

Microcontroller Module NanoSAMD09

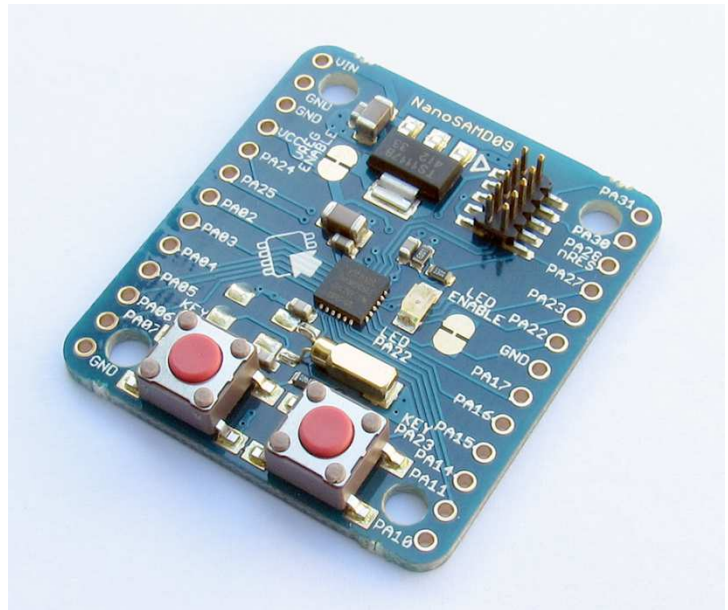
NanoSAMD09

Microcontroller module based on

ARM Cortex M0+ SAMD09 microcontroller (Atmel®)

ATSAMD09D14

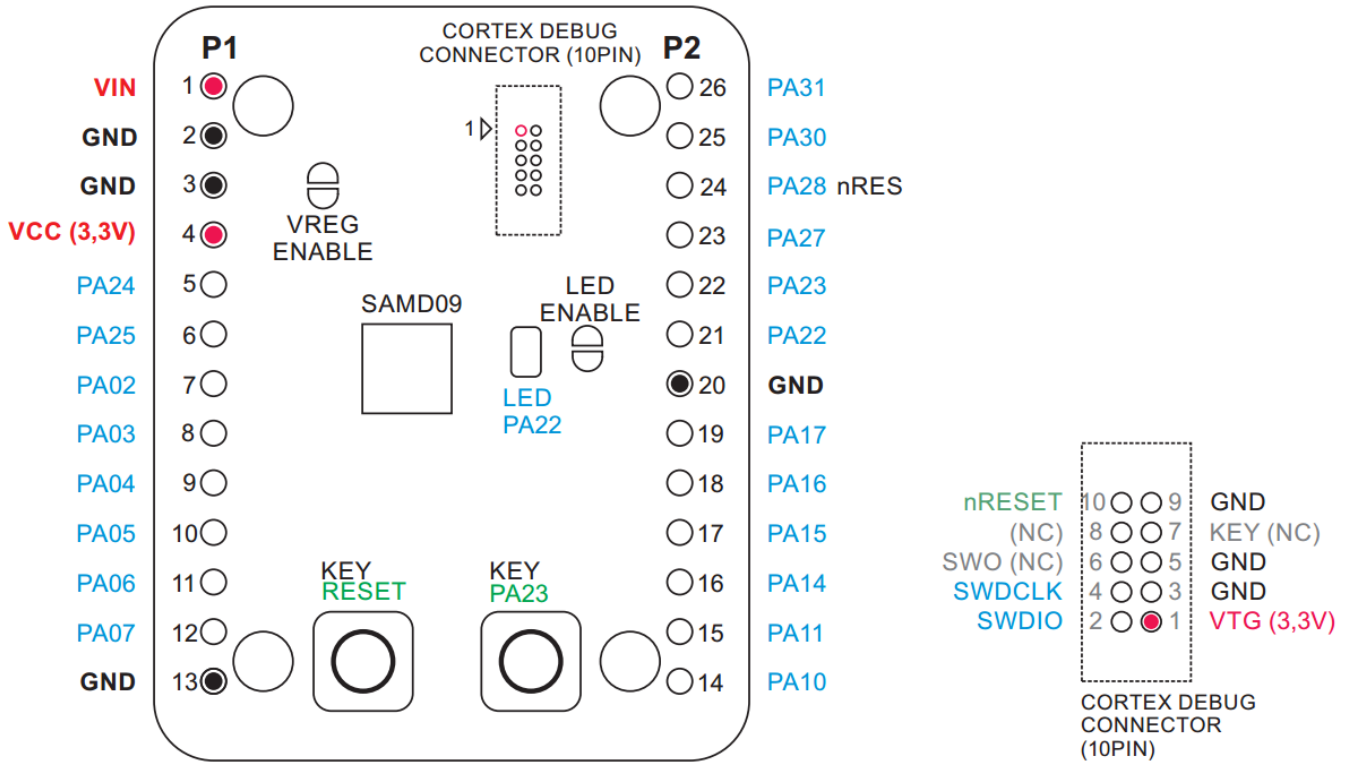
ARM Cortex-M0+ microcontroller with 16KB Flash, 4KB SRAM, two 16-bit timer/counters, DMA, two SERCOMs, 10-channel 12-bit ADC, and 24 pins



CHARACTERISTICS

- Microcontroller module based on ARM Cortex M0+ SAMD09 microcontroller (Atmel®), maximum CPU frequency 48MHz
- Cortex Debug Connector (10pin), Serial Wire Debug Interface (SWD), pin-compatible to SWD interface of Atmel®-ICE Programmer
- Power supply configuration:
 - External 5V Power Supply connected to VIN Pin or
 - 3,3V power Supply connected to VCC Pin
- On board LDO voltage regulator 3,3V
- User-Key Reset the microcontroller
- User-Key connected to PA23
- User-LED connected to PA22
- Microcontroller IO pins are routed to pinheader connector (13-pin 1-row, contact spacing 2,54mm, module fits on 2,54mm perfboard)
- Quartz 32,768kHz connected to XTAL32 pins
- Pcb dimensions 32mm x 34mm, maximum module height of 6,1mm
- Pcb technology: FR4, two layers, solder resist, surface immersion gold, RoHS

PIN ASSIGNMENT



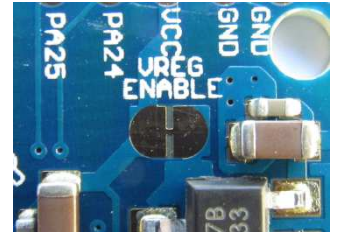
POWER SUPPLY CONFIGURATION

NanoSAM D09 can be powered by **external 5V** supply voltage.

The on board linear low-drop-out regulator **TS1117-3V3** regulates the 3,3V supply voltage VCC.

The TS1117-3V3 has a typical dropout voltage of 1,3V @ 1A, maximum 1,5V.

Maximum VIN voltage is 9V!



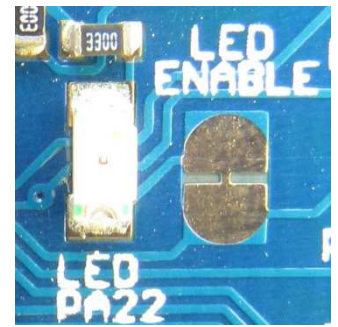
Alternatively you can connect an external VCC voltage to the VCC pin of the board. In this case you have to cut the trace at the VREG ENABLE jumper, this will disconnect the TS1117-3V3 regulator from VCC path. Please consider Datasheet of the microcontroller for VCC voltage range.

	Pin	Condition	Value			Unit
			min	typ	max	
External Supply Voltage applied to Pin VIN	VIN		4,7	5,0	9,0	V

USER LED

The cathode of the user on-board LED is connected to PA22.

The ENABLE LED jumper is shorted with a trace. If PA22 is used for other functions in your application you can cut the trace to disconnect the LED from port pin.



USER KEY

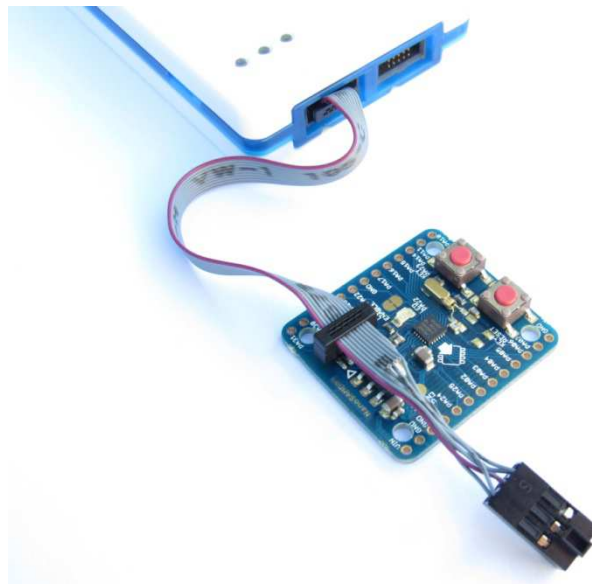
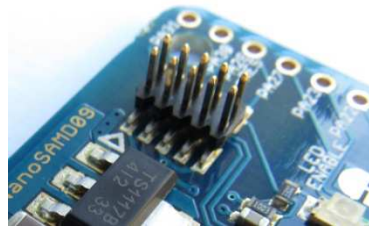
The **RESET KEY** is connected to PA28 (nRES) of the SAMD09 microcontroller.

The right user key **KEY PA23** is connected to PA23. The signal PA23 is set to low level if key is pressed.

The signals of both keys are over current protected.

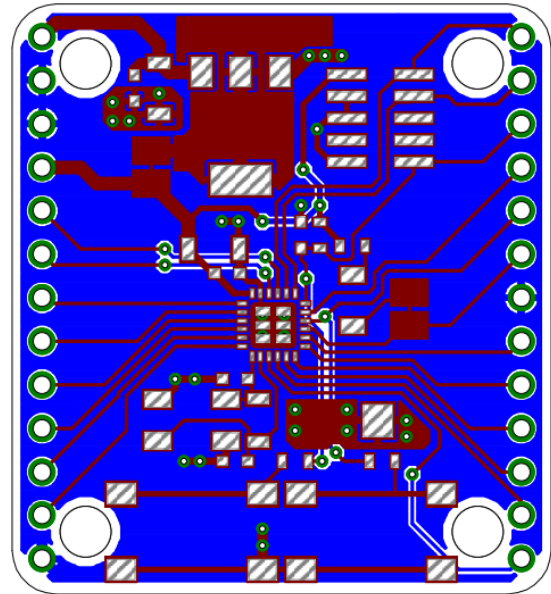
CORTEX DEBUG CONNECTOR

Pin	Signal
1	VTG 3,3V
2	PA31 SWDIO
3	GND
4	PA30 SWDCLK
5	GND
6	NC (SWO)
7	NC (KEY)
8	NC
9	GND
10	nRESET



LAYOUT

PCB Size	32mm x 34mm, 1,6mm thickness
Design	2 Layers, SMD Top Layer
Material	FR4
Surface	Immersion Gold
Soldermask	Dev-Tools blue
Silk Skreen	White
Panel Processing	Milled, Rounded Corners
E-Test	Yes
RoHS	Yes



ELECTRICAL CHARACTERISTICS

Please consider Datasheet of ATSAM09 microcontroller (visit Atmel® website www.atmel.com).

Intended use

This product is intended to use as development and evaluation board for developing microcontroller based applications.

Warning

To avoid damage due to electrostatic discharge (ESD), appropriate measures for ESD protection are to be taken for handling and only appropriately trained personnel should handle the board.

Disclaimer

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