

## Features

Supports the Onsemi 8x8 array of 6mm SiPMs

ArrayC-60035-64P-PCB

ArrayJ-60035-64P-PCB

“VB” variant: Signal connector located on the back, array located on the front

3-side tileable installation for ArrayC

2-side tileable installation for ArrayJ

Compatible with the AiT Passive Base Amplifiers  
PBA116 and PBA216, transimpedance version

Bias and coupling circuits only, no amplifiers

Patented diode-coupled charge division readout,  
superior to traditional resistive readout

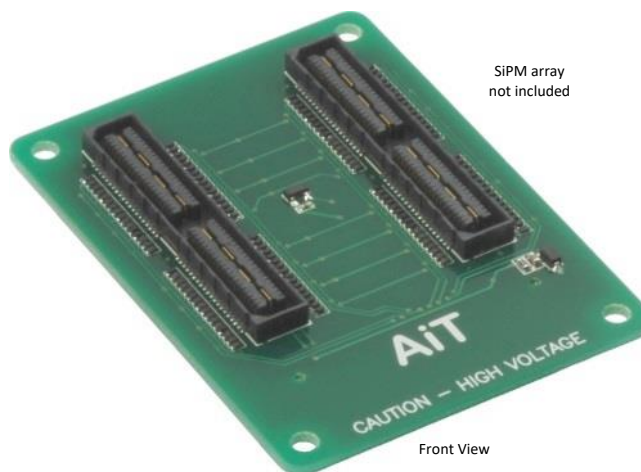
Improved spatial uniformity

Faster rise time

Reduced image noise

Precision temperature sensor

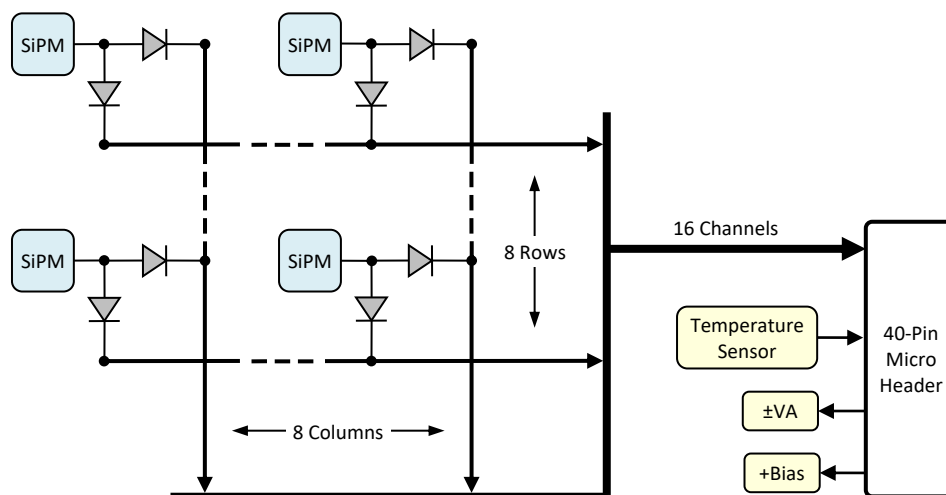
Mounting holes for #4 or M3 hardware



Front View



Back View



## Specifications

### Position Signal Output

Encoding 8 rows and 8 columns

### Temperature Sensor

Output voltage 500mV + 10mV per °C

Output current 10mA

Output impedance 100Ω

Accuracy ±0.5°C

Power requirements +VA = +2.5V → +5.5V, < 1mA

### Bias Voltage

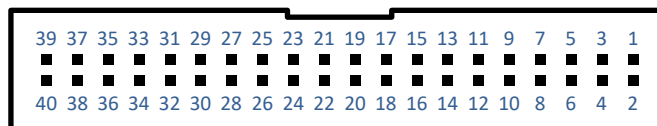
Voltage clamp 47V Zener diode  
500mW maximum

### Signal Connector

Vertical 40-pin 2-row latch-eject header, 0.050" pin pitch

Mating assembly Samtec FFSD-20-D-XX.XX-01-N  
XX.XX = length in inches

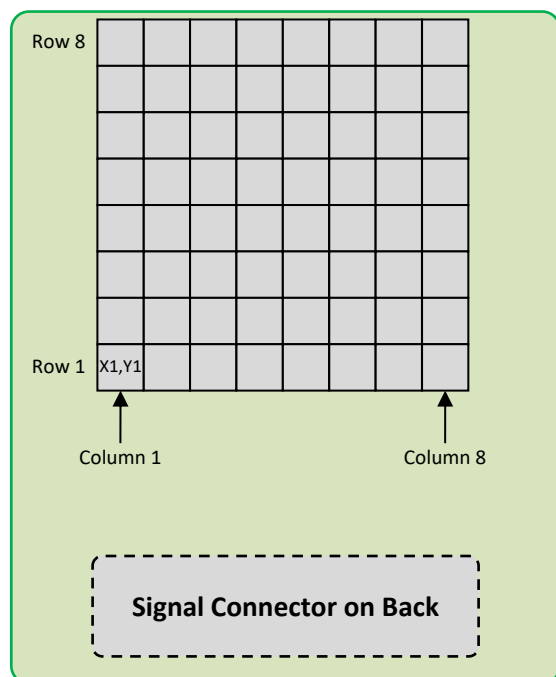
## Signal Connector



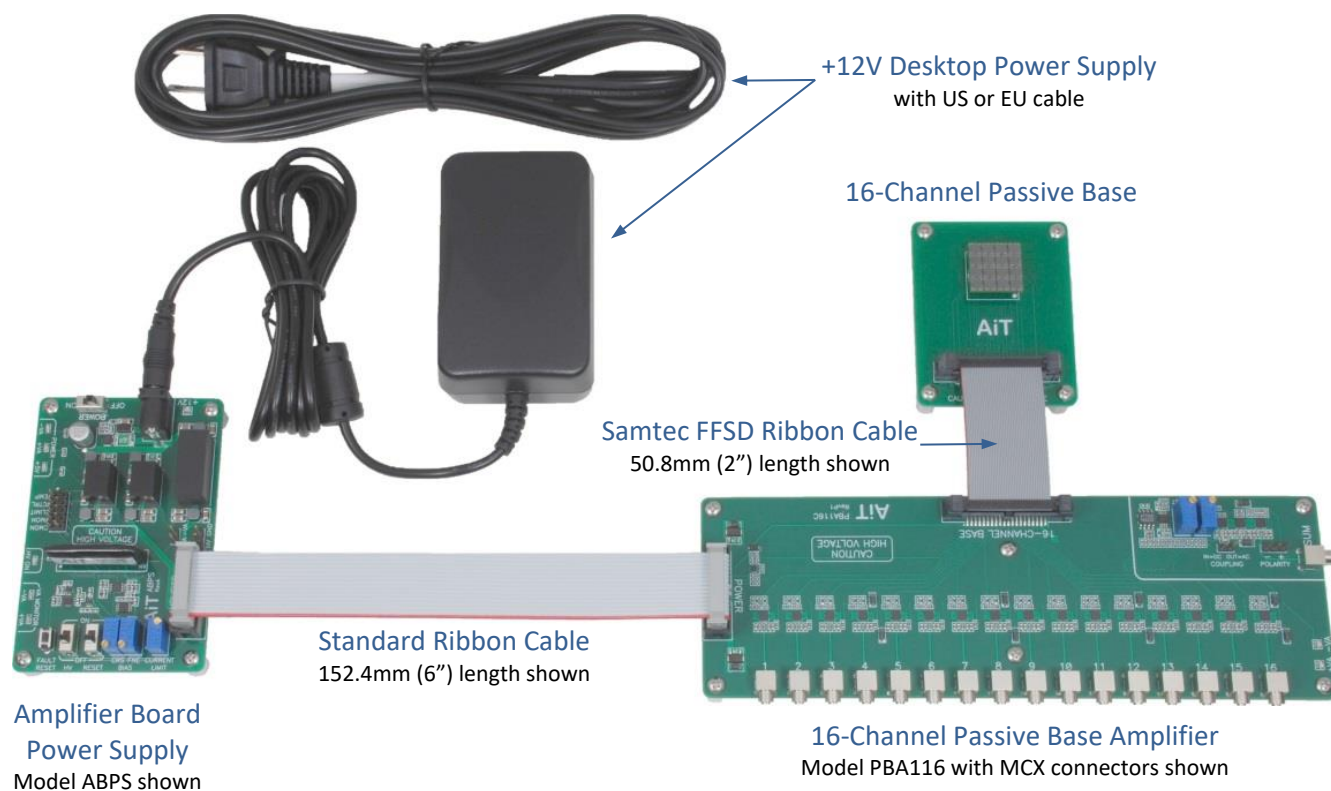
40-pin 0.050" vertical latch-eject header

Pin	Function	Pin	Function
1	Bias	2	Ground
3	Temperature	4	Ground
5	Row 1	6	Ground
7	Row 2	8	Ground
9	Row 3	10	Ground
11	Row 4	12	Ground
13	Row 5	14	Ground
15	Row 6	16	Ground
17	Row 7	18	Ground
19	Row 8	20	Ground
21	Column 1	22	Ground
23	Column 2	24	Ground
25	Column 3	26	Ground
27	Column 4	28	Ground
29	Column 5	30	Ground
31	Column 6	32	Ground
33	Column 7	34	Ground
35	Column 8	36	Ground
37	-VA	38	Ground
39	+VA	40	Ground

## Channel Map



## 16-Channel Passive Base Readout Kit



### Components

Each component is available separately. Refer to each datasheet for details.

No accessories are included with the Passive Base.

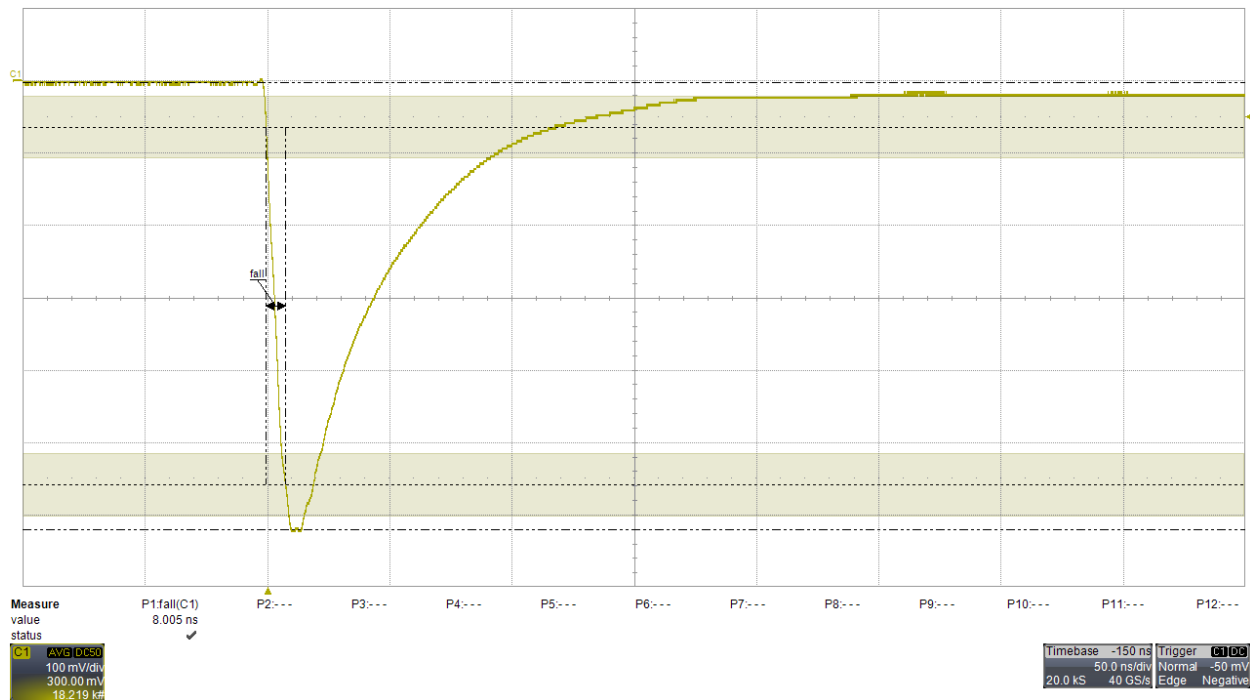
The Amplifier Board Power Supply includes a 12V desktop power supply and a HV80 bias voltage power supply.

The 16-channel Passive Base Amplifier includes a FFSD cable to connect the passive base, a power supply ribbon cable, and a breakout board to connect any external power supply.

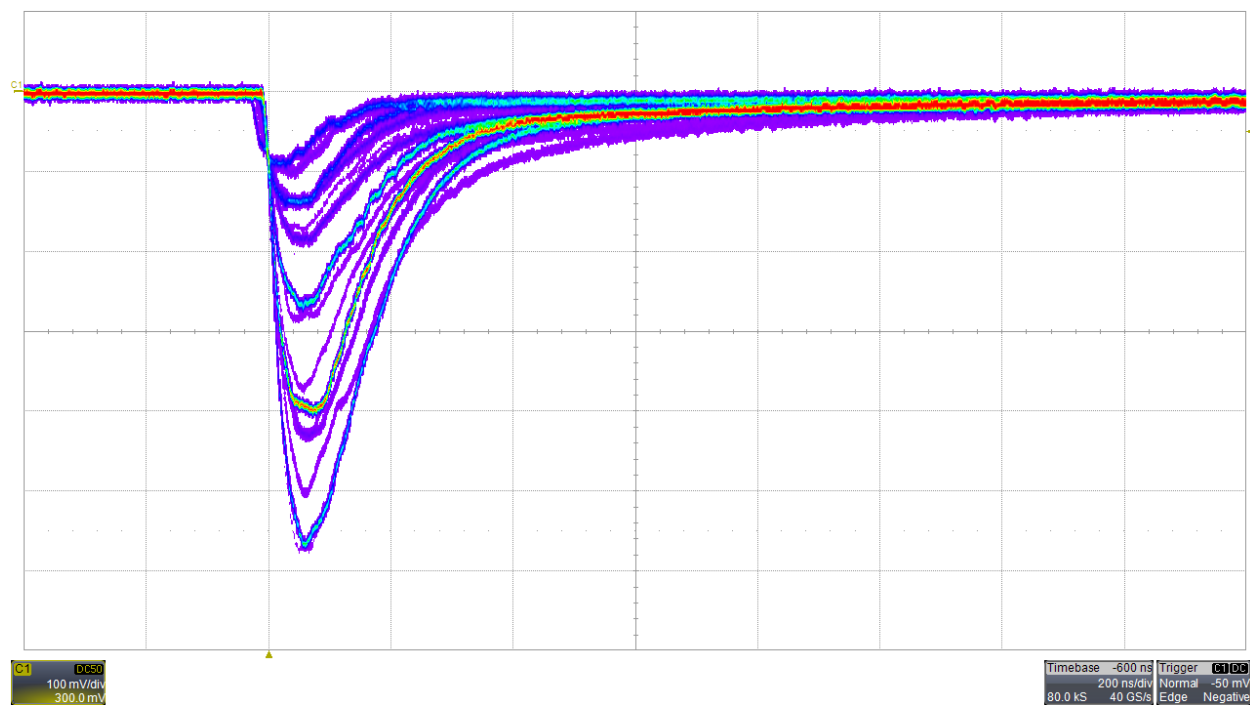
## Typical Signals

### ArrayC-60035-64P-PCB, Transimpedance amplifier, 500Ω gain

Source = Laser; PBA116 channel 1; Bias = +30V; FFSD cable length = 152.4mm (6")

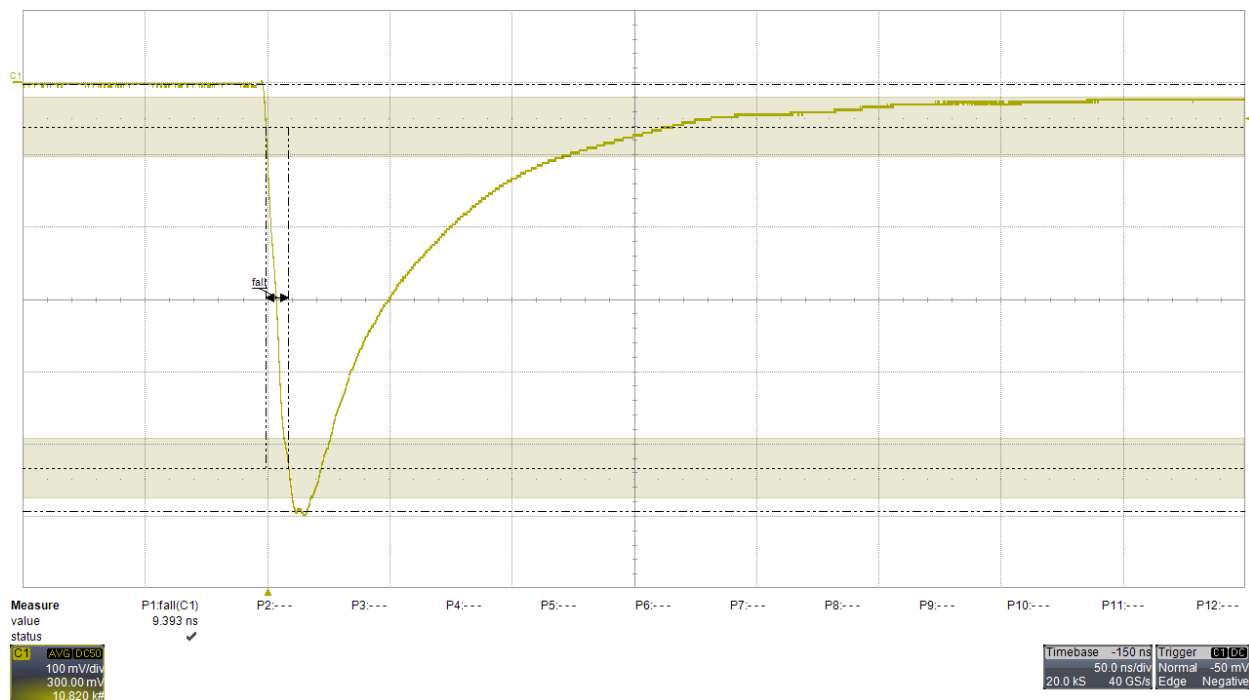


Source = LYSO emission; PBA116 channel 1; Bias = +30V; FFSD cable length = 152.4mm (6"); signal persistence

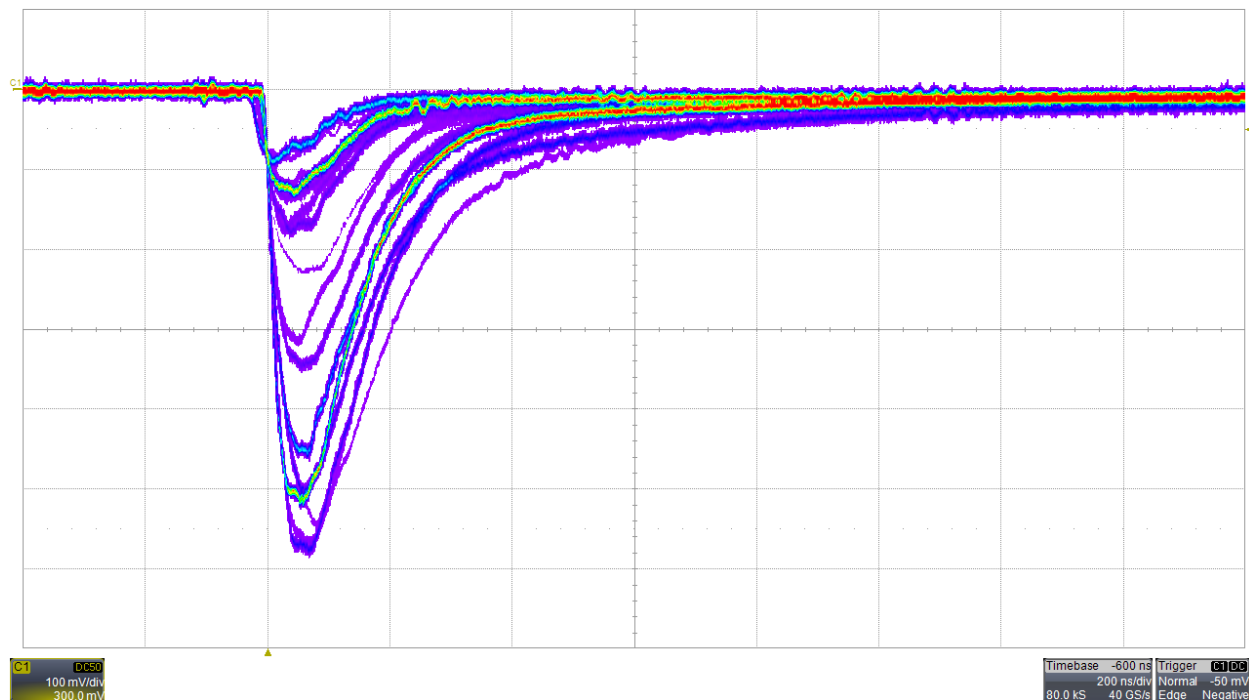


**FFSD cable length = 305mm (12")**

Source = Laser; PBA116 channel 1; Bias = +30V; FFSD cable length = 304.8mm (12")



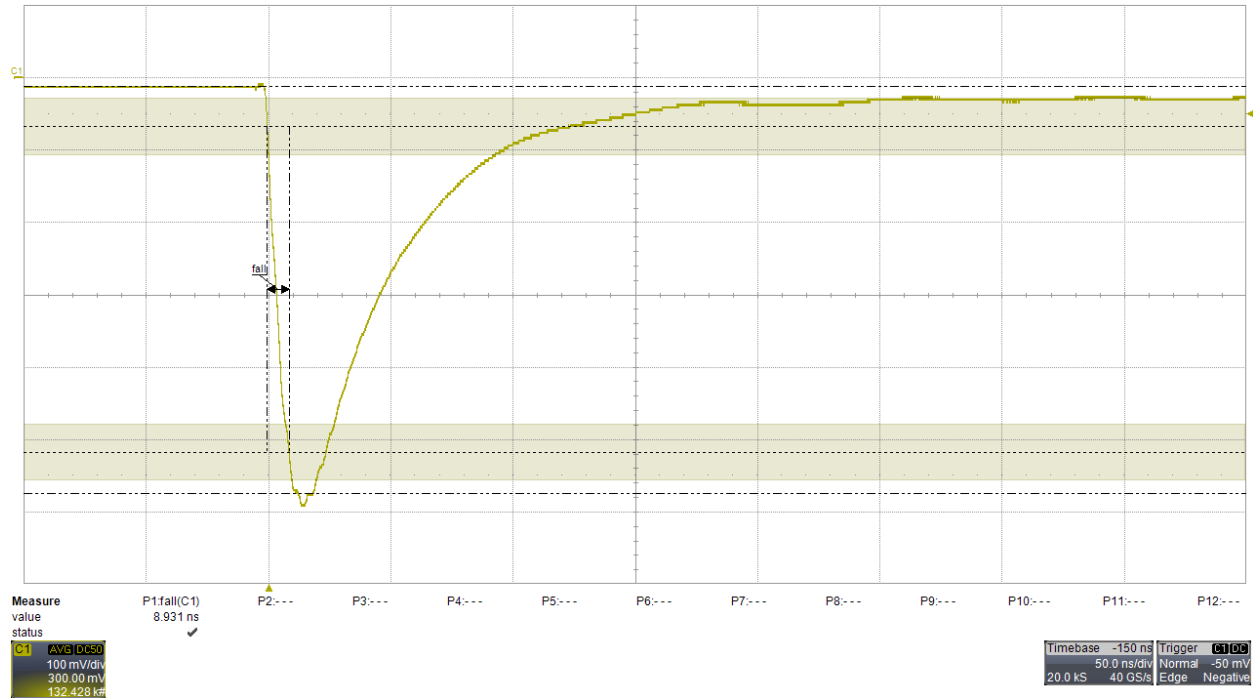
Source = LYSO emission; PBA116 channel 1; Bias = +30V; FFSD cable length = 305mm (12"); signal persistence



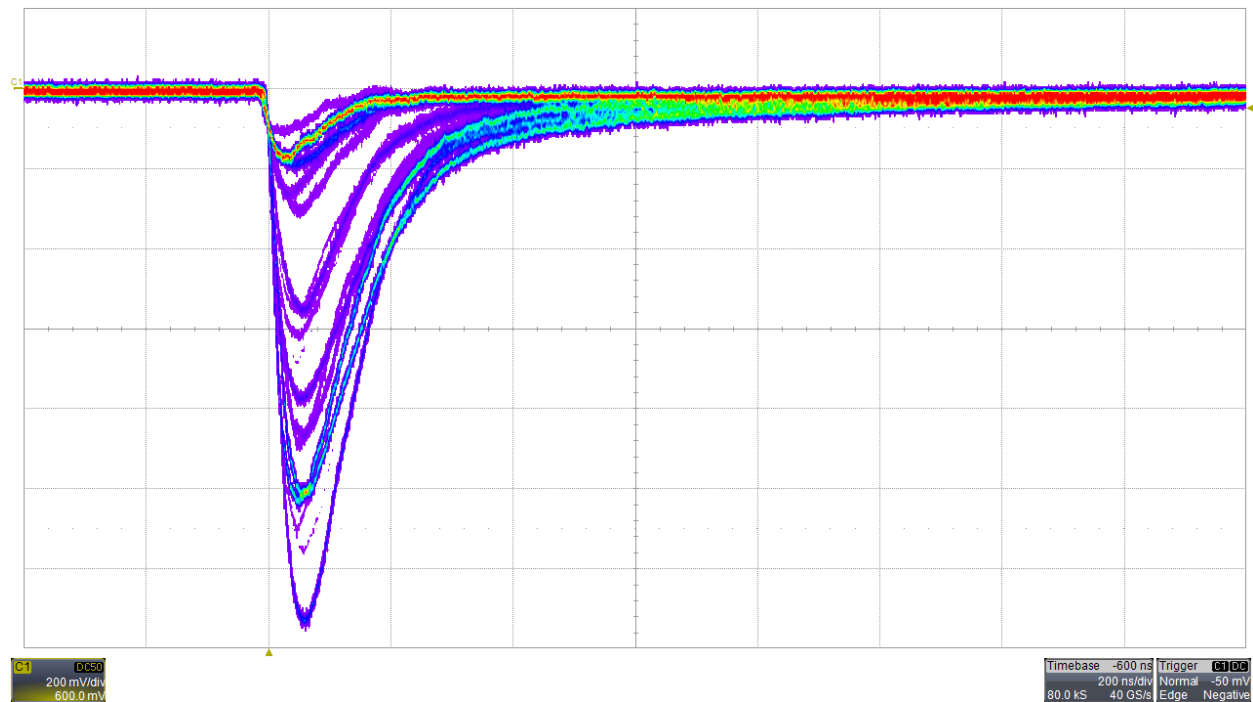
## Typical Signals

### ArrayJ-60035-64P-PCB, Transimpedance amplifier, 500Ω gain

Source = Laser; PBA116 channel 1; Bias = +30V; FFSD cable length = 152.4mm (6")

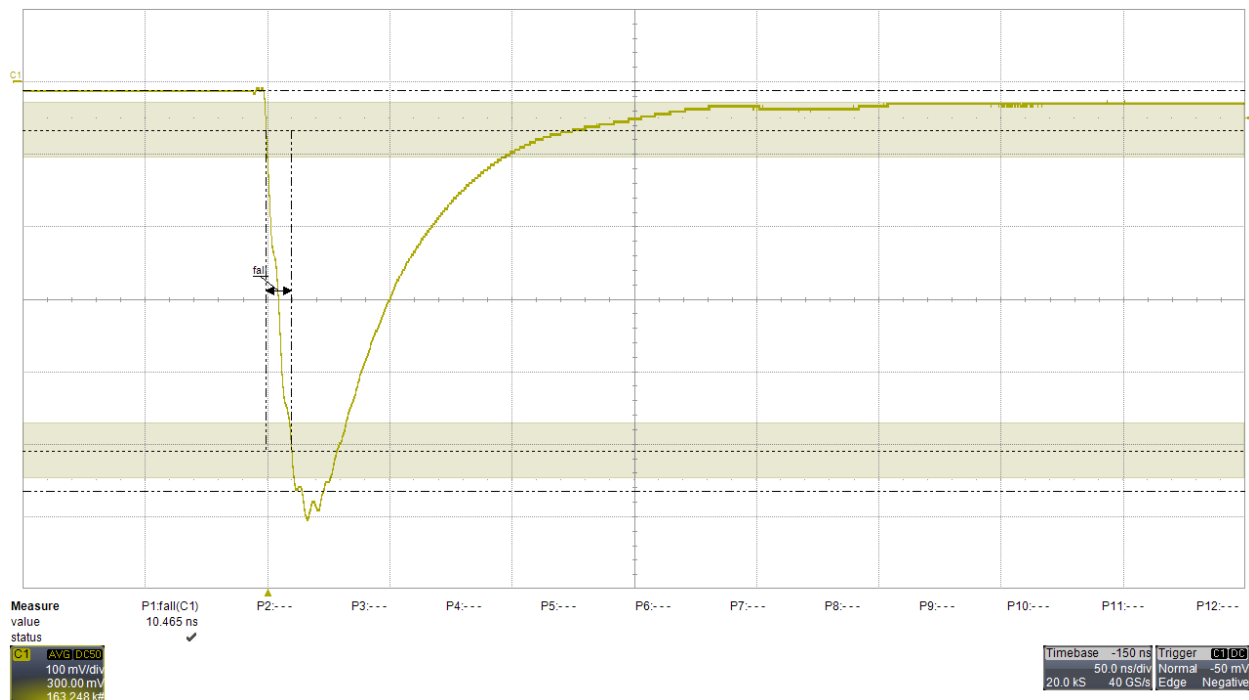


Source = LYSO emission; PBA116 channel 1; Bias = +30V; FFSD cable length = 152.4mm (6"); signal persistence

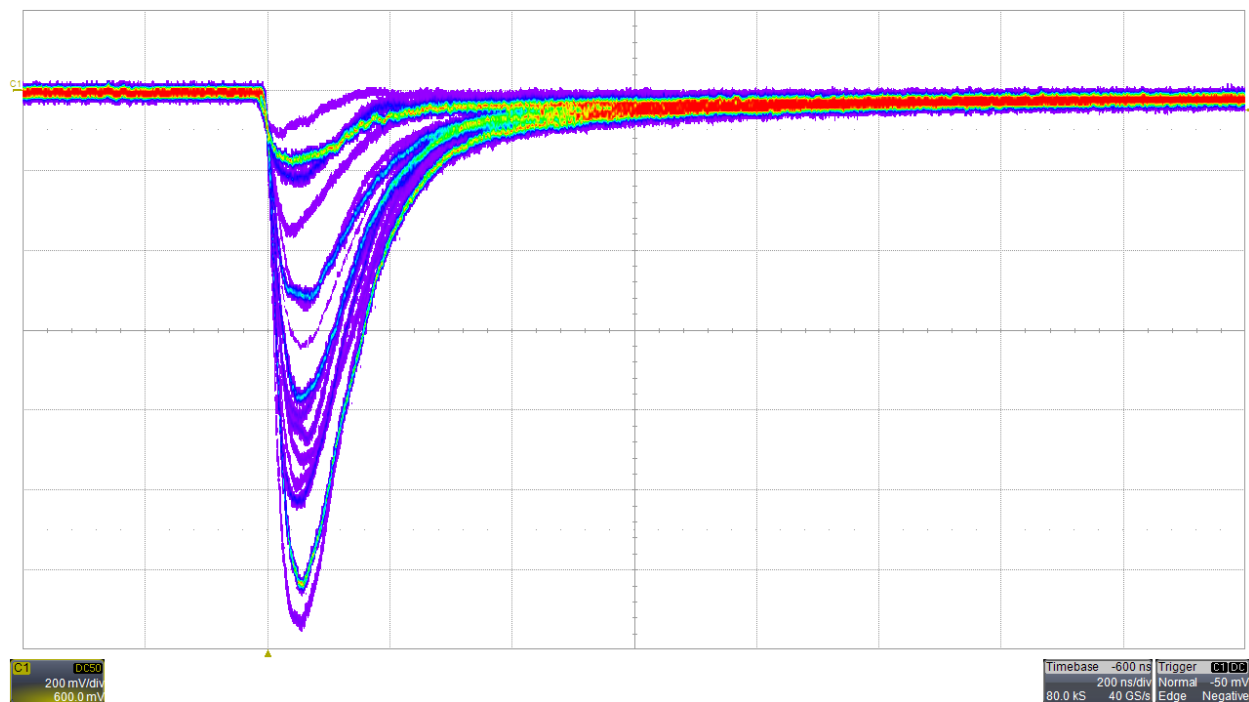


**FFSD cable length = 305mm (12")**

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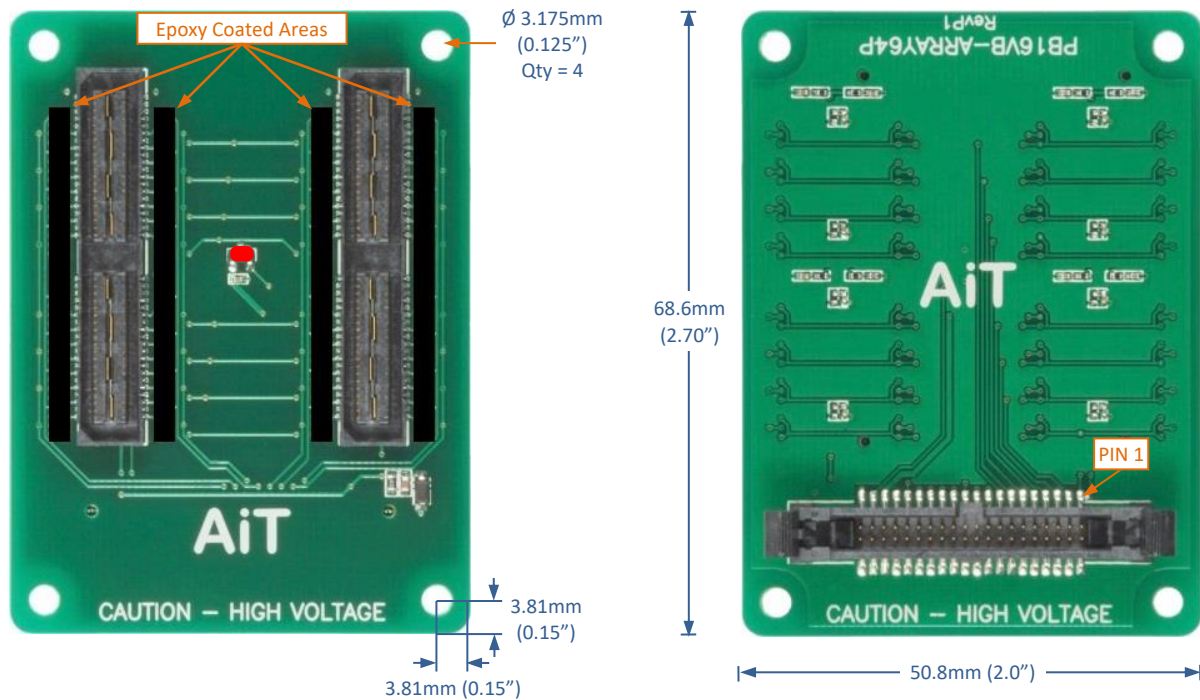


Source = LYSO emission; PBA116 channel 1; Bias = +30V; FFSD cable length = 304.8mm (12"); signal persistence

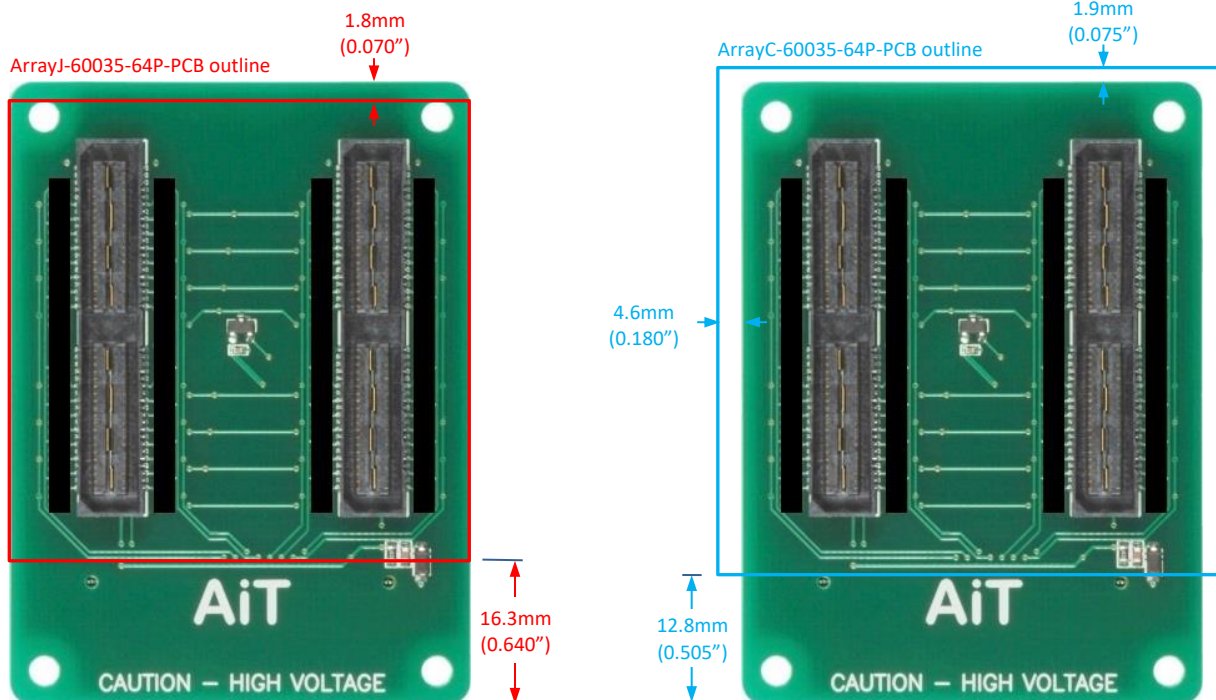




## Mechanical



● Temperature sensor  
Measurement tolerance:  $\pm 0.020^\circ$





## 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 or damp environment. Do not operate in an explosive atmosphere.

Use of this product, and AiT Instruments' liability related to use of this product, is further governed by AiT Instruments' standard terms and conditions of sale, which were provided upon purchase of this product.