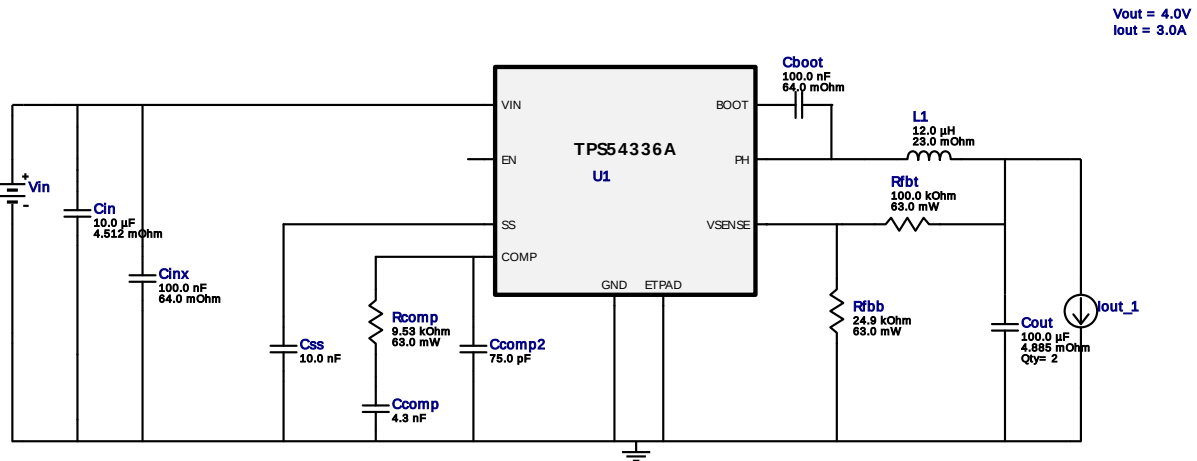


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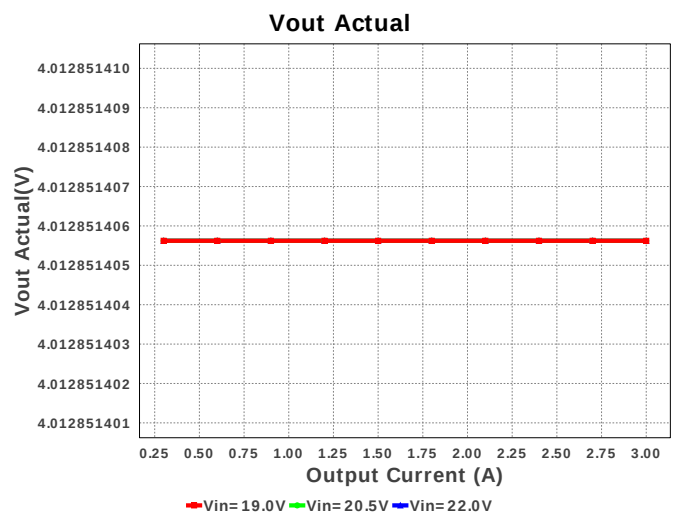
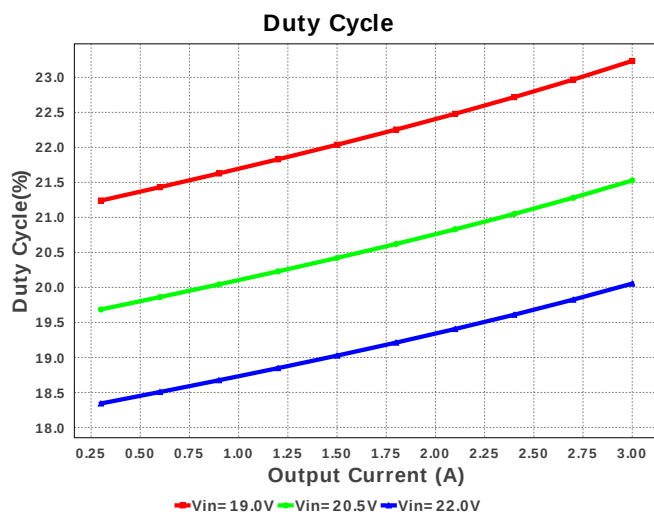
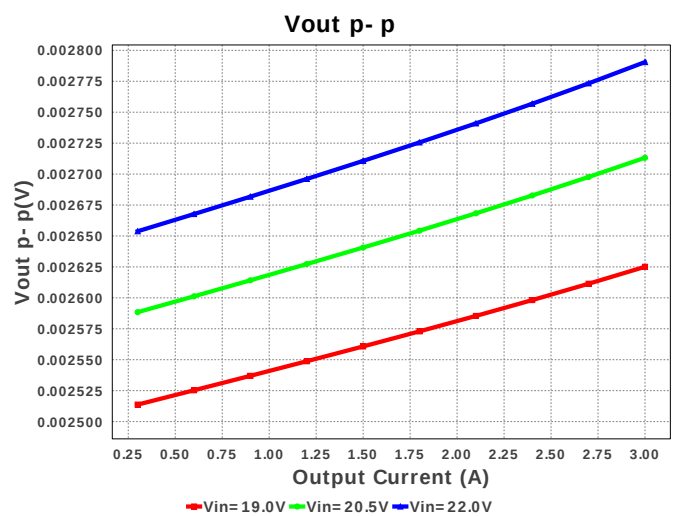
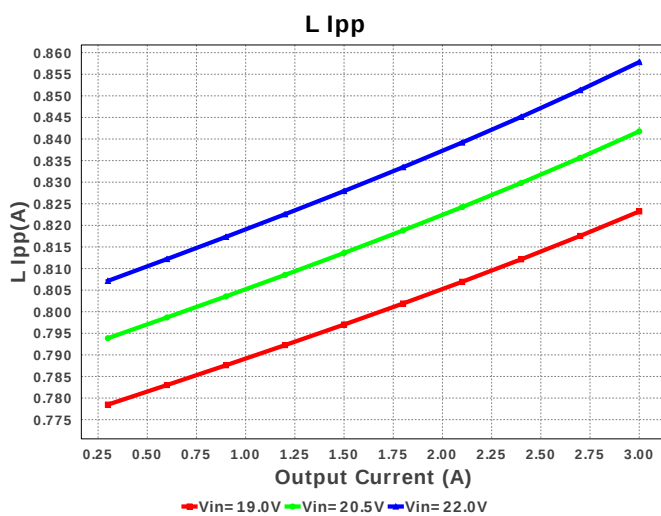
Design : 4770666/22 TPS54336ADDAR
TPS54336ADDAR 19.0V-22.0V to 4.00V @ 3.0A

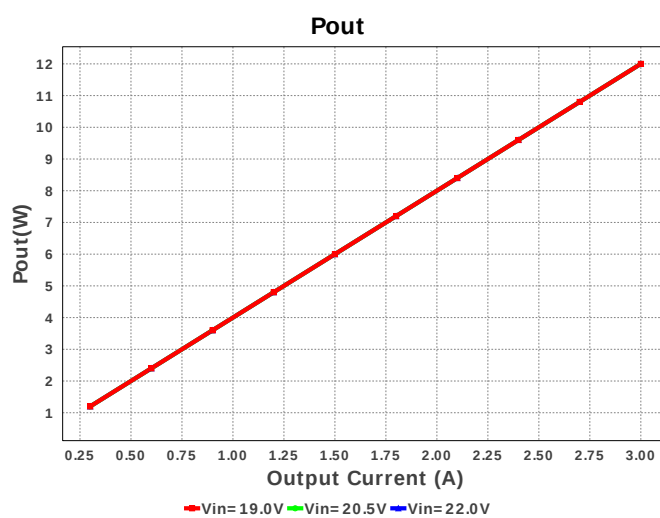
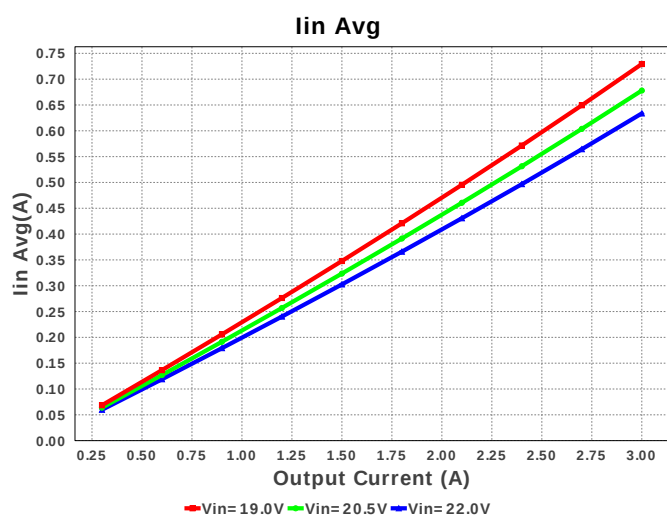
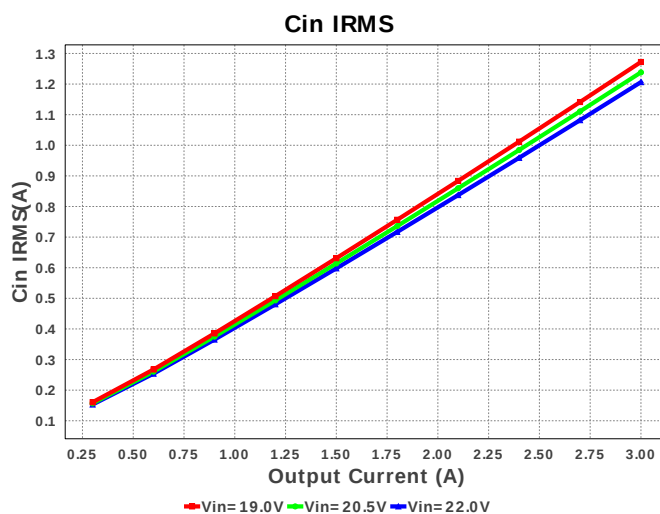
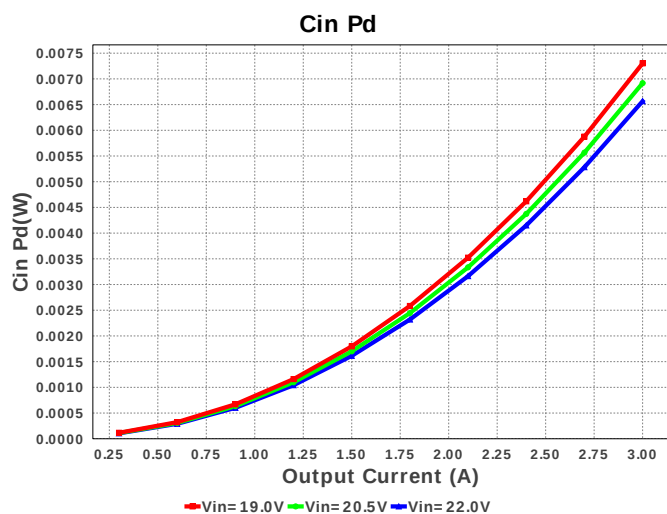
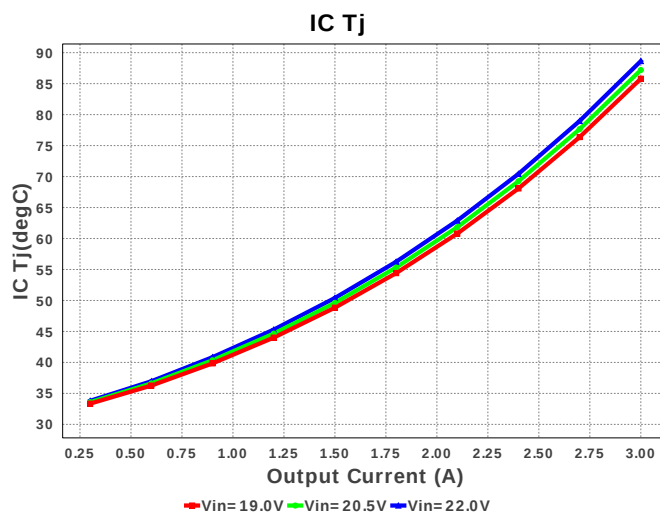
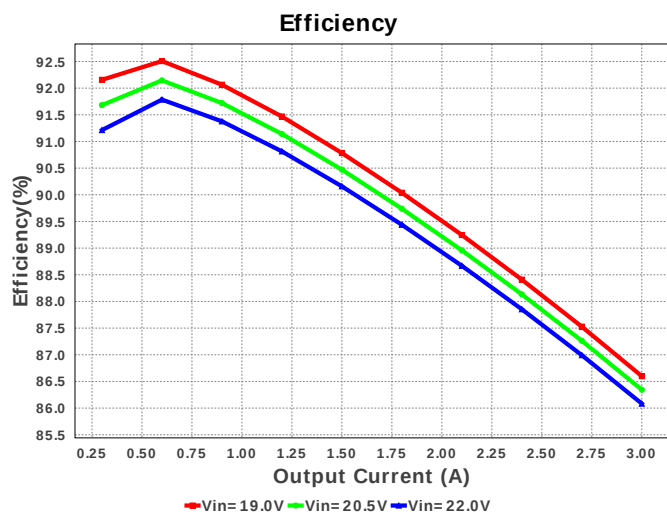


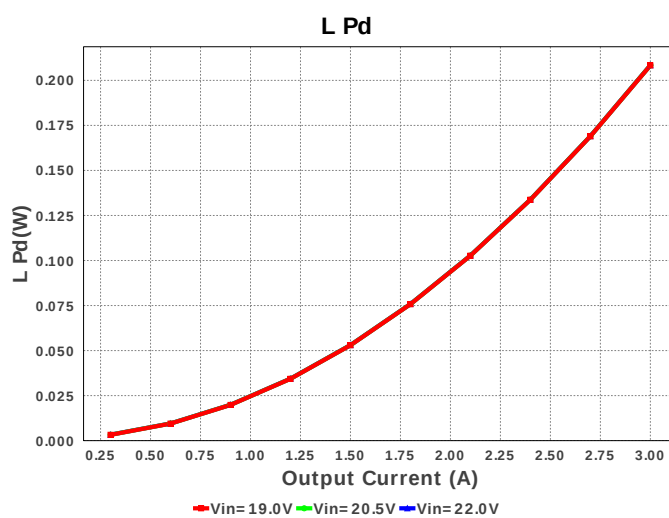
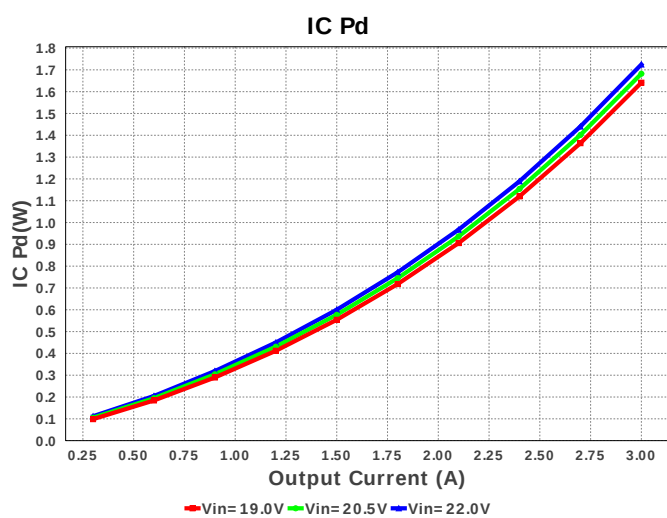
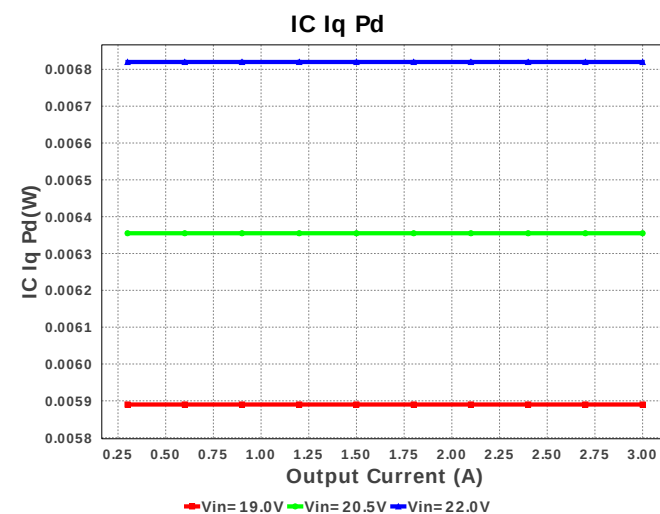
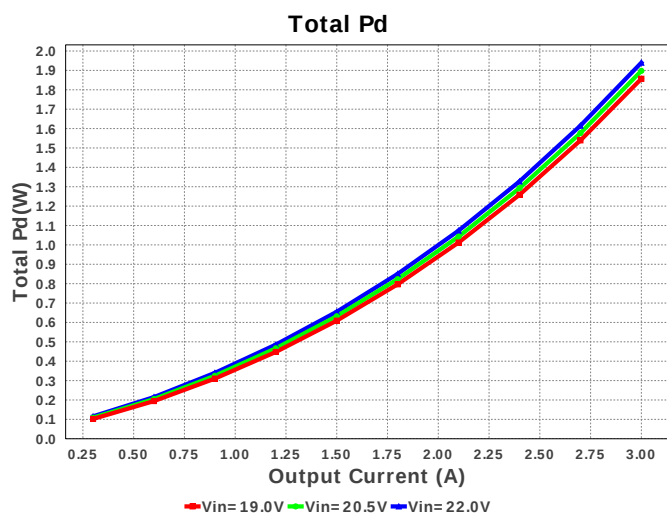
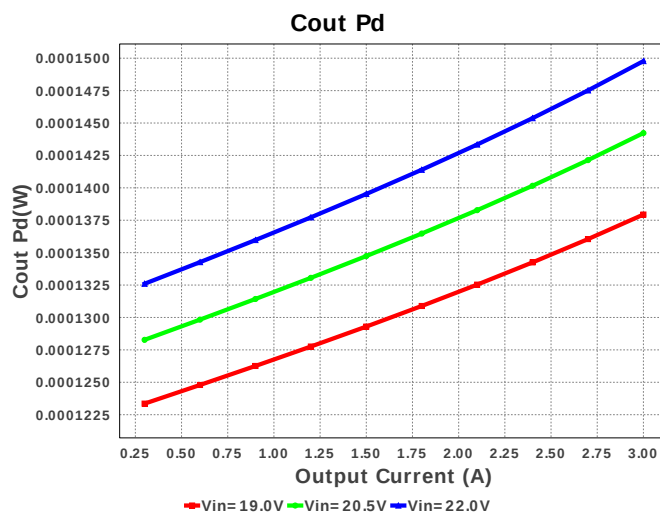
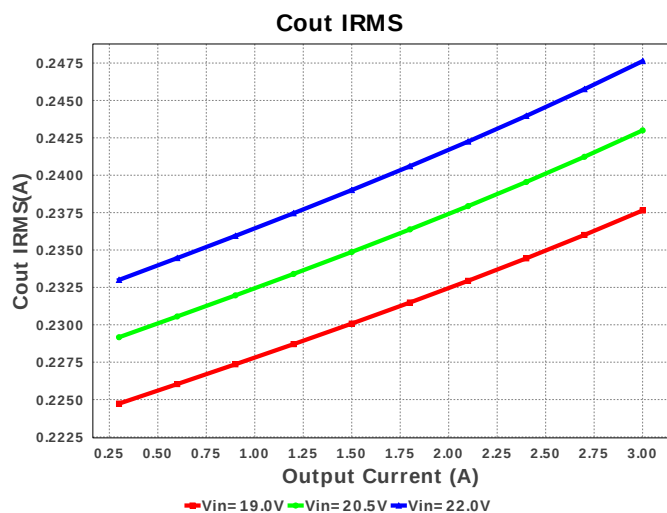
Electrical BOM

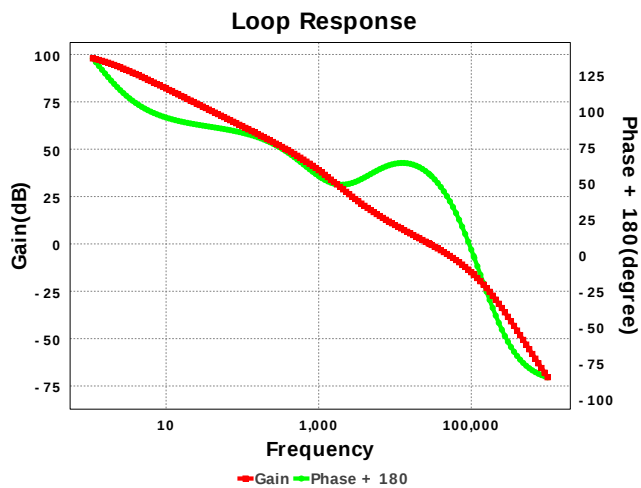
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm ²
2.	Ccomp	MuRata	GRM2165C1H432JA01D Series= C0G/NP0	Cap= 4.3 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.04	 0805 7 mm ²
3.	Ccomp2	Samsung Electro-Mechanics	CL21C750JBANNNC Series= C0G/NP0	Cap= 75.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
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 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	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 mm ²
7.	Css	MuRata	GRM033R61A103KA01D Series= X5R	Cap= 10.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0201 2 mm ²
8.	L1	Bourns	SRR1260-120M	L= 12.0 uH DCR= 23.0 mOhm	1	\$0.41	 SRR1260 210 mm ²
9.	Rcomp	Vishay-Dale	CRCW04029K53FKED Series= CRCW..e3	Res= 9.53 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	Rfbb	Vishay-Dale	CRCW040224K9FKED Series= CRCW..e3	Res= 24.9 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 55 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.206 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	247.631 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	633.63 mA	Current	Average input current
4.	L Ipp	857.82 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	13	General	Total Design BOM count
6.	FootPrint	336.0 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.	Mode	CCM	General	Conduction Mode
10.	Pout	12.0 W	General	Total output power
11.	Total BOM	\$1.75	General	Total BOM Cost
12.	ICThetaJA Effective	34.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
13.	Low Freq Gain	97.911 dB	Op_Point	Gain at 10Hz
14.	Vout Actual	4.013 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
15.	Vout OP	4.0 V	Op_Point	Operational Output Voltage
16.	Cross Freq	28.487 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	20.055 %	Op_point	Duty cycle
18.	Efficiency	86.084 %	Op_point	Steady state efficiency
19.	Gain Marg	-16.111 dB	Op_point	Bode Plot Gain Margin
20.	IC Tj	88.638 degC	Op_point	IC junction temperature
21.	IOUT_OP	3.0 A	Op_point	Iout operating point
22.	Phase Marg	56.735 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	22.0 V	Op_point	Vin operating point
24.	Vout p-p	2.791 mV	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	6.566 mW	Power	Input capacitor power dissipation
26.	Cout Pd	149.777 μ W	Power	Output capacitor power dissipation
27.	IC Iq Pd	6.82 mW	Power	IC Iq Pd
28.	IC Pd	1.725 W	Power	IC power dissipation
29.	L Pd	208.41 mW	Power	Inductor power dissipation
30.	Total Pd	1.94 W	Power	Total Power Dissipation
31.	Vout Tolerance	3.142 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	3.0	Maximum Output Current
2.	VinMax	22.0	Maximum input voltage
3.	VinMin	19.0	Minimum input voltage
4.	Vout	4.0	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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