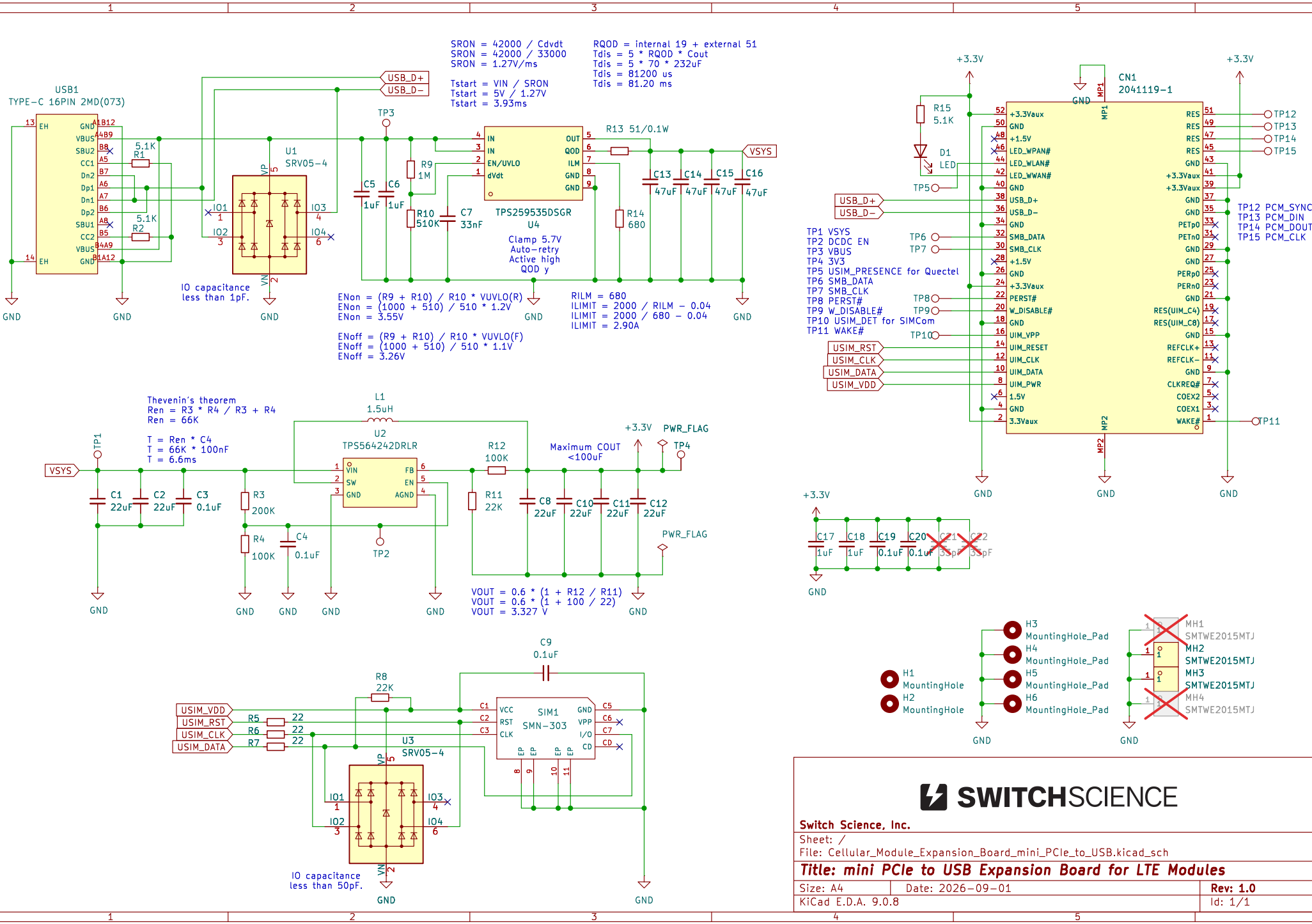

USB1
TYPE-C 16PIN 2MD(073)
5.1K
R1
5.1K
R2
U1
SRV05-4
IO capacitance
less than 1pF.
USB_D+
USB_D-
TP3
SRON = 42000 / Cdvdt
SRON = 42000 / 33000
SRON = 1.27V/ms
Tstart = VIN / SRON
Tstart = 5V / 1.27V
Tstart = 3.93ms
RQOD = internal 19 + external 51
Tdis = 5 * RQOD * Cout
Tdis = 5 * 70 * 232uF
Tdis = 81200 us
Tdis = 81.20 ms
R9
1M
R10
510K
C7
33nF
C5
1uF
C6
1uF
TPS259535DSGR
U4
Clamp 5.7V
Auto-retry
Active high
QOD y
R13 51/0.1W
R14
680
C13
47uF
C14
47uF
C15
47uF
C16
47uF
VSYS
ENon = (R9 + R10) / R10 * VUVLO(R)
ENon = (1000 + 510) / 510 * 1.2V
ENon = 3.55V
ENoff = (R9 + R10) / R10 * 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
+3.3V
CN1
2041119-1
R15
5.1K
D1
LED
TP5
TP1 VSYS
TP2 DCDC EN
TP3 VBUS
TP4 3V3
TP5 USIM_PRESENCE for Quectel
TP6 SMB_DATA
TP7 SMB_CLK
TP8 PERST#
TP9 W_DISABLE#
TP10 USIM_DET for SIMCom
TP11 WAKE#
TP6
TP7
TP8
TP9
TP10
USIM_RST
USIM_CLK
USIM_DATA
USIM_VDD
TP12 PCM_SYNC
TP13 PCM_DIN
TP14 PCM_DOUT
TP15 PCM_CLK
TP12
TP13
TP14
TP15
TP11
Thevenin's theorem
Ren = R3 * R4 / R3 + R4
Ren = 66K
T = Ren * C4
T = 66K * 100nF
T = 6.6ms
L1
1.5uH
U2
TPS564242DRLR
TP1
VSYS
C1
22uF
C2
22uF
C3
0.1uF
R3
200K
R4
100K
C4
0.1uF
TP2
R12
100K
R11
22K
Maximum COUT
<100uF
C8
22uF
C10
22uF
C11
22uF
C12
22uF
PWR_FLAG
TP4
VOUT = 0.6 * (1 + R12 / R11)
VOUT = 0.6 * (1 + 100 / 22)
VOUT = 3.327 V
C17
1uF
C18
1uF
C19
0.1uF
C20
0.1uF
C21
33pF
C22
33pF
C9
0.1uF
R8
22K
USIM_VDD
USIM_RST
USIM_CLK
USIM_DATA
R5
R6
R7
22
22
22
U3
SRV05-4
SIM1
SMN-303
IO capacitance
less than 50pF.
H1
MountingHole
H2
MountingHole
H3
MountingHole_Pad
H4
MountingHole_Pad
H5
MountingHole_Pad
H6
MountingHole_Pad
MH1
SMTWE2015MTJ
MH2
SMTWE2015MTJ
MH3
SMTWE2015MTJ
MH4
SMTWE2015MTJ
SWITCHSCIENCE
Switch Science, Inc.
Sheet: /
File: Cellular_Module_Expansion_Board_mini_PCIe_to_USB.kicad_sch
Title: mini PCIe to USB Expansion Board for LTE Modules
Size: A4
Date: 2026-09-01
Rev: 1.0
KiCad E.D.A. 9.0.8
Id: 1/1