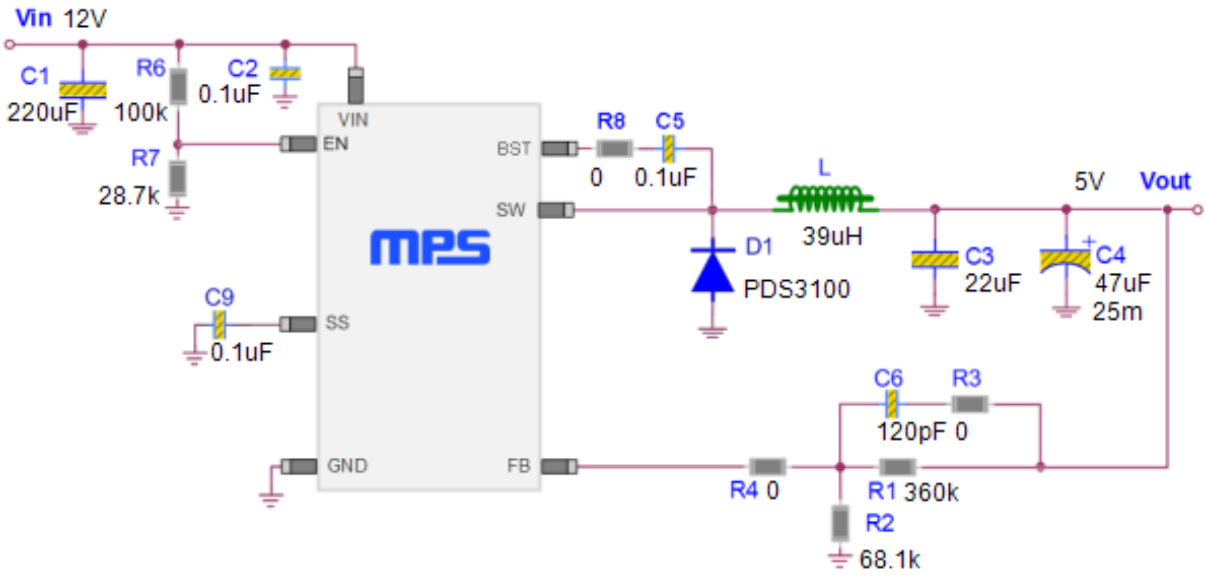
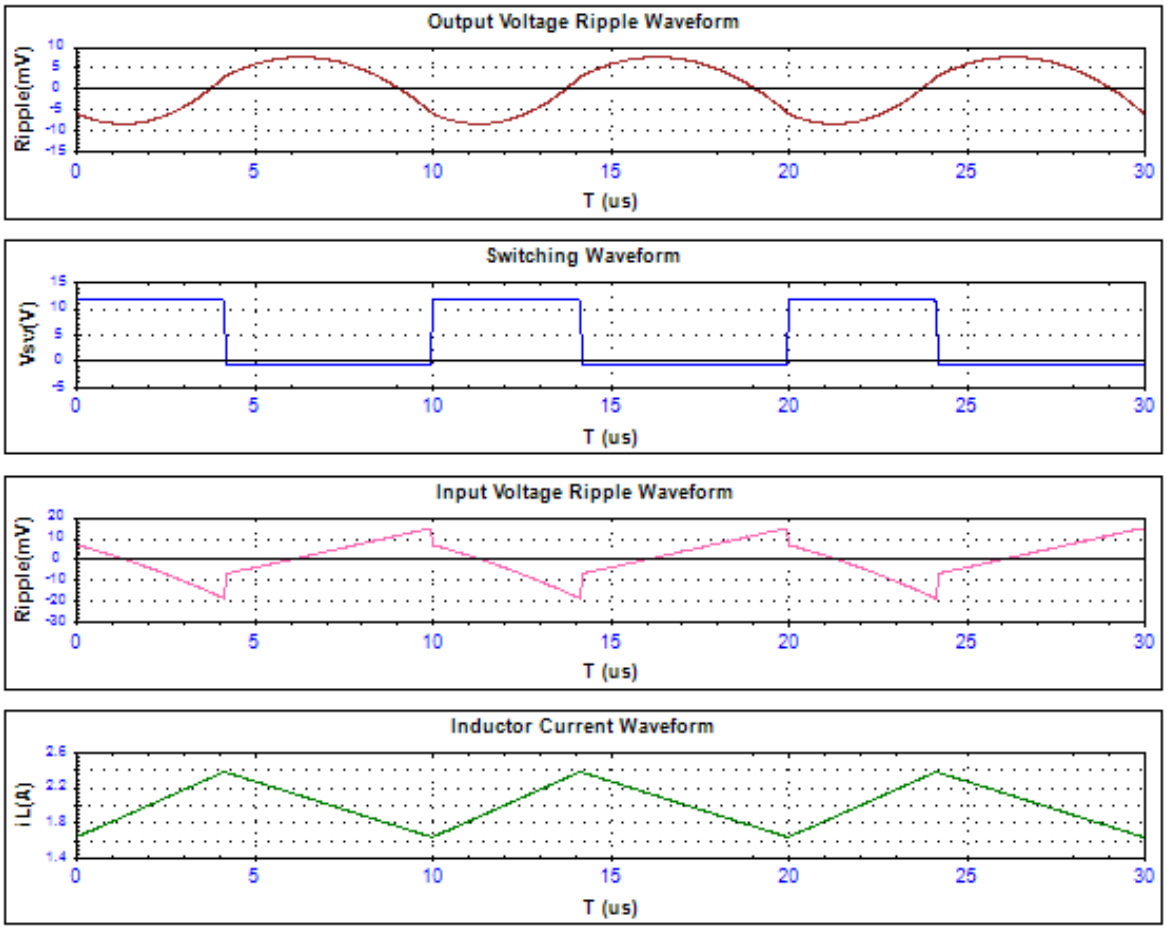
Schematic



Spec Analysis

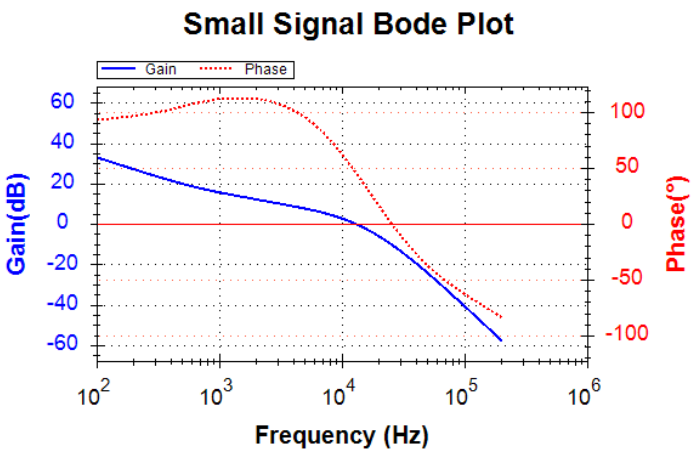
Parameter	Result	Minimum	Maximum
Synchronizable(Y/N)	N		
Input Voltage(V)	12		
Min. Input Voltage(V)	10		
Max. Input Voltage(V)	48		
Output Voltage(V)	5		
Output Current(A)	2		
Frequency(kHz)	100		
Vin UVLO(V)	8		
Input Voltage Ripple(mV)	33.7		
Output Voltage Ripple(mV)	15.9		
Inductor Peak-Peak current(A)	0.75	1.63	2.37
High Current of Transient(A)	2		
Low Current of Transient(A)	1		
Slew Rate of Transient(A/us)	1		
Output Transient Ripple(mV)	422.24	-211.12	211.12
Bandwidth(kHz)	13		
Phase Margin(deg)	45.6		
Gain Margin(dB)	10.55		
Efficiency(%)	85.75		

Waveforms

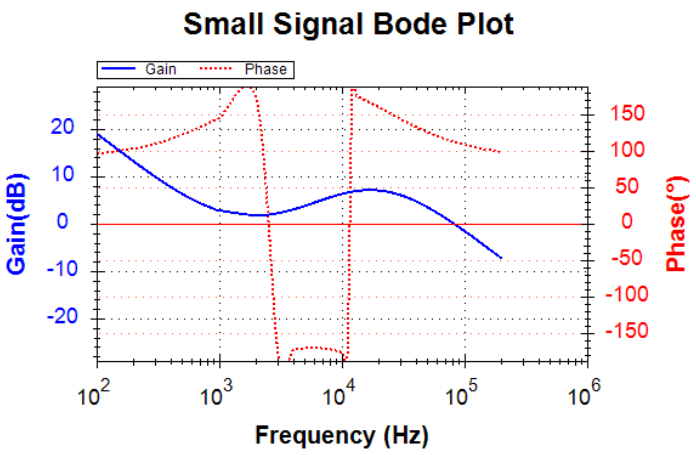


Small Signal Analysis

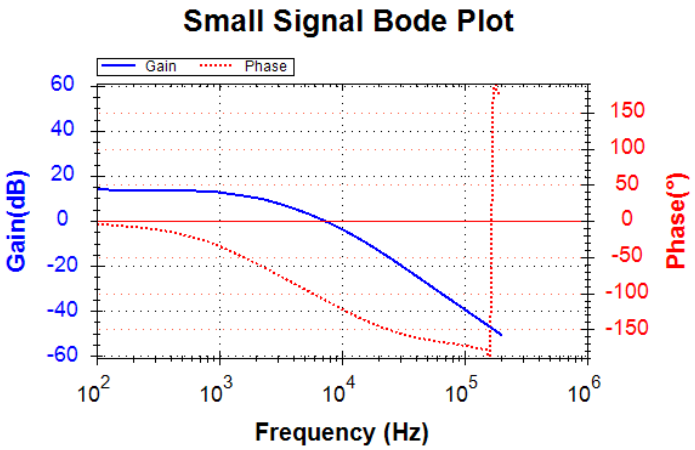
Loop Gain



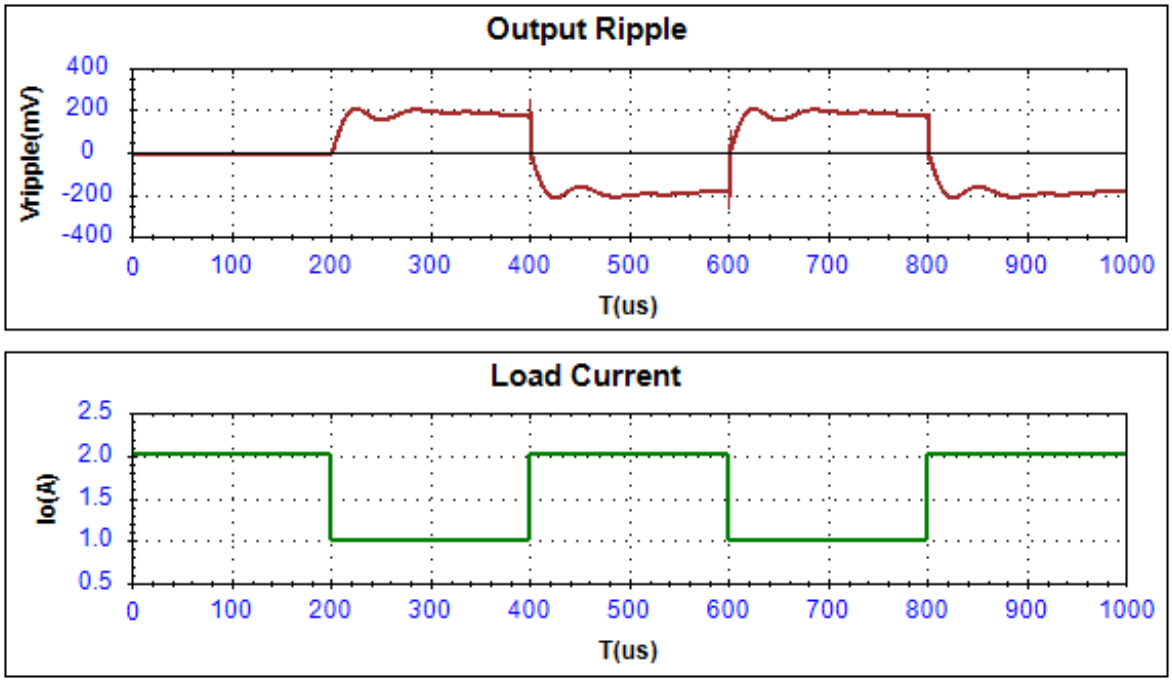
Compensation



Power Stage

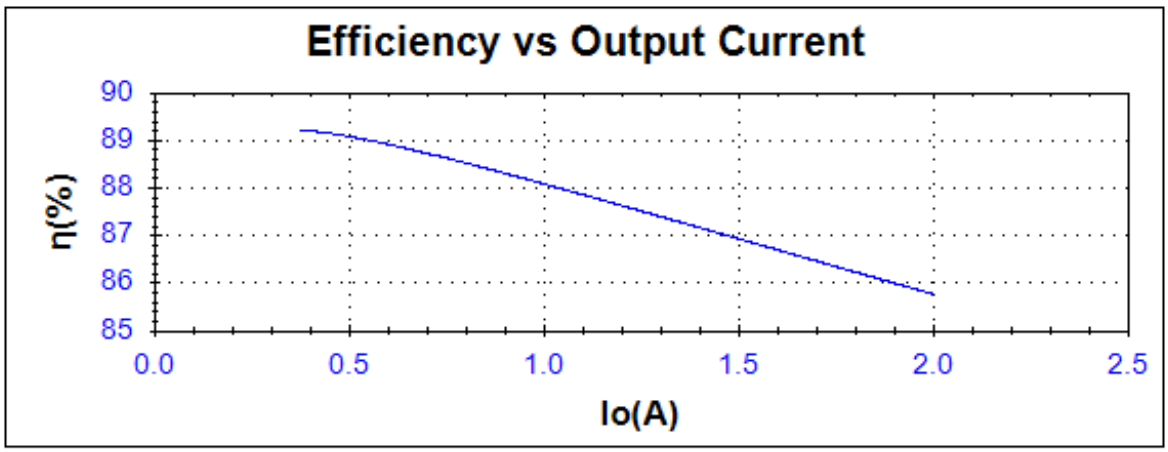


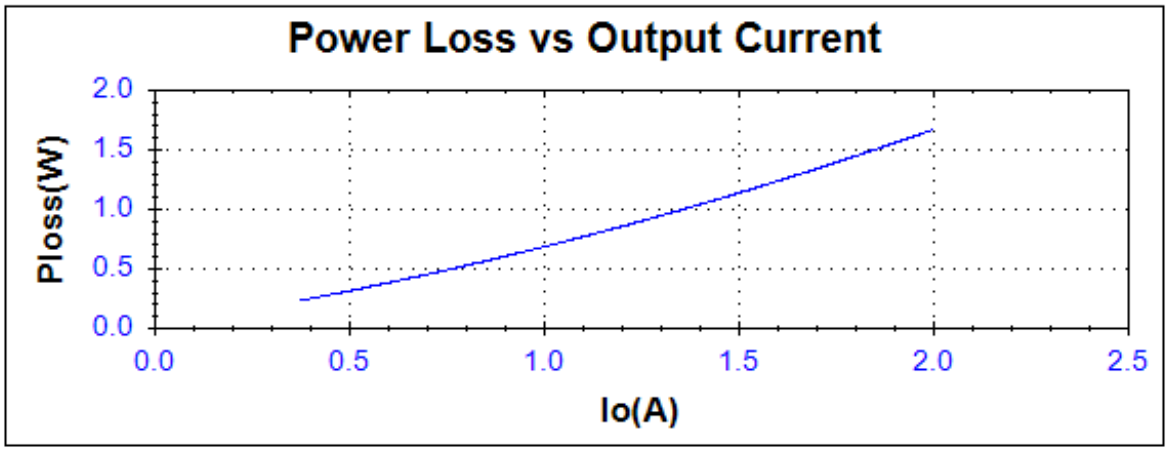
Transient Output Ripple



Transient Load Condition		Result	
High Transient Current(A):	2	Maximum(mV):	211.12
Low Transient Current (A):	1	Minimum(mV):	-211.12
Transient Slew Rate(A/us):	1	Peak-Peak(mV):	422.24

Efficiency & Power Loss Analysis





Bill of Materials

Quantity	Parameter	Value	Description	Package	Vendor	Part Number
1	C1	220uF	63V, -, Ceramic	Radial	Würth Elektronik	865080762015
1	C2	0.1uF	50V, Ceramic	0805	Any	
1	C3	22uF	16V, X5R, Ceramic	1206	muRata	GRM31CR61C226M
1	C4	47uF	Electrolytic Cap,25mOhm		Panasonic	16SVPG47M
1	C5	0.1uF	50V, Ceramic	0603	Any	
1	C6	120pF	50V,Ceramic	0603	Any	
1	C9	0.1uF	50V, Ceramic	0603	Any	
1	R1	360k	1%	0603	Any	
1	R2	68.1k	1%	0603	Any	
1	R3	0	5%	0603	Any	
1	R4	0	5%	0603	Any	
1	R6	100k	5%	0603	Any	
1	R7	28.7k	5%	0603	Any	
1	R8	0	5%	0603	Any	
1	L	39uH	58mOhm, 4.14A	SMT	Coilcraft	MSS1260T-393MLB
1	D1		100V, 3A, 0.75V	PowerDI®5	Diodes	PDS3100
1	U1	-	Buck, 100kHZ, 55V, 2A	SOIC8/SOIC8E	MPS	MP2494

Note:
1) More details information please reference the device datasheets and/or application notes.
2) Please note too large output capacitance may lead to startup problems.