Features

Supports the SensL 8x8 array of 6mm SiPMs

- ArrayC-60035-64P-PCB
- ArrayJ-60035-64P-PCB

One sum per 4x4 quadrant with fixed gain
Negative signal polarity, SMA signal connectors

One sum of four quadrants with adjustable gain
Negative signal polarity, SMA signal connector

DC-coupled signal path

SiPM coupling options

- Resistor coupling (standard)
- Patented diode coupling (optional)

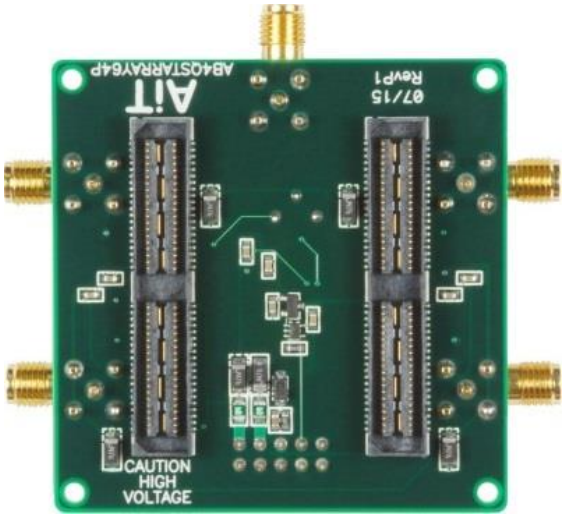
Horizontal right-angle coaxial signal output connectors on the back side, opposite the array

- SMA, SMB, MCX, or LEMO supported

Precision temperature sensor

Four mounting holes for #2 hardware

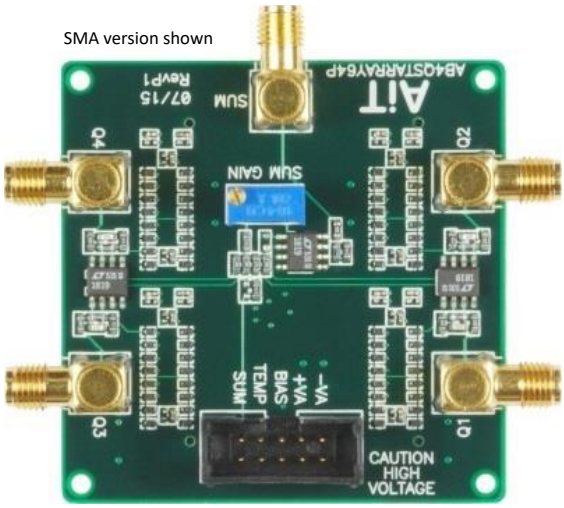
SensL's fast output signals are not connected



Front View

SiPM array not included

SMA version shown



Back View

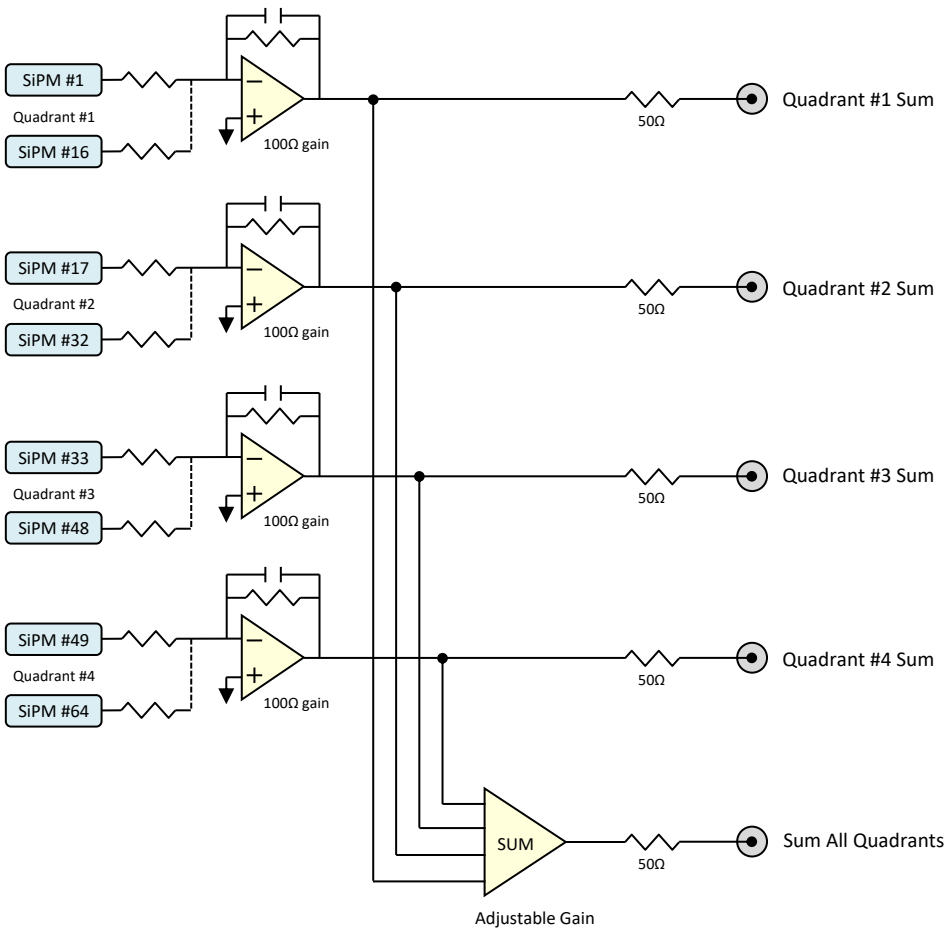
Part Numbers

AB4QST-ARRAY64P-RS-VH-R
- -RS: Right-angle SMA signal connectors
- -VH: Vertical I/O header
- -R: Resistor coupling

AB4QST-ARRAY64P-RS-VH-D
- -RS: Right-angle SMA signal connectors
- -VH: Vertical I/O header
- -D: Diode coupling

Architecture

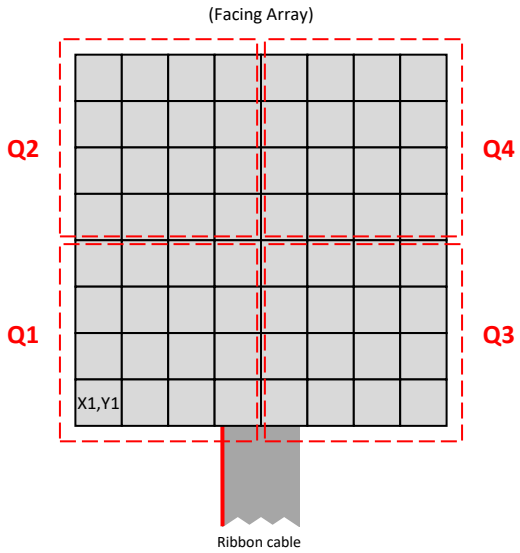
Resistor coupling version shown (diode coupling optional)



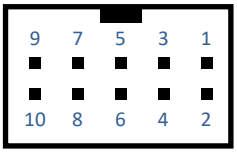
Specifications

Sum Signal Outputs	
Quadrant sums	4 separate sums (Q1, Q2, Q3, Q4) one per 4x4 quadrant
Quadrant sum gain	100Ω transimpedance gain
Overall sum	Sums all four quadrants
Overall sum gain	Adjustable: 0.25 → 2.5
Output voltage	0 → -1V (50Ω load)
SMA sum output impedance	50Ω
Header sum output impedance	100Ω
Output current	50mA maximum
Temperature Sensor	
Output voltage	500mV + 10mV per °C
Output current	10mA
Output impedance	100Ω
Accuracy	±0.5°C
Bias Voltage	+29V typical (refer to SiPM data)
Voltage clamp	47V Zener diode 500mW maximum
Amplifier Voltage (±VA)	+2.5V → +5.5V maximum
Current	±60mA typical (Iq, no signal, no load)
I/O Connector	Vertical 10-pin 2-row header 0.100” pin pitch

Channel Map



I/O Connector

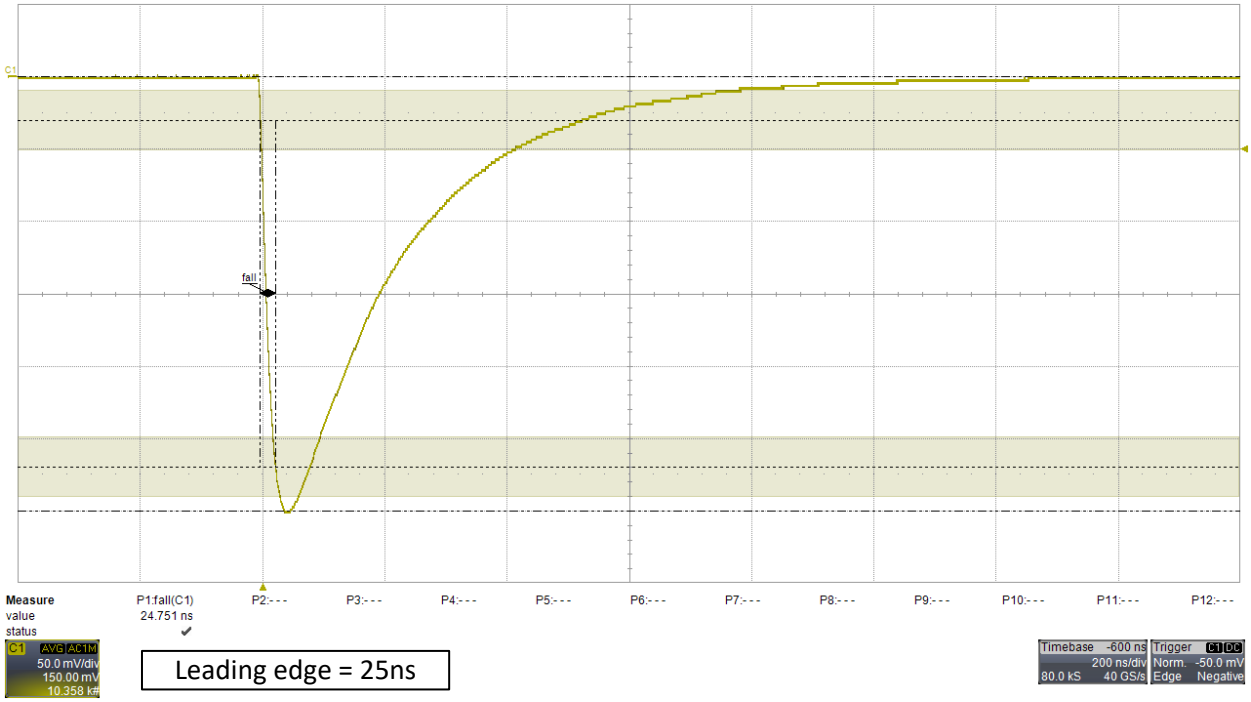


Pin	Function	Pin	Function
1	-VA	2	Ground
3	+VA	4	Ground
5	+Bias	6	Ground
7	Temperature	8	Ground
9	Sum	10	Ground

Typical Signals

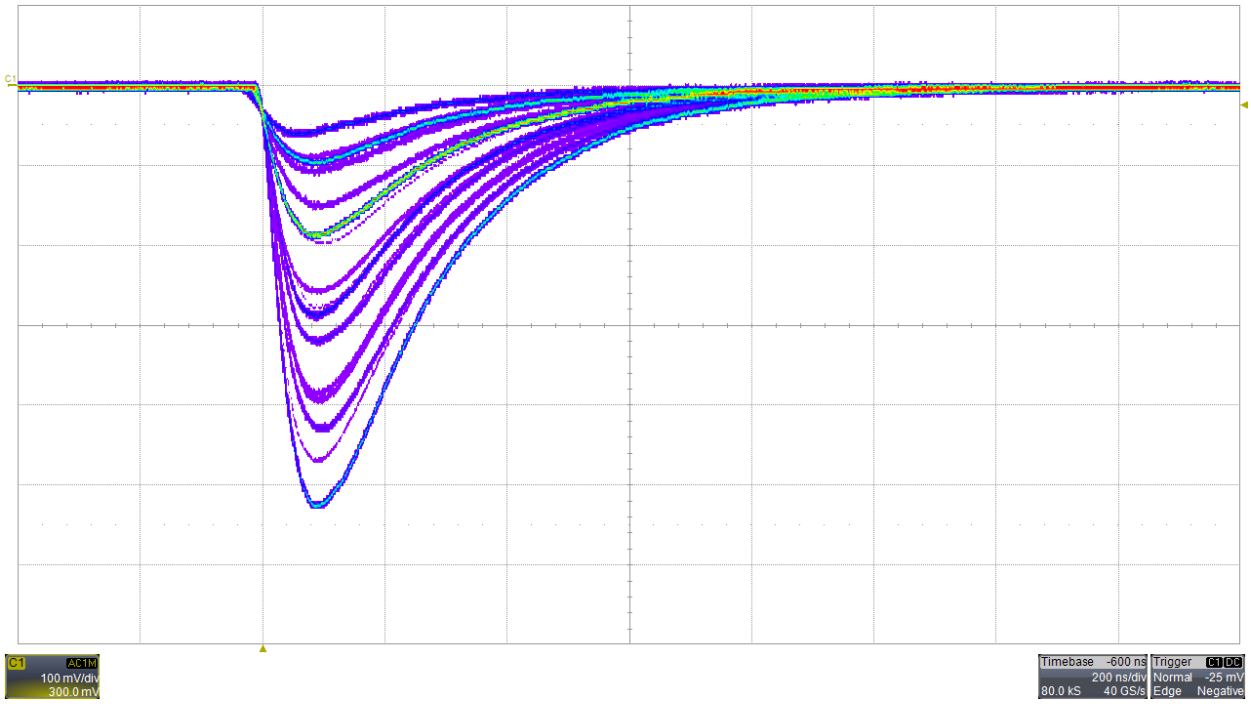
ArrayC, resistor coupling, quadrant signal

Source = Laser; Bias = +30V



Leading edge = 25ns

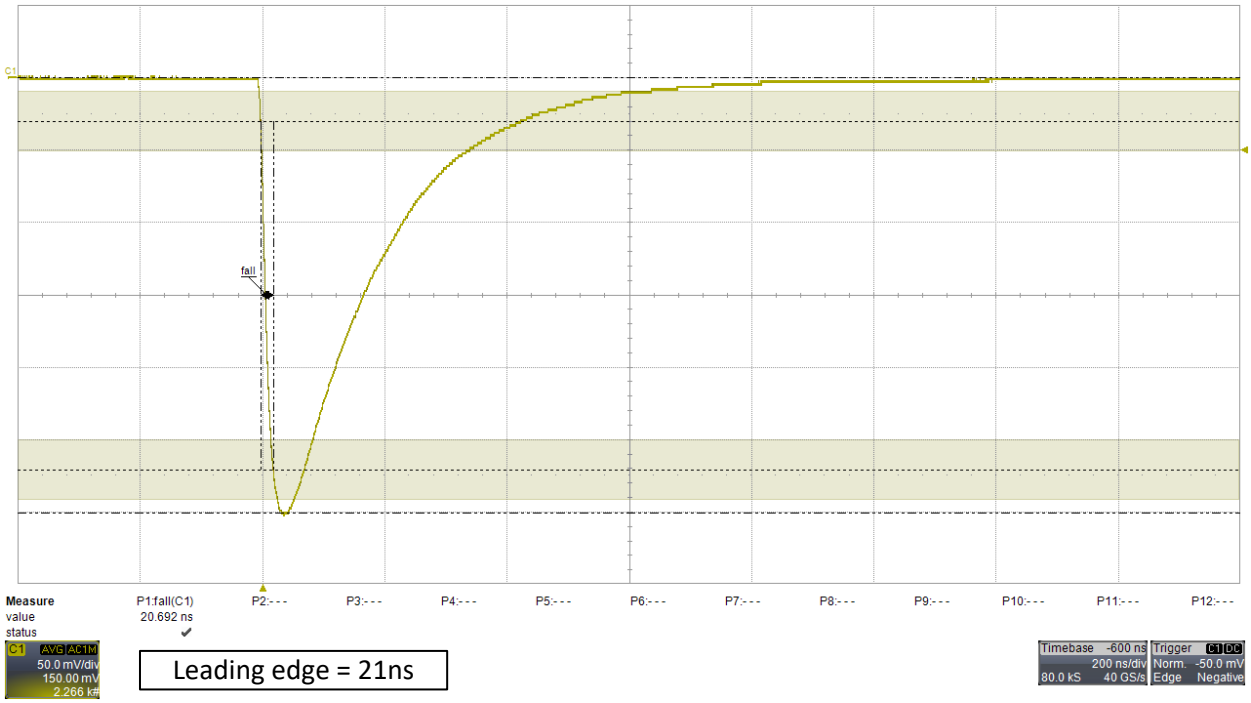
Source = LYSO emission; Bias = +30V; persistence display



Typical Signals

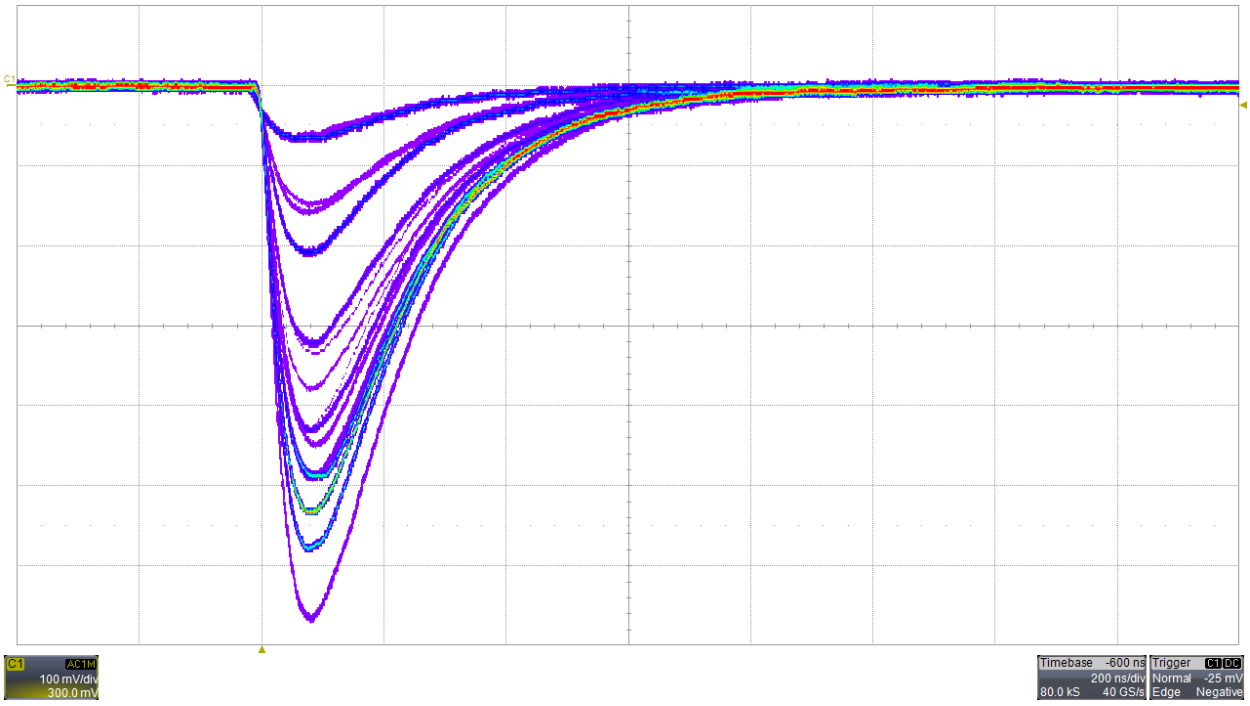
ArrayC, resistor coupling, sum signal

Source = Laser; Bias = +30V



Leading edge = 21ns

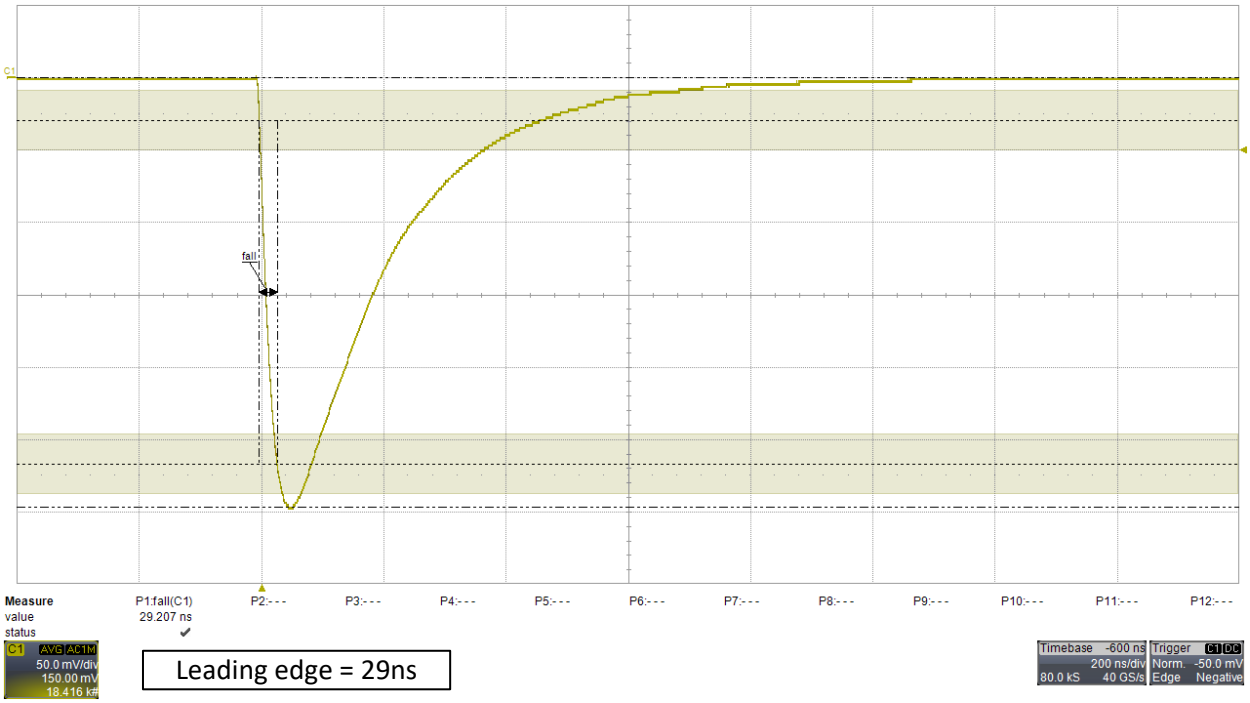
Source = LYSO emission; Bias = +30V; persistence display



Typical Signals

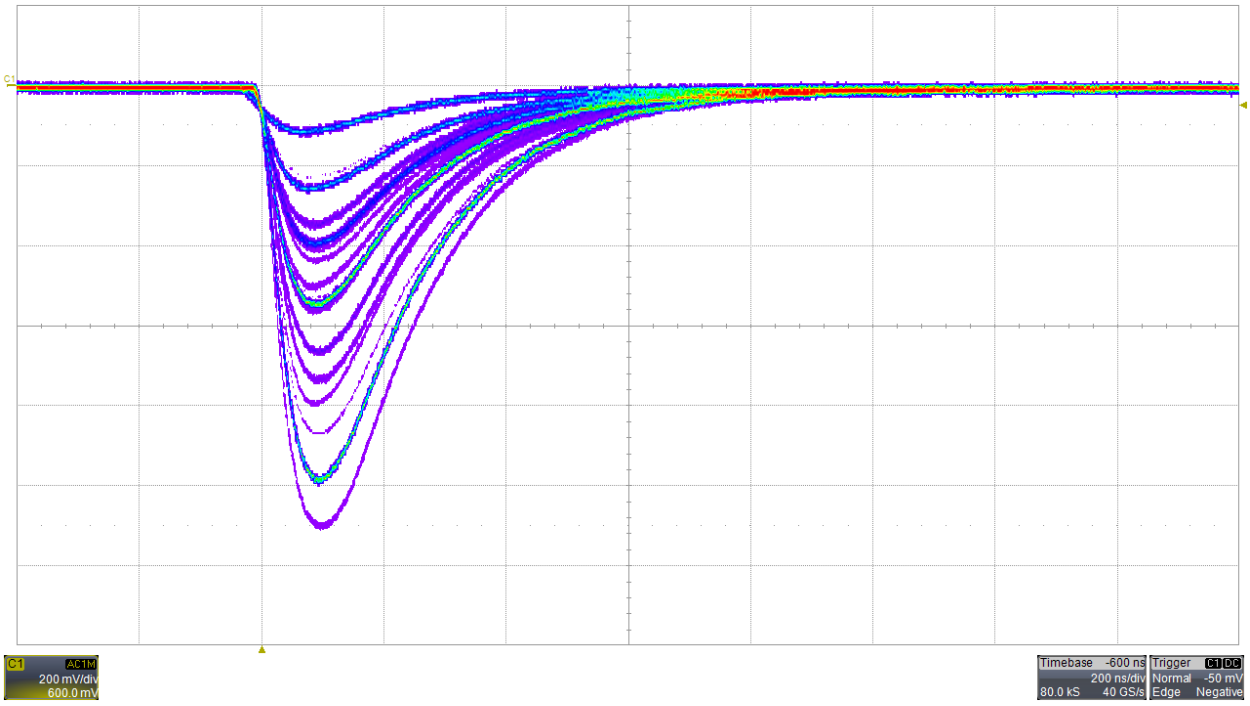
ArrayJ, resistor coupling, quadrant signal

Source = Laser; Bias = +30V



Leading edge = 29ns

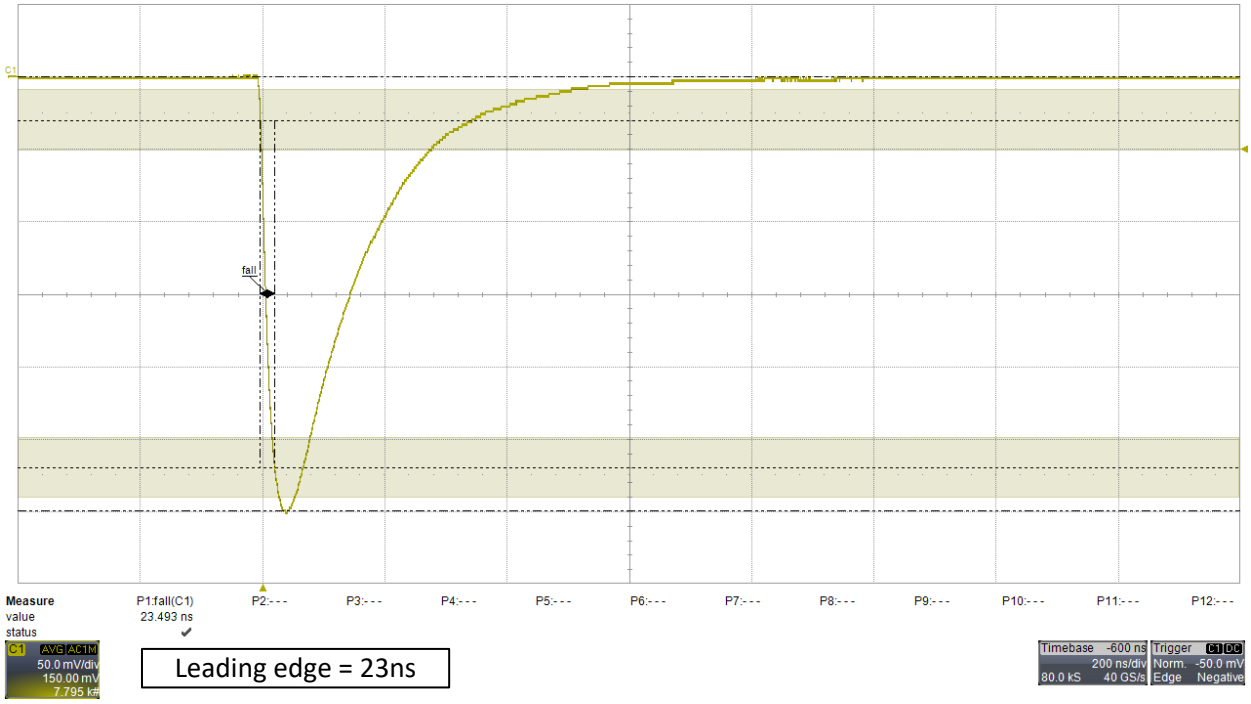
Source = LYSO emission; Bias = +30V; persistence display



Typical Signals

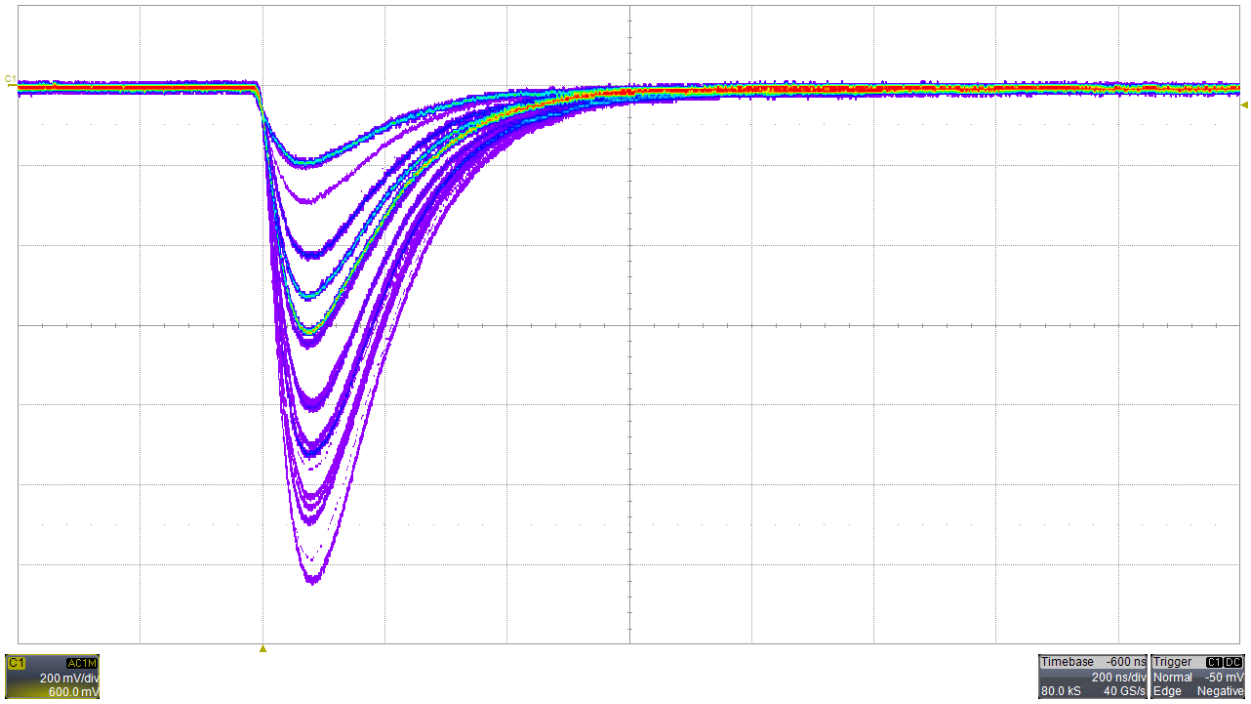
ArrayJ, resistor coupling, sum signal

Source = Laser; Bias = +30V



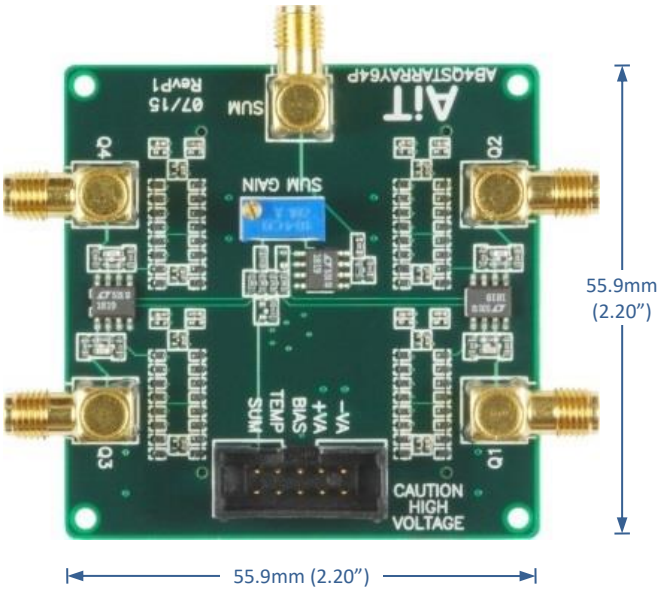
Leading edge = 23ns

Source = LYSO emission; Bias = +30V; persistence display

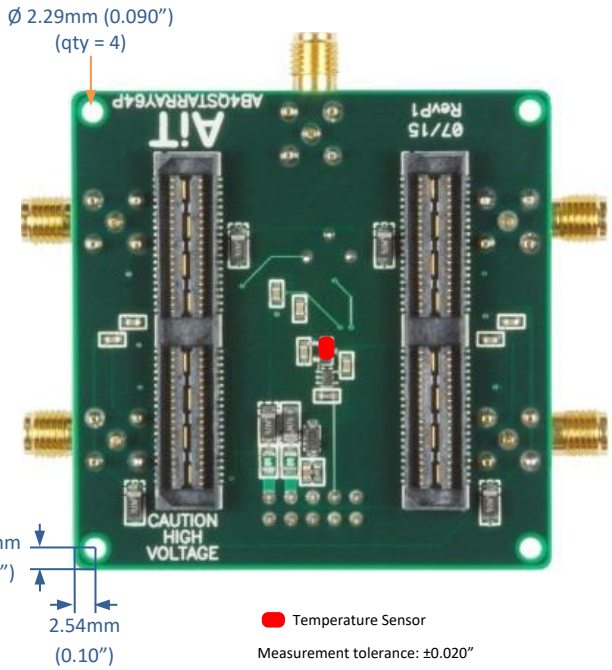


Mechanical

Front View



Back View



Horizontal SMA connector version shown

Safety Information

WARNING – High Voltage

- High voltage may be present during operation
- High voltage stored on capacitors may be present after power is removed
- Improper handling may result in personnel injury or equipment damage

This high-voltage device must be used only by personnel trained and qualified in safe handling, installation, and operation of high-voltage equipment.

CAUTION – Electrostatic Discharge (ESD) Sensitivity

The circuit board can be damaged by electrostatic discharge. Observe precautions for handling electrostatic sensitive devices. Handle only at static-safe workstations.

High-Gain Photodetectors

High-gain photodetectors such as silicon photomultipliers may conduct damaging currents if exposed to high optical signal levels while the bias voltage is applied, or if the bias voltage exceeds the recommended operating range. These devices must be operated only in low-light conditions, and only within the manufacturer's recommended bias voltage range.

Handling and Disassembly

This product may be provided with a protective enclosure. Disassembled enclosure components and circuit boards may contain sharp edges. Take appropriate safety precautions while assembling or disassembling the enclosure and handling disassembled components.

Indoor Use Only

Do not operate this product in a wet/damp environment. Do not operate in an explosive atmosphere.