Features

Supports one Onsemi ArrayC/J-60065-64P-PCB 8x8 array of 6mm SiPMs

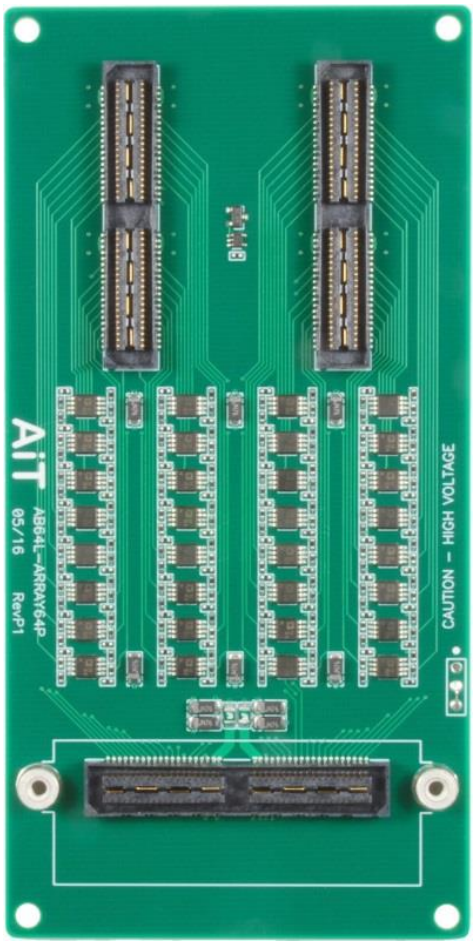
Horizontal signal connector on the front, array located on the front

Wideband amplifier per SiPM

- DC-coupled signal path
- Low power consumption

Precision temperature sensor

Mounting holes for M3 or #4 hardware



Array not included

Specifications

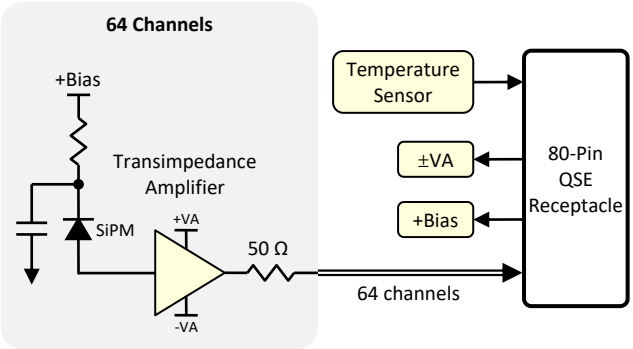
SiPM Signal Amplifiers

Gain	750Ω transimpedance gain
Rise time	< 20ns
Output voltage	0 → -1V into 50Ω load
Output impedance	50Ω
Output current	50mA maximum

Temperature Sensor

Output voltage	500mV + 10mV per °C
Output current	10mA
Output impedance	50Ω
Accuracy	±0.5°C

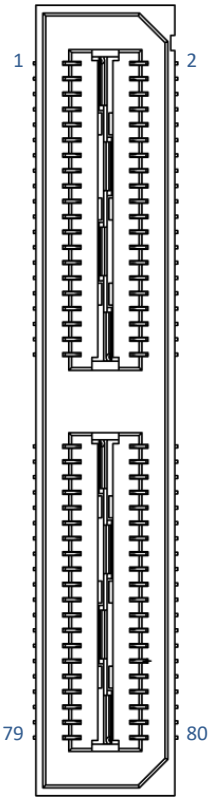
Bias Voltage	+28V typical (refer to SiPM data)
Voltage clamp	47V Zener diode 500mW maximum
Amplifier Power (±VA)	±2.8V → ±5.5V maximum
Current	±100mA typical (Iq, no signal, no load)
Signal Connector	Samtec QSE-040-01-F-D-A
Mating Cable Assembly	EQCD-040-XX.XX-TTR-TED-1-B (XX.XX = length in inches)



Signal Connector

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	ADC 1	21	ADC 21	41	-VA	61	ADC 45
2	ADC 2	22	ADC 22	42	reserved	62	ADC 46
3	ADC 3	23	ADC 23	43	-VA	63	ADC 47
4	ADC 4	24	ADC 24	44	reserved	64	ADC 48
5	ADC 5	25	ADC 25	45	reserved	65	ADC 49
6	ADC 6	26	ADC 26	46	reserved	66	ADC 50
7	ADC 7	27	ADC 27	47	reserved	67	ADC 51
8	ADC 8	28	ADC 28	48	reserved	68	ADC 52
9	ADC 9	29	ADC 29	49	ADC 33	69	ADC 53
10	ADC 10	30	ADC 30	50	ADC 34	70	ADC 54
11	ADC 11	31	ADC 31	51	ADC 35	71	ADC 55
12	ADC 12	32	ADC 32	52	ADC 36	72	ADC 56
13	ADC 13	33	Temperature	53	ADC 37	73	ADC 57
14	ADC 14	34	+VA Monitor	54	ADC 38	74	ADC 58
15	ADC 15	35	+Vbias	55	ADC 39	75	ADC 59
16	ADC 16	36	-VA Monitor	56	ADC 40	76	ADC 60
17	ADC 17	37	+VA	57	ADC 41	77	ADC 61
18	ADC 18	38	ID Resistor	58	ADC 42	78	ADC 62
19	ADC 19	39	+VA	59	ADC 43	79	ADC 63
20	ADC 20	40	reserved	60	ADC 44	80	ADC 64

80 pin QSE Receptacle



Center beam = Ground

Function = MDU3 ADC channel except where noted

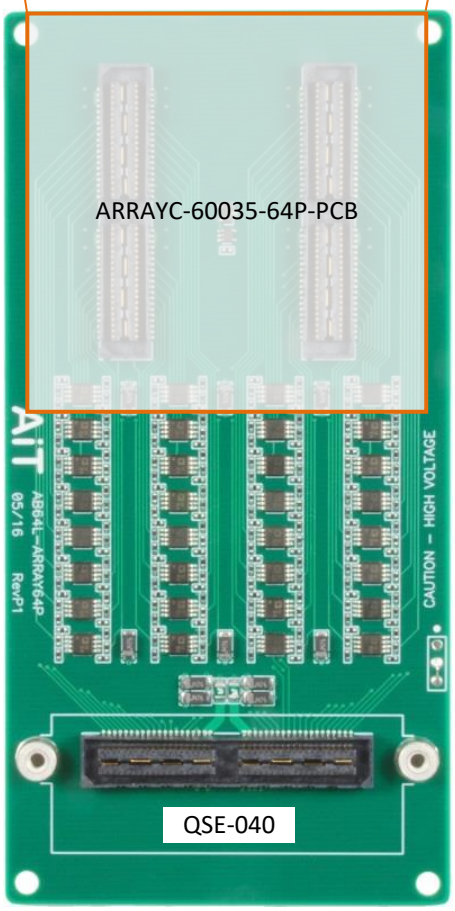
SiPM Channel Map

SiPM Location	QSE Pin	*ADC Channel	SiPM Location	QSE Pin	*ADC Channel
1	72	56	33	24	24
2	69	53	34	21	21
3	66	50	35	18	18
4	68	52	36	20	20
5	80	64	37	29	29
6	77	61	38	31	31
7	75	59	39	27	27
8	73	57	40	25	25
9	71	55	41	23	23
10	70	54	42	22	22
11	65	49	43	17	17
12	67	51	44	19	19
13	79	63	45	32	32
14	78	62	46	30	30
15	76	60	47	28	28
16	74	58	48	26	26
17	58	42	49	10	10
18	60	44	50	12	12
19	62	46	51	14	14
20	64	48	52	16	16
21	51	35	53	1	1
22	49	33	54	4	4
23	54	38	55	6	6
24	55	39	56	7	7
25	57	41	57	9	9
26	59	43	58	11	11
27	63	47	59	15	15
28	61	45	60	13	13
29	52	36	61	2	2
30	50	34	62	3	3
31	53	37	63	5	5
32	56	40	64	8	8

* ADC Channel for the MDU3-GI64

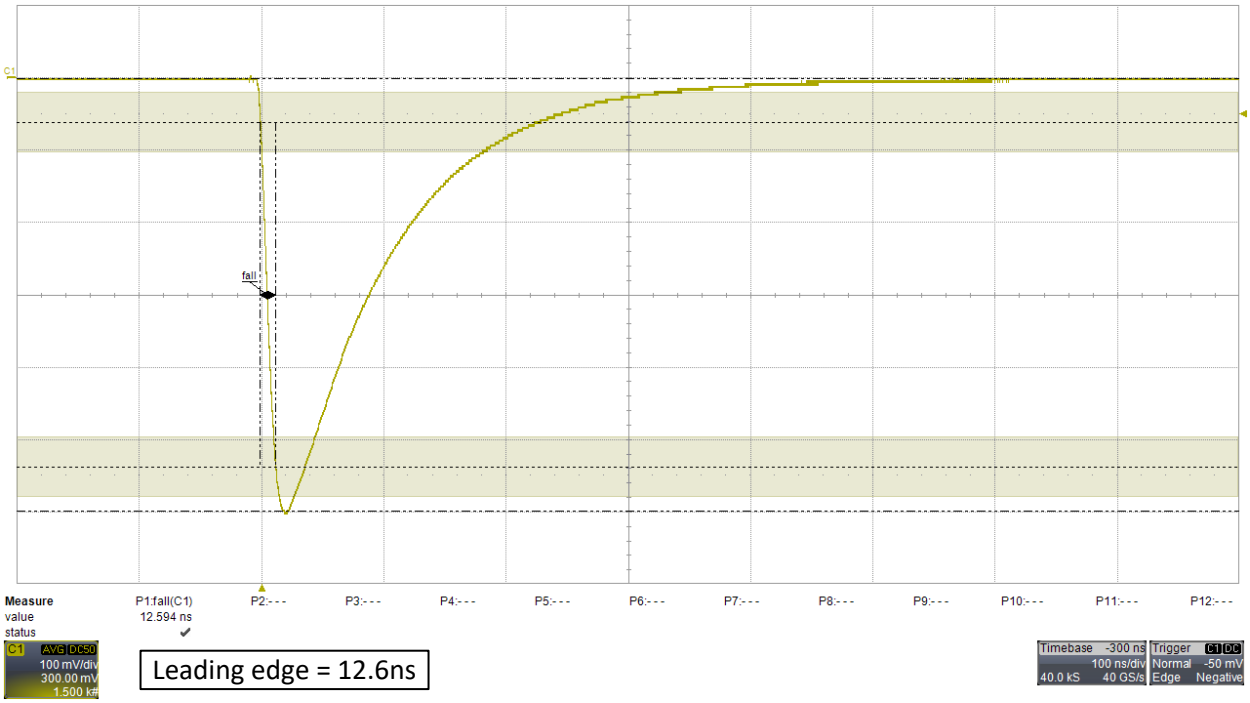
1	9	17	25	33	41	49	57
2	10	18	26	34	42	50	58
3	11	19	27	35	43	51	59
4	12	20	28	36	44	52	60
5	13	21	29	37	45	53	61
6	14	22	30	38	46	54	62
7	15	23	31	39	47	55	63
8	16	24	32	40	48	56	64

SiPM Location



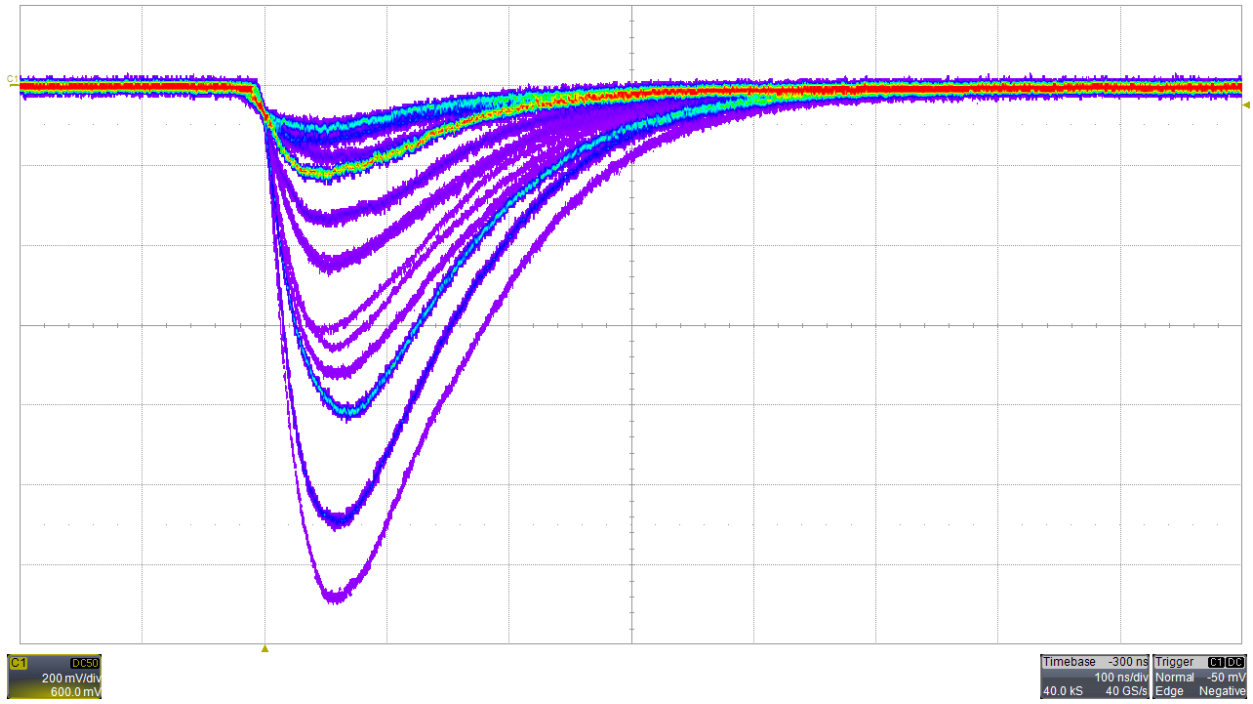
Typical Signals: ArrayC

Source = Laser; Bias = +27V; averaged signal



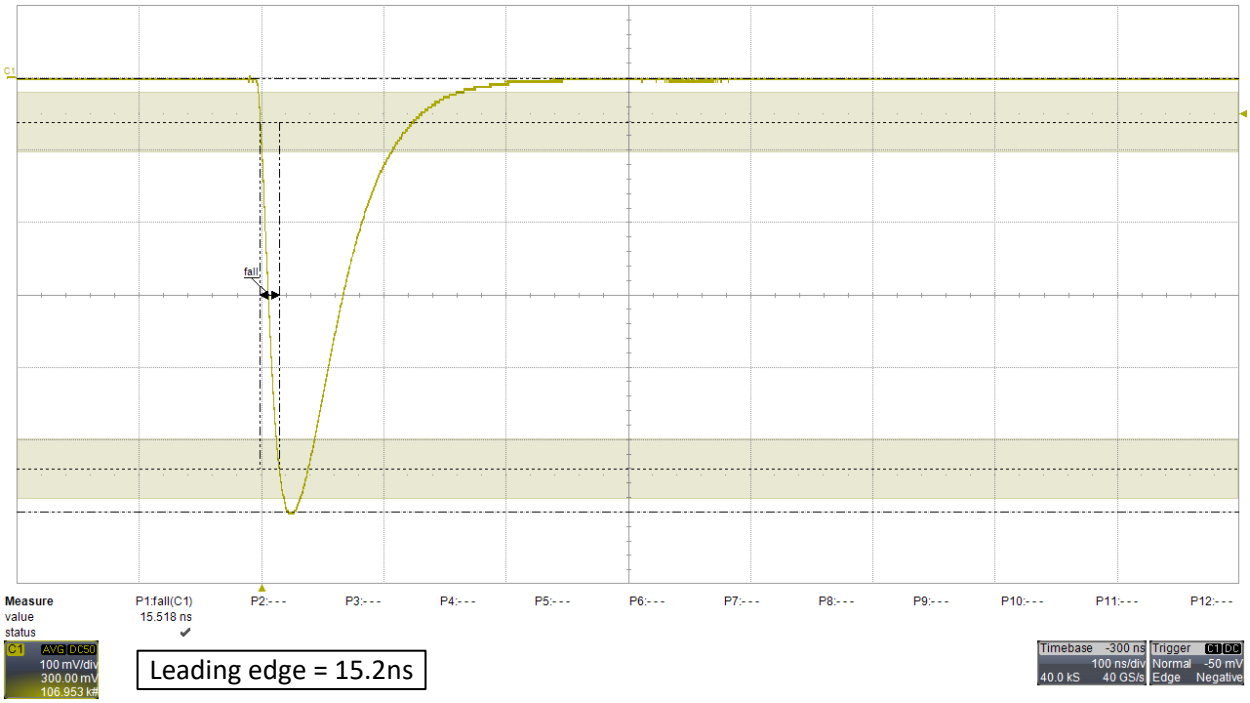
Leading edge = 12.6ns

Source = LYSO emission; Bias = +27V; persistence display



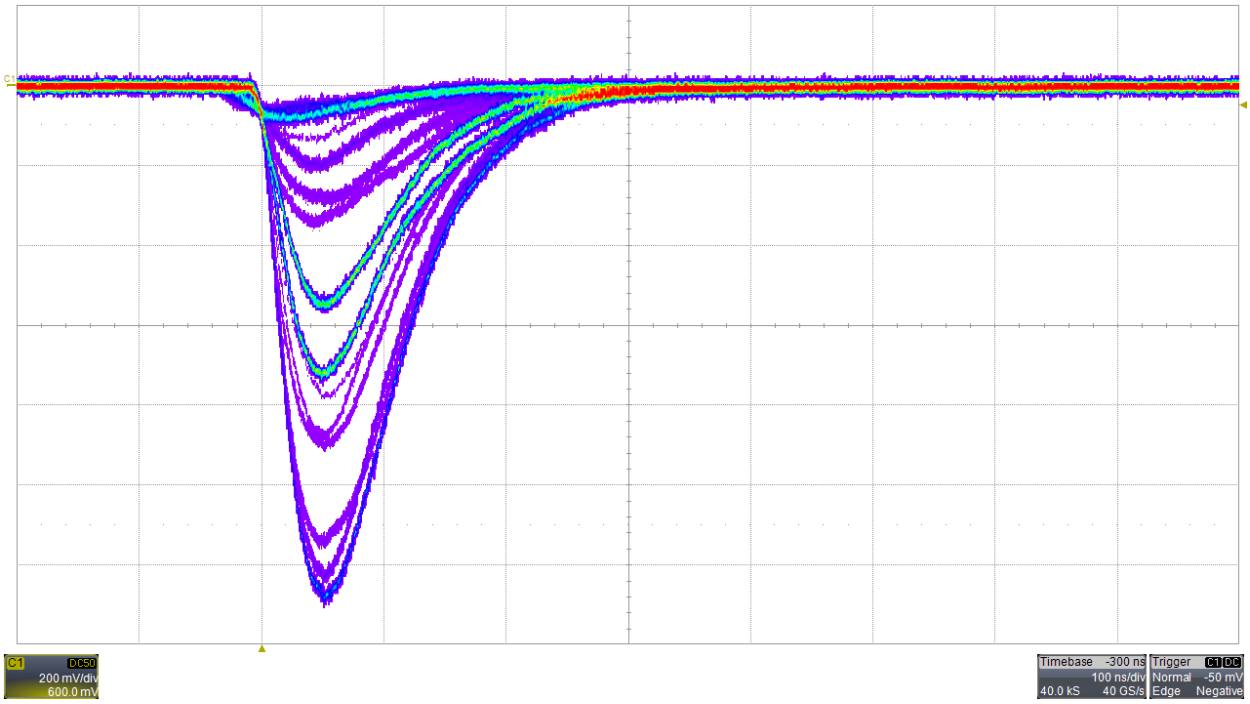
Typical Signals: ArrayJ

Source = Laser; Bias = +27V; averaged signal



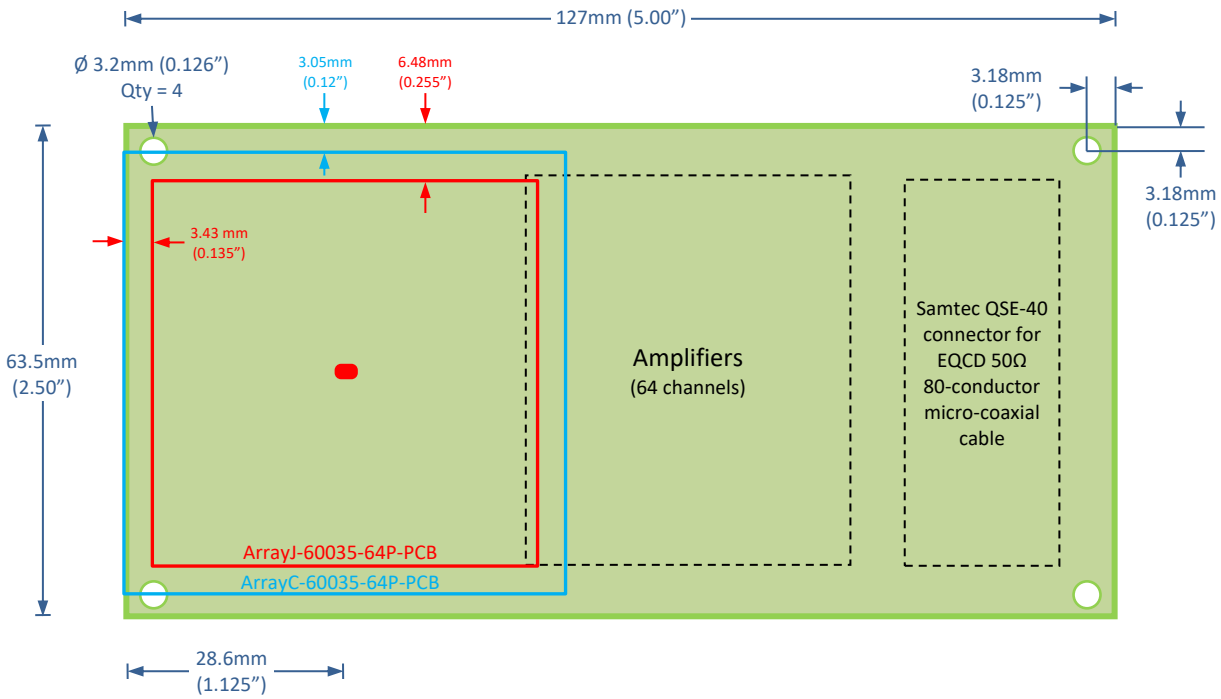
Leading edge = 15.2ns

Source = LYSO emission; Bias = +27V; persistence display



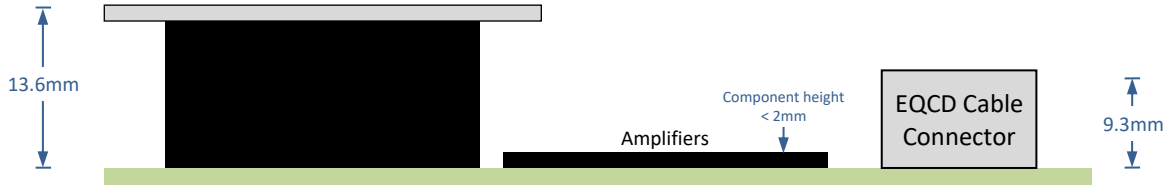
Mechanical

Top View



Drawings not to scale

Side View



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.