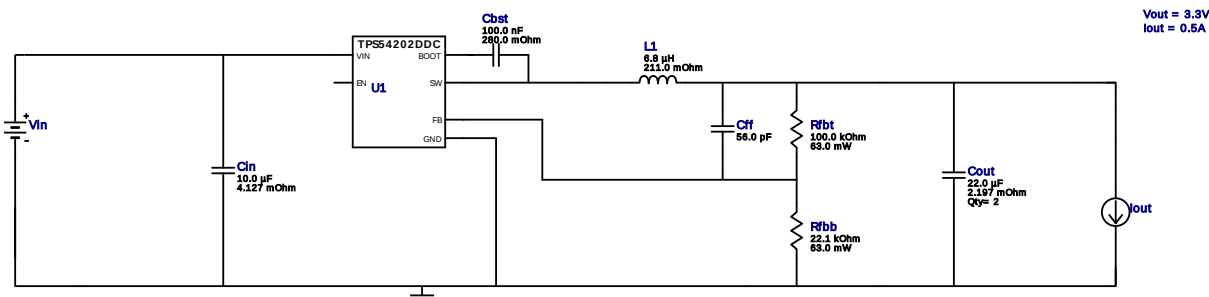


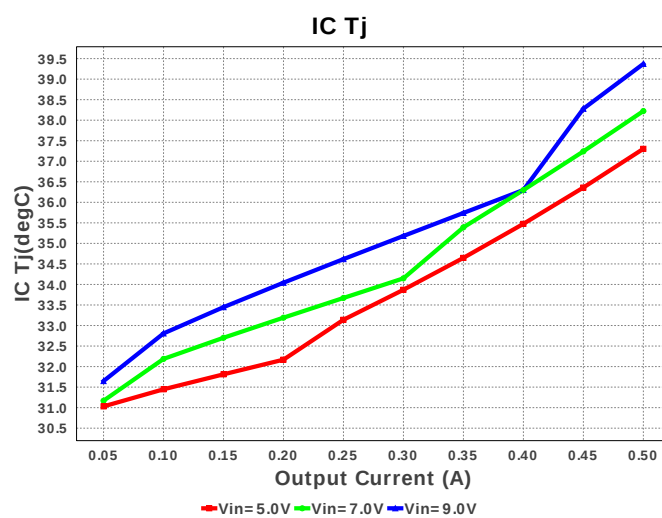
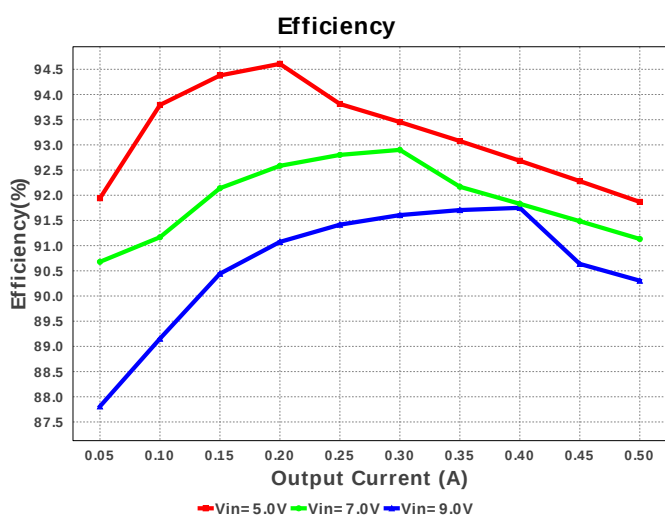
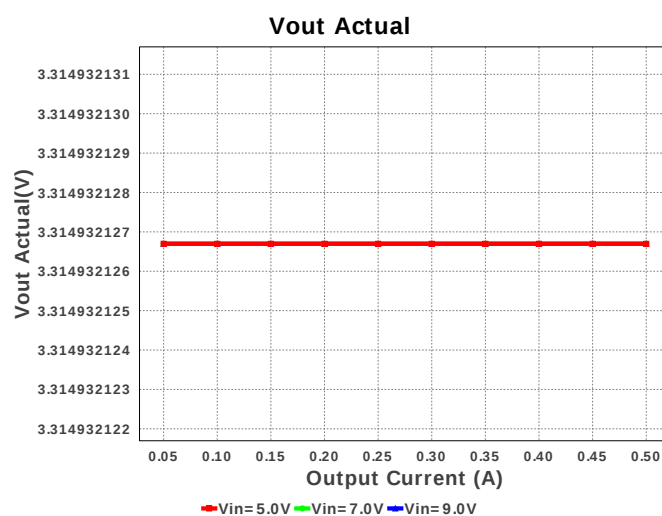
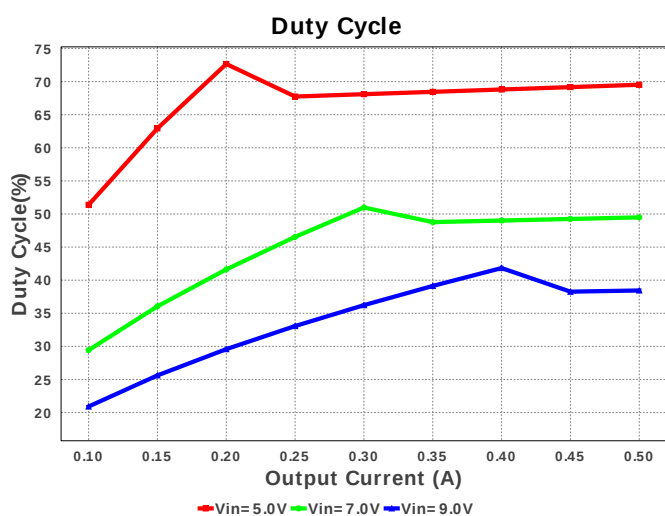
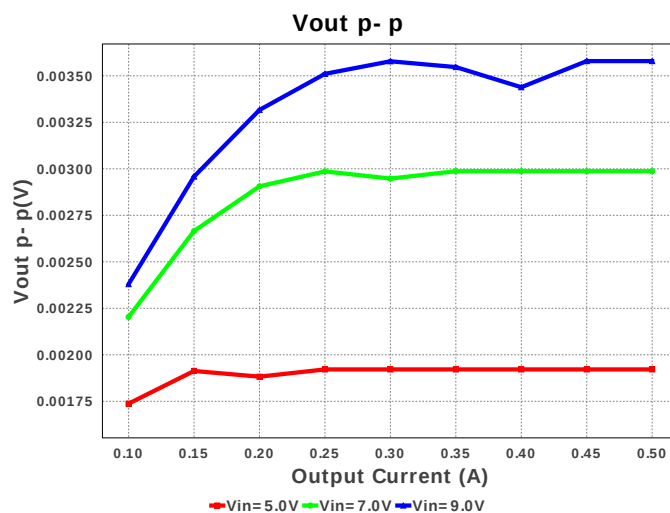
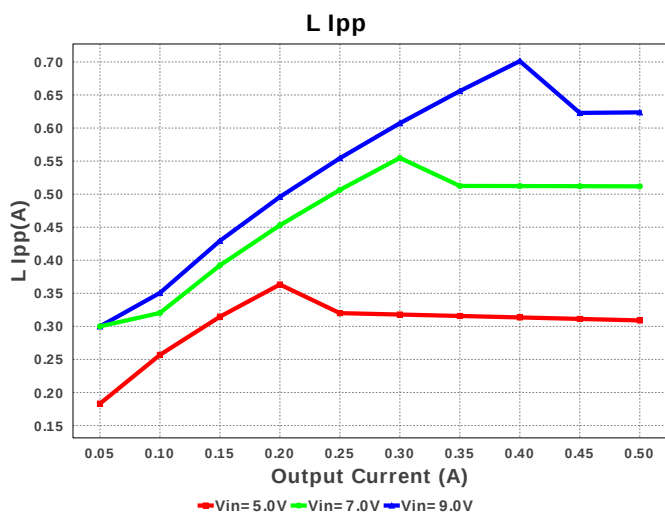
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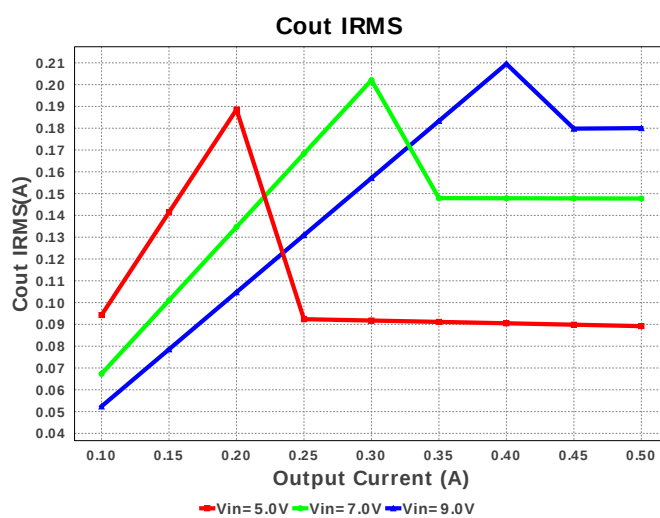
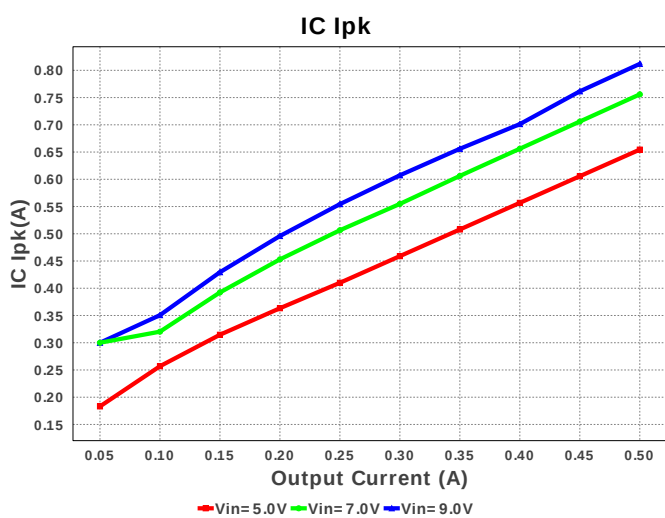
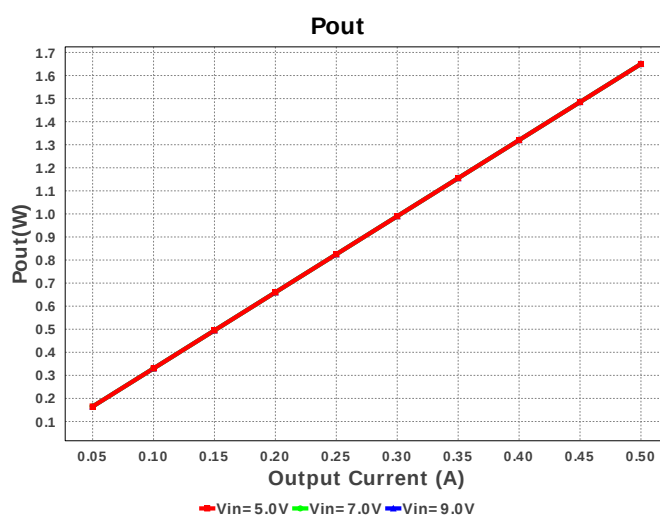
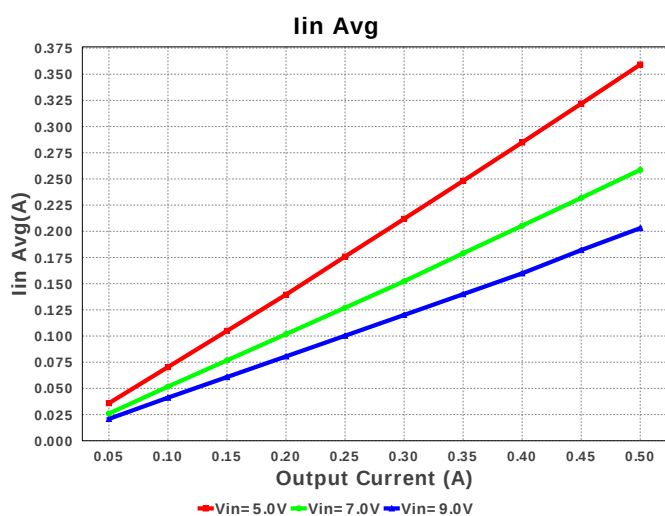
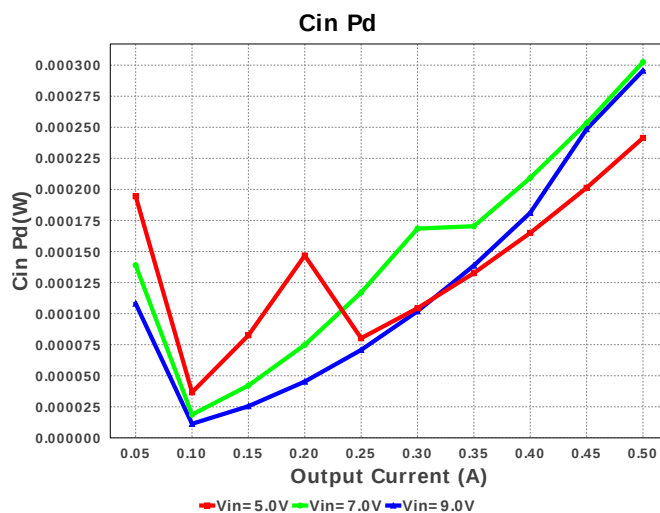
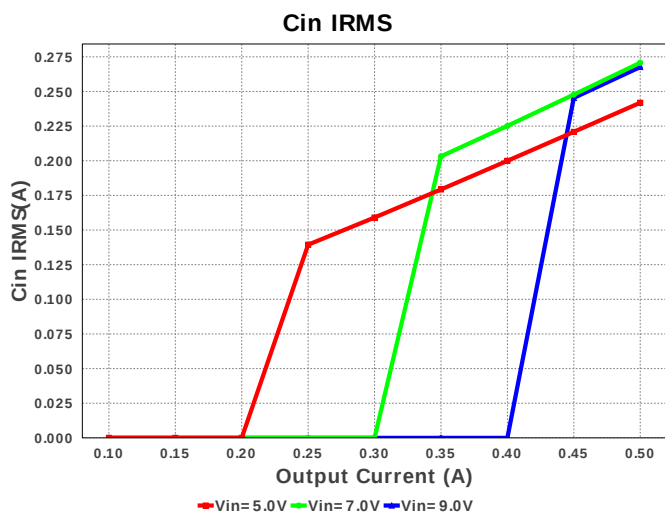
Design : 4372614/29 TPS54202DDCR
TPS54202DDCR 5.0V-9.0V to 3.30V @ 0.5A

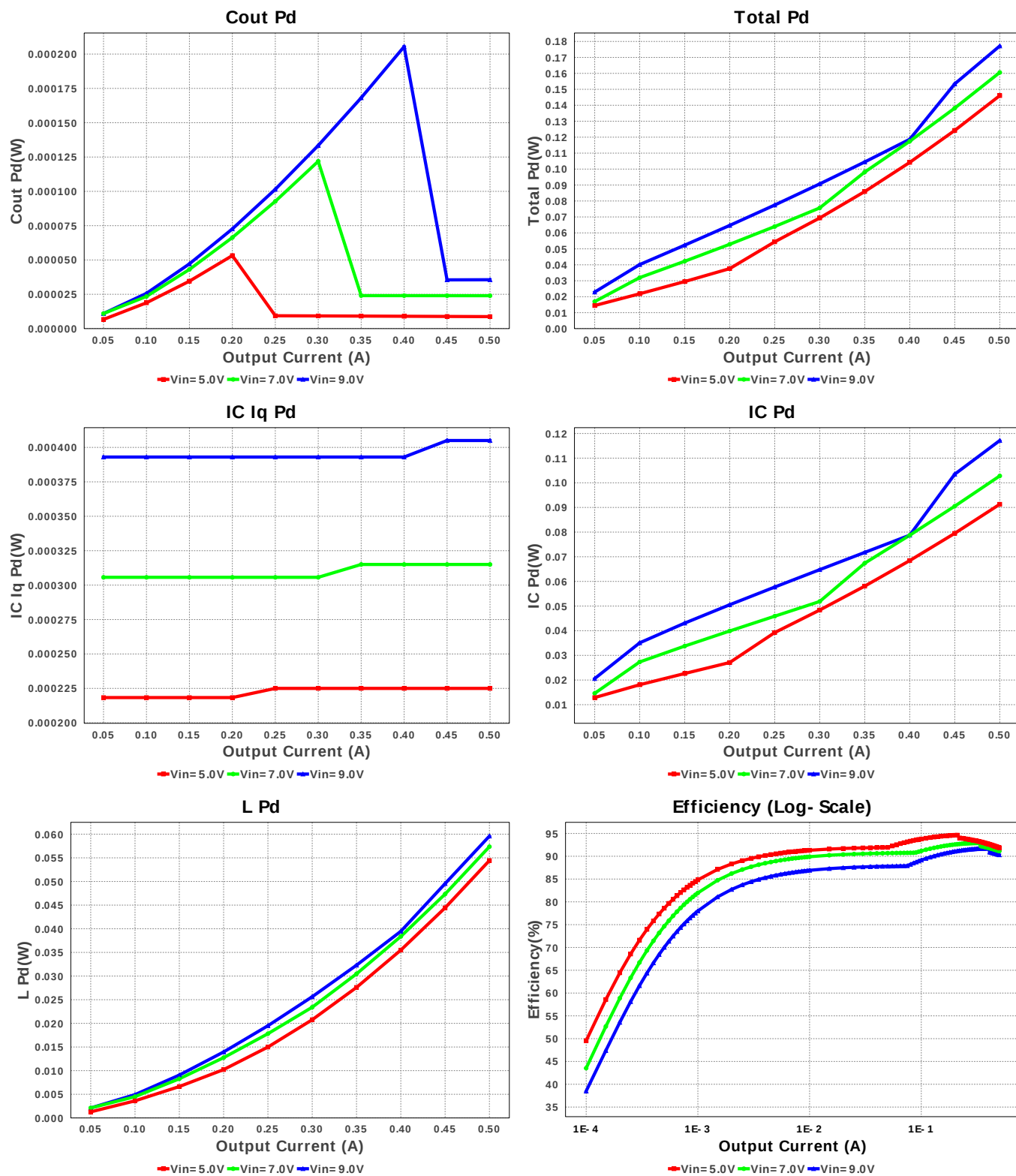


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
2.	Cff	Kemet	C0201C560J3GACTU Series= C0G/NP0	Cap= 56.0 pF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
3.	Cin	MuRata	GRM21BR61C106KE15L Series= X5R	Cap= 10.0 uF ESR= 4.127 mOhm VDC= 16.0 V IRMS= 2.46634 A	1	\$0.03	0805 7 mm ²
4.	Cout	TDK	C4532X5R1E226M Series= X5R	Cap= 22.0 uF ESR= 2.197 mOhm VDC= 25.0 V IRMS= 0.0 A	2	\$0.50	1812 23 mm ²
5.	L1	Bourns	SRN3015-6R8M	L= 6.8 uH DCR= 211.0 mOhm	1	\$0.14	SRN3015 16 mm ²
6.	Rfbb	Vishay-Dale	CRCW040222K1FKED Series= CRCW..e3	Res= 22.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	Rfbb	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	U1	Texas Instruments	TPS54202DDCR	Switcher	1	\$0.50	DDC0006A_N 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	267.629 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	180.051 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	811.858 mA	Current	Peak switch current in IC
4.	Iin Avg	203.02 mA	Current	Average input current
5.	L Ipp	623.72 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	9	General	Total Design BOM count
7.	FootPrint	94.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	500.0 kHz	General	Switching frequency
9.	Pout	1.65 W	General	Total output power
10.	Total BOM	\$1.71	General	Total BOM Cost
11.	ICThetaJA Effective	80.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance

#	Name	Value	Category	Description
12.	Vout Actual	3.315 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
13.	Duty Cycle	38.445 %	Op_point	Duty cycle
14.	Efficiency	90.304 %	Op_point	Steady state efficiency
15.	IC Tj	39.372 degC	Op_point	IC junction temperature
16.	IOUT_OP	500.0 mA	Op_point	Iout operating point
17.	VIN_OP	9.0 V	Op_point	Vin operating point
18.	Vout p-p	3.579 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	295.597 μ W	Power	Input capacitor power dissipation
20.	Cout Pd	35.612 μ W	Power	Output capacitor power dissipation
21.	IC Iq Pd	405.0 μ W	Power	IC Iq Pd
22.	IC Pd	117.147 mW	Power	IC power dissipation
23.	L Pd	59.59 mW	Power	Inductor power dissipation
24.	Total Pd	177.163 mW	Power	Total Power Dissipation
25.	Vout Tolerance	1.655 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 m	Maximum Output Current
2.	VinMax	9.0	Maximum input voltage
3.	VinMin	5.0	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	TPS54202	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS54202** Product Folder : <http://www.ti.com/product/TPS54202> : contains the data sheet and other resources.

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