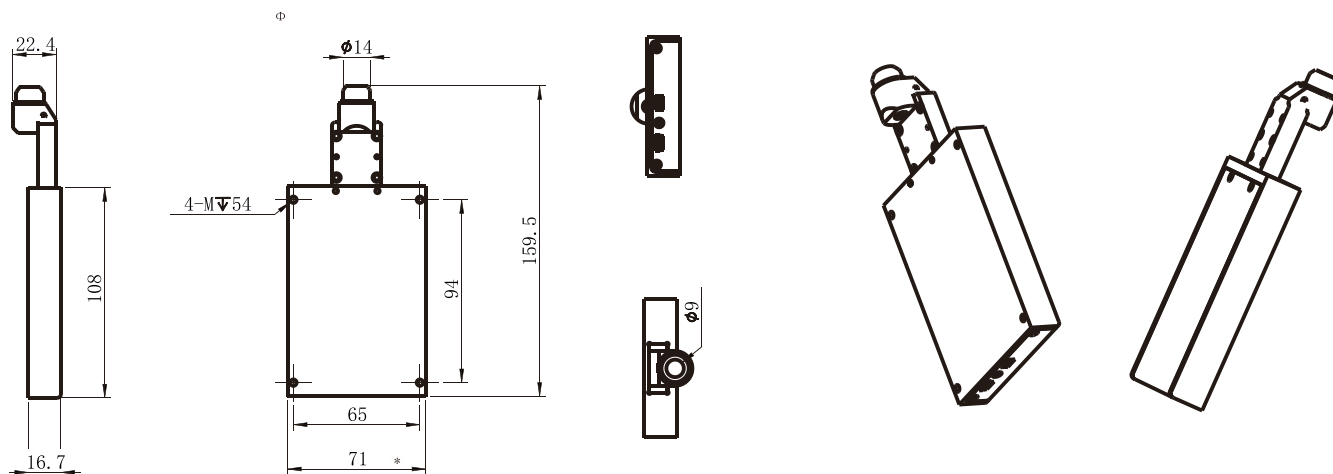


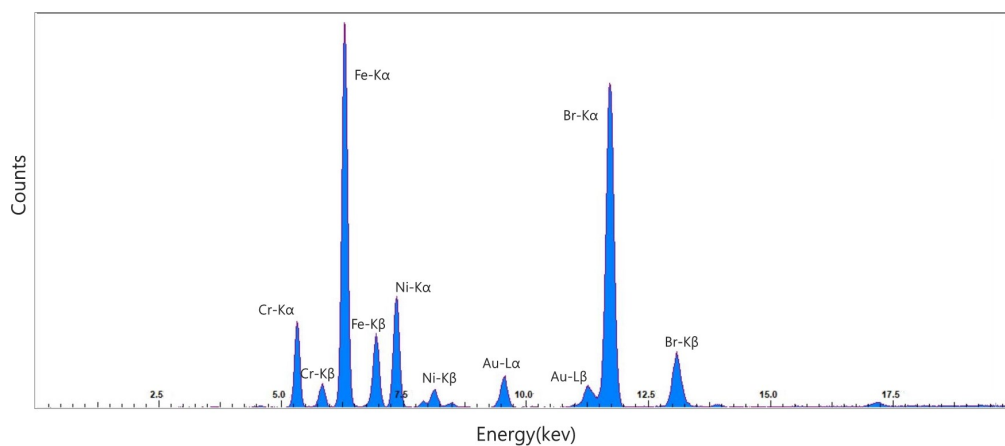
Figure 5. Efficiency and Transmission

SIZE (mm)

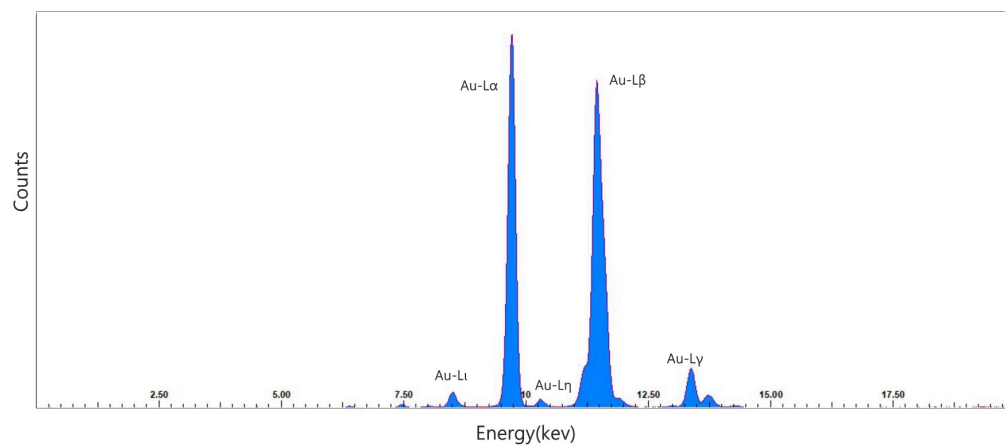


Application Spectra

25mm²/500μm SDD



25mm²/500μm SDD



25mm²/500μm SDD

