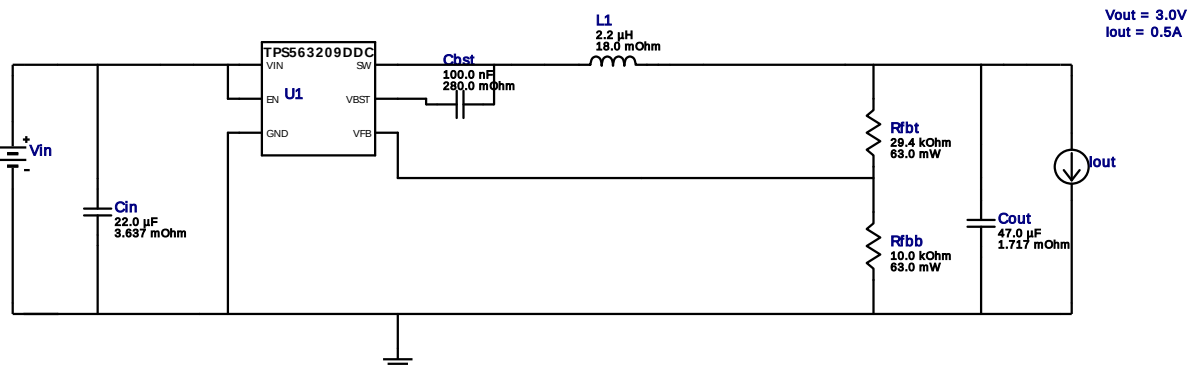


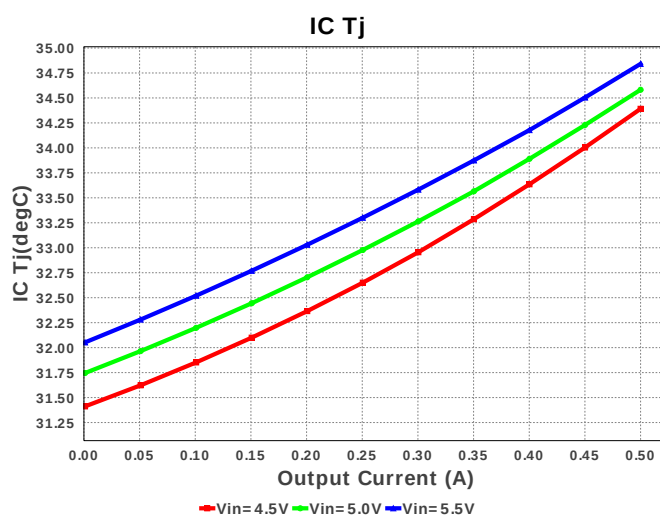
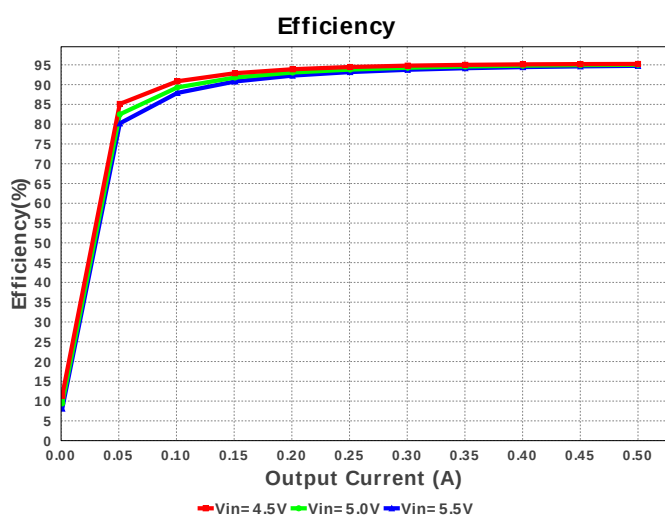
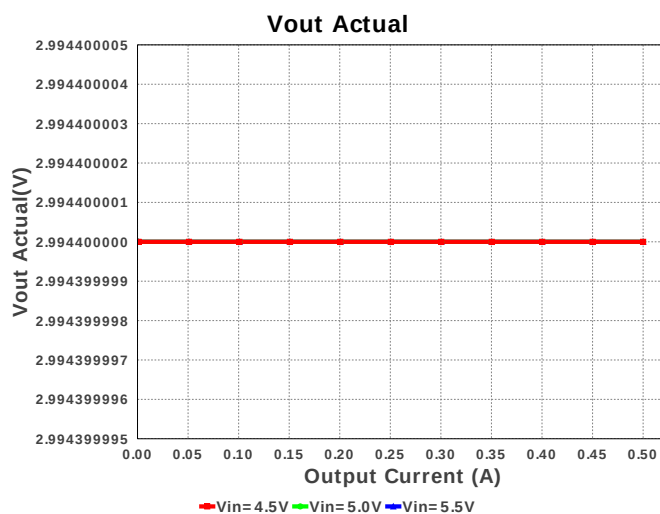
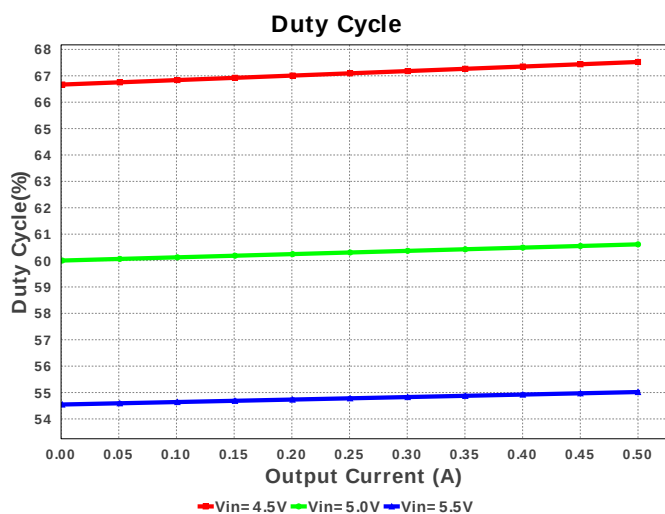
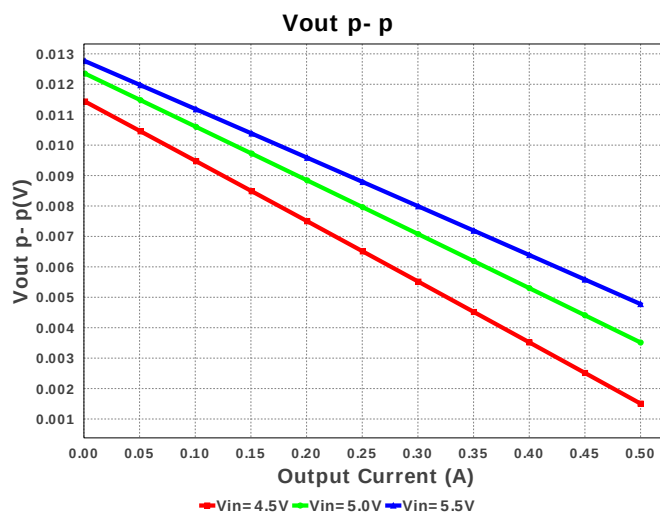
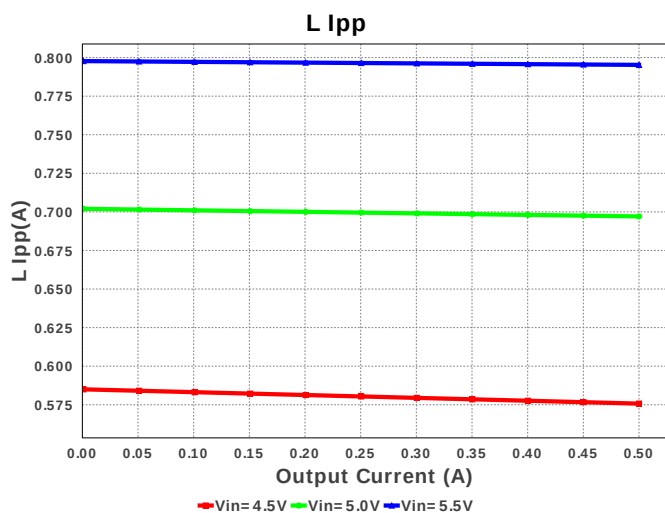
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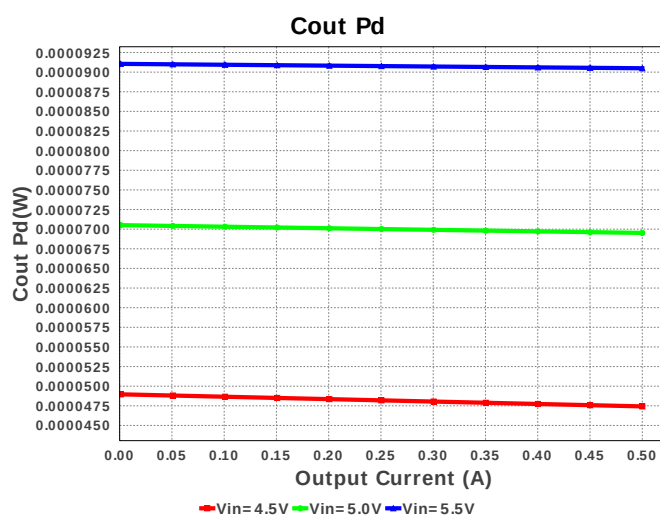
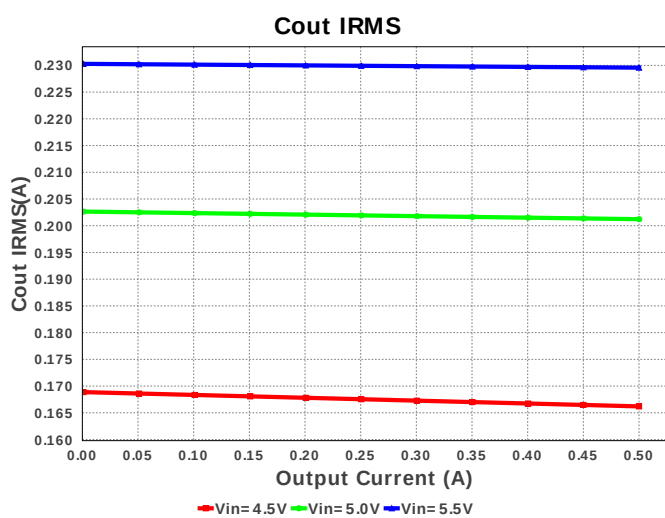
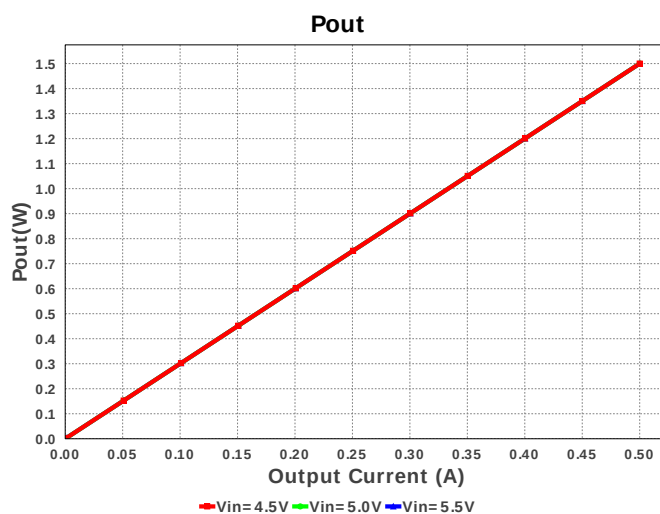
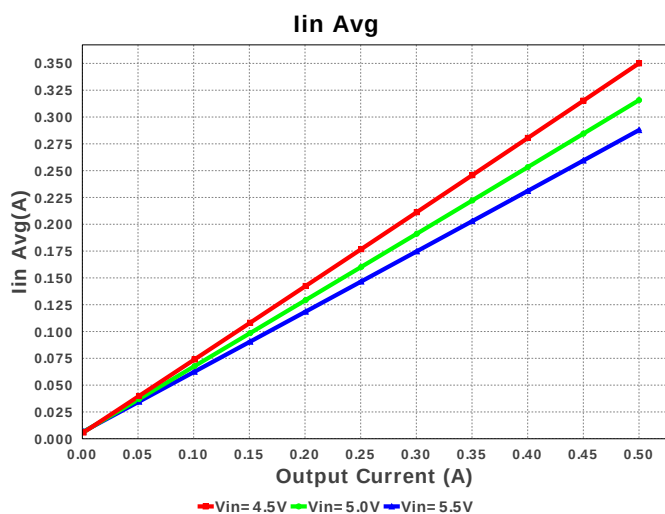
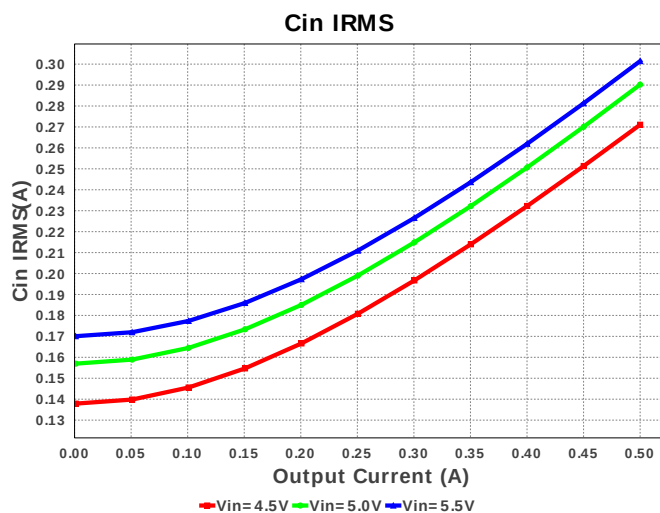
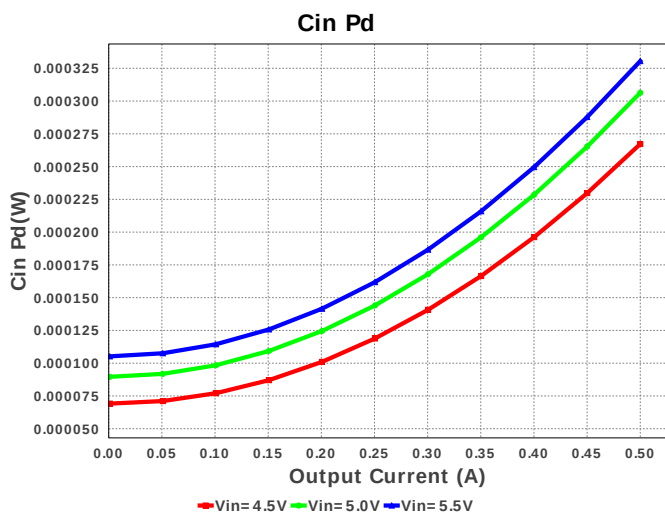
Design : 4742013/133 TPS563209DDCR
TPS563209DDCR 4.5V-5.5V to 3.00V @ 0.5A

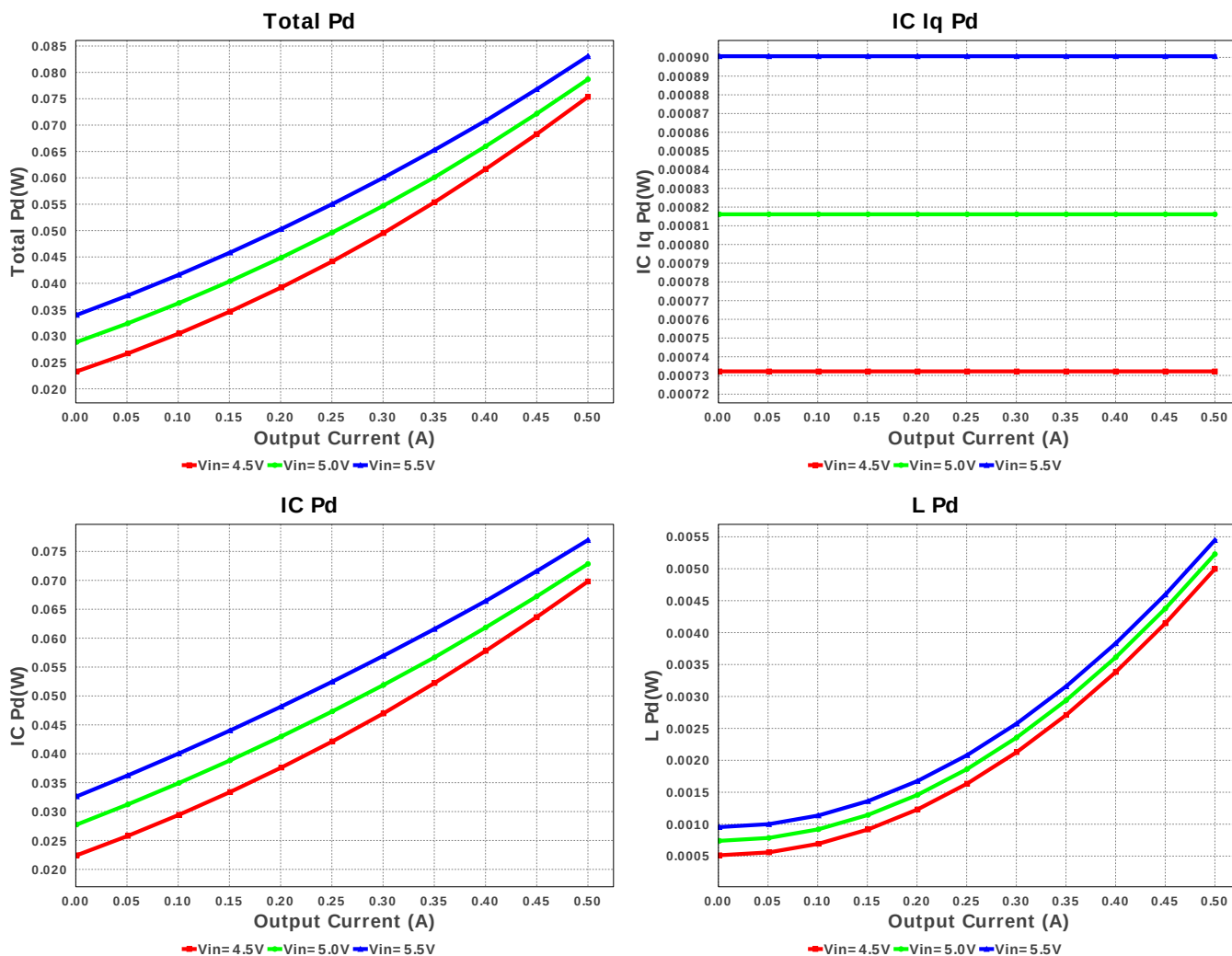


Electrical BOM

#	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 mm²
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 mm²
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 mm²
4.	L1	Coilcraft	MSS5131-222MLB	L= 2.2 uH DCR= 18.0 mOhm	1	\$0.48	 MSS5131 50 mm²
5.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
6.	Rfbs	Vishay-Dale	CRCW040229K4FKED Series= CRCW..e3	Res= 29.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
7.	U1	Texas Instruments	TPS563209DDCR	Switcher	1	\$0.52	 DDC0006A 10 mm²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	301.443 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	229.575 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	287.83 mA	Current	Average input current
4.	L Ipp	795.27 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	95.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	776.022 kHz	General	Switching frequency
8.	Pout	1.5 W	General	Total output power
9.	Total BOM	\$1.44	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	55.019 %	Op_point	Duty cycle
13.	Efficiency	94.753 %	Op_point	Steady state efficiency
14.	IC Tj	34.841 degC	Op_point	IC junction temperature
15.	ICThetaJA	62.9 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	3.084 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	330.486 μW	Power	Input capacitor power dissipation
20.	Cout Pd	90.494 μW	Power	Output capacitor power dissipation
21.	IC Iq Pd	900.636 μW	Power	IC Iq Pd
22.	IC Pd	76.966 mW	Power	IC power dissipation
23.	L Pd	5.449 mW	Power	Inductor power dissipation
24.	Total Pd	83.063 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

#	Name	Value	Description
2.	VinMax	5.5	Maximum input voltage
3.	VinMin	4.5	Minimum input voltage
4.	Vout	3.0	Output Voltage
5.	base_pn	TPS563209	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS563209** Product Folder : <http://www.ti.com/product/TPS563209> : contains the data sheet and other resources.

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