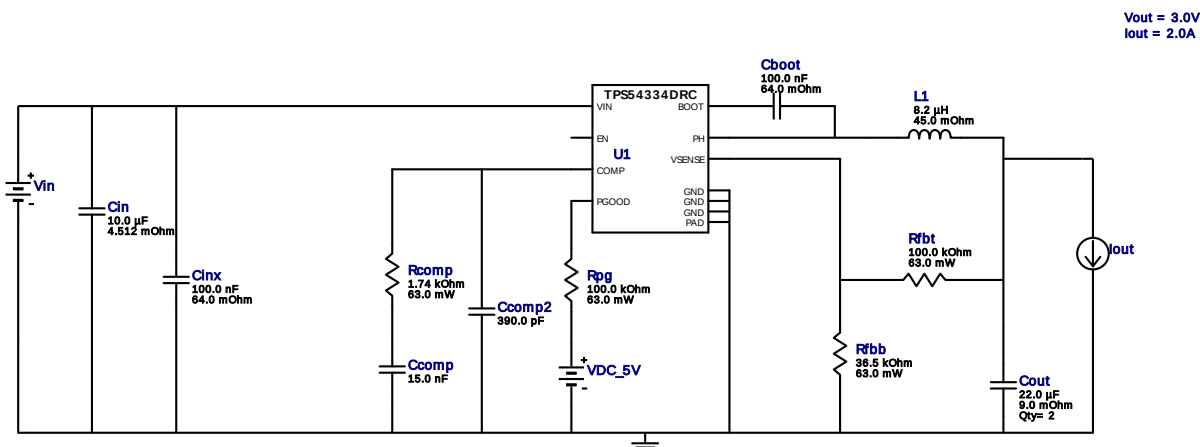


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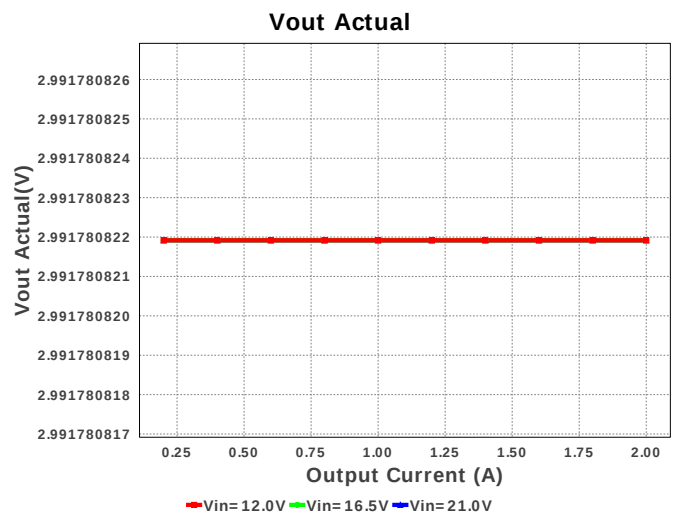
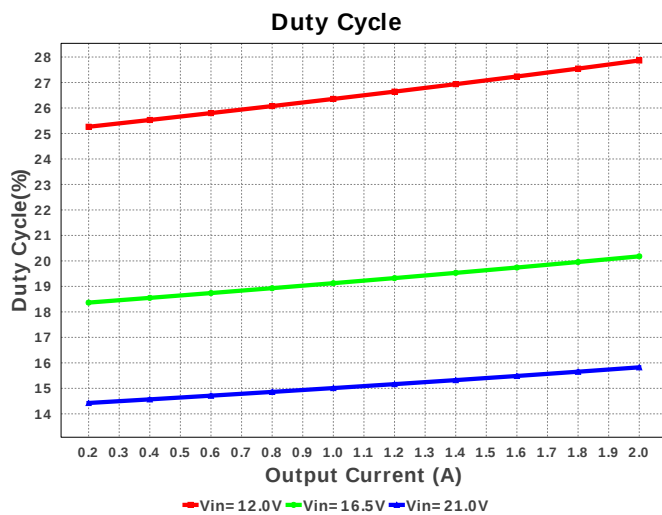
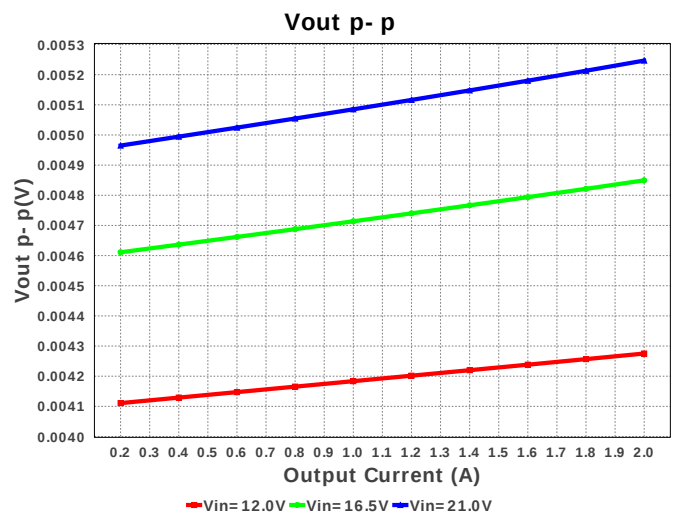
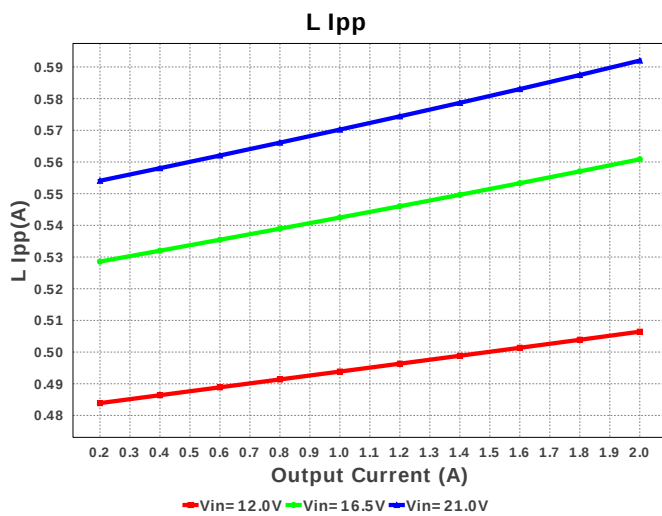
Design : 4648186/11 TPS54334DRCR
TPS54334DRCR 12.0V-21.0V to 3.00V @ 2.0A

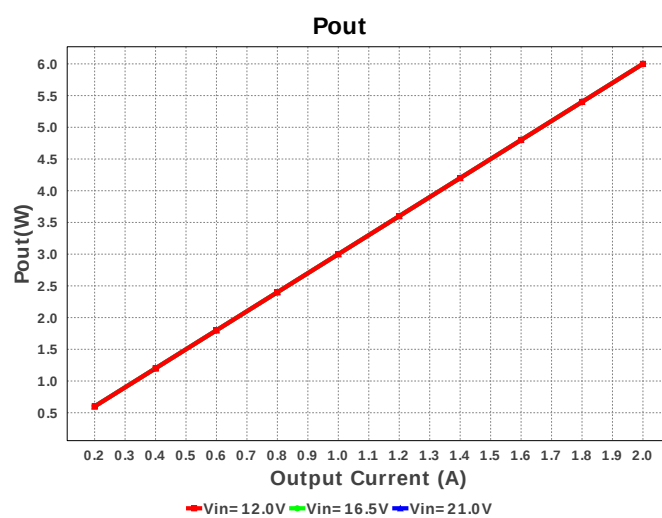
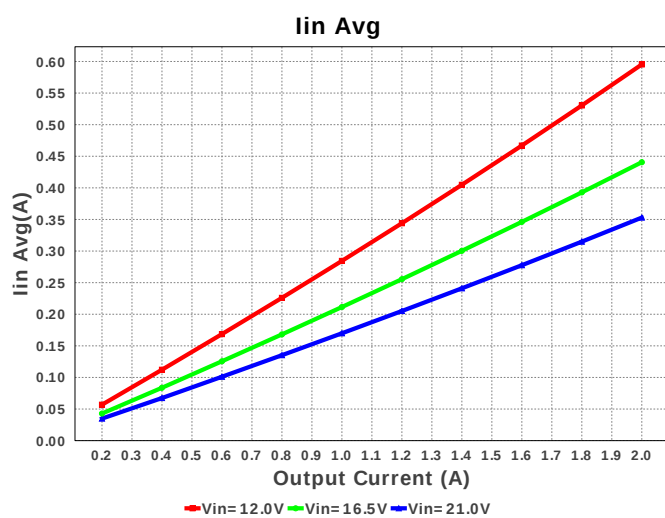
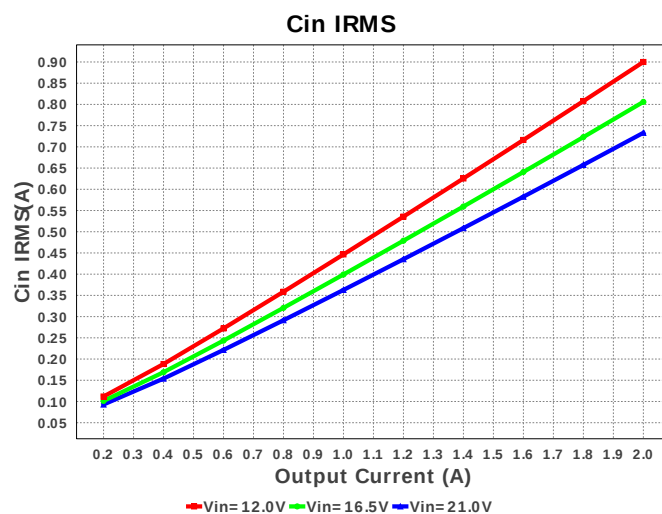
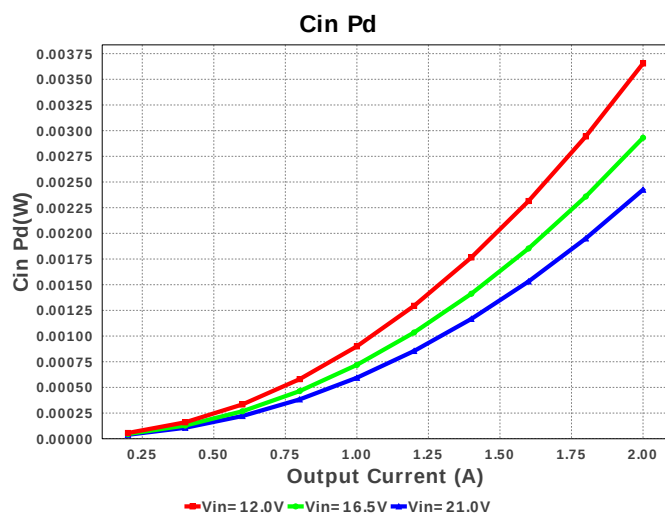
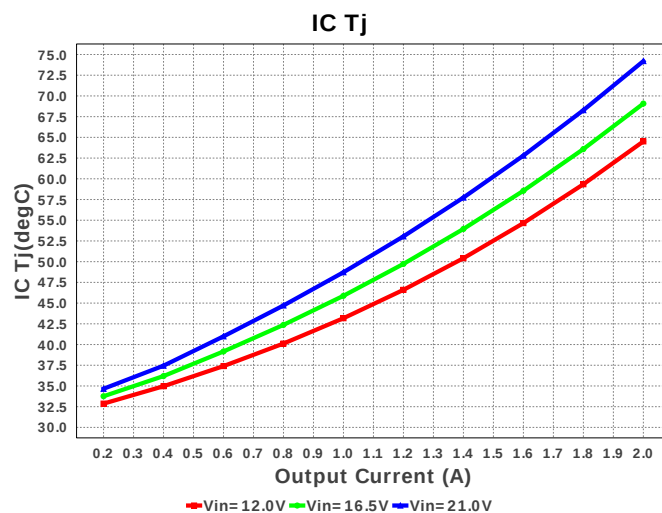
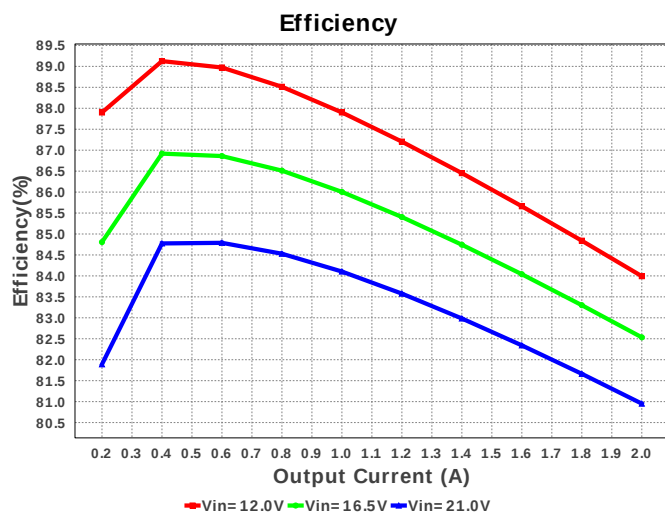


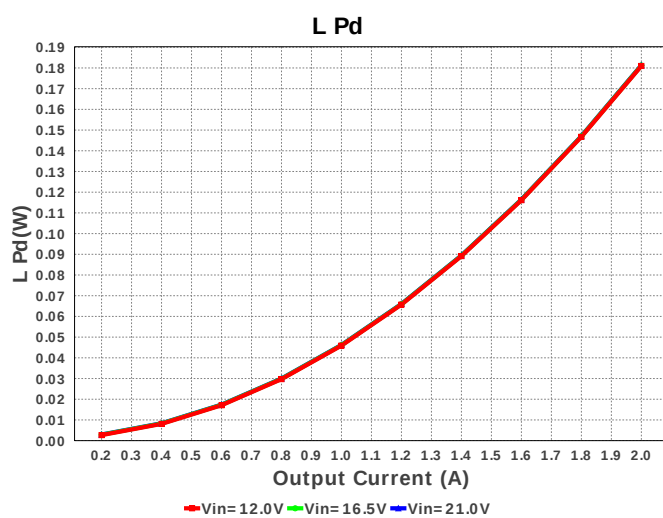
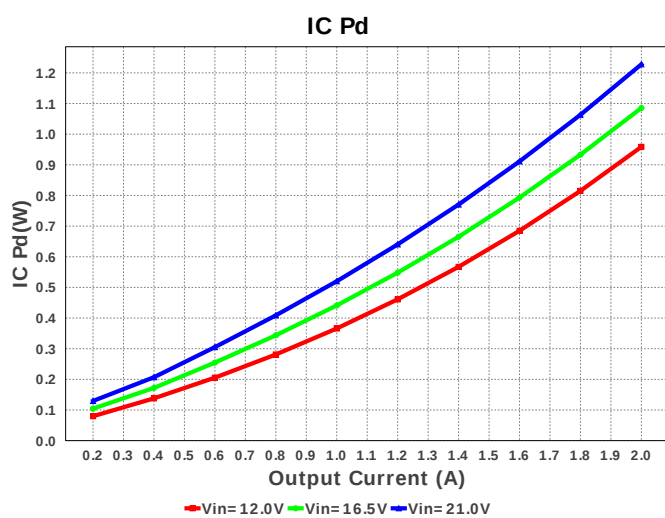
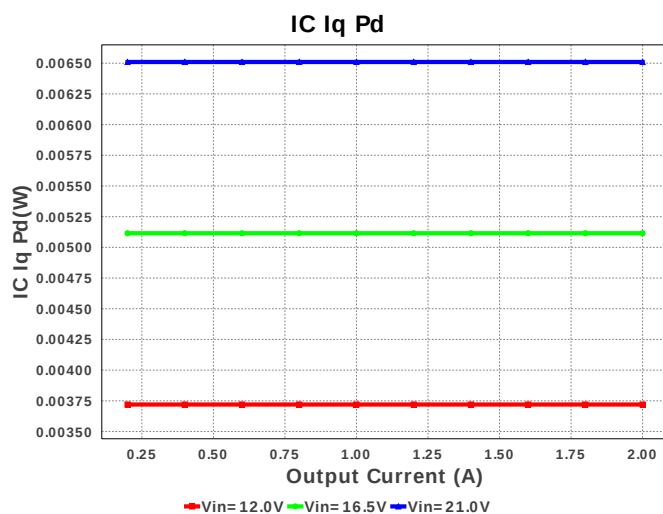
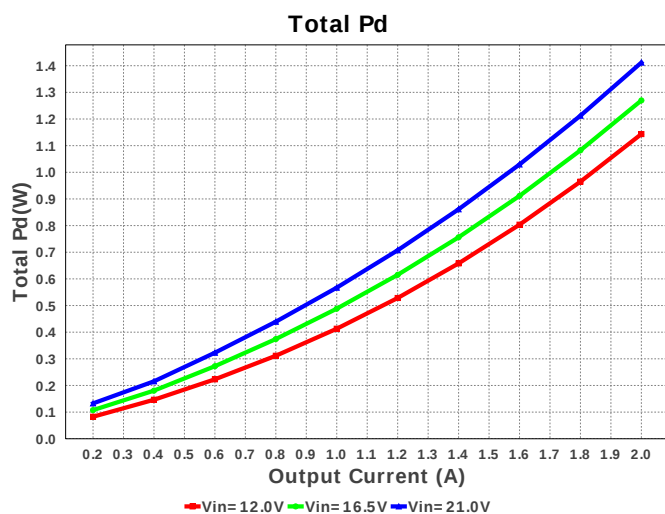
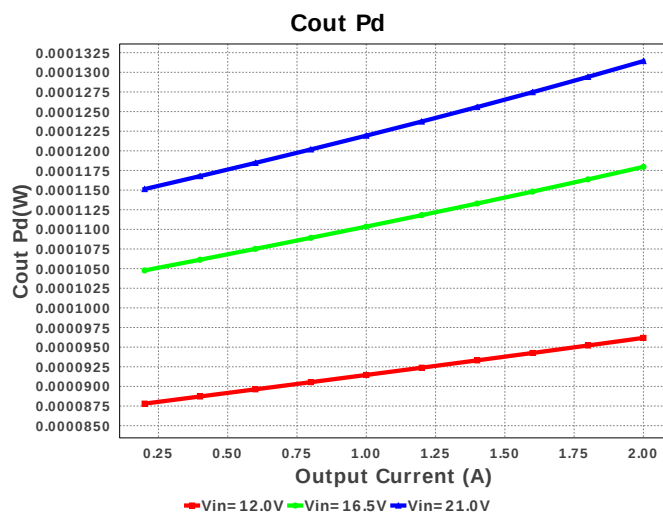
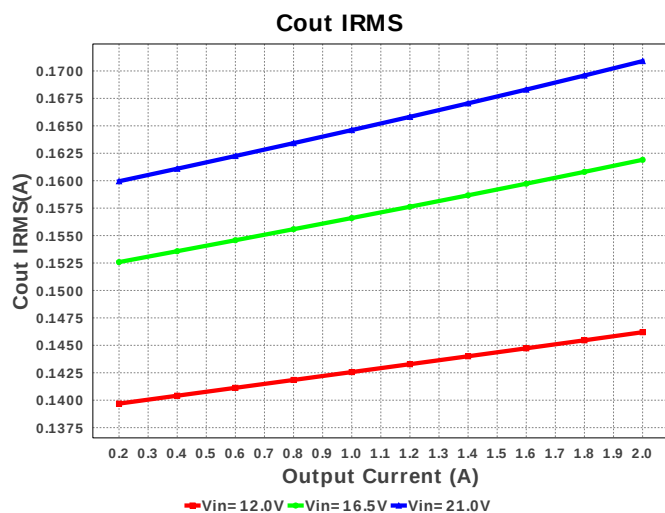
Electrical BOM

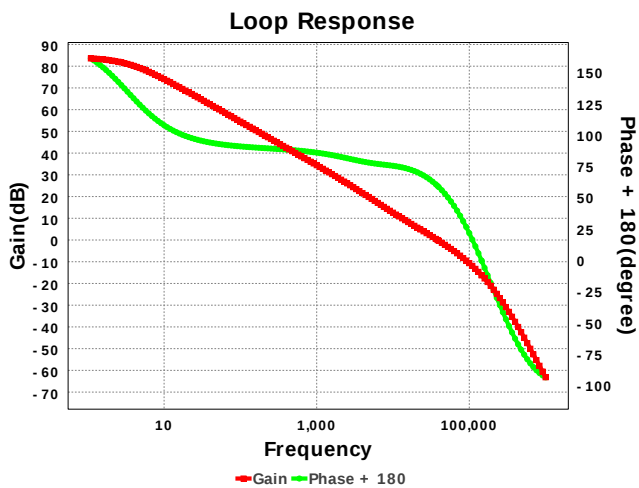
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	0805 7 mm ²
2.	Ccomp	Yageo America	CC0805KRX7R9BB153 Series= X7R	Cap= 15.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Ccomp2	Yageo America	CC0805KRX7R9BB391 Series= X7R	Cap= 390.0 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	GRM21BR60J226ME39L Series= X5R	Cap= 22.0 uF ESR= 9.0 mOhm VDC= 6.3 V IRMS= 3.5 A	2	\$0.04	0805 7 mm ²
7.	L1	Bourns	SRN8040-8R2Y	L= 8.2 uH DCR= 45.0 mOhm	1	\$0.22	SRN8040 100 mm ²
8.	Rcomp	Vishay-Dale	CRCW04021K74FKED Series= CRCW..e3	Res= 1.74 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
9.	Rfbb	Vishay-Dale	CRCW040236K5FKED Series= CRCW..e3	Res= 36.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
10.	Rfht	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 mm ²
12.	U1	Texas Instruments	TPS54334DRCR	Switcher	1	\$0.95	 DRC0010J 16 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	733.11 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	170.898 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	352.94 mA	Current	Average input current
4.	L Ipp	592.01 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	13	General	Total Design BOM count
6.	FootPrint	179.0 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.	Pout	6.0 W	General	Total output power
10.	Total BOM	\$1.38	General	Total BOM Cost
11.	ICThetaJA Effective	36.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
12.	Low Freq Gain	83.568 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	38.349 kHz	Op_point	Bode plot crossover frequency
16.	Duty Cycle	15.825 %	Op_point	Duty cycle
17.	Efficiency	80.952 %	Op_point	Steady state efficiency
18.	Gain Marg	-16.248 dB	Op_point	Bode Plot Gain Margin
19.	IC Tj	74.204 degC	Op_point	IC junction temperature
20.	IOUT_OP	2.0 A	Op_point	Iout operating point
21.	Phase Marg	59.959 deg	Op_point	Bode Plot Phase Margin
22.	VIN_OP	21.0 V	Op_point	Vin operating point
23.	Vout p-p	5.247 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	2.425 mW	Power	Input capacitor power dissipation
25.	Cout Pd	131.428 μ W	Power	Output capacitor power dissipation
26.	IC Iq Pd	6.51 mW	Power	IC Iq Pd
27.	IC Pd	1.228 W	Power	IC power dissipation
28.	L Pd	181.314 mW	Power	Inductor power dissipation
29.	Total Pd	1.412 W	Power	Total Power Dissipation
30.	Vout Tolerance	2.749 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	VinMax	21.0	Maximum input voltage
3.	VinMin	12.0	Minimum input voltage
4.	Vout	3.0	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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