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Q1
SI4909DY-T1-GE3

U1
LTC4417IGN

C2 0.1uF
GND

DIRTY_DC_+_PROTECTED

C8 0.1uF
GND

R3 246K   R1 51K   R2

INTERNAL_SOLAR_IN

R7 11K   R8 246K   51K   R9

GND

C7 0.1uF
GND

USB-C_POWER_IN

R4 11K   R5 246K   51K   R6

GND

/SHUTDOWN
ENABLE

U1 pins:
24 V1
4 UV1
5 OV1
23 V2
6 UV2
7 OV2
22 V3
8 UV3
9 OV3
2 SHDN
1 EN
3 HYS
20 G1
21 VS1
18 G2
19 VS2
16 G3
17 VS3
15 VOUT / VOUT_PIN
10 VALID1 / /VALID1
11 VALID2 / /VALID2
12 VALID3 / /VALID3
14 CAS
13 GND

GND

For the resistor laddars on the input power sources to
the source selector, we need to get V_UV and V_OV = 1V
at the respective ends of the acceptable voltage range.

If we aim for 5V -- 28V being acceptable, then we can
use 246K, 51K and 11K, from VIN to GND respectively.

C3 0.1uF
GND

DIRTY_DC_+_PROTECTED

Q1 pins:
1 S1
2 G1
3 S2
4 G2
8 D1
7 D1
6 D2
5 D2
VOUT

Q2
SI4909DY-T1-GE3

USB-C_POWER_IN

Q2 pins:
1 S1
2 G1
3 S2
4 G2
8 D1
7 D1
6 D2
5 D2
VOUT

0.1uF C5
GND

Q3
SI4909DY-T1-GE3

INTERNAL_SOLAR_IN

Q3 pins:
1 S1
2 G1
3 S2
4 G2
8 D1
7 D1
6 D2
5 D2
VOUT

C6 0.1uF
GND

M2
1 VCC
25 VOUT
REAR ZONE
29 DIRTY_DC_+
30 DIRTY_DC_-
VOUT
USB-C_POWER_IN   9
INTERNAL_SOLAR_IN   13
/VALID3   18
/VALID2   19
/VALID1   20
/SHUTDOWN   21
ENABLE   22
24 GND
48
GND   GND

VOUT
C4 100uF
GND

DIRTY_DC_+_PROTECTED
CR1 SMM4F24A-TR
OVERVOLTAGE_SENSE_UNCLAMPED

D1 BZX384-C30_115

Detect over-voltage condition
using 200V tolerant TVS to
conduct above ~24V.

R11 246K 0.25W
GND

GND

OVERVOLTAGE_SENSE_CLAMPED

R13 11K

JP2
Jumper_2_Open
DIRTY_DC_-
GND

Over-voltage protection bypass

Q7 BC847

Q4
IPF067N20NM6ATMA1
DIRTY_DC_-
4 D
7 S_5
6 S_4
5 S_3
3 S_2
2 S_1
1 G
GND
D2 BZX384-C30_115
GND

R12 246K 0.25W
DIRTY_DC_+

R10 100
VOUT_PIN
VOUT
C9 0.01uF
GND

Filter on VOUT pin to protect against
negative transients if output side is shorted.

Reverse polarity protection (to 100V)
for Dirty DC / external solar panel.

DIRTY_DC_+_PROTECTED

CR2 SMCJ33A

DIRTY_DC_-

246K 0.25W R14

D3 BZX384-C12_115

U2
SQJQ141EL-T1_GE3
1 G
2 S
5 D
4
3 S

JP1
Jumper_2_Open
DIRTY_DC_+_PROTECTED   DIRTY_DC_+

Polarity protection bypass

DIRTY_DC_+

CERN-OHL-S v2
gardners
Sheet: /
File: input-power-selector.kicad_sch
Title: Mega65Modular Input power selector
Size: A4   Date: 2025-11-10   **Rev: v0.1**
KiCad E.D.A. 9.0.1   Id: 1/1