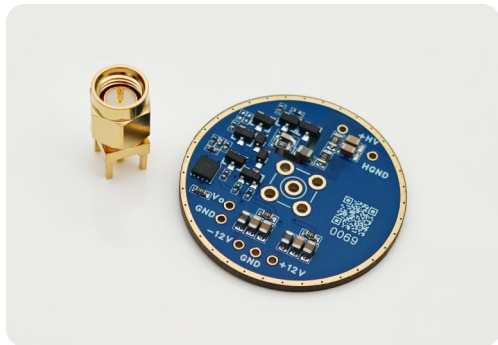


1. Product Introduction



The EP-AP1306 low-noise charge-sensitive preamplifier dedicated to PIPS detectors is a front-end amplifier for semiconductor detectors designed with discrete components. It addresses low-noise and high-gain readout requirements for weak charge signals. This product can be used in conjunction with semiconductor detectors including PIPS, gold-silicon surface-barrier detectors, Cadmium Zinc Telluride (CZT), and Si-PIN detectors.

Featuring compact size for easy embedding into various instrument systems, it is applicable to devices such as radioactive aerosol online monitors, radon detectors and fission-fragment measuring instruments. It operates on $\pm 12\text{ V}$ supply voltage. The high-voltage input ranges from 0 V to $+500\text{ V}$ and can be adjusted according to detector requirements.

2. Functional Indicators

- ▶ 1 Designed with discrete components for front-end weak-signal readout of semiconductor detectors
- ▶ 2 Characterized by low noise, high gain, compact footprint and high sensitivity
- ▶ 3 Compact form factor facilitates integration into diverse detection and measurement instruments

3. Application Scenarios

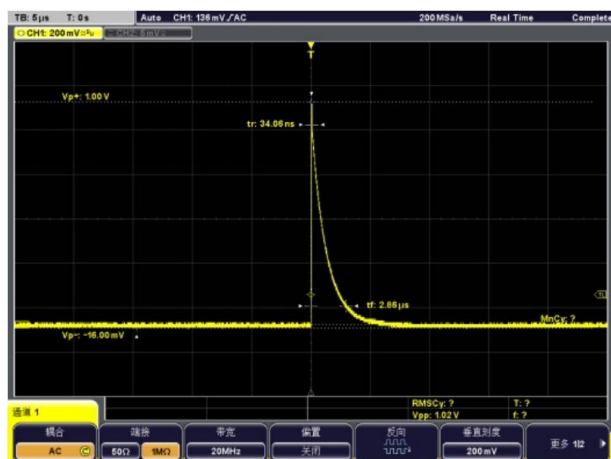
- ▶ 1 Signal readout for semiconductor detectors: PIPS, gold-silicon surface-barrier detectors, Cadmium Zinc Telluride (CZT), Si-PIN, etc
- ▶ 2 Suitable for equipment including radioactive aerosol online monitors, radon detectors, and fission-fragment measuring instruments

4. Performance Parameters

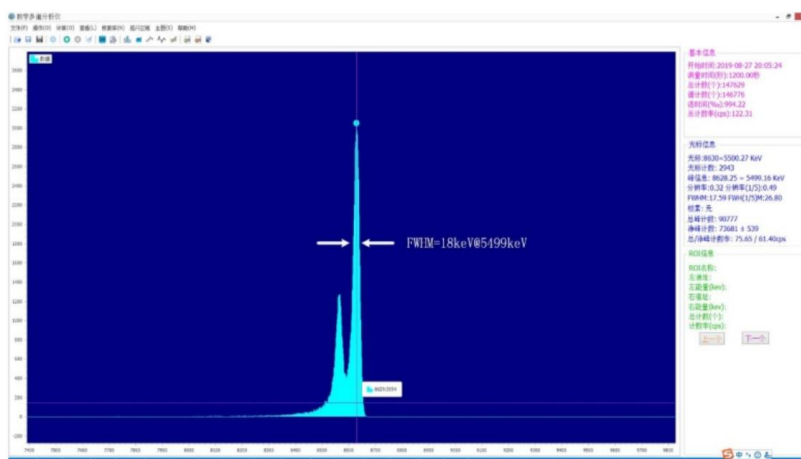
- ▶ Supply Voltage $\pm 12\text{ V}$
- ▶ Gain 200 mV/MeV
- ▶ Rise Time Less than 60 ns
- ▶ Output Swing $-6\text{ V} \sim +6\text{ V}$
- ▶ High-Voltage Input $0\text{ V} \sim +500\text{ V}$, adjustable for specific detectors
- ▶ Operating Temperature $-20^\circ\text{C} \sim +50^\circ\text{C}$
- ▶ Product Dimensions 32 mm diameter; 18 mm height with SMA connector installed

5. Energy-Spectrum Test

The output pulse waveform of the preamplifier was acquired, and energy-spectrum measurement was performed. The results are shown in the figures below.



● Output Pulse Waveform of the Preamplifier



● Energy-Spectrum Test Result