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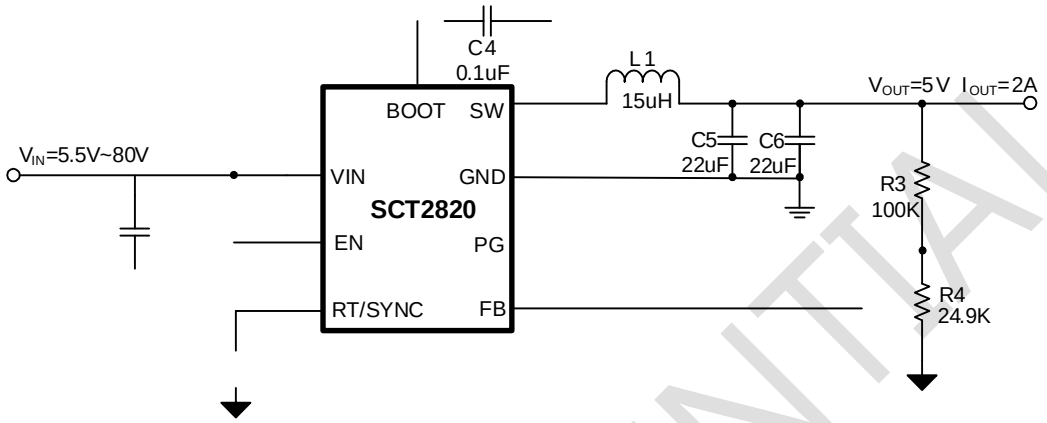
MOSFET is off and low-side power MOSFET is on. A boot diode is integrated on the SCT2820 die to minimize external component count.

The UVLO of high-side MOSFET gate driver has a threshold of 2.5V. When the voltage across bootstrap



Input Voltage	48V Normal 5.5V to 80V
Output Voltage	5V
Maximum Output Current	2A
Switching Frequency	400kHz
Output voltage ripple (peak to peak)	12.8mV
Transient Response 0.5A to 1.5A load step	224mV

Since the inductor-current ripple increases with the input voltage, so the maximum input voltage in application is always used to calculate the minimum inductance required. Use Equation 8 to calculate the inductance value.

$$= \frac{}{(\quad)} \left(1 - \frac{}{(\quad)}\right) \tag{8}$$

Where:

x

$$I_{CINRMS} = 0.5 \quad I_{OUT} \tag{12}$$

For simplification, choose an input capacitor with an RMS current rating greater than half of the maximum load current.

When selecting ceramic capacitors, it needs to consider the effective value of a capacitor decreasing as the DC bias voltage across a capacitor increasing.

The input capacitance value determines the input ripple voltage of the regulator. The input voltage ripple can be calculated using Equation 13 and the maximum input voltage ripple occurs at 50% duty cycle.

$$\Delta V_{IN} = \frac{I_{OUT}}{f_{SW} \quad C_{IN}} \quad \frac{V_{OUT}}{V_{IN}} \quad (1 - \frac{V_{OUT}}{V_{IN}}) \tag{13}$$

For this example, two 4.7μ

