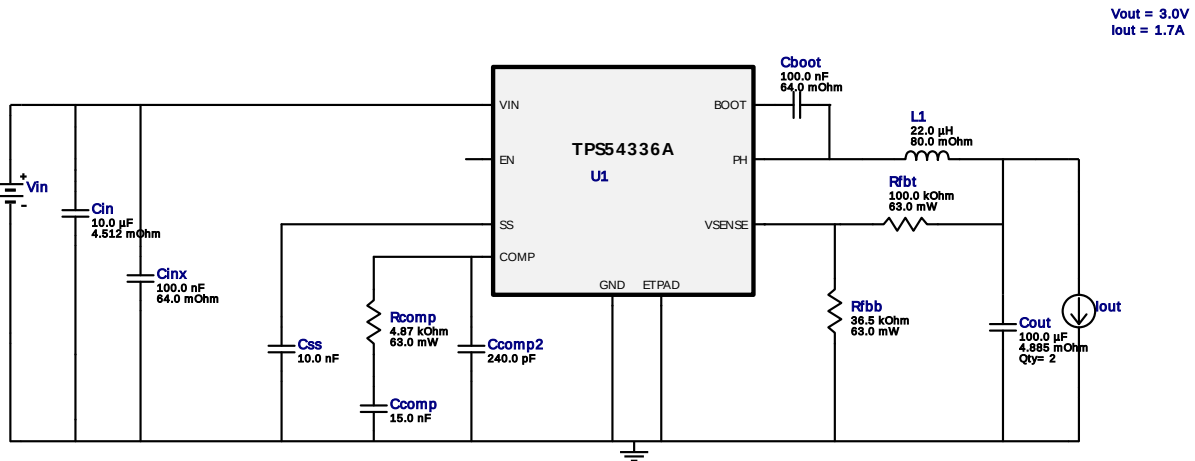
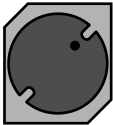


WEBENCH® Design Report

Design : 4728729/1 TPS54336ADDAR
TPS54336ADDAR 11.0V-20.0V to 3.00V @ 1.7A



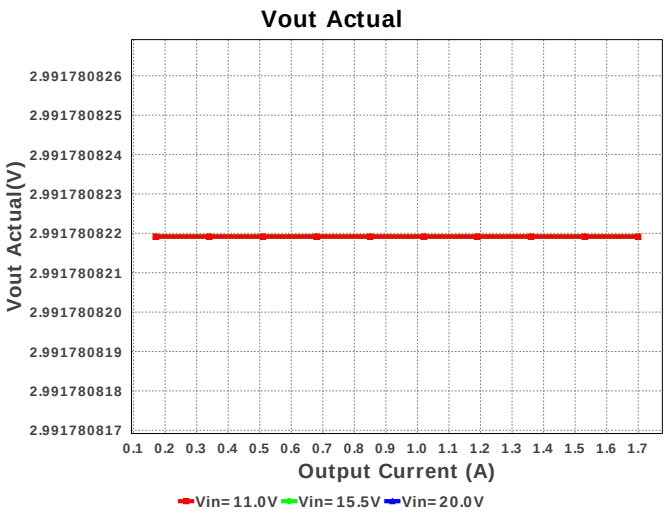
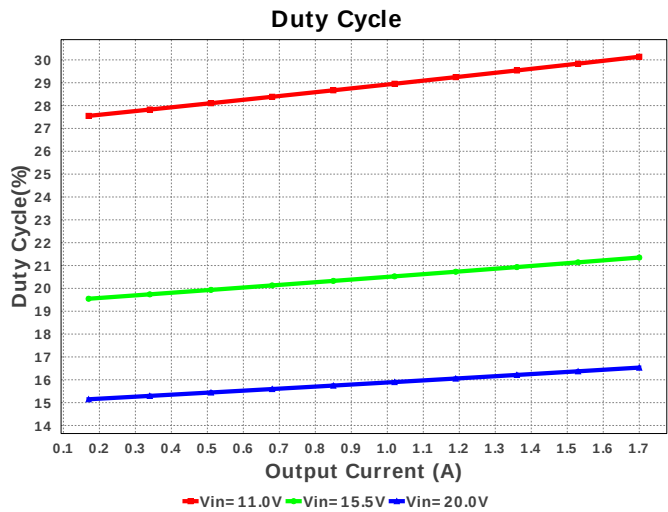
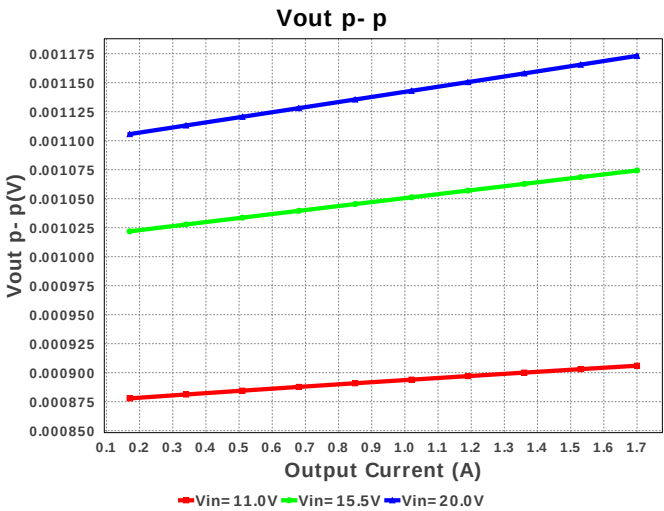
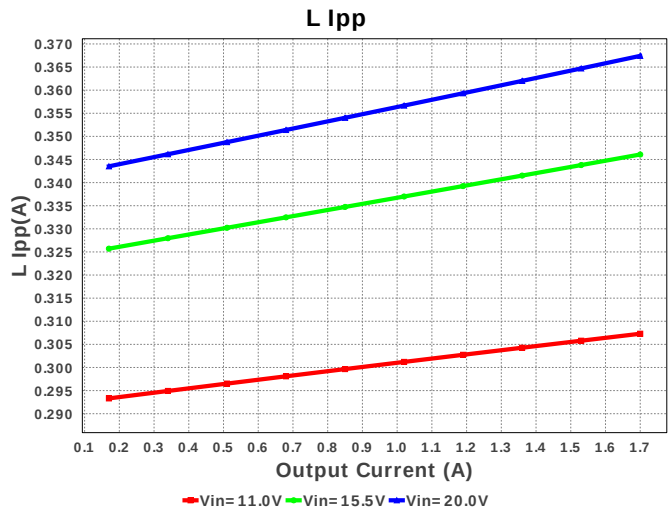
Electrical BOM

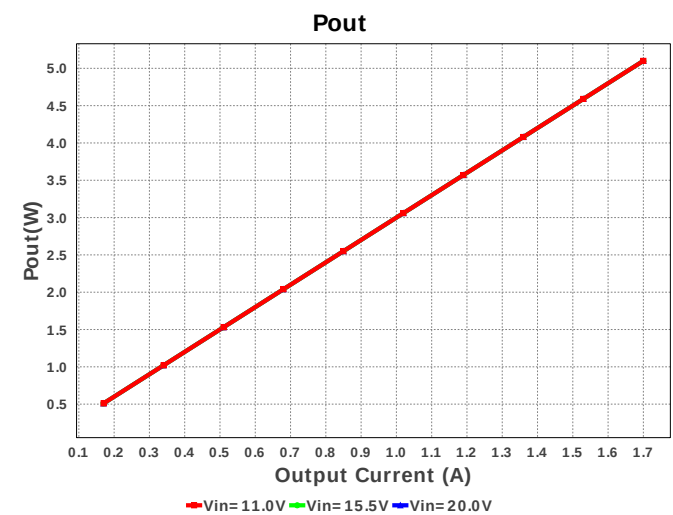
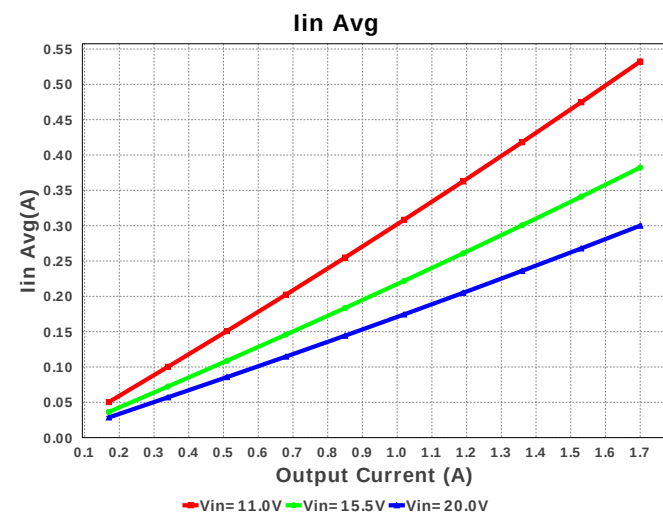
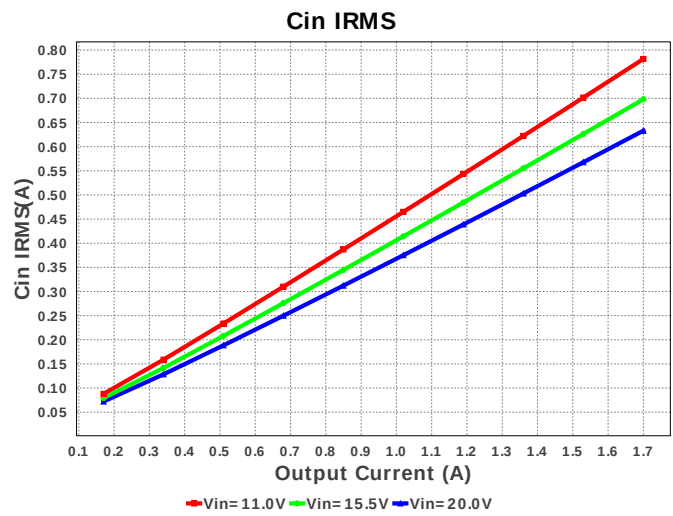
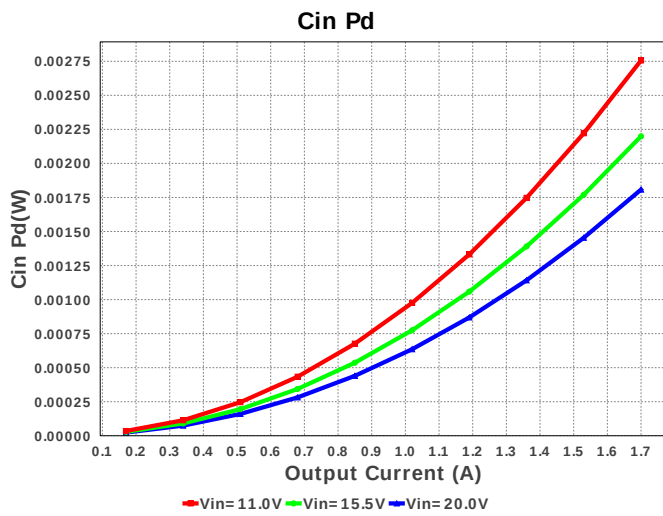
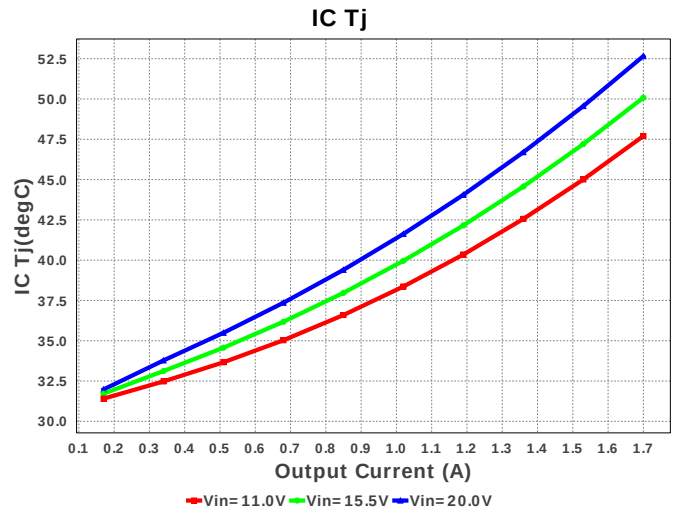
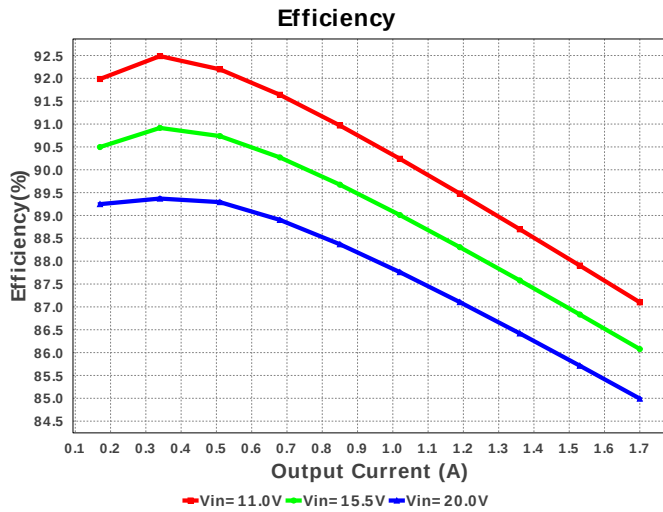
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm²
2.	Ccomp	Yageo America	CC0805KRX7R9BB153 Series= X7R	Cap= 15.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm²
3.	Ccomp2	MuRata	GRM1555C1H241JA01D Series= C0G/NP0	Cap= 240.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm²
4.	Cin	MuRata	GRM31CR61E106KA12L Series= X5R	Cap= 10.0 uF ESR= 4.512 mOhm VDC= 25.0 V IRMS= 2.447 A	1	\$0.05	 1206_190 11 mm²
5.	Cinx	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm²
6.	Cout	MuRata	GRM31CR60J107ME39L Series= X5R	Cap= 100.0 uF ESR= 4.885 mOhm VDC= 6.3 V IRMS= 4.4118 A	2	\$0.14	 1206_190 11 mm²
7.	Css	MuRata	GRM033R61A103KA01D Series= X5R	Cap= 10.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0201 2 mm²
8.	L1	Bourns	SDR1105-220ML	L= 22.0 uH DCR= 80.0 mOhm	1	\$0.29	 SDR1105 157 mm²
9.	Rcomp	Vishay-Dale	CRCW04024K87FKED Series= CRCW..e3	Res= 4.87 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²

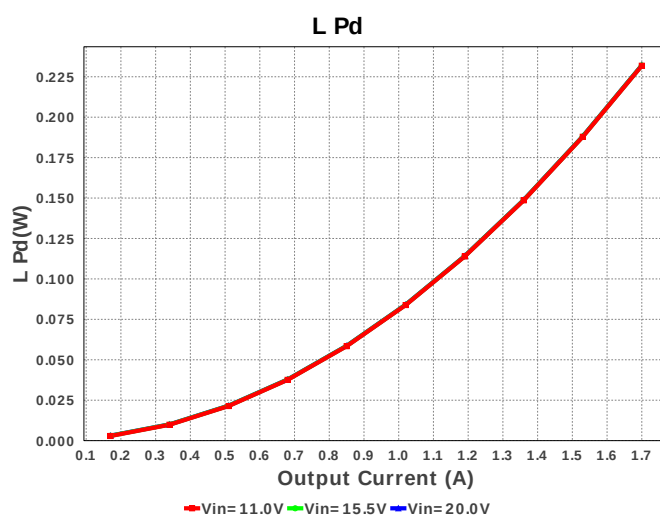
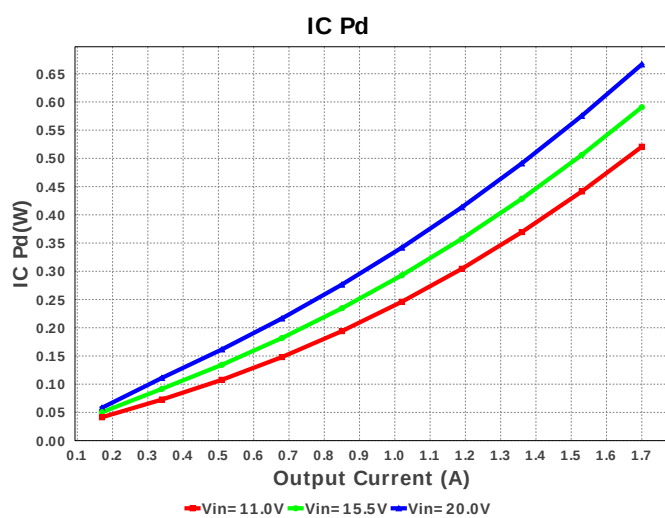
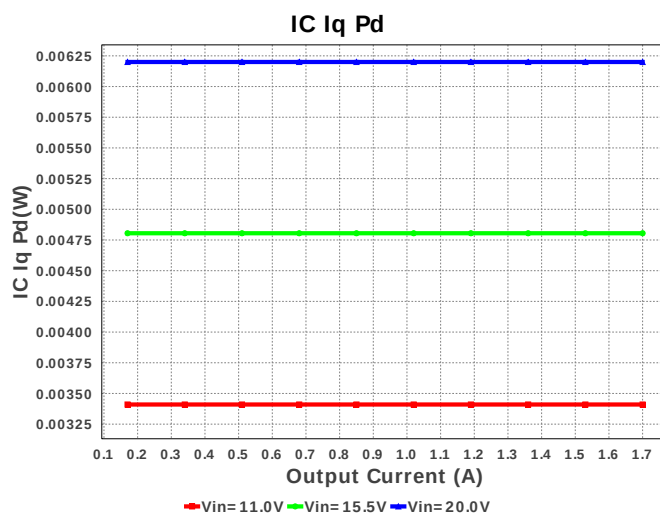
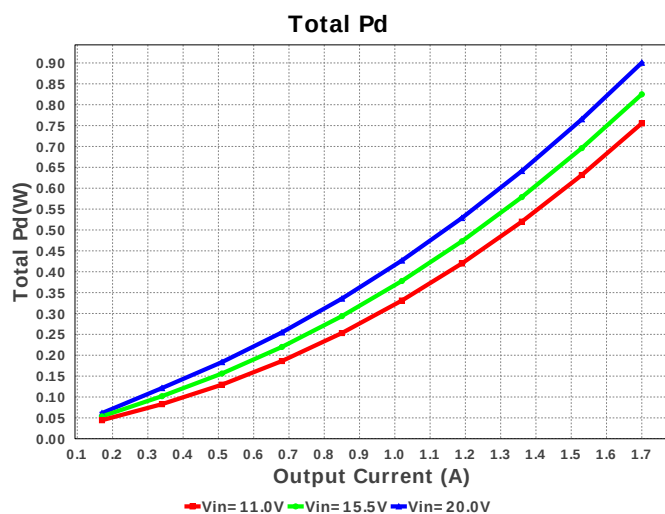
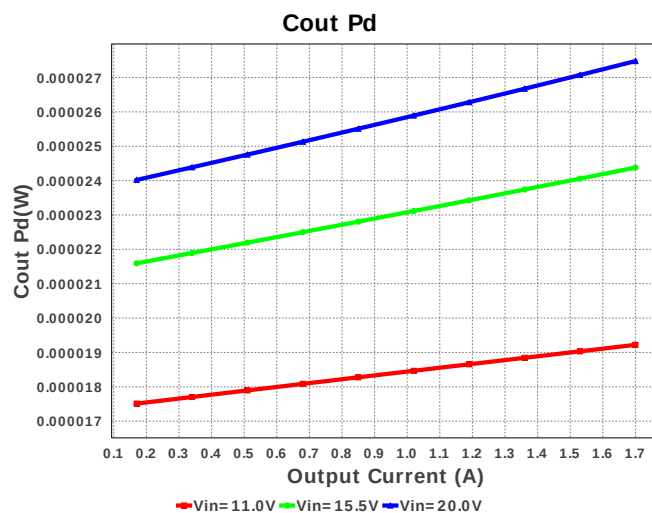
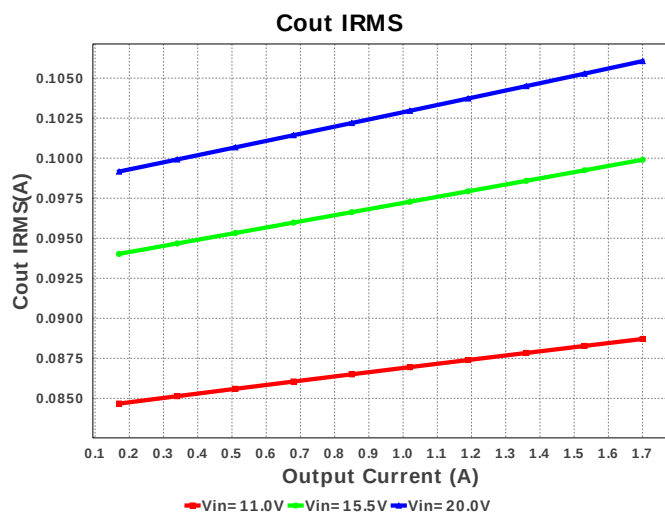
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	Rfbfb	Vishay-Dale	CRCW040236K5FKED Series= CRCW..e3	Res= 36.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	Rfbt	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
12.	U1	Texas Instruments	TPS54336ADDAR	Switcher	1	\$0.90	

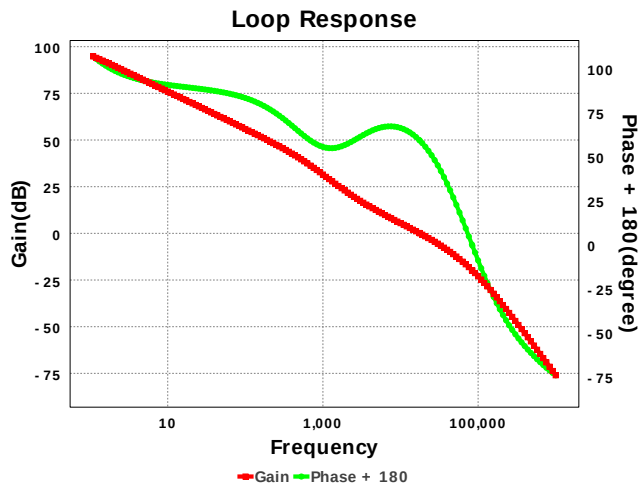


R-PDSO-G8 57 mm²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	632.986 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	106.065 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	300.03 mA	Current	Average input current
4.	L Ipp	367.42 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	13	General	Total Design BOM count
6.	FootPrint	282.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	340.0 kHz	General	Switching frequency
8.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
9.	Pout	5.1 W	General	Total output power
10.	Total BOM	\$1.6	General	Total BOM Cost
11.	ICThetaJA Effective	34.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
12.	Low Freq Gain	94.77 dB	Op_Point	Gain at 10Hz
13.	Vout Actual	2.992 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
14.	Vout OP	3.0 V	Op_Point	Operational Output Voltage
15.	Cross Freq	17.773 kHz	Op_point	Bode plot crossover frequency
16.	Duty Cycle	16.533 %	Op_point	Duty cycle
17.	Efficiency	84.993 %	Op_point	Steady state efficiency
18.	Gain Marg	-19.935 dB	Op_point	Bode Plot Gain Margin
19.	IC Tj	52.662 degC	Op_point	IC junction temperature
20.	IOUT_OP	1.7 A	Op_point	Iout operating point
21.	Phase Marg	59.665 deg	Op_point	Bode Plot Phase Margin
22.	VIN_OP	20.0 V	Op_point	Vin operating point
23.	Vout p-p	1.173 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	1.808 mW	Power	Input capacitor power dissipation
25.	Cout Pd	27.478 μ W	Power	Output capacitor power dissipation
26.	IC Iq Pd	6.2 mW	Power	IC Iq Pd
27.	IC Pd	666.524 mW	Power	IC power dissipation
28.	L Pd	232.1 mW	Power	Inductor power dissipation
29.	Total Pd	900.51 mW	Power	Total Power Dissipation
30.	Vout Tolerance	3.002 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	1.7	Maximum Output Current
2.	VinMax	20.0	Maximum input voltage
3.	VinMin	11.0	Minimum input voltage
4.	Vout	3.0	Output Voltage
5.	base_pn	TPS54336A	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS54336A** Product Folder : <http://www.ti.com/product/TPS54336A> : contains the data sheet and other resources.

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