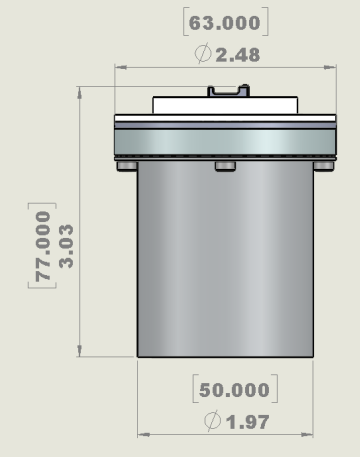
SiPM-1000 Pinouts

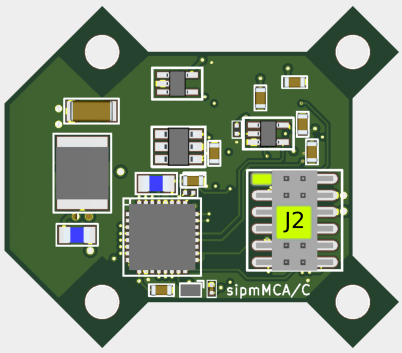
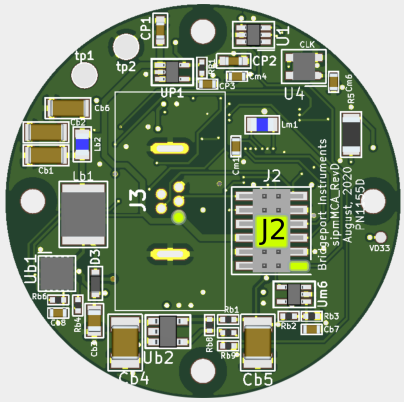
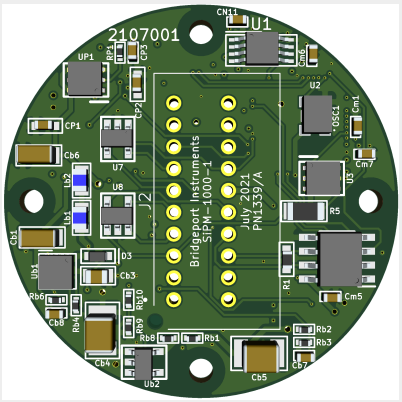
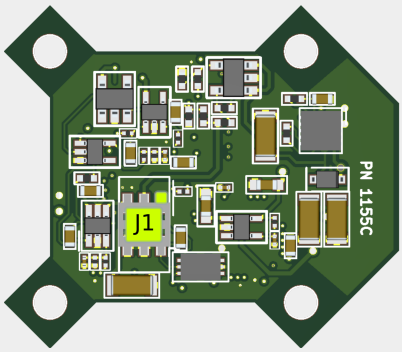
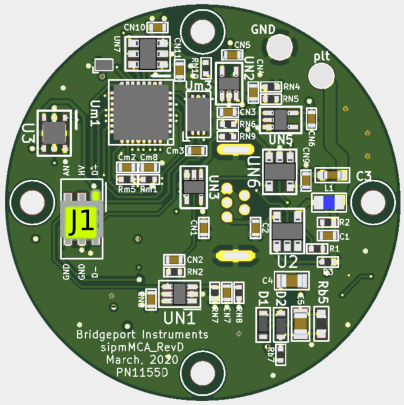
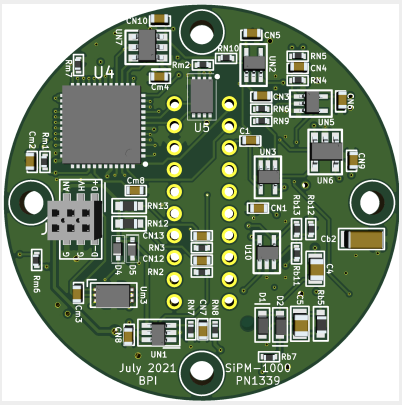


A SiPM-1000 Assembly

There exist three PCB variants. P/N 1155/C has the smallest size, while 1155/D includes a line driver for TrigOut and a switched-mode power supply for a Peltier cooler. The 1339 has added GPIO, RS-232 and RS-485 connectivity.

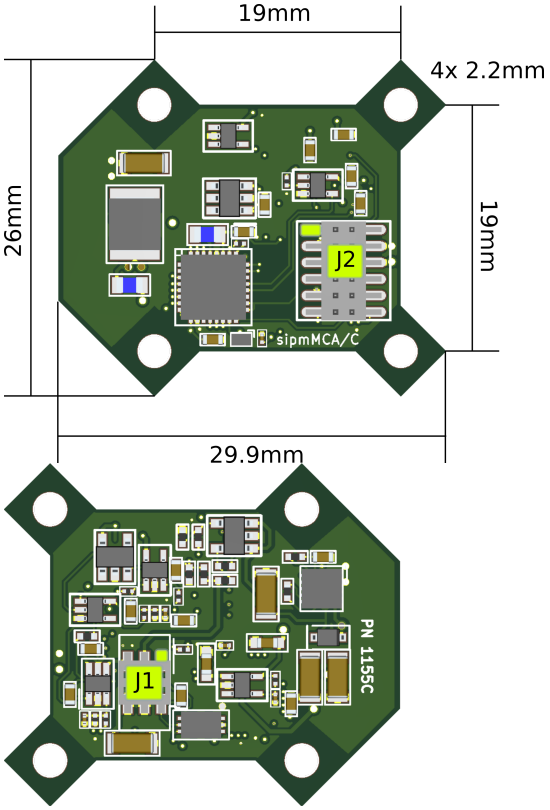
Three PC-board variants			
Feature	***1155/C***	***1155/D***	***1339/A***
Communication	USB, RS-232	USB, RS-232	USB, RS-232, RS-485, SPI
GPIO	2	2	10
Peltier cooler power supply	No	1V to 5V out; <1W	No
Max. dimensions	30×26mm	36×36mm	36×36mm

Three SiPM-1000 board variants.

Three PC-board variants		
		
		
Part number 1155/C	Part number 1155/D	Part number 1339/A
Smallest size	With Peltier cooler power supply and line driver	With GPIO, RS485 and SPI output

Two SiPM-1000 board variants.

SiPM-1000 PCB connectors



SiPM-1000 PCB, MCA with SiPM voltage supply.

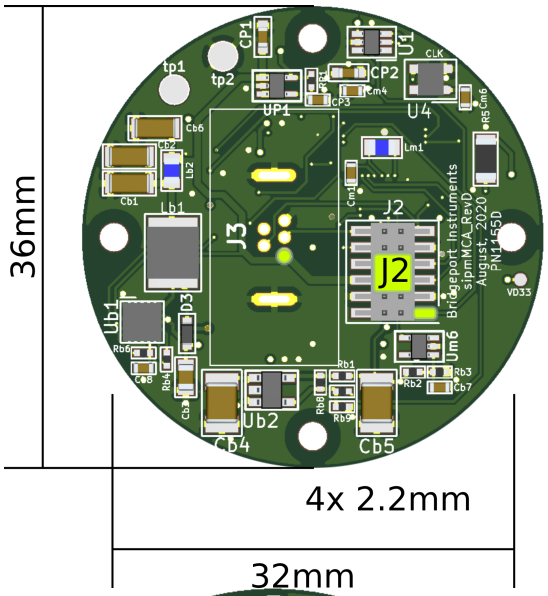
12-pin MCA Connector, J2		
Pin	***Name***	***Function***
1	S1	ARM, Port A3
2	Reserved	Do not connect
3	GND	Ground
4	GND	Ground
5	SWD_CLK / TX	Software Debug Clock / UART TX
6	Vin	+5V nominal, 30mA
7	SWD_IO / RX	Software Debug Data / UART RX
8	SWD_RST#	Software Debug Reset (active low)
9	GND	Ground
10	S2, Trigout	ARM Port A15; (cf Note 1)
11	USB-DM	USB Data −
12	USB-DP	USB Data +

Note 1: On the 1155/C board, Trigout is connected directly to ARM port PA15 and only has 1mA drive strength. On the 1155/D Trigout is connected to a line driver through a 50Ω/250mW current limiting resistor.

SiPM Connector J1, CLP-6	
#	***Name***
1	D+; cf Note 1
2	D−; cf Note 1
3	SiPM operating voltage (+)
4	GND; Ground
5	SiPM Anode
6	GND; Ground

Pinout of the SiPM connector; Note 1: The SiPM carrier board has an MMBT3904 NPN transistor connected as a diode (CB=D+ and E=D−). D+ and D− connect to an LTC2997 temperature-measuring IC.

BRIDGEPORT INSTRUMENTS, LLC SiPM-1000 PCB connectors



SiPM-1000-1155/D PCB, MCA with SiPM voltage supply.

12-pin MCA Connector, J2		
Pin	***Name***	***Function***
1	S1	ARM, Port A3
2	TrigOut	Trigger output with line driver
3	GND	Ground
4	GND	Ground
5	SWD_CLK / TX	Software Debug Clock / UART TX
6	Vin	+5V nominal, 30mA
7	SWD_IO / RX	Software Debug Data / UART RX
8	SWD_RST#	Software Debug Reset (active low)
9	GND	Ground
10	S2	ARM Port A15
11	USB-DM	USB Data −
12	USB-DP	USB Data +

The SiPM-1000 is powered and operated just via the 12-pin MCA connector. Power consumption is 15mA (75mW) at room temperature.

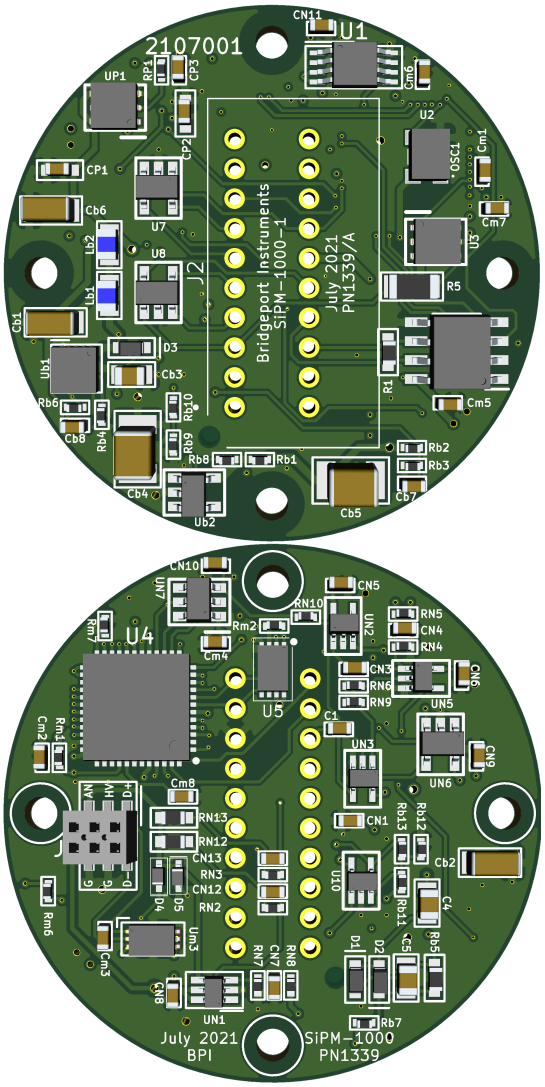
USB Connector J3, CLP-6	
#	***Name***
1	VD50; USB power supply
2	USB-DM; USB Data −
3	USB-DP; USB Data +)
4	N/C; No connect
5	GND; Ground

Pinout of the micro USB-B connector;

SiPM Connector J1, CLP-6	
#	***Name***
1	D+; cf Note 1
2	D−; cf Note 1
3	SiPM operating voltage (+)
4	GND; Ground
5	SiPM Anode
6	GND; Ground

Pinout of the SiPM connector; Note 1: The SiPM carrier board has an MMBT3904 NPN transistor connected as a diode (CB=D+ and E=D−). D+ and D− connect to an LTC2997 temperature-measuring IC.

SiPM-1000-1339 PCB connectors



SiPM-1000-1 PCB, MCA with SiPM voltage supply.

20-pin MCA Connector, J2		
Pin	***Name***	***Function***
1	KEY1	GPIO
2	BUSY	GPIO
3	KEY2	GPIO
4	RST	GPIO
5	TrigOut	Trigger output with line driver
6	SWD_CLK_Q / RS485+	RS485 data −
7	SWD_IO / RX	Software Debug Data / UART RX
8	SWD_IO_Q / RS485-	RS485 data +
9	SWD_CLK	Software Debug Clock / UART TX
10	SWD_RST#	Software Debug Reset (active low)
11	USB-DP	USB Data +
12	Vin	+5V nominal, 30mA
13	USB-DM	USB Data −
14	S1	ARM, Port A3
15	AN OUT	Analog Output
16	GND	Ground
17	DC	GPIO
18	MOSI	SPI Data Out
19	CS	Manual SPI Chip Select
20	SCLK	SPI Clock −

The SiPM-1000-1339 is powered and operated via the 20-pin MCA connector. Power consumption is 15mA (75mW) at room temperature.

SiPM Connector J1, CLP-6	
#	***Name***
1	D+; cf Note 1
2	D−; cf Note 1
3	SiPM operating voltage (+)
4	GND; Ground
5	SiPM Anode
6	GND; Ground

Pinout of the SiPM connector; Note 1: The SiPM carrier board has an MMBT3904 NPN transistor connected as a diode (CB=D+ and E=D−). D+ and D− connect to an LTC2997 temperature-measuring IC.