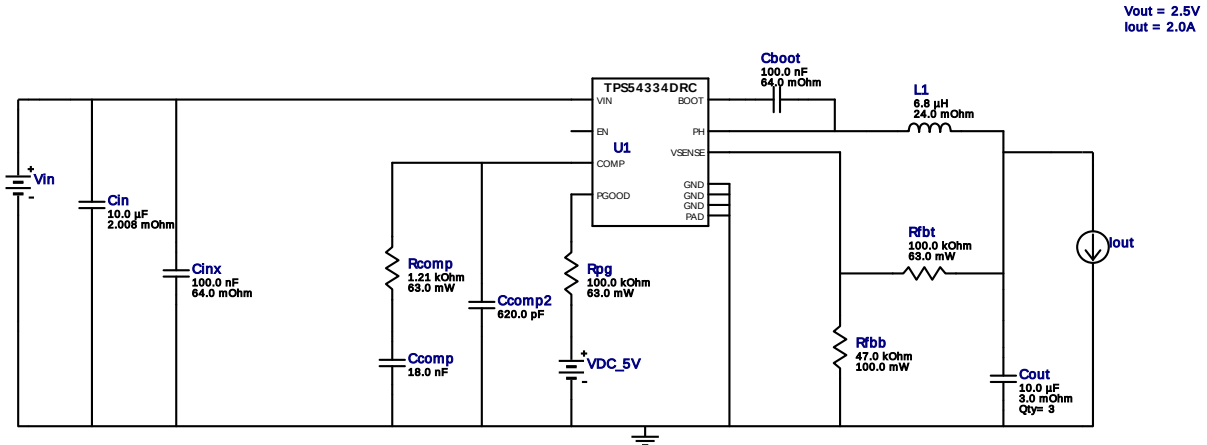


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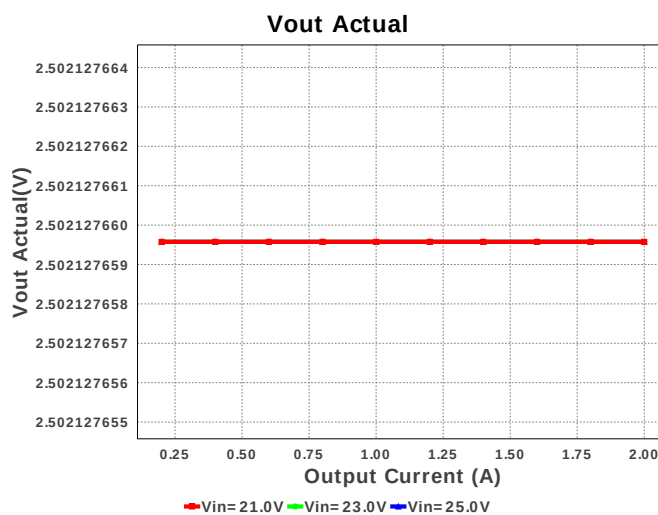
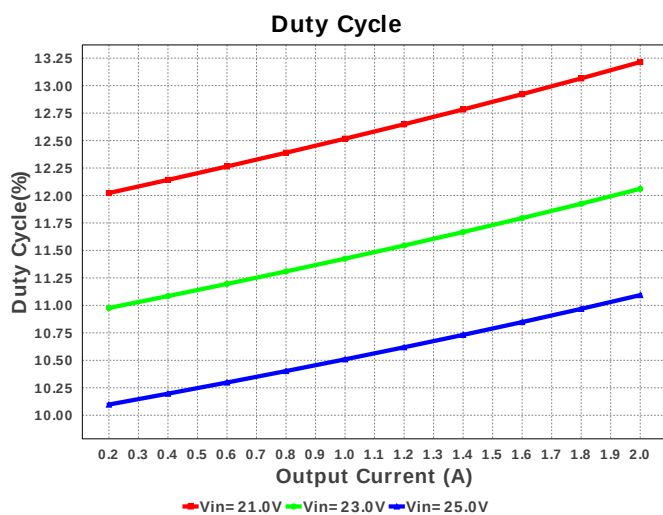
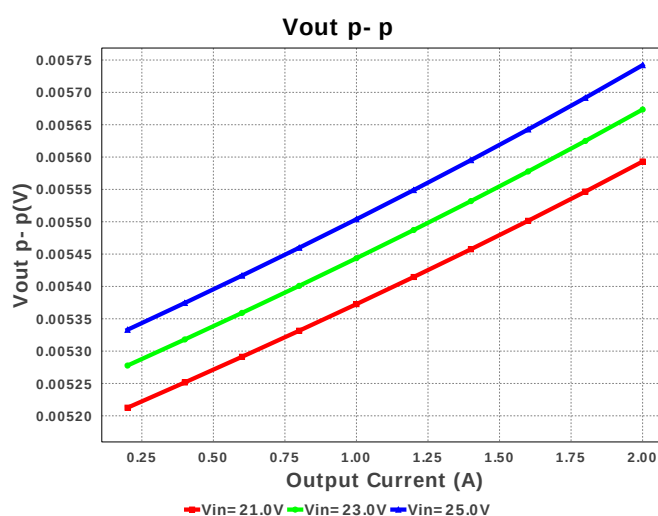
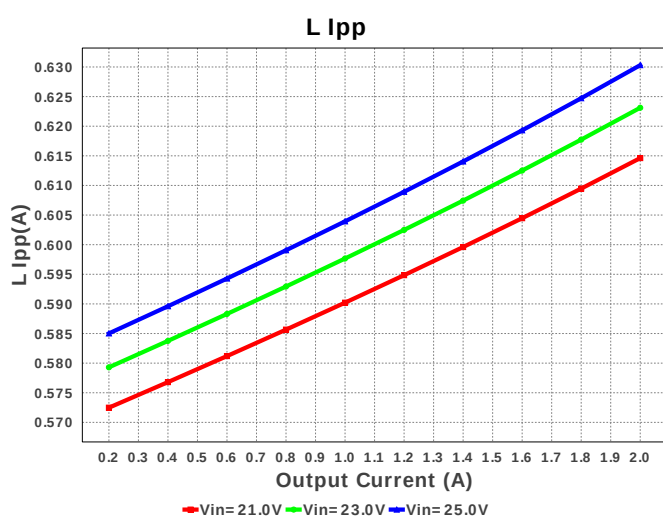
Design : 4742013/182 TPS54334DRCR
TPS54334DRCR 21.0V-25.0V to 2.50V @ 2.0A

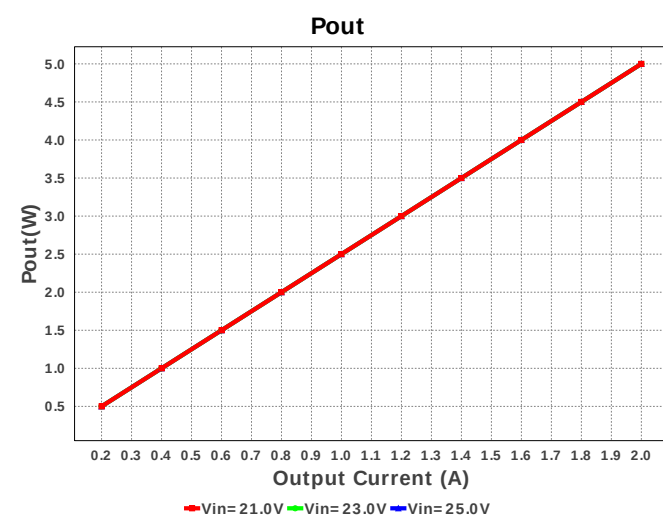
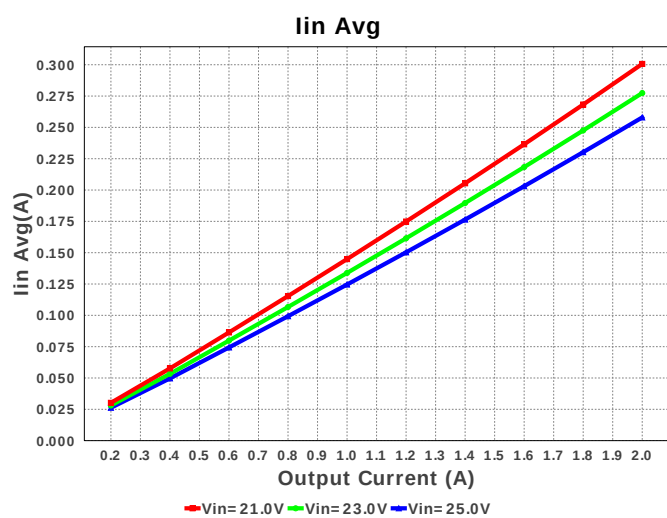
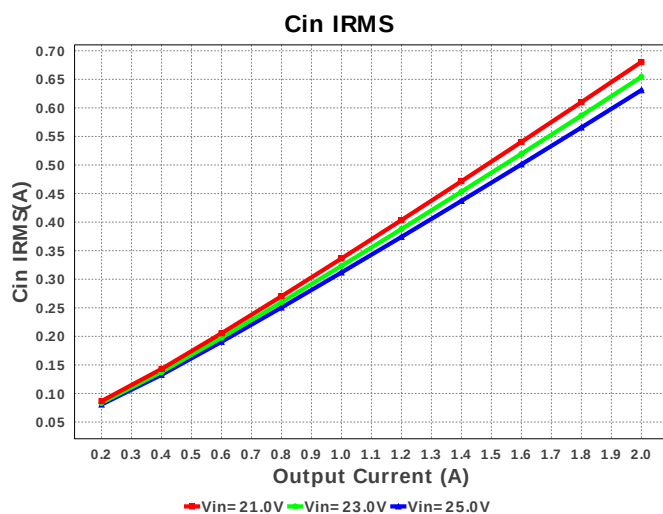
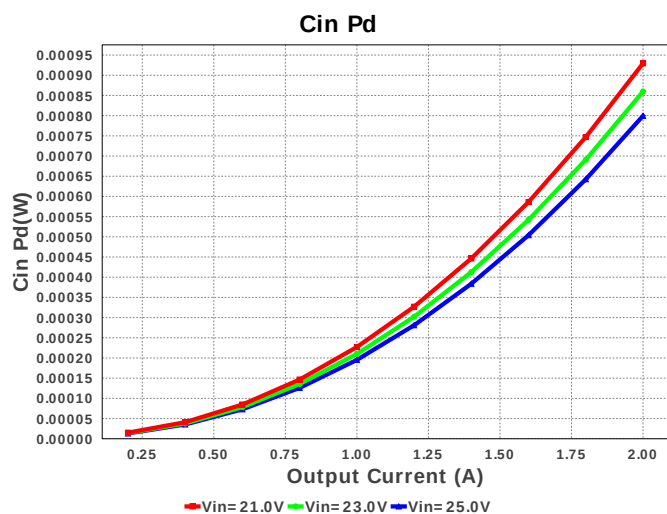
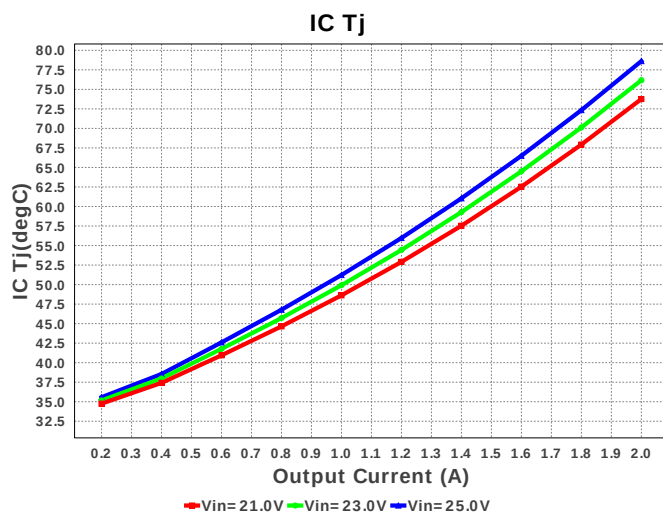
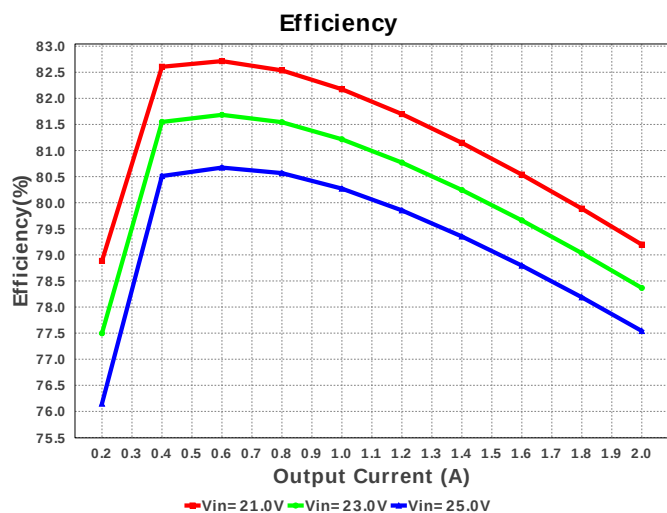


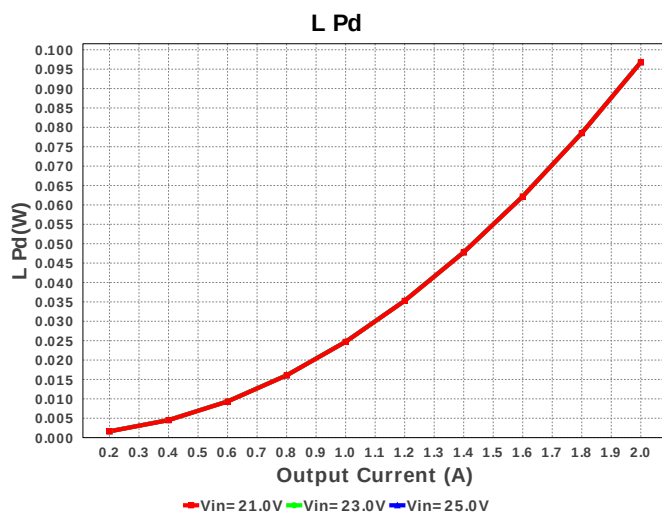
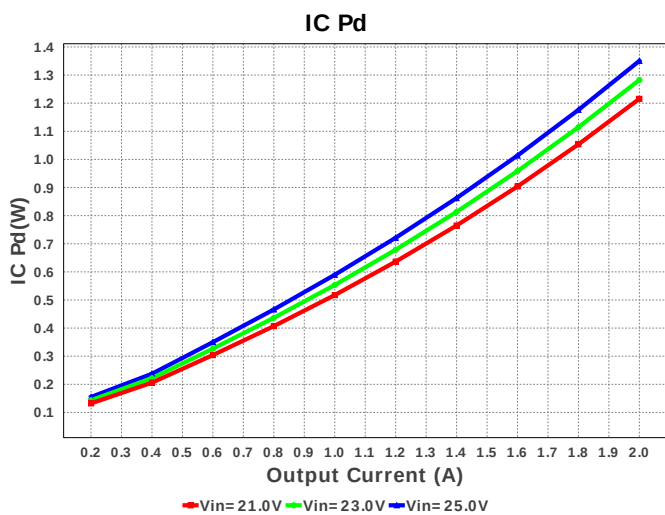
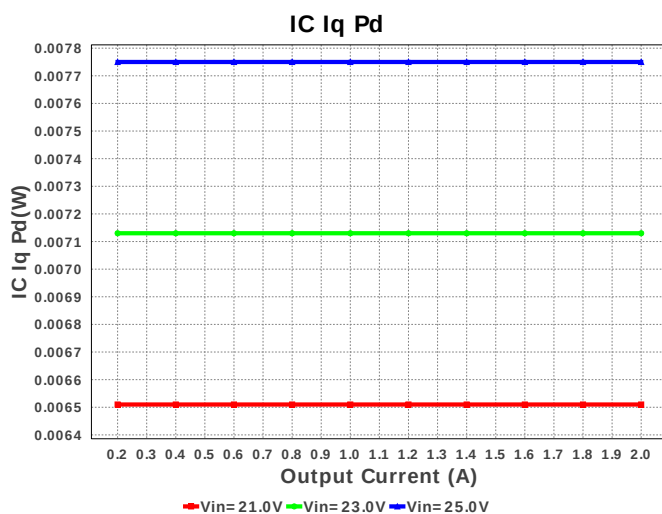
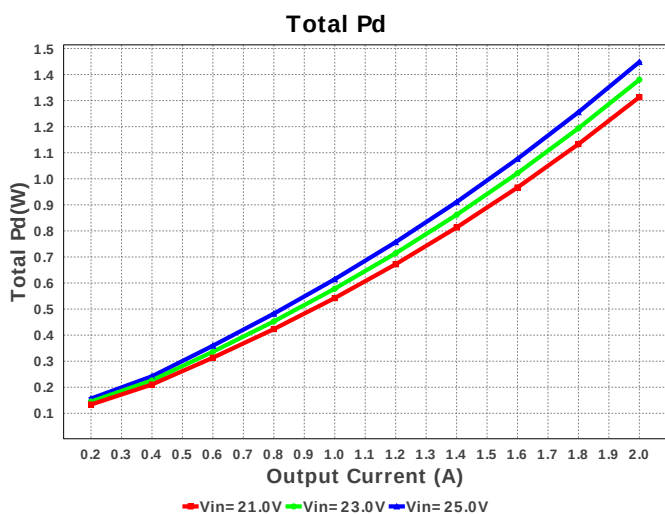
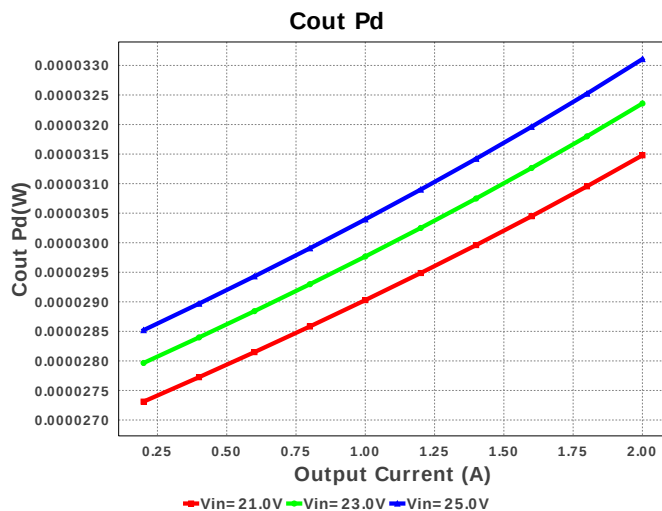
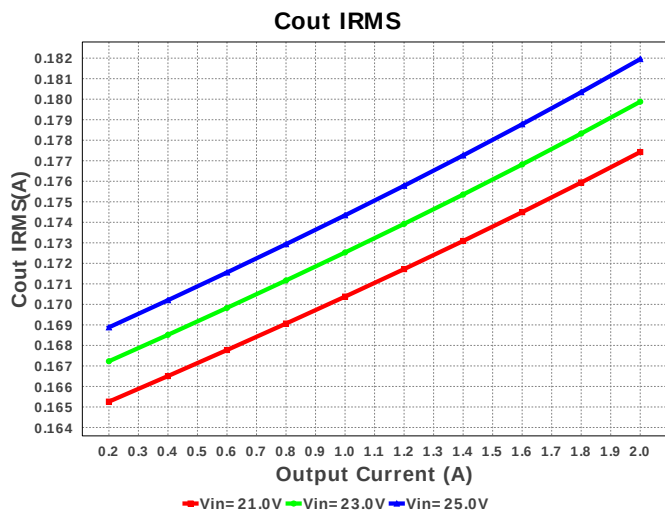
Electrical BOM

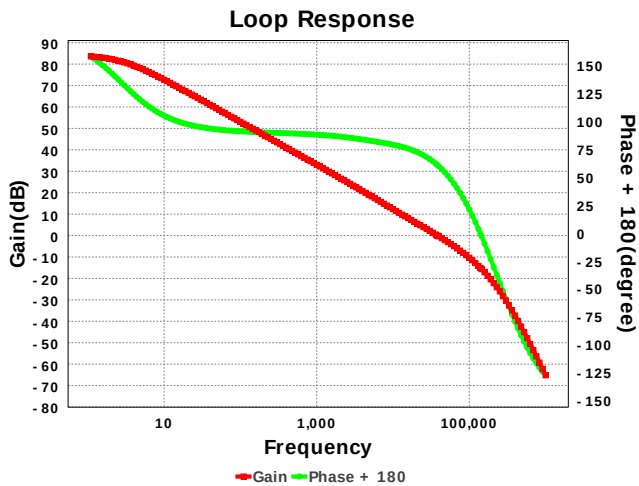
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	0805 7 mm ²
2.	Ccomp	Yageo America	CC0805KRX7R9BB183 Series= X7R	Cap= 18.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Ccomp2	Samsung Electro-Mechanics	CL21C621JBCNNNC Series= C0G/NP0	Cap= 620.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
4.	Cin	MuRata	GRM32ER7YA106KA12L Series= X7R	Cap= 10.0 uF ESR= 2.008 mOhm VDC= 35.0 V IRMS= 4.6772 A	1	\$0.22	1210_280 15 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	GRM188R60G106ME47D Series= X5R	Cap= 10.0 uF ESR= 3.0 mOhm VDC= 4.0 V IRMS= 3.0 A	3	\$0.02	0603 5 mm ²
7.	L1	TDK	VLP8040T-6R8M	L= 6.8 uH DCR= 24.0 mOhm	1	\$0.22	VLP8040 113 mm ²
8.	Rcomp	Vishay-Dale	CRCW04021K21FKED Series= CRCW..e3	Res= 1.21 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
9.	Rfbb	Yageo America	RC0603FR-0747KL Series= ?	Res= 47.0 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	0603 5 mm ²
10.	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

#	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	631.017 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	181.954 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	257.93 mA	Current	Average input current
4.	L Ipp	630.31 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	14	General	Total Design BOM count
6.	FootPrint	199.0 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	5.0 W	General	Total output power
10.	Total BOM	\$1.53	General	Total BOM Cost
11.	ICThetaJA Effective	36.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
12.	Low Freq Gain	83.58 dB	Op_Point	Gain at 10Hz
13.	Vout Actual	2.502 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
14.	Vout OP	2.5 V	Op_Point	Operational Output Voltage
15.	Cross Freq	38.294 kHz	Op_point	Bode plot crossover frequency
16.	Duty Cycle	11.093 %	Op_point	Duty cycle
17.	Efficiency	77.541 %	Op_point	Steady state efficiency
18.	Gain Marg	-15.117 dB	Op_point	Bode Plot Gain Margin
19.	IC Tj	78.618 degC	Op_point	IC junction temperature
20.	IOUT_OP	2.0 A	Op_point	Iout operating point
21.	Phase Marg	61.182 deg	Op_point	Bode Plot Phase Margin
22.	VIN_OP	25.0 V	Op_point	Vin operating point
23.	Vout p-p	5.742 mV	Op_point	Peak-to-peak output ripple voltage
24.	Cin Pd	799.549 μW	Power	Input capacitor power dissipation
25.	Cout Pd	33.107 μW	Power	Output capacitor power dissipation
26.	IC Iq Pd	7.75 mW	Power	IC Iq Pd
27.	IC Pd	1.351 W	Power	IC power dissipation
28.	L Pd	96.795 mW	Power	Inductor power dissipation
29.	Total Pd	1.448 W	Power	Total Power Dissipation
30.	Vout Tolerance	2.641 %		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	25.0	Maximum input voltage
3.	VinMin	21.0	Minimum input voltage
4.	Vout	2.5	Output Voltage
5.	base_pn	TPS54334	Texas Instruments Base Part 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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