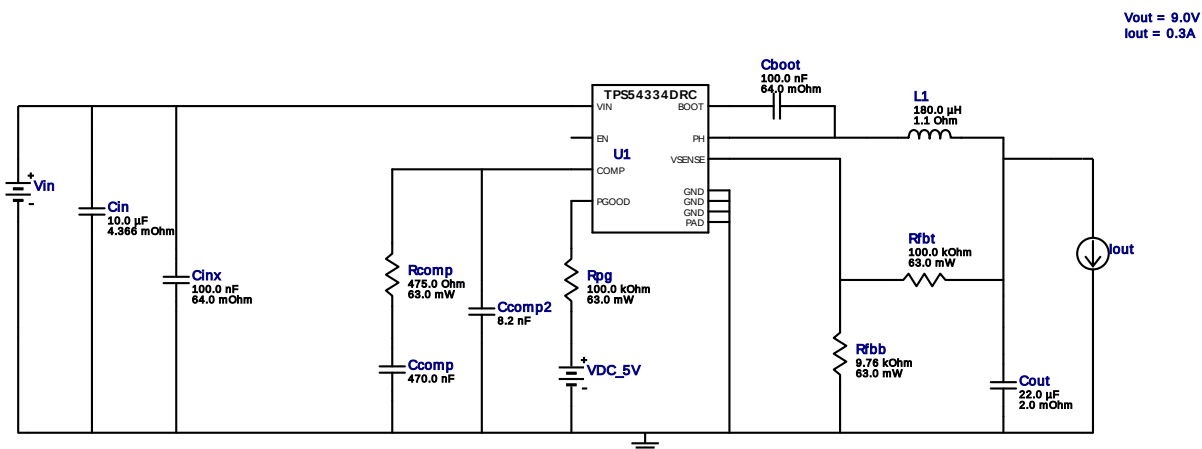


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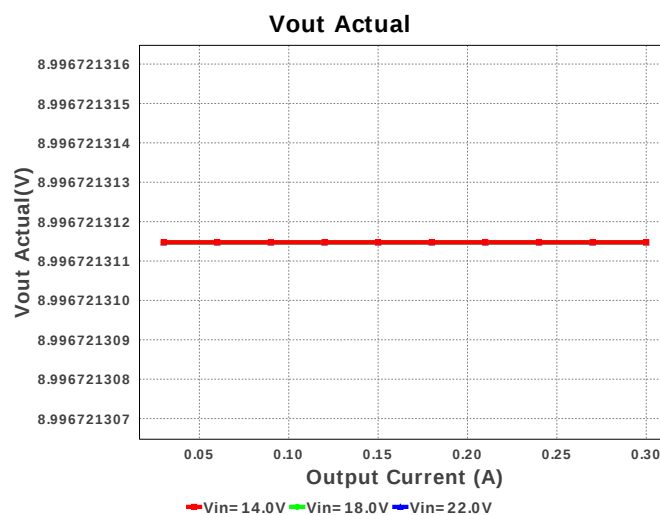
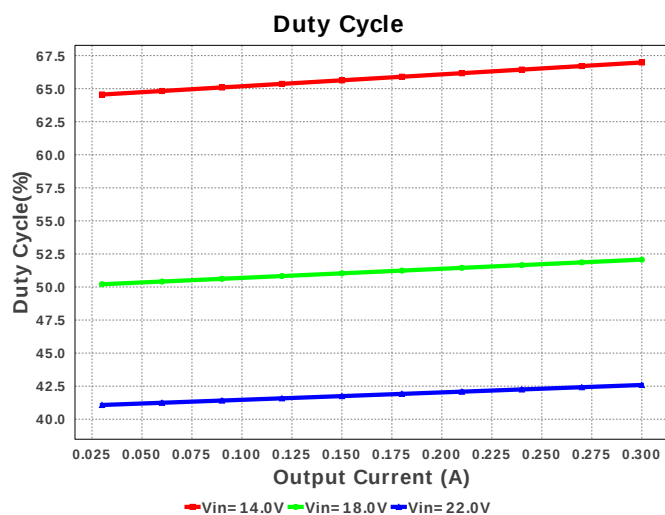
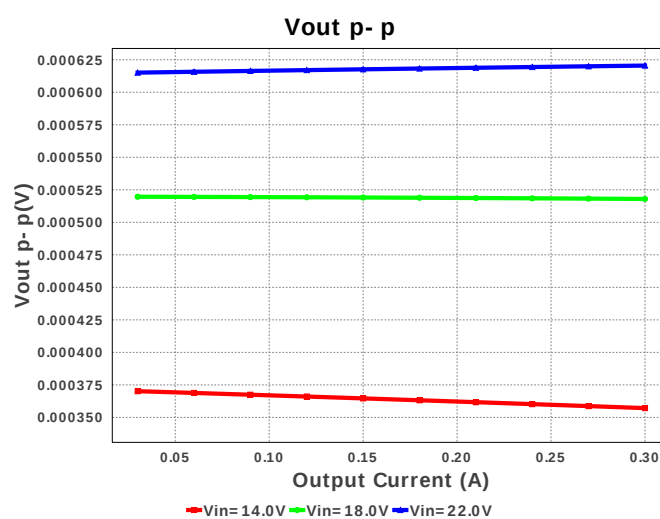
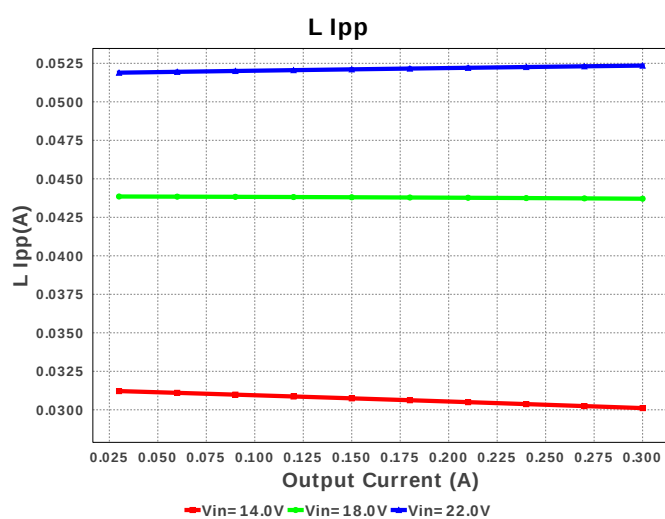
Design : 4551144/144 TPS54334DRCR
TPS54334DRCR 14.0V-22.0V to 9.00V @ 0.3A

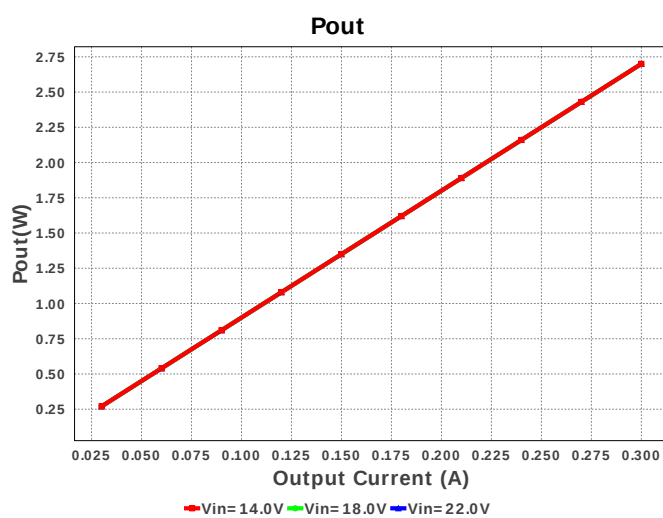
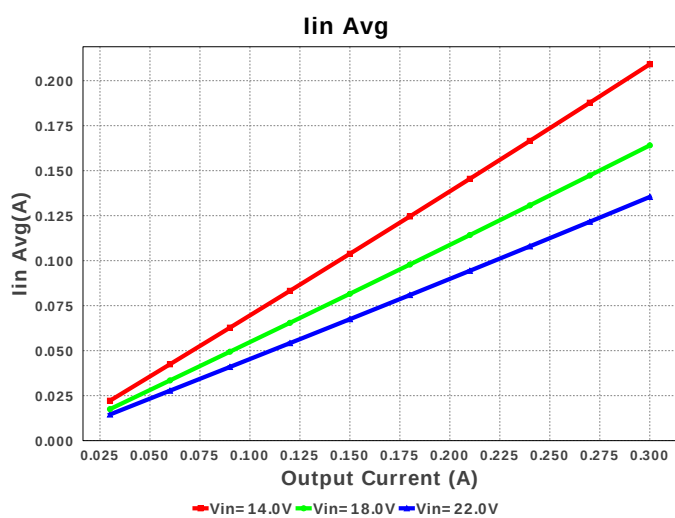
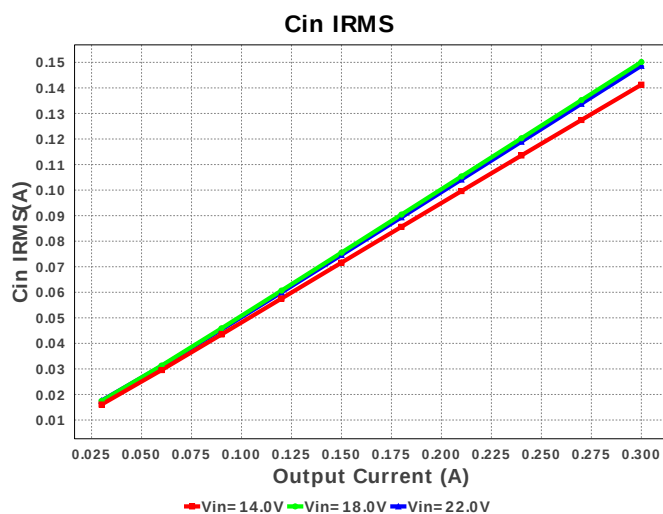
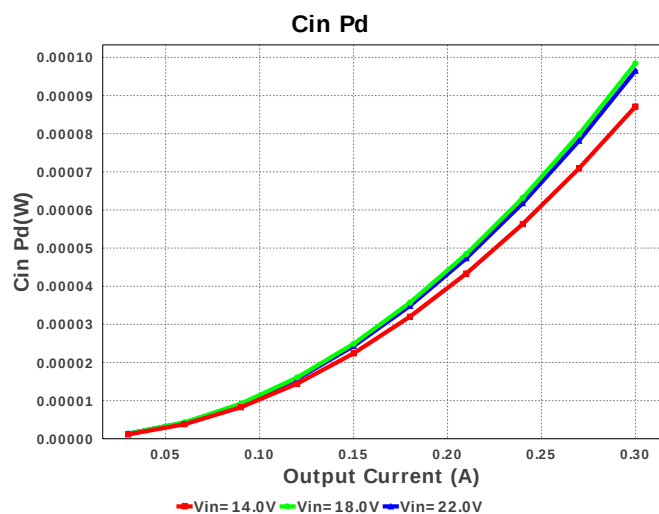
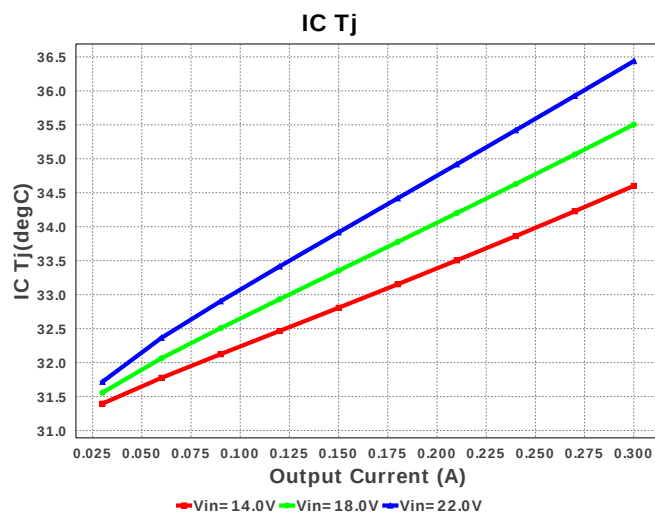
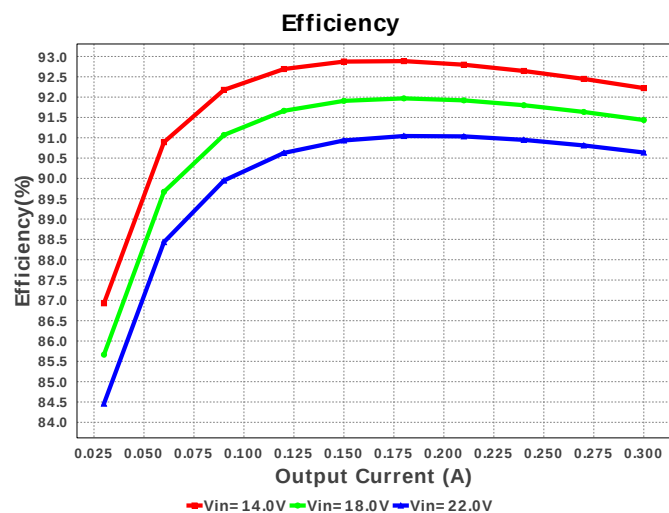


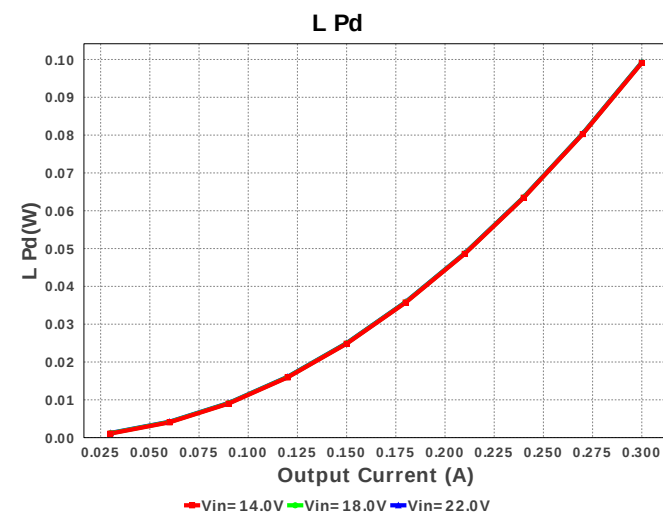
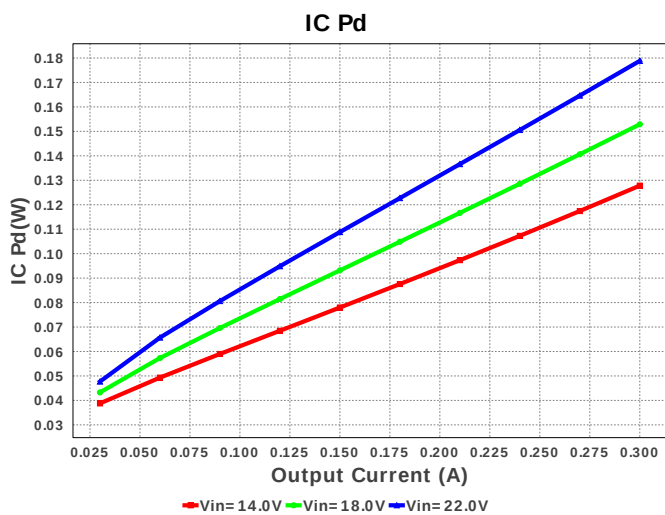
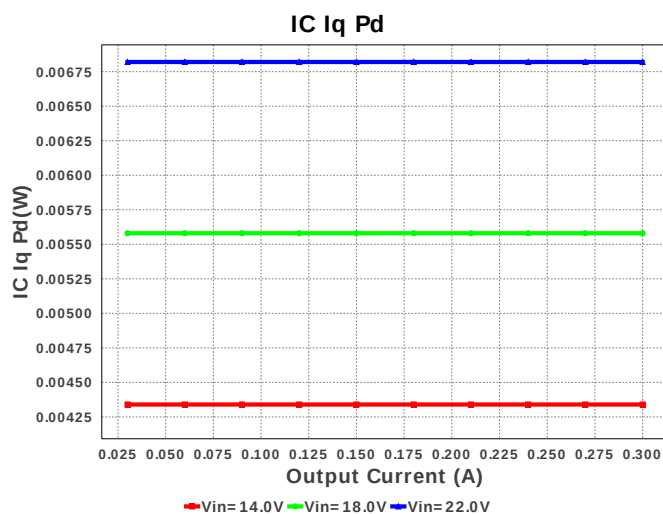
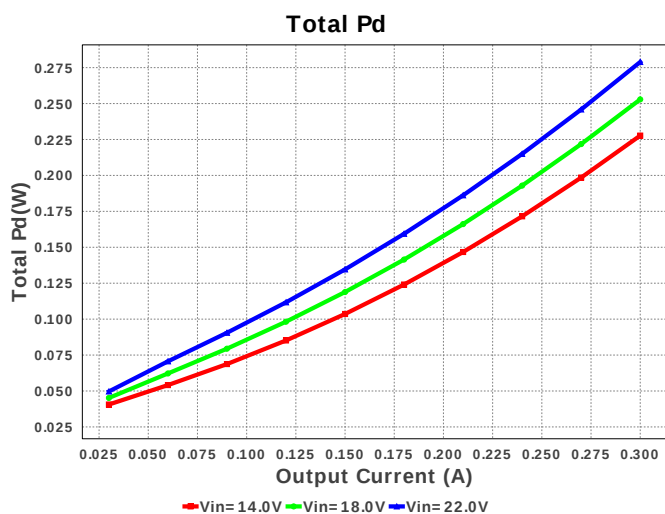
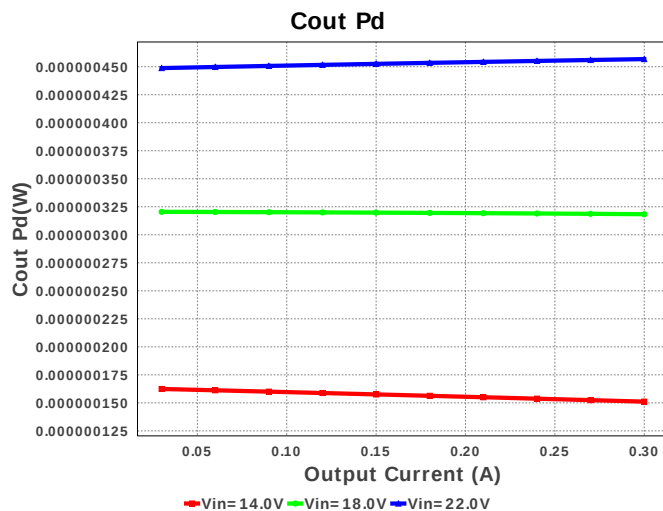
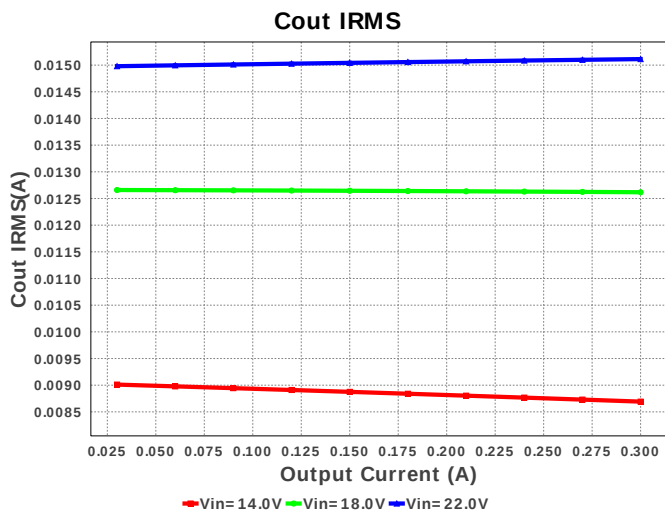
Electrical BOM

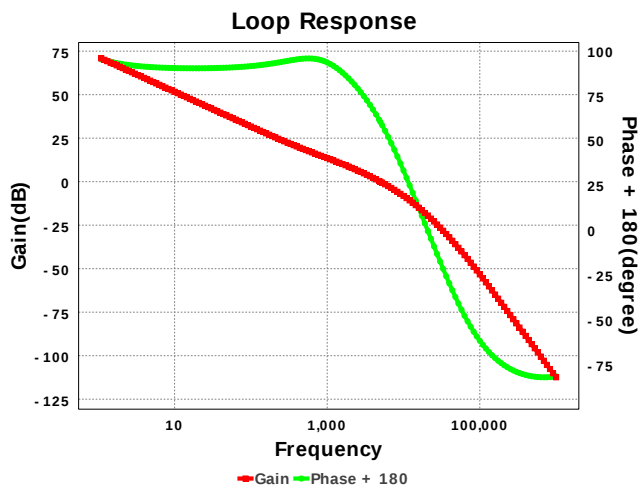
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm ²
2.	Ccomp	MuRata	GRM155C80J474KE19D Series= X6S	Cap= 470.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
3.	Ccomp2	MuRata	GRM033R61A822KA01D Series= X5R	Cap= 8.2 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0201 2 mm ²
4.	Cin	MuRata	GRM31CR71E106KA12L Series= X7R	Cap= 10.0 uF ESR= 4.366 mOhm VDC= 25.0 V IRMS= 2.8022 A	1	\$0.05	 1206_190 11 mm ²
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 mm ²
6.	Cout	MuRata	GRM32ER61C226ME20L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 16.0 V IRMS= 3.68 A	1	\$0.12	 1210 15 mm ²
7.	L1	NIC Components	NPI54C181KTRF	L= 180.0 uH DCR= 1.1 Ohm	1	\$0.09	 IND_NPI54C 61 mm ²
8.	Rcomp	Vishay-Dale	CRCW0402475RFKED Series= CRCW..e3	Res= 475.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
9.	Rfbb	Vishay-Dale	CRCW04029K76FKED Series= CRCW..e3	Res= 9.76 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
10.	Rfbbt	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	Rpg	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
12.	U1	Texas Instruments	TPS54334DRCR	Switcher	1	\$0.95	 DRC0010J 16 mm²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	148.671 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	15.113 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	135.41 mA	Current	Average input current
4.	L Ipp	52.353 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	12	General	Total Design BOM count
6.	FootPrint	133.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	570.0 kHz	General	Switching frequency
8.	IC Tolerance	10.0 mV	General	IC Feedback Tolerance
9.	Mode	CCM	General	Conduction Mode
10.	Pout	2.7 W	General	Total output power
11.	Total BOM	\$1.29	General	Total BOM Cost
12.	ICThetaJA Effective	36.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
13.	Low Freq Gain	70.81 dB	Op_Point	Gain at 10Hz
14.	Vout Actual	8.997 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
15.	Vout OP	9.0 V	Op_Point	Operational Output Voltage
16.	Cross Freq	4.972 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	42.59 %	Op_point	Duty cycle
18.	Efficiency	90.637 %	Op_point	Steady state efficiency
19.	Gain Marg	-19.581 dB	Op_point	Bode Plot Gain Margin
20.	IC Tj	36.438 degC	Op_point	IC junction temperature
21.	IOUT_OP	300.0 mA	Op_point	Iout operating point
22.	Phase Marg	60.814 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	22.0 V	Op_point	Vin operating point
24.	Vout p-p	620.508 μ V	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	96.502 μ W	Power	Input capacitor power dissipation
26.	Cout Pd	456.804 nW	Power	Output capacitor power dissipation
27.	IC Iq Pd	6.82 mW	Power	IC Iq Pd
28.	IC Pd	178.83 mW	Power	IC power dissipation
29.	L Pd	99.251 mW	Power	Inductor power dissipation
30.	Total Pd	278.926 mW	Power	Total Power Dissipation
31.	Vout Tolerance	3.114 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	300.0 m	Maximum Output Current
2.	VinMax	22.0	Maximum input voltage
3.	VinMin	14.0	Minimum input voltage
4.	Vout	9.0	Output Voltage
5.	base_pn	TPS54334	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS54334** Product Folder : <http://www.ti.com/product/TPS54334> : contains the data sheet and other resources.

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