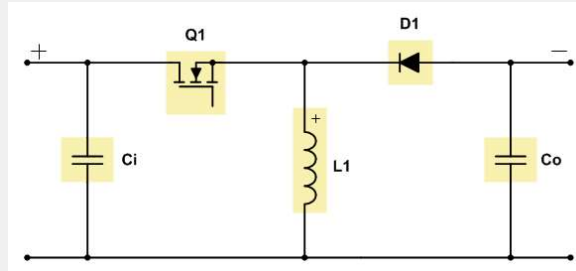


Design Values

Minimum Input Voltage: V
Maximum Input Voltage: V
Output Voltage: V
Output Current: A
Switching Frequency: kHz
Diode Voltage Drop: V
Inductor Current Ripple: %



Recommended Value

Inductance: μ H

Choose Value

Inductance: μ H

Calculated Values at Input Voltage:

18.00 V

Load Current:

-0.50 A

Period:	3.33 μ s	Input Power:	1.85 W	Input Current:	0.10 A
Duty Cycle:	17.05 %	Output Power:	1.50 W	Current Ripple:	0.31 A
On-Time:	0.57 μ s	Diode Losses:	0.35 W		<input type="text" value="51.43"/> %
Off-Time:	2.76 μ s				
Zero-Time:	0.00 μ s				
RHPZ:	116.77 kHz				

1. The minimum inductance is calculated to stay below the specified current ripple over the entire input voltage range.
2. Most buck converters/controllers can be used as an inverting buck-boost converter/controller: <https://www.ti.com/lit/an/slyt286/slyt286.pdf>.
3. The displayed frequency value for the right half plane zero (RHPZ) is only a rough estimation.
4. Understanding buck-boost power stages in switch mode power supplies: <https://www.ti.com/lit/an/slya059a/slya059a.pdf>.
5. The default values show the Automotive 5-W inverting buck-boost reference design for lidar PMP30942: <https://www.ti.com/tool/PMP30942>.
6. The TPS57160-Q1 is an Automotive 3.5V to 60V, 1.5A Buck Converter with Eco-Mode™: <https://www.ti.com/product/TPS57160-Q1>.