

EXT_VIN = 12V
VBUS_USB = 5V TO 20V

TPS2121 IS A DUAL INPUT
SINGLE OUTPUT POWER MUX
WITH AN OUTPUT CURRENT
LIMIT OF 4.5A

Figure 10-15 shows the application schematic for highest voltage operation on the TPS2121. The same configuration can be completed on the TPS2120, with the SEL pin connected to GND instead of the CP2 pin.

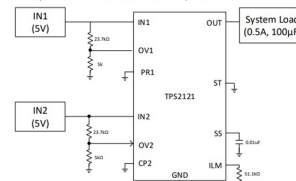
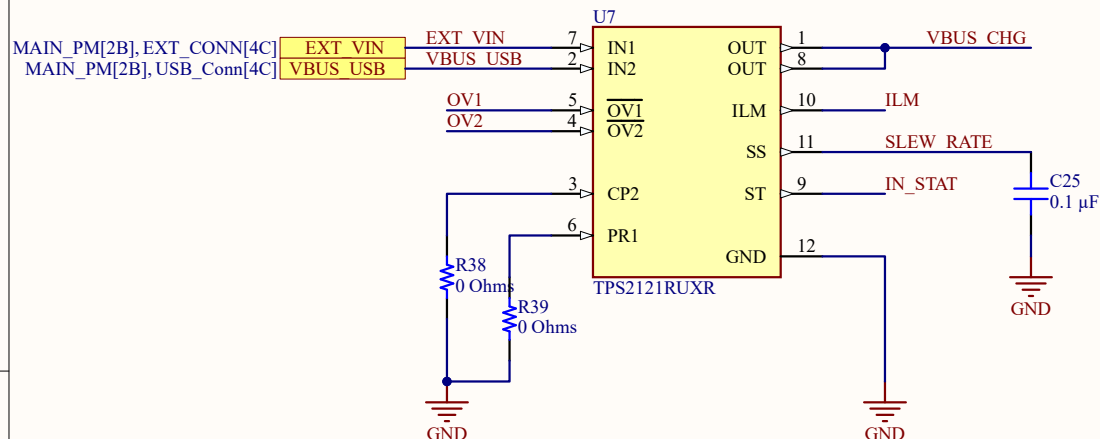


Figure 10-15. Highest Voltage Operation



VBUS_CHG → VBUS_CHG → MAIN_PM[2B], CHG_IP23

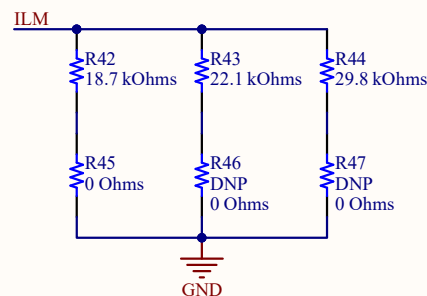
VIN1 OVP 15V
R1 = 10k, R2 = 132k
RATIO = 0.07042
OV = 1.06/0.07042 15V

10.2.4.2 Selecting OVx Resistors

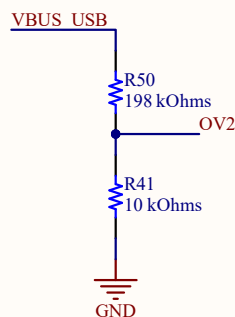
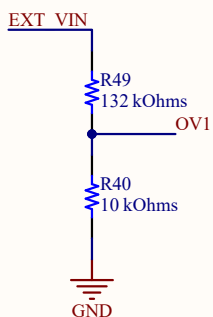
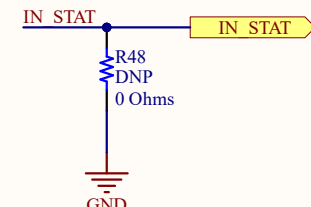
Independent output overvoltage protection is available for both IN1 and IN2. The VREF comparator on the OV1 and OV2 pins allows for the overvoltage protection thresholds to be adjusted independently, allowing for different overvoltage thresholds on each channel. When overvoltage is engaged, the corresponding channel will turn off immediately if the pin reaches VREF, 1.06 V (typical). On this design, the overvoltage thresholds are triggered at roughly 1-V higher than the nominal input voltages. On IN1, the overvoltage resistor divider was programmed to be 6.08 V, where as the divider on IN2 was programmed to be 3.96 V. The OV resistor calculations are shown in Equation 6 and Equation 7.

$$1.06 \text{ V} = V_{\text{ref}} \times \left(\frac{5 \text{ k}\Omega}{5 \text{ k}\Omega + 23.7 \text{ k}\Omega} \right) = 6.08 \text{ V} \quad (6)$$

$$1.06 \text{ V} = V_{\text{ref}} \times \left(\frac{5 \text{ k}\Omega}{5 \text{ k}\Omega + 13.7 \text{ k}\Omega} \right) = 3.96 \text{ V} \quad (7)$$



IN_STAT TO MCU (NEED TO PULL UP TO VIO NEAR MCU)
IN CASE NOT USED, SOLDER THE JUMPER



VIN2 OVP 22V
R1 = 10k, R2 = 198k
RATIO = 0.0480769
OV = 1.06/0.0480769 22V

I _{OUT} (A)	Output Current Limit (TPS2121)	R _{ILIM} = 18.7kΩ	-40°C to 125°C	4.6	5.2	5.8	A
		R _{ILIM} = 22.1kΩ	-40°C to 125°C	4	4.5	5	A
		R _{ILIM} = 29.8kΩ	-40°C to 125°C	3	3.5	4	A
		R _{ILIM} = 44.2kΩ	-40°C to 125°C	2	2.5	3	A
		R _{ILIM} = 80kΩ	-40°C to 125°C	1	1.5	2	A
		R _{ILIM} < 1kΩ	-40°C to 125°C	1.5	2.5	3.5	A

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