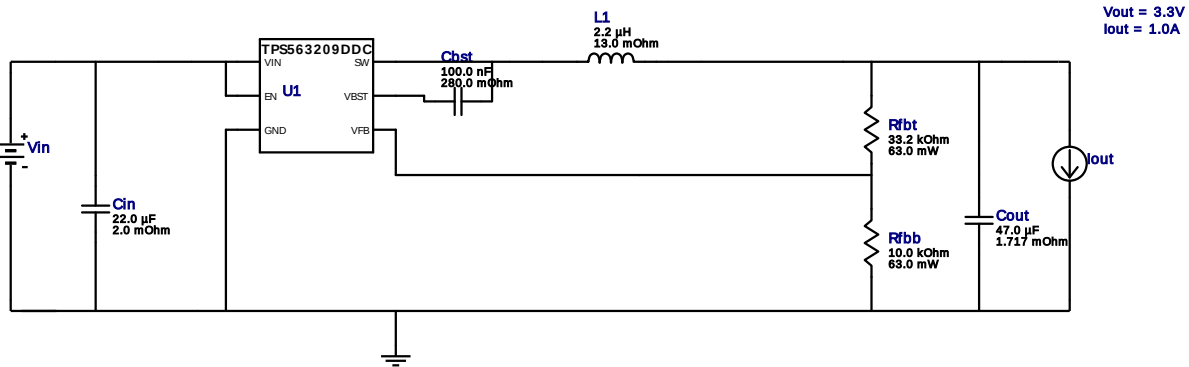


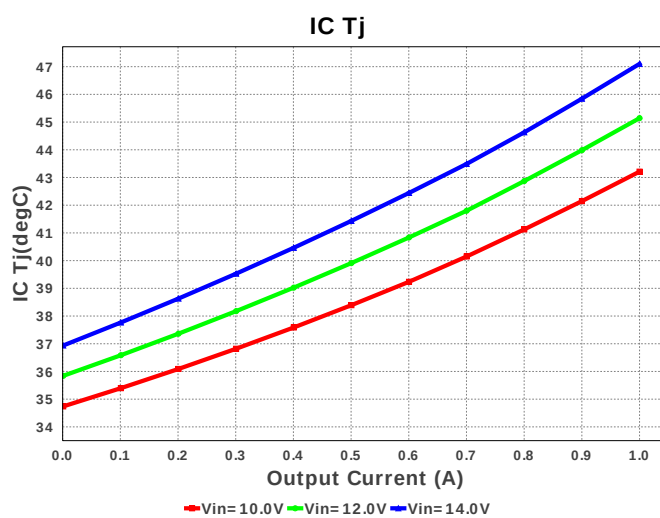
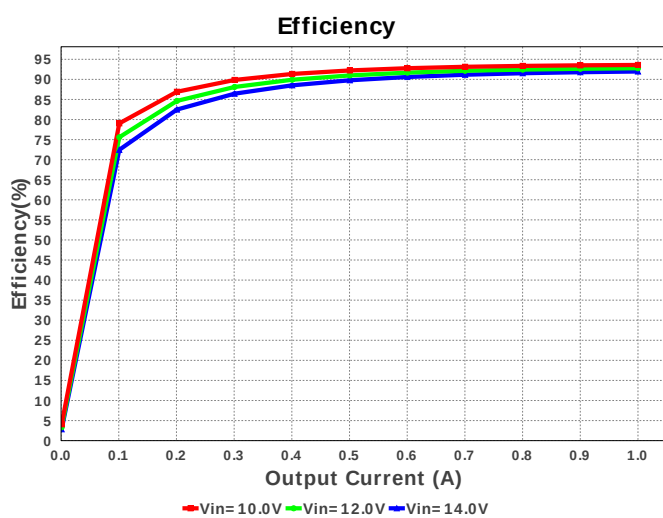
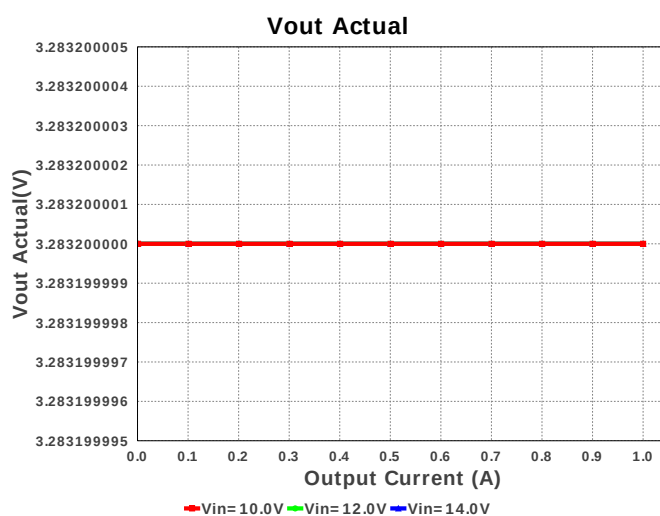
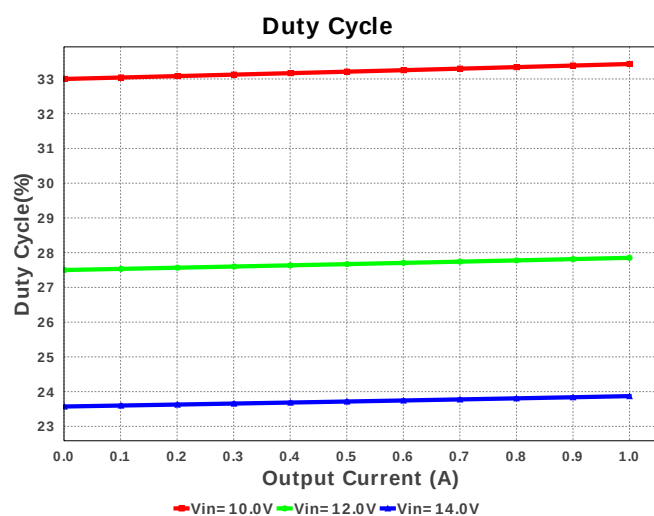
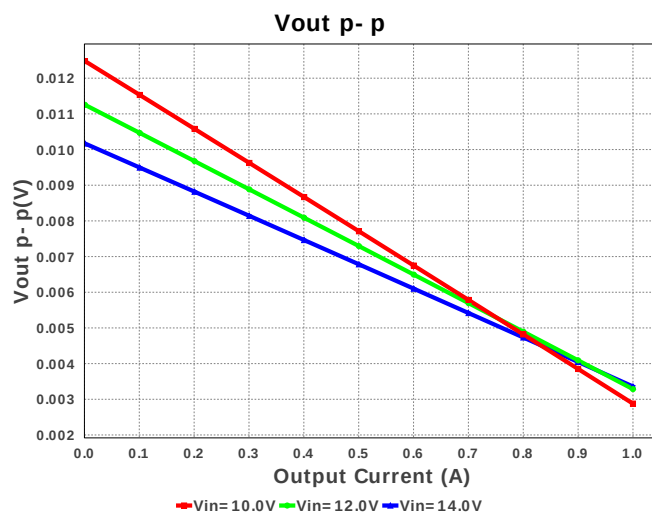
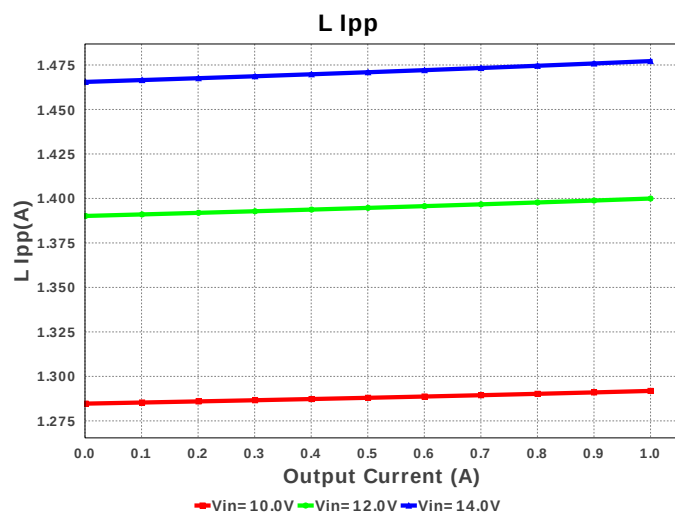
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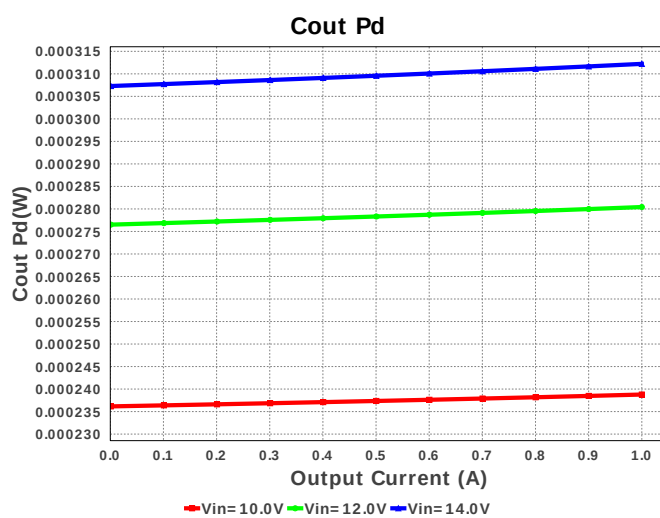
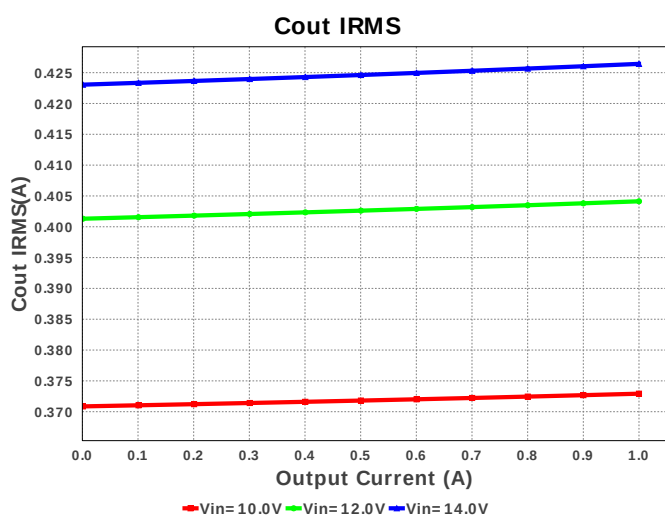
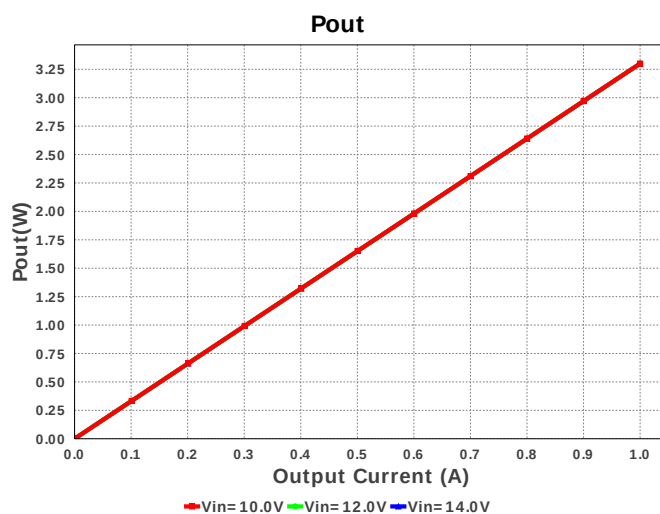
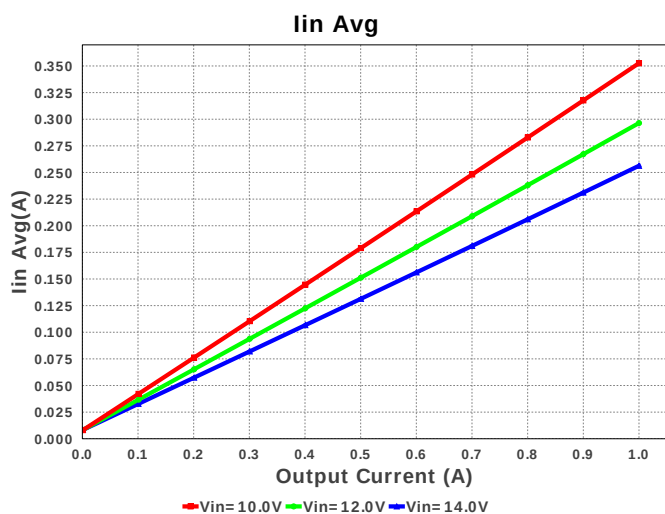
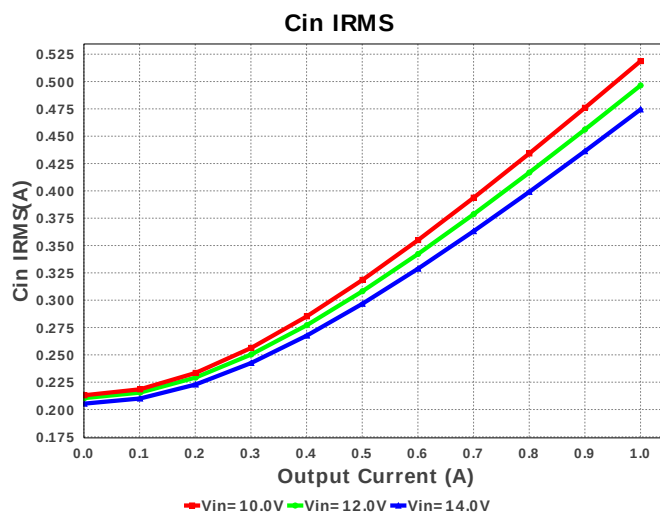
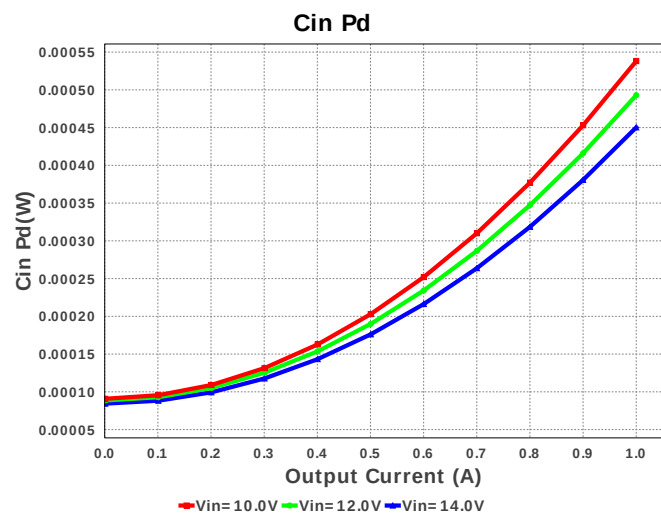
Design : 3943027/11 TPS563209DDCR
TPS563209DDCR 10.0V-14.0V to 3.30V @ 1.0A

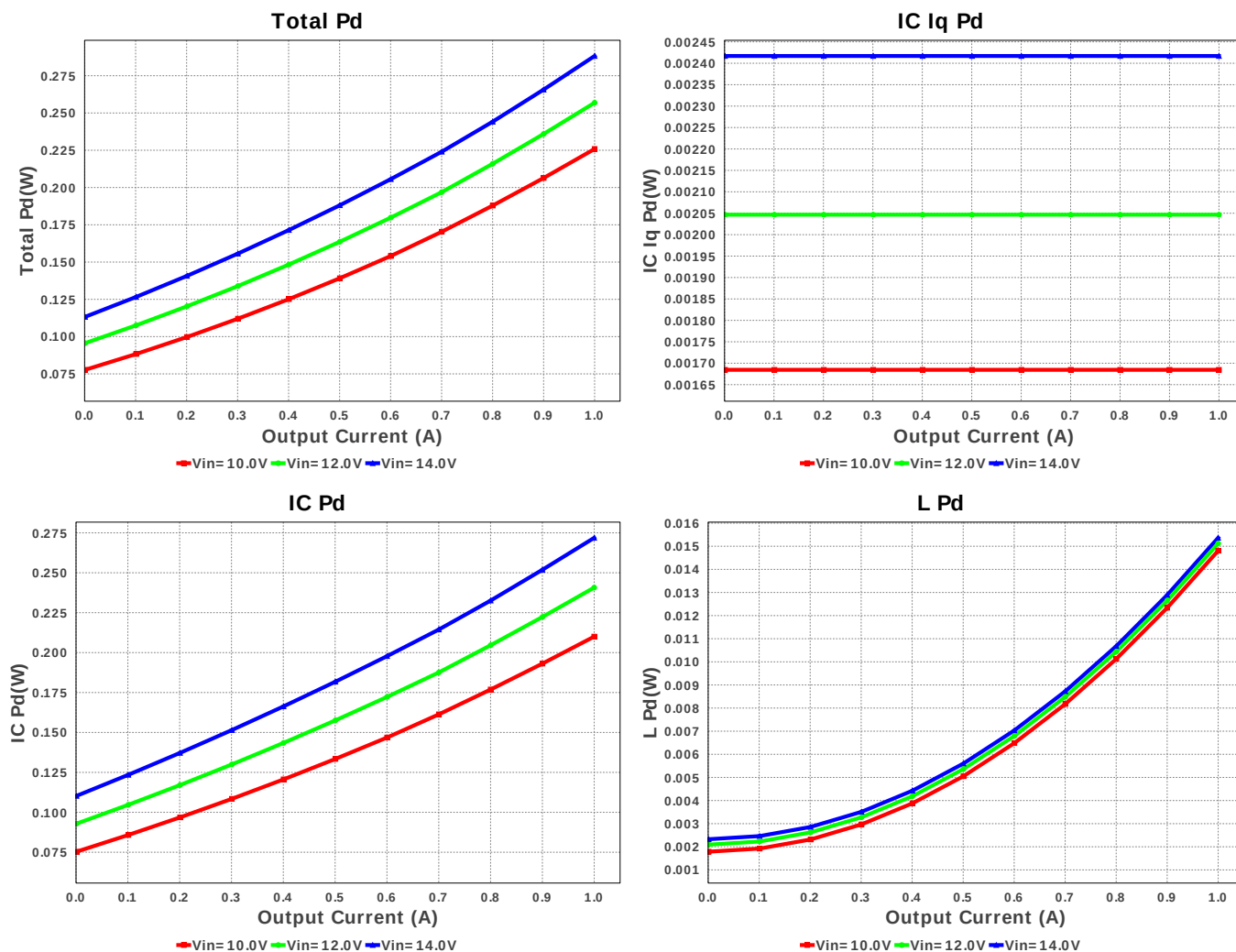


Electrical BOM

#	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 mm²
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 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	Bourns	SRN8040-2R2Y	L= 2.2 uH DCR= 13.0 mOhm	1	\$0.22	 SRN8040 100 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.	Rfbt	Vishay-Dale	CRCW040233K2FKED Series= CRCW..e3	Res= 33.2 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	474.478 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	426.426 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	256.3 mA	Current	Average input current
4.	L Ipp	1.477 A	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	149.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	781.562 kHz	General	Switching frequency
8.	Mode	CCM	General	Conduction Mode
9.	Pout	3.3 W	General	Total output power
10.	Total BOM	\$1.27	General	Total BOM Cost
11.	Vout Actual	3.283 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
12.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	23.87 %	Op_point	Duty cycle
14.	Efficiency	91.967 %	Op_point	Steady state efficiency
15.	IC Tj	47.101 degC	Op_point	IC junction temperature
16.	ICThetaJA	62.9 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	1.0 A	Op_point	Iout operating point
18.	VIN_OP	14.0 V	Op_point	Vin operating point
19.	Vout p-p	5.851 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	450.259 μW	Power	Input capacitor power dissipation
21.	Cout Pd	312.218 μW	Power	Output capacitor power dissipation
22.	IC Iq Pd	2.417 mW	Power	IC Iq Pd
23.	IC Pd	271.873 mW	Power	IC power dissipation
24.	L Pd	15.364 mW	Power	Inductor power dissipation
25.	Total Pd	288.24 mW	Power	Total Power Dissipation
26.	Vout Tolerance	2.889 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	1.0	Maximum Output Current
2.	VinMax	14.0	Maximum input voltage
3.	VinMin	10.0	Minimum input voltage
4.	Vout	3.3	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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