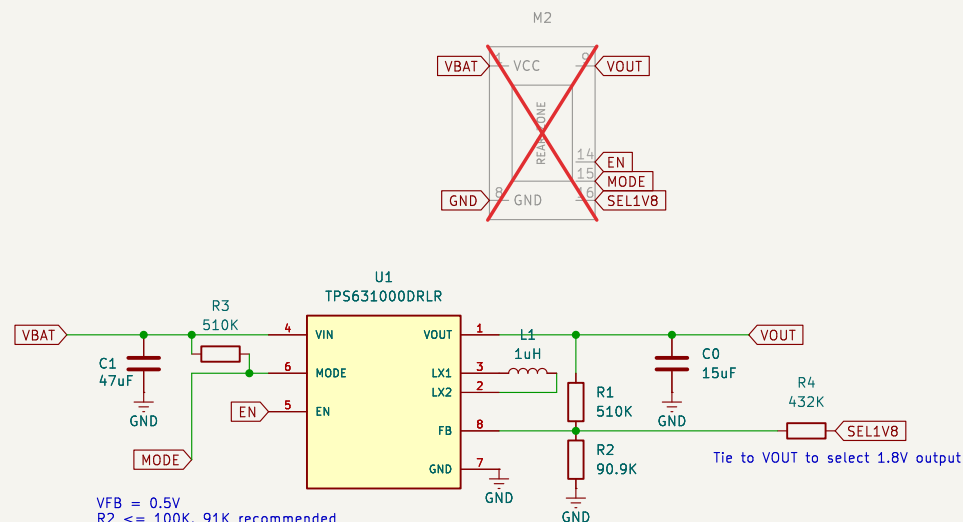


Mega65Modular Low current DC/DC v0.1
gardners
License: CERN-OHL-S v2
Year: 2025

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VFB = 0.5V
R2 <= 100K. 91K recommended

$$\begin{aligned} R1 &= R2 \times (V_{OUT} / V_{FB} - 1) \\ 1.8V : R1 &= R2 * (1.8 / 0.5 - 1) = R2 * 2.6 = 234K \\ 3.3V : R1 &= R2 * (3.3 / 0.5 - 1) = R2 * 5.6 = 511K \end{aligned}$$

So SEL1V8 should tie FB to VOUT with a resistor that in parallel to 511K yields 234K.

$$\begin{aligned} 1/R_P &= 1/R + 1/R \\ 1/260K &= 1/R + 1/511K \\ 1/R &= 1/234K - 1/511K \\ 1/R &= \sim 1/436K \\ R &= \sim 436K \end{aligned}$$

Actual values = 90.9K, 510K, so VFB = 0.5V at junction means
 $V_{OUT} = (1 + 510K/90.9K) * 0.5V = 3.305V$
 And with SEL1V8 tied to VOUT:
 $1/R = 1/510K + 1/432K = 233.8K$
 $V_{OUT} = (1 + 233.8K/90.9K) * 0.5V = 1.79V$
 Close enough...

3D top side