

1. Overview



The EP-AP8102 is a reset-type charge sensitive preamplifier for Si-PIN detectors. The preamplifier operates with source reset and outputs a high signal-to-noise energy signal, which can be widely used in the field of nuclear radiation measurement with very high energy resolution.

2. Functional indicators

- ▶ 1 Suitable for Si-PIN detectors
- ▶ 2 Cycle reset mode of operation
- ▶ 3 The allowable high voltage input range is 0 to $\pm 1000V$
- ▶ 4 Built-in input protection circuit

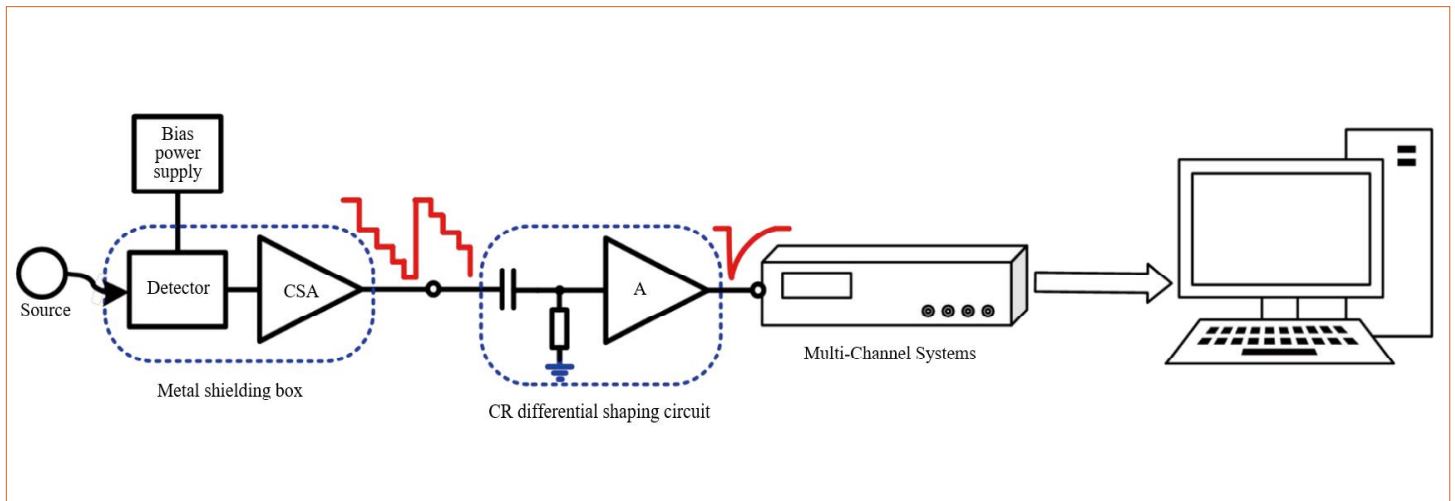
3. Performance parameter

| Power supply | Power | High Voltage Output Voltage | Gain Linearity | Charge Gain | Output swing | Output signal | Reset pulse time | Gain Temperature Stability | Operating temperature | Storage temperature |
|--------------|-------|-----------------------------|----------------|-------------|--------------|----------------|------------------|----------------------------|-----------------------|---------------------|
| +12V | 700mW | $\pm 1000V$ MAX | <0.01% | 1475mV/pC | -6V-+4V | stepped signal | 2.2ps | <0.01%/°C | 0°C~+50°C | -40°C~+125°C |

4. Electromechanical interface

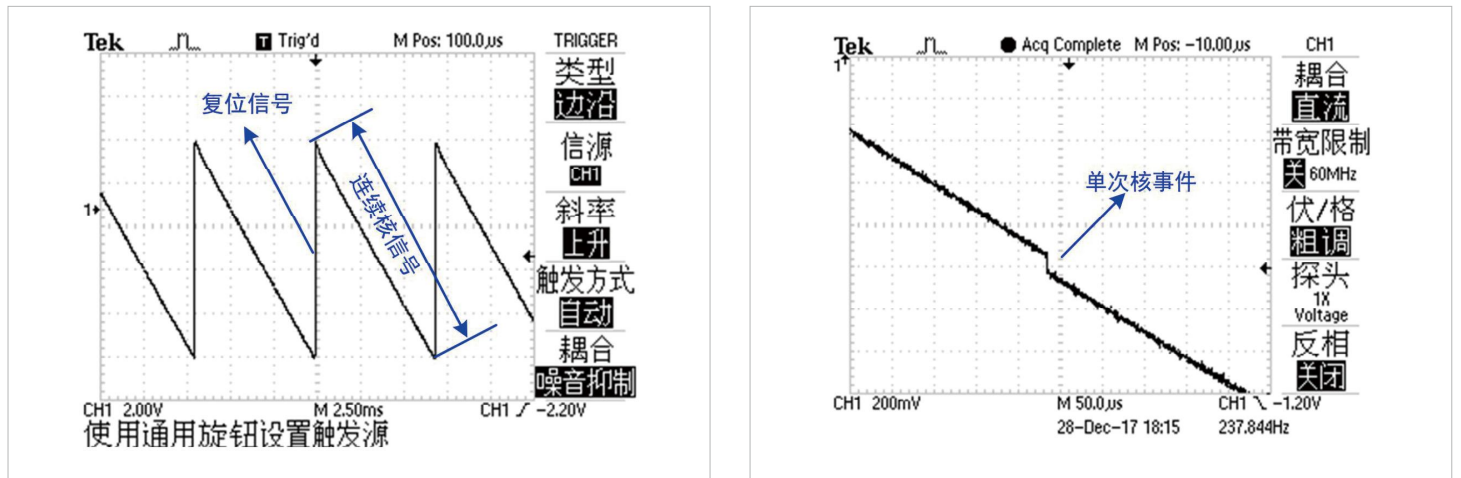
- ▶ INPUT Detector connection port
- ▶ TEST Test signal input port
- ▶ HV High voltage input port (SHV)
- ▶ POWER DC power input port (DB9/NIM standard)
- ▶ E Energy output signal

● Figure 1 Connection method



5. Performance testing

● Figure 2 Signal output waveform



复位信号: Reset signal; 连续核信号: Continuous nuclear signal; 单次核事件: Single nuclear event

6. Applications

1. The 6mm² Si-Pin detector was connected to an EP-AP8102 reset charge-sensitive preamplifier, and an EP-DMCA-1104 digital multichannel was used for energy spectrum readout. The resolution of 59.5 keV gamma rays of ²⁴¹Am was measured to be 1.85%, and the energy spectrum data are shown below.

● Figure 3 EP-AP8102 test spectrum

