Power supply

VDD
FB1
220R/100MHz
VDDA

PWR_FLAG — PWR_FLAG

C5 10u
C11 100n
C6 10u
C10 100n

PWR_FLAG

GND GND GND GND

Murata
BLM18AG221SN1D

SWD connector

VDD

VTref 1

J3
SWD

RESET 10 — RESET

SWDCLK/TCK 4 — PA30_SWCLK
SWDIO/TMS 2 — PA31_SWDIO
SWO/TDO 6
NC/TDI 8

GNDDetect 9
GND 3

Amphenol
20021121-00010C4LF

GND

External real time oscillator (optional)

C1 12p
R3 0R — PA00_XIN32

Y1
32.768kHz
Abracon
ABS07

12p C2
R4 0R — PA01_XOUT32

GND

C1 and C2 must be selected to match Y1 specs

External crystal oscillator (optional)

C3 15p
R5 0R — PA14_XOSC

Y2
8MHz
ECS
ECS-80-10-30B-CWN-TR

15p C4
R6 0R — PA15_XOUT

GND

C3 and C4 must be selected to match Y2 specs

MCU

C8 1u
PWR_FLAG

C9 100n

GND

L1 10uH
Coilcraft
LPS3015-103MRB

L1 placed only when the
internal buck regulator is in use

VDDA VDD

U1

PA00_XIN32 1 — PA00
PA01_XOUT32 2 — PA01
PA02 3 — PA02
PA03 4 — PA03
PA04 5 — PA04
PA05 6 — PA05
PA06 7 — PA06
PA07 8 — PA07
PA08 11 — PA08
PA09 12 — PA09
PA10 13 — PA10
PA11 14 — PA11
RESET 26 — RESET

VDDANA 27 (9)
VDDCORE
VDDOUT 29
VDDIO 30

ATSAML10E16A-A

PA14 15 — PA14_XOSC
PA15 16 — PA15_XOUT
PA16 17 — PA16
PA17 18 — PA17
PA18 19 — PA18
PA19 20 — PA19
PA22 21 — PA22
PA23 22 — PA23
PA24 23 — PA24
PA25 24 — PA25
PA27 25 — PA27
PA30 31 — PA30_SWCLK
PA31 32 — PA31_SWDIO

GND 10

GND

Board I/O headers

VDD

R1 and R2 placed only
when the real time crystal
oscillator is not used

R9 and R10 placed only
when the external crystal
oscillator is not used

VDD

J1
Left

1
2 PA00 — R1 0R DNP — PA00_XIN32
3 PA01 — R2 0R DNP — PA01_XOUT32
4 PA02
5 PA03
6 PA04
7 PA05
8 PA06
9 PA07
10 PA08
11 PA09
12 PA10
13 PA11
14 LED0
15 LED1
16

PA14_XOSC — DNP R9 0R — PA14 2
PA15_XOUT — DNP R10 0R — PA15 3
PA16 4
PA17 5
PA18 6
PA19 7
PA22 8
PA23 9
PA24 10
PA25 11
PA27 12
RESET 13
PA30_SWCLK 14
PA31_SWDIO 15
16

J2
Right

GND GND

User reset circuit

VDD

R7 330R
R8 10k

SW1
Reset

C7 100n

RESET

GND

User LEDs

VDD
R11 330R
D1 LED0

R12 47k
LED0
Q1A
BC847BDW1
R14 100k

GND

VDD
R16 330R
D2 LED1

R13 47k
LED1
Q1B
BC847BDW1
R15 100k

GND

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Universal breakout board for ATMSAML1x MCUs

Sheet: /
File: atsaml10-breakout.sch

Title: ATSAML1x Breakout Board

Size: A4 | Date: 2020-09-14 | Rev: A
KiCad E.D.A. kicad 5.1.6 | Id: 1/1