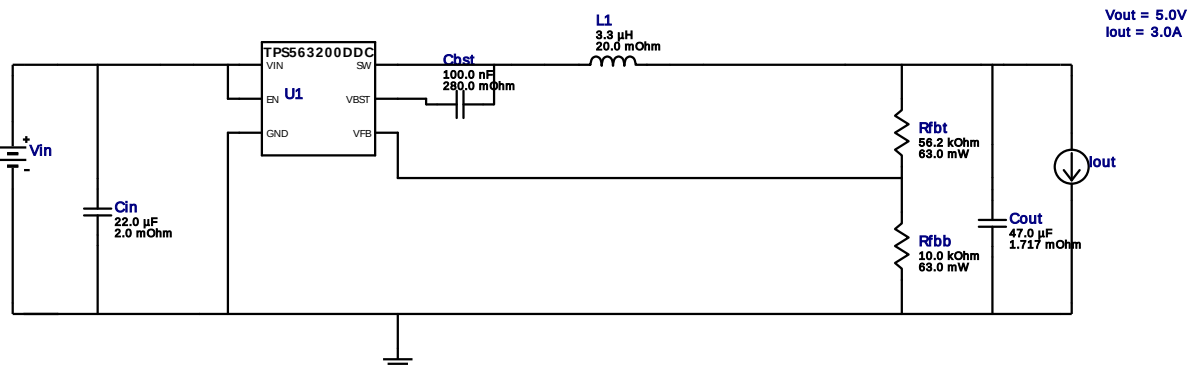


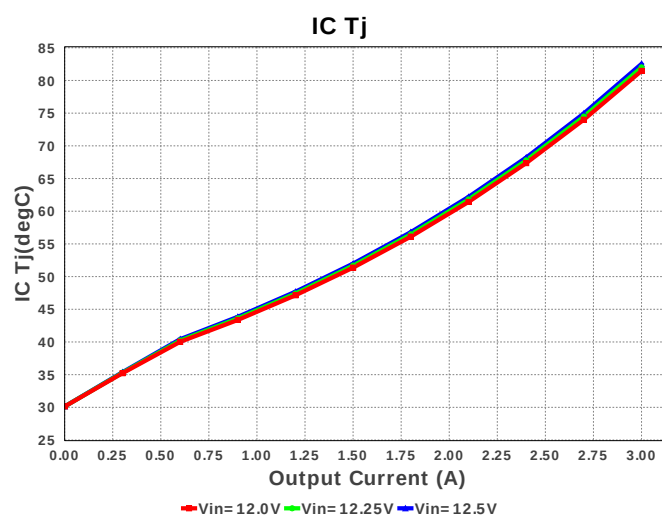
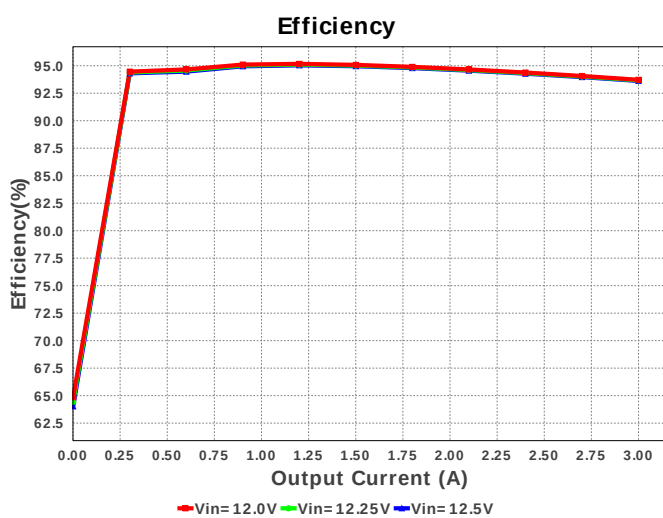
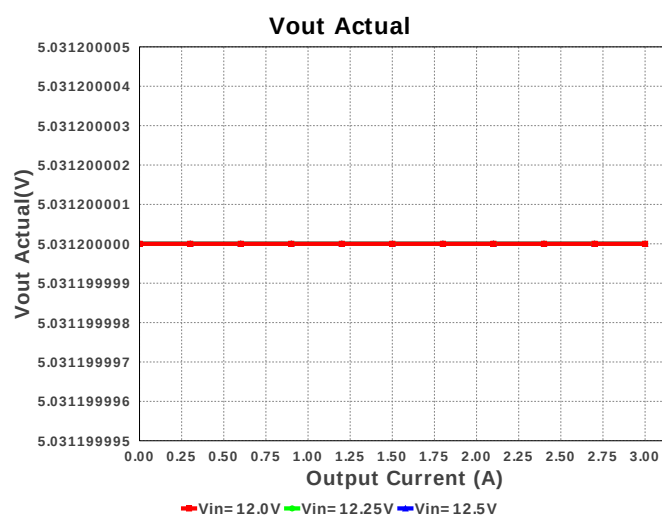
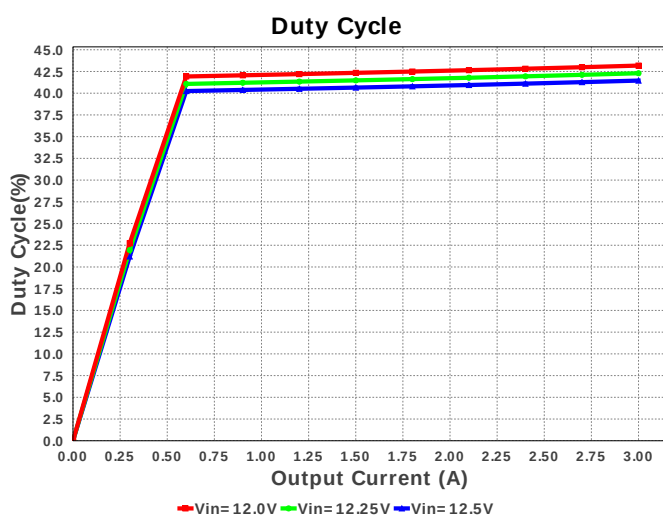
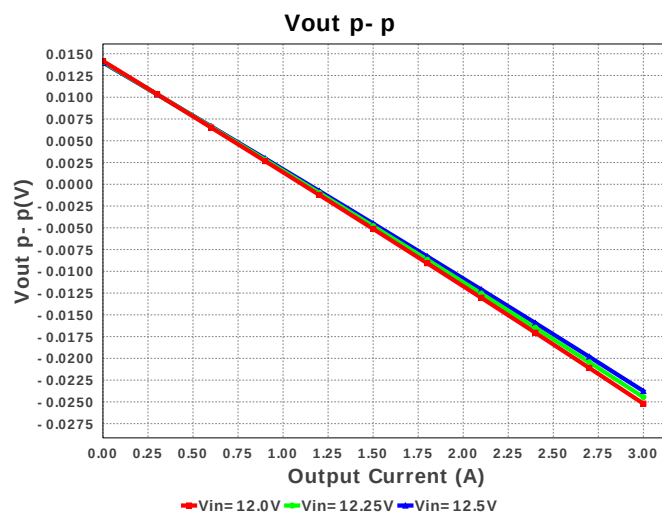
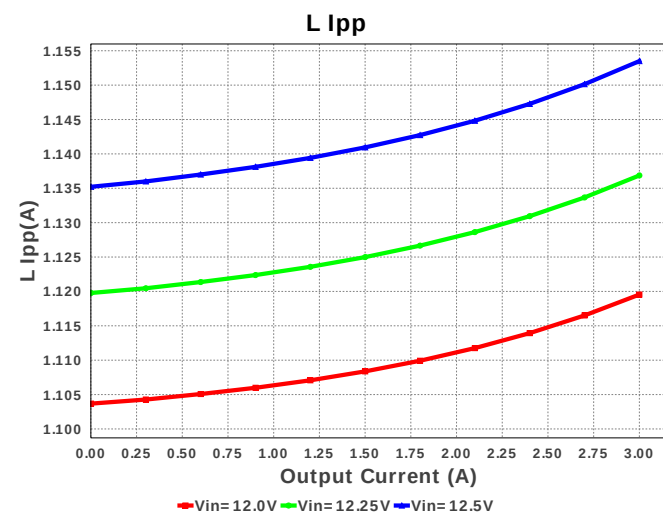
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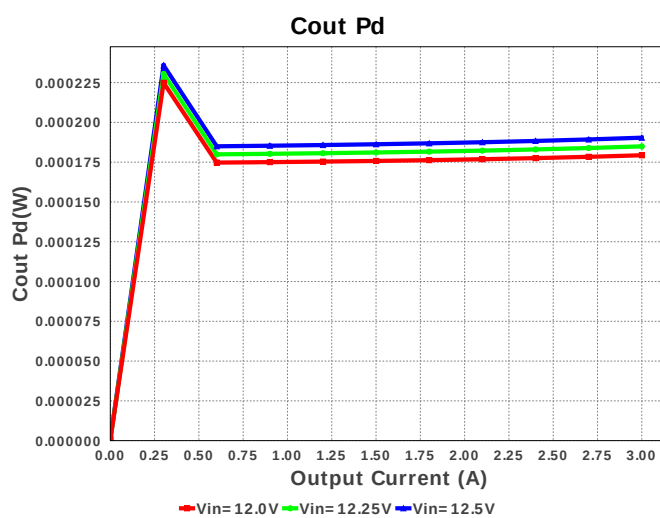
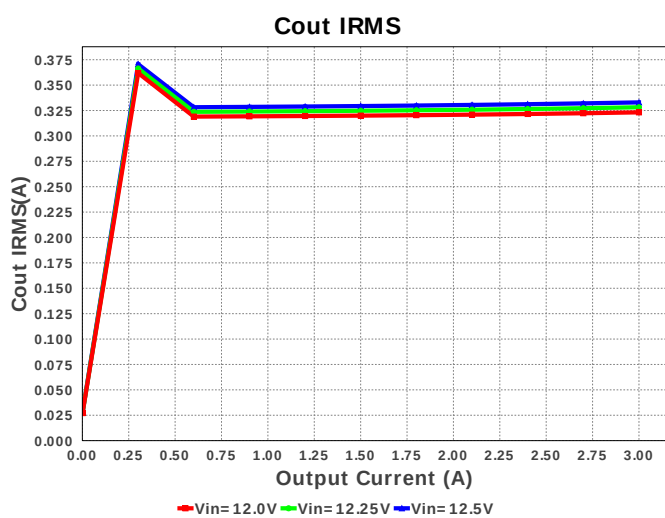
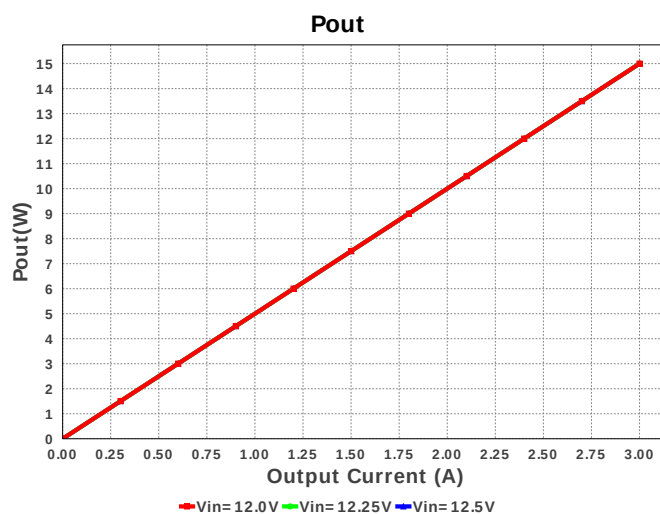
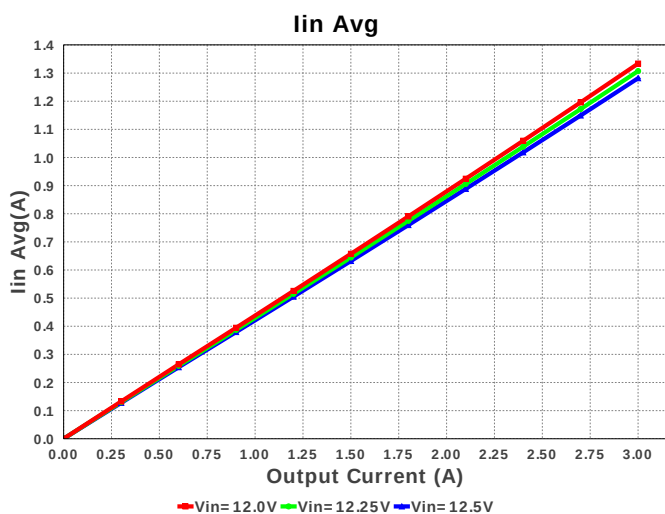
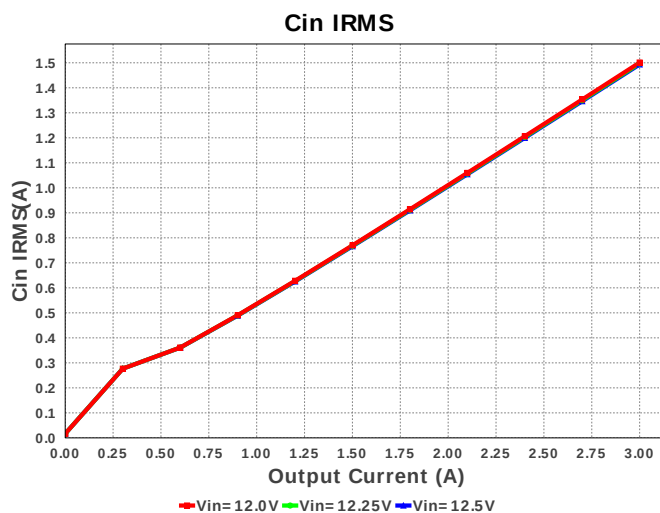
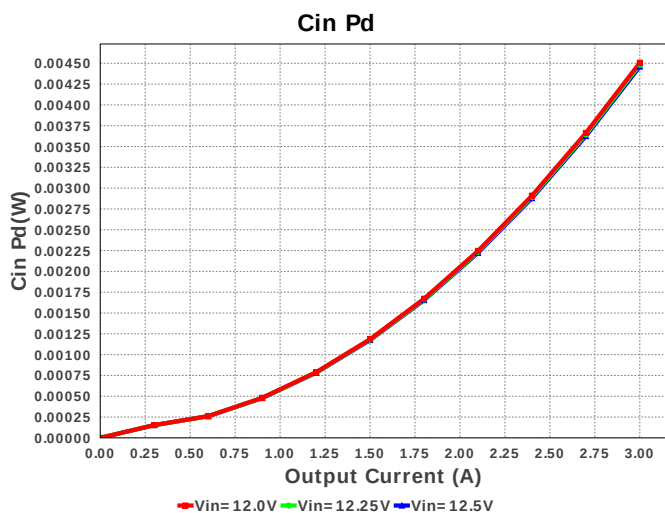
Design : 4738396/11 TPS563200DDCR
TPS563200DDCR 12.0V-12.5V to 5.00V @ 3.0A

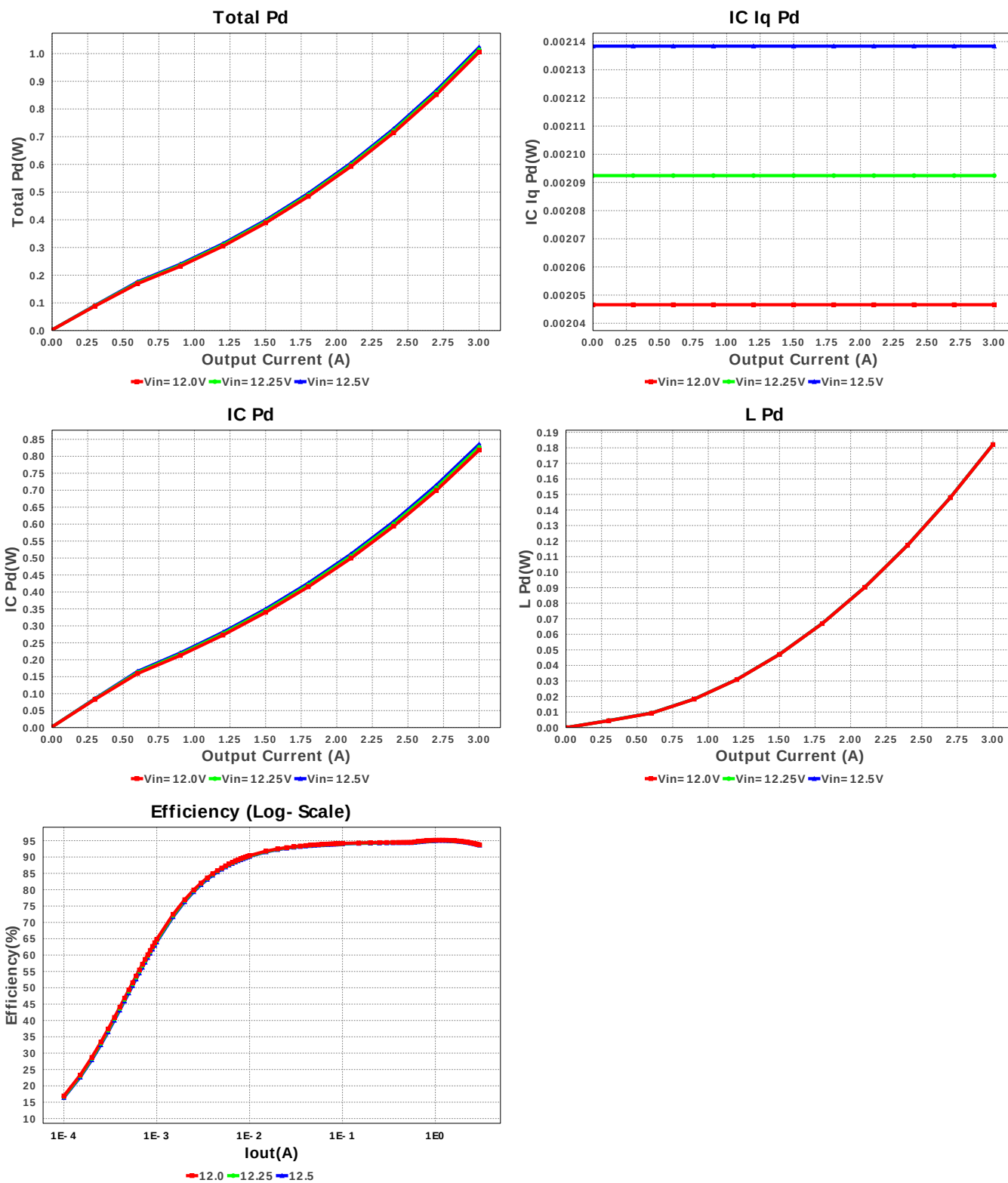


Electrical BOM

#	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	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	1	\$0.16	 1210 15 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.	L1	TDK	VLP8040T-3R3N	L= 3.3 uH DCR= 20.0 mOhm	1	\$0.22	 VLP8040 113 mm ²
5.	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
6.	Rfbs	Vishay-Dale	CRCW040256K2FKED Series= CRCW..e3	Res= 56.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	U1	Texas Instruments	TPS563200DDCR	Switcher	1	\$0.52	 DDC0006A 10 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.493 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	332.985 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	1.282 A	Current	Average input current
4.	L Ipp	1.154 A	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	162.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	795.012 kHz	General	Switching frequency
8.	Pout	15.0 W	General	Total output power
9.	Total BOM	\$1.27	General	Total BOM Cost
10.	Vout Actual	5.031 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
11.	Vout OP	5.0 V	Op_Point	Operational Output Voltage

#	Name	Value	Category	Description
12.	Duty Cycle	41.452 %	Op_point	Duty cycle
13.	Efficiency	93.618 %	Op_point	Steady state efficiency
14.	IC Tj	82.539 degC	Op_point	IC junction temperature
15.	ICThetaJA	62.9 degC/W	Op_point	IC junction-to-ambient thermal resistance
16.	IOUT_OP	3.0 A	Op_point	Iout operating point
17.	VIN_OP	12.5 V	Op_point	Vin operating point
18.	Vout p-p	4.7 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	4.46 mW	Power	Input capacitor power dissipation
20.	Cout Pd	190.379 μ W	Power	Output capacitor power dissipation
21.	IC Iq Pd	2.138 mW	Power	IC Iq Pd
22.	IC Pd	835.273 mW	Power	IC power dissipation
23.	L Pd	182.218 mW	Power	Inductor power dissipation
24.	Total Pd	1.023 W	Power	Total Power Dissipation
25.	Vout Tolerance	3.053 %		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	12.5	Maximum input voltage
3.	VinMin	12.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS563200	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS563200** Product Folder : <http://www.ti.com/product/TPS563200> : contains the data sheet and other resources.

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