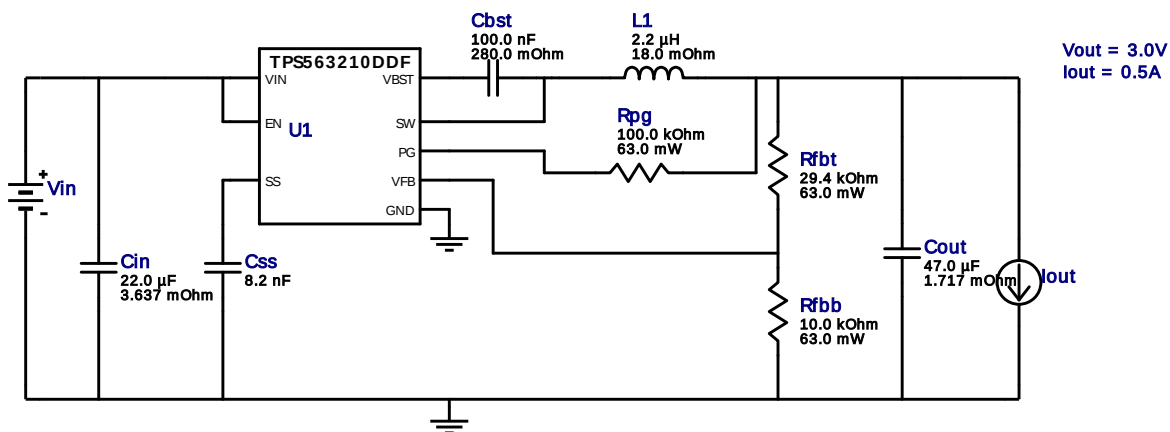


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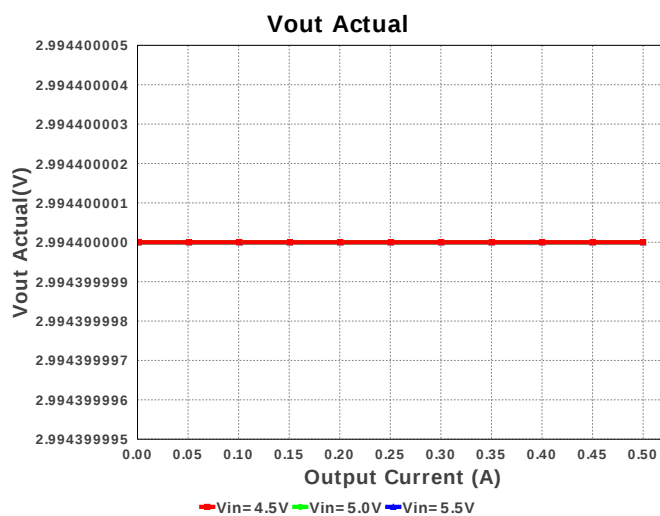
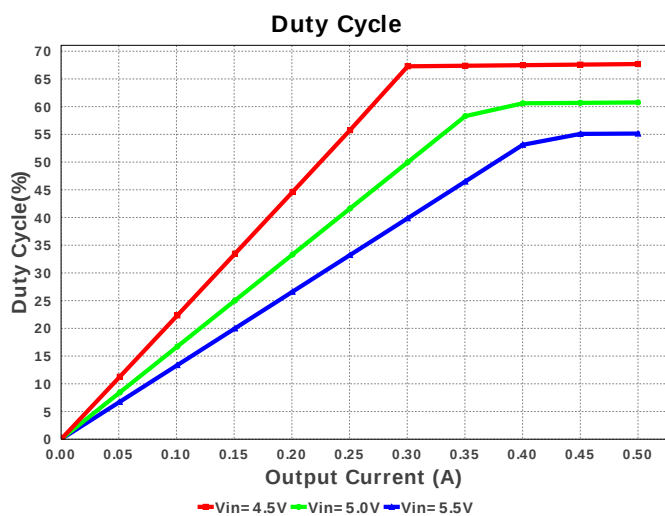
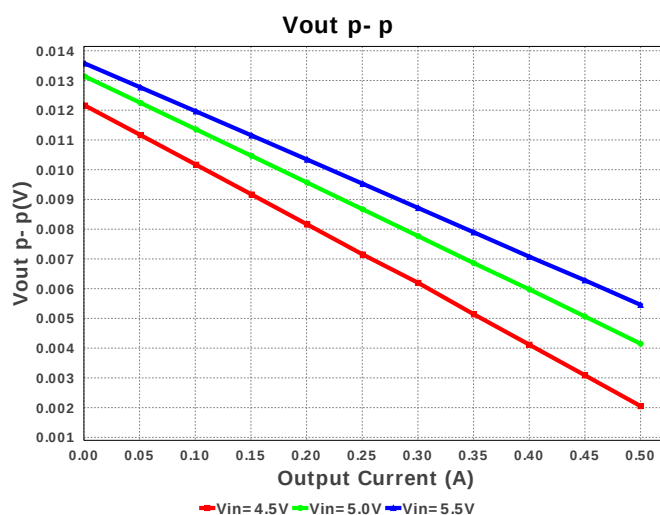
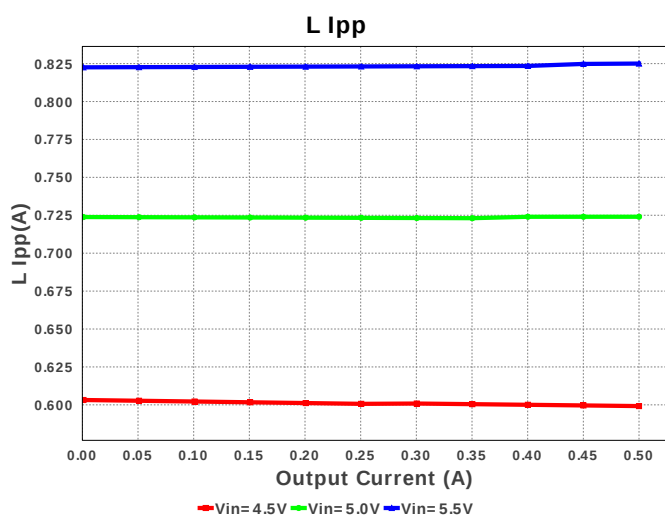
Design : 4742013/155 TPS563210DDFR
TPS563210DDFR 4.5V-5.5V to 3.00V @ 0.5A

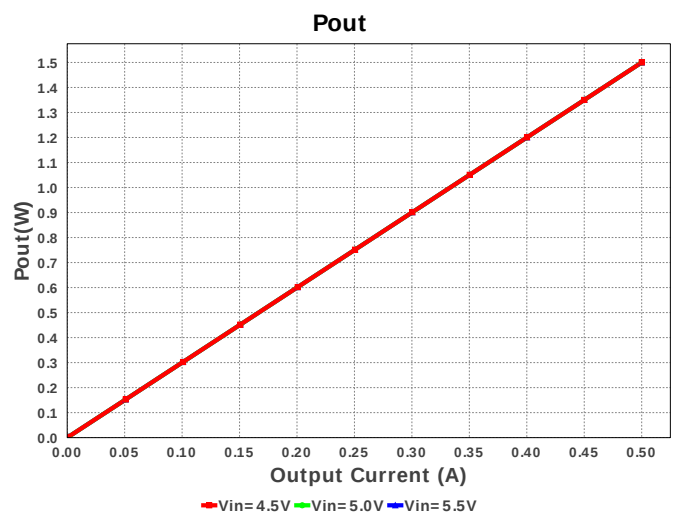
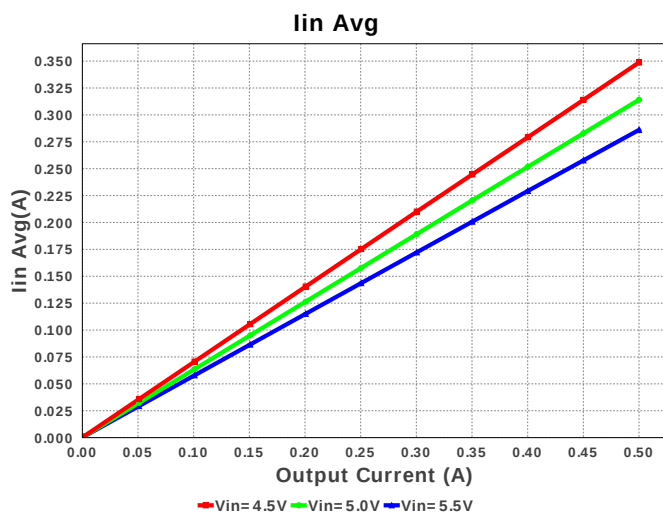
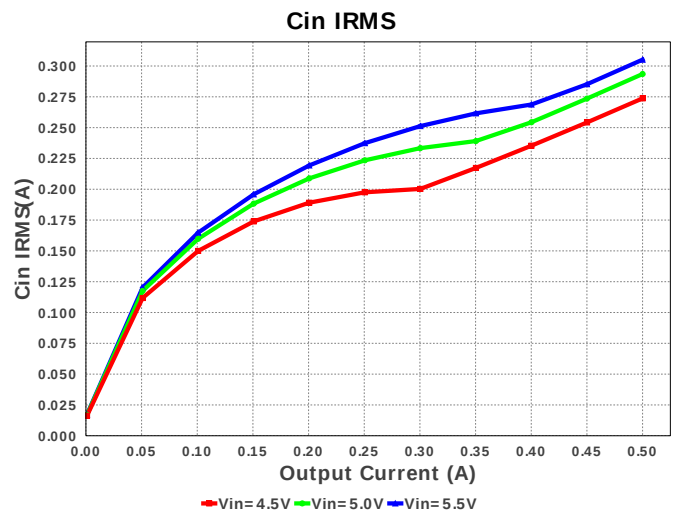
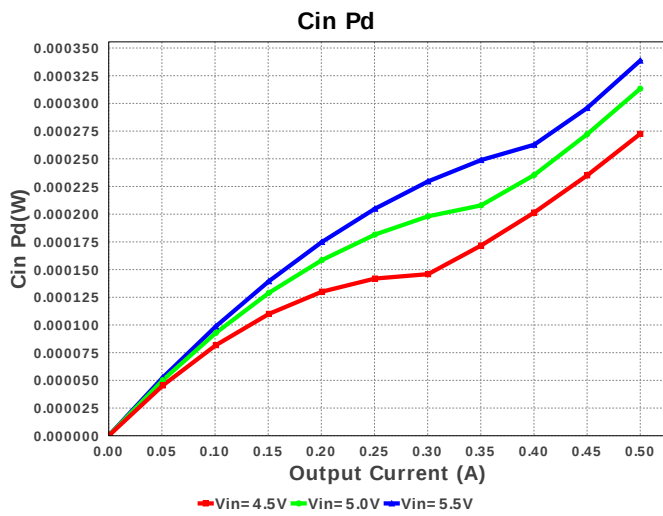
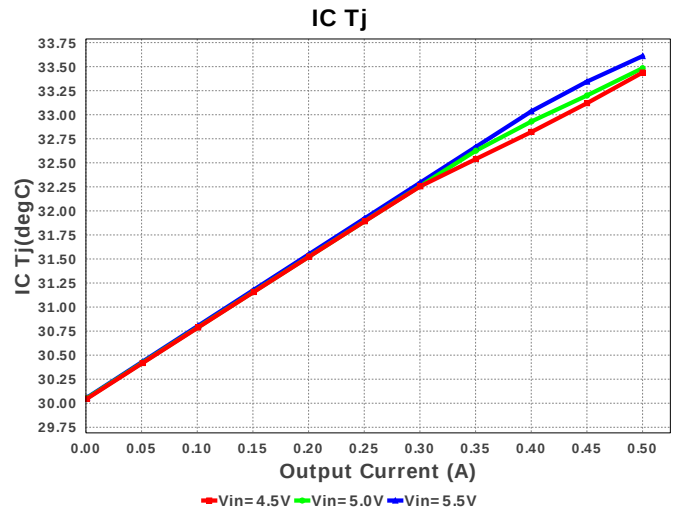
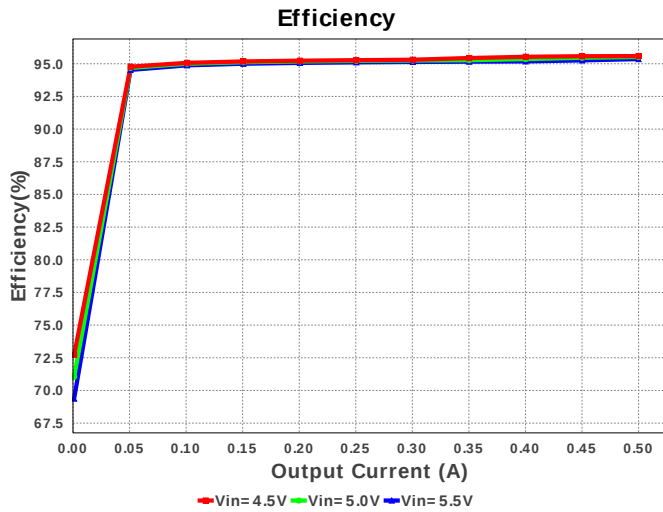


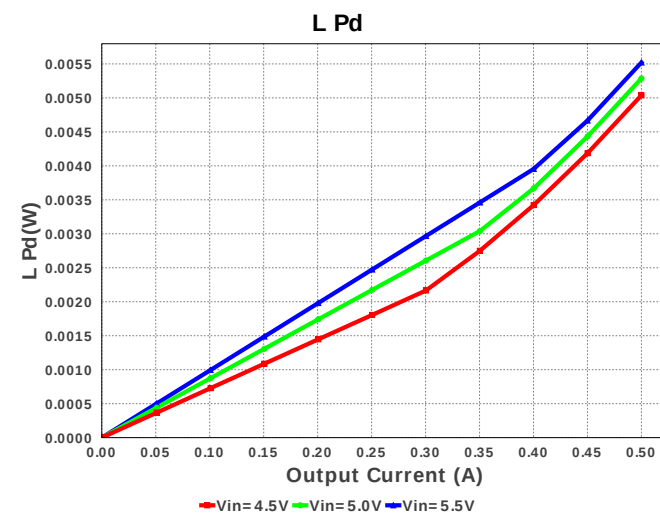
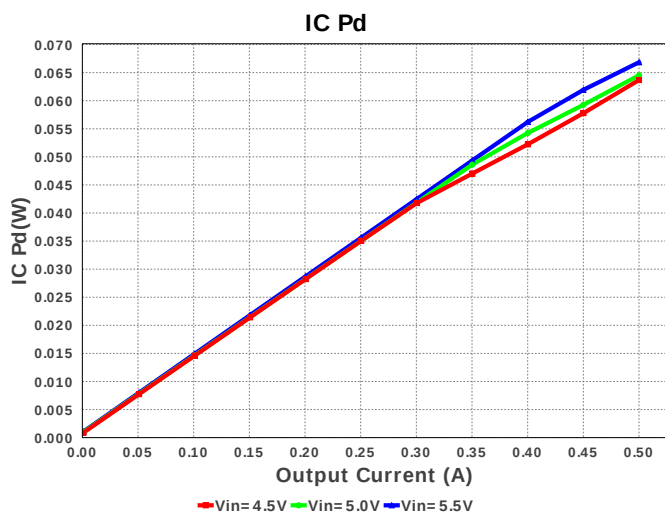
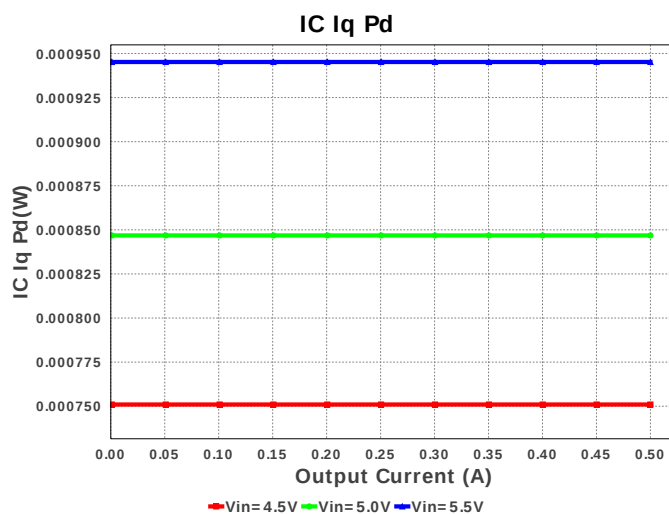
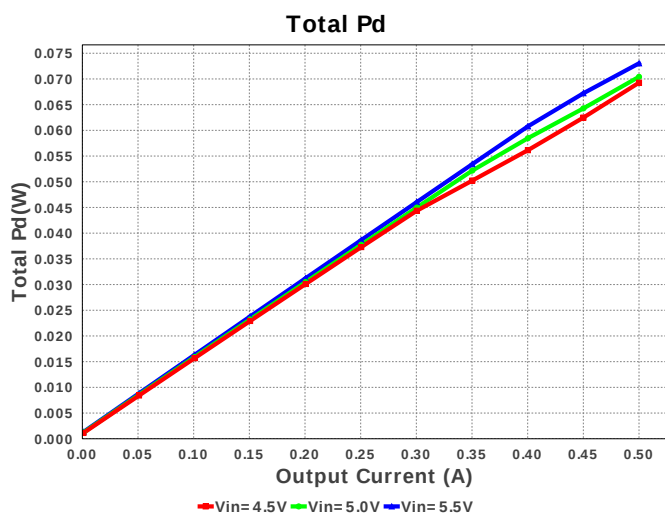
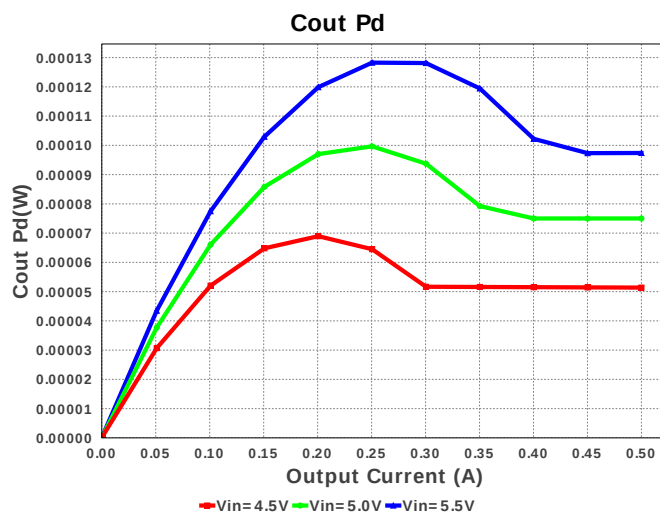
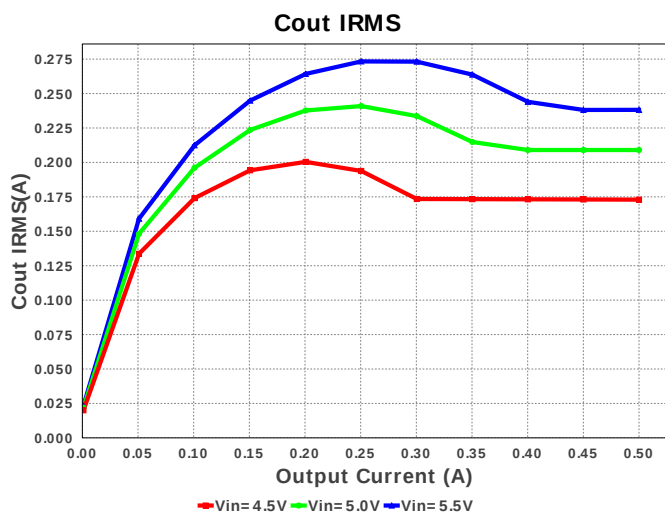
Electrical BOM

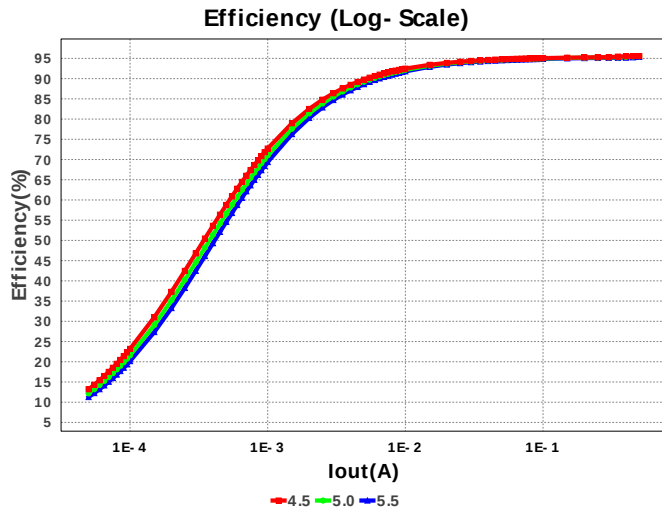
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
2.	Cin	MuRata	GRM31CR61A226KE19L Series= X5R	Cap= 22.0 uF ESR= 3.637 mOhm VDC= 10.0 V IRMS= 3.56456 A	1	\$0.07	1206_190 11 mm ²
3.	Cout	TDK	C3216JB1A476M Series= JB	Cap= 47.0 uF ESR= 1.717 mOhm VDC= 10.0 V IRMS= 0.0 A	1	\$0.34	1206 11 mm ²
4.	Css	MuRata	GRM033R61A822KA01D Series= X5R	Cap= 8.2 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
5.	L1	Coilcraft	MSS5131-222MLB	L= 2.2 uH DCR= 18.0 mOhm	1	\$0.48	MSS5131 50 mm ²
6.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	Rfbt	Vishay-Dale	CRCW040229K4FKED Series= CRCW..e3	Res= 29.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	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

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
9.	U1	Texas Instruments	TPS563210DDFR	Switcher	1	\$0.90	 DDF0008A 10 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	305.152 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	238.165 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	286.01 mA	Current	Average input current
4.	L Ipp	825.03 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	9	General	Total Design BOM count
6.	FootPrint	100.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	749.546 kHz	General	Switching frequency
8.	Pout	1.5 W	General	Total output power
9.	Total BOM	\$1.84	General	Total BOM Cost
10.	Vout Actual	2.994 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
11.	Vout OP	3.0 V	Op_Point	Operational Output Voltage
12.	Duty Cycle	55.144 %	Op_point	Duty cycle
13.	Efficiency	95.357 %	Op_point	Steady state efficiency
14.	IC Tj	33.61 degC	Op_point	IC junction temperature
15.	ICThetaJA	54.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
16.	IOUT_OP	500.0 mA	Op_point	Iout operating point
17.	VIN_OP	5.5 V	Op_point	Vin operating point
18.	Vout p-p	3.301 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	338.669 μ W	Power	Input capacitor power dissipation
20.	Cout Pd	97.393 μ W	Power	Output capacitor power dissipation
21.	IC Iq Pd	945.173 μ W	Power	IC Iq Pd
22.	IC Pd	66.844 mW	Power	IC power dissipation
23.	L Pd	5.521 mW	Power	Inductor power dissipation
24.	Total Pd	73.037 mW	Power	Total Power Dissipation
25.	Vout Tolerance	2.843 %		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	5.5	Maximum input voltage
3.	VinMin	4.5	Minimum input voltage
4.	Vout	3.0	Output Voltage
5.	base_pn	TPS563210	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS563210** Product Folder : <http://www.ti.com/product/TPS563210> : contains the data sheet and other resources.

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You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

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