Buck Converter Simulation Results

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Summary:

Simulation results of a Buck Converter tested in LTspice. Metrics include efficiency, output voltage, and rippl

Simulation Results:

- Input Voltage (Vin): 12 V
- Load Resistance (Rload): 10 Ω
- Output Voltage (avg): 5.0897 V
- Output Current (avg): 0.509 A
- Output Power (Pout): 2.599 W
- Input Power (Pin): 3.0097 W
- Efficiency: 86.37%
- Switching Period (T): 9.969 µs
- Switching Frequency (fsw): 100.304 kHz

Output Voltage Ripple:

- Vmax: 5.1358 V
- Vmin: 5.1066 V
- ΔVripple = Vmax - Vmin = 0.0292 V
- Ripple % = (0.0292 / 5.0897) * 100 ≈ 0.574%

Conclusion:

The Buck Converter met design targets with high efficiency and low ripple, achieved in 3 days.