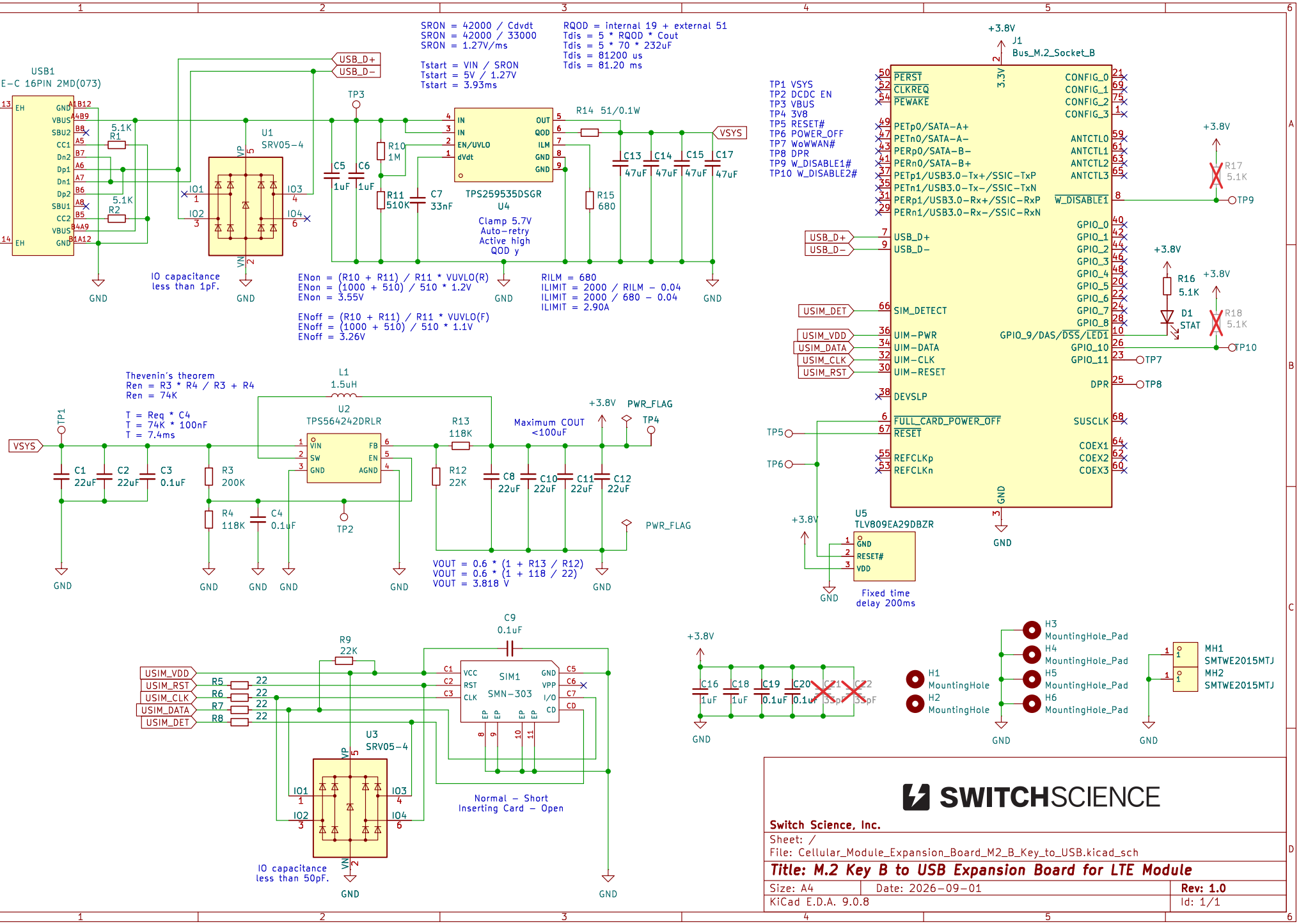

USB1
TYPE-C 16PIN 2MD(073)
USB_D+
USB_D-
5.1K
R1
5.1K
R2
U1
SRV05-4
IO1
IO2
IO3
IO4
VP
VN
IO capacitance
less than 1pF.
TP3
C5
1uF
C6
1uF
R10
1M
R11
510K
C7
33nF
TPS259535DSGR
U4
Clamp 5.7V
Auto-retry
Active high
QOD y
R14 51/0.1W
R15
680
C13
47uF
C14
47uF
C15
47uF
C17
47uF
VSYS
SRON = 42000 / Cdvdt
SRON = 42000 / 33000
SRON = 1.27V/ms
Tstart = VIN / SRON
Tstart = 5V / 1.27V
Tstart = 3.93ms
RQOD = internal 19 + external 51
Tdis = 5 * RQOD * Cout
Tdis = 5 * 70 * 232uF
Tdis = 81200 us
Tdis = 81.20 ms
ENon = (R10 + R11) / R11 * VUVLO(R)
ENon = (1000 + 510) / 510 * 1.2V
ENon = 3.55V
ENoff = (R10 + R11) / R11 * VUVLO(F)
ENoff = (1000 + 510) / 510 * 1.1V
ENoff = 3.26V
RILM = 680
ILIMIT = 2000 / RILM - 0.04
ILIMIT = 2000 / 680 - 0.04
ILIMIT = 2.90A
GND
TP1 VSYS
TP2 DCDC EN
TP3 VBUS
TP4 3V8
TP5 RESET#
TP6 POWER_OFF
TP7 WoWWAN#
TP8 DPR
TP9 W_DISABLE1#
TP10 W_DISABLE2#
+3.8V
J1
Bus_M.2_Socket_B
PERST
CLKREQ
PEWAKE
PETp0/SATA-A+
PETn0/SATA-A-
PERp0/SATA-B-
PERn0/SATA-B+
PETp1/USB3.0-Tx+/SSIC-TxP
PETn1/USB3.0-Tx-/SSIC-TxN
PERp1/USB3.0-Rx+/SSIC-RxP
PERn1/USB3.0-Rx-/SSIC-RxN
USB_D+
USB_D-
SIM_DETECT
UIM-PWR
UIM-DATA
UIM-CLK
UIM-RESET
DEVSLP
FULL_CARD_POWER_OFF
RESET
REFCLKp
REFCLKn
CONFIG_0
CONFIG_1
CONFIG_2
CONFIG_3
ANTCTL0
ANTCTL1
ANTCTL2
ANTCTL3
W_DISABLE1
GPIO_0
GPIO_1
GPIO_2
GPIO_3
GPIO_4
GPIO_5
GPIO_6
GPIO_7
GPIO_8
GPIO_9/DAS/DSS/LED1
GPIO_10
GPIO_11
DPR
SUSCLK
COEX1
COEX2
COEX3
USIM_DET
USIM_VDD
USIM_DATA
USIM_CLK
USIM_RST
R17
5.1K
R16
5.1K
D1
STAT
R18
5.1K
TP7
TP8
TP9
TP10
U5
TLV809EA29DBZR
Fixed time
delay 200ms
Thevenin's theorem
Ren = R3 * R4 / R3 + R4
Ren = 74K
T = Req * C4
T = 74K * 100nF
T = 7.4ms
L1
1.5uH
U2
TPS564242DRLR
R13
118K
R12
22K
Maximum COUT
<100uF
PWR_FLAG
TP4
TP2
C1
22uF
C2
22uF
C3
0.1uF
R3
200K
R4
118K
C4
0.1uF
C8
22uF
C10
22uF
C11
22uF
C12
22uF
VOUT = 0.6 * (1 + R13 / R12)
VOUT = 0.6 * (1 + 118 / 22)
VOUT = 3.818 V
C9
0.1uF
R9
22K
SIM1
SMN-303
U3
SRV05-4
R5
R6
R7
R8
22
Normal - Short
Inserting Card - Open
IO capacitance
less than 50pF.
C16
1uF
C18
1uF
C19
0.1uF
C20
0.1uF
C21
33pF
C22
33pF
H1
MountingHole
H2
MountingHole
H3
MountingHole_Pad
H4
MountingHole_Pad
H5
MountingHole_Pad
H6
MountingHole_Pad
MH1
SMTWE2015MTJ
MH2
SMTWE2015MTJ
SWITCHSCIENCE
Switch Science, Inc.
Sheet: /
File: Cellular_Module_Expansion_Board_M2_B_Key_to_USB.kicad_sch
Title: M.2 Key B to USB Expansion Board for LTE Module
Size: A4
Date: 2026-09-01
Rev: 1.0
KiCad E.D.A. 9.0.8
Id: 1/1