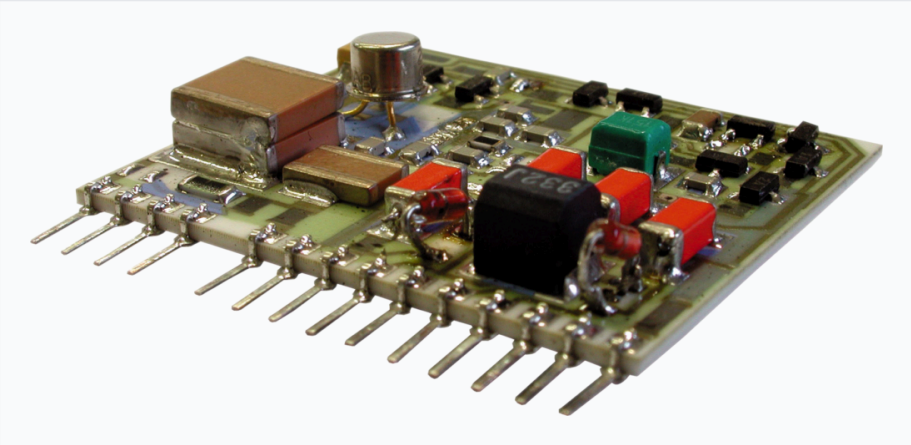
A422

Charge Sensitive Preamplifier with Timing (Hybrid)

DISCONTINUED

14 pin SIP hybrid	10	±1000
Package	Test Capac. (pF)	Max Detector Bias Voltage (V)



The A422 is a fast, low-noise charge-sensitive preamplifier on an open-frame SIP hybrid assembly, designed especially for semiconductor detectors and charge-division applications such as position-sensitive silicon detectors. It accepts positive or negative input pulses and includes a test input for detector gain calibration and an HV input for detector bias up to 1 kV, positive or negative. Selectable energy sensitivity is 1, 45 or 90 mV/MeV (Si). The inverting unipolar output has a 220 µs decay time, while the timing output provides a fast inverting pulse with a 15 ns typical rise time across a 50 Ω load.

Overview

Product Highlights

- Fast, low noise inverting preamplifier
- Positive or negative input signals
- Energy sensitivity range selectable between 1, 45 or 90 mV/MeV (Si)
- Timing output
- Up to 1 kV (positive or negative) detector bias voltage

Product Description

The CAEN **Mod. A422** is a charge sensitive preamplifier implemented on an open frame SIP hybrid assembly. The module is designed to be used especially with semiconductor detectors and in particular whenever the charge division is required (as in position sensitive silicon detectors). The unit accepts both positive and negative input pulses. A Test input for detector gain calibration and a HV input (up to 1 kV) for the detector bias are also included. The output is an inverting unipolar voltage pulse, proportional in amplitude to the integrated charge; decay time is 220 µs. A Timing output provides an unipolar inverting fast voltage pulse, with a 15 ns typical rise time, across a 50 Ω load. Three different sensitivities (1, 45 or 90 mV/MeV) can be selected via internal connections. A 8-slot motherboard for the A422 is also available; it can be purchased equipped with LEMO 00 I/O connectors (Mod. A658) or with soldering pads (Mod. A658A).

AT A GLANCE

Package	**14 pin SIP hybrid**
Out Conn.	**-**
In Conn.	**-**
Test Capac. (pF)	**10**
Max Detector Bias Voltage (V)	**±1000**
Integral Non-linearity	**<0.05%**

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Technical Specifications

Packaging	Single in-line package hybrid (38 mm x 33 mm x 7 mm); pin pitch: 2.54 mm; weight: 9.8 g
Input Signals (IN/DETECTOR)	Accepts positive and negative charge pulses from semiconductor detectors and supplies the HV bias to the detector itself
Input Signals (HV)	up to 1KV (positive or negative) for detector bias. 101 MΩ resistance in series
Input Signals (TEST)	Positive or negative inputs to calibrate the gain of the detector input via Ctest = 10 pF
Output Signals (OUT/ENERGY)	

- Inverting unipolar output
- Rise time < 20 ns typically
- Decay time constant : 220 µs
- Maximum peak amplitude: ± 8 V

Output Signals (TIMING)	Inverting unipolar fast voltage pulse. 5 ns minimum rise time. Requires a 50 Ω termination whether it is used or not.
Integral non linearity	± 0.05 % (from 0 to ± 8 V peak output)
Gain drift	± 50 ppm/°C (from 0° to 50°C)
Energy sensitivity	1/45/90 mV/MeV (Si) selectable via internal jumpers
Typical noise	9.8 KeV FWHM at 470 pF capacitance and 90 mV/MeV sensitivity
Power requirements	• +24 V/30 mA • -24 V/20 mA

Ordering Information

ORDERING CODE	DESCRIPTION	STATUS
WA422XAAAAAA	A422 – Charge Sensitive Preamplifier with timing(Hybrid)	Discontinued

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Related Products

A422A — Charge Sensitive Preamplifier with Timing (Box)

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