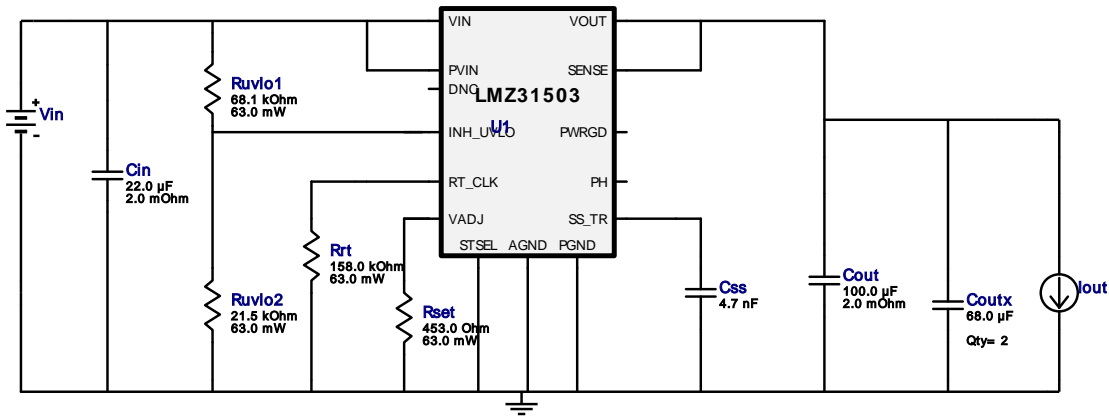











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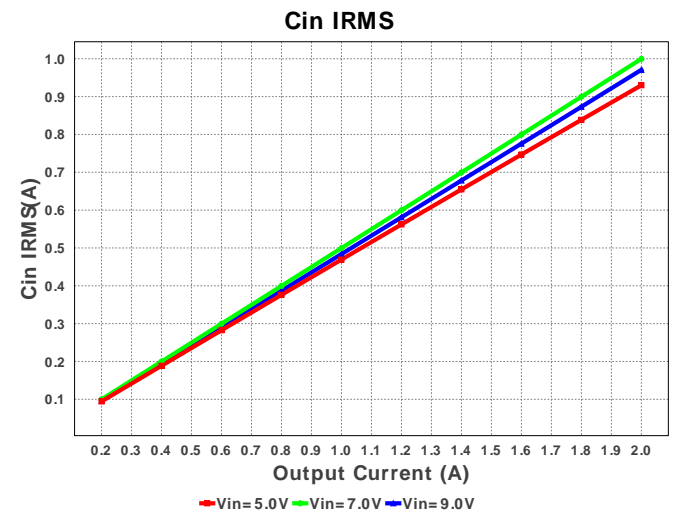
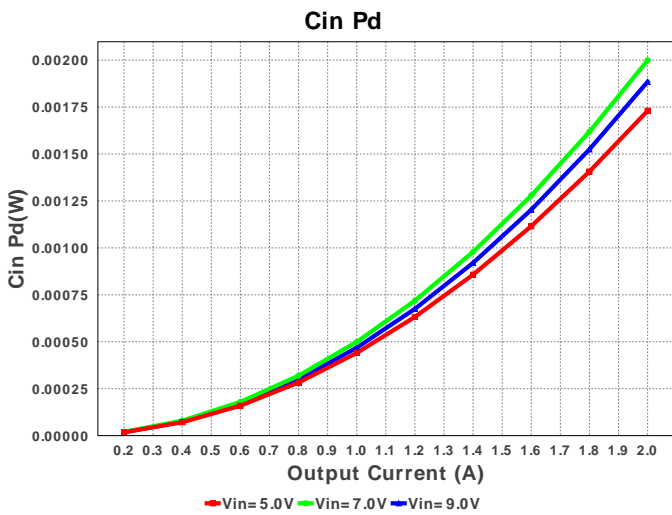
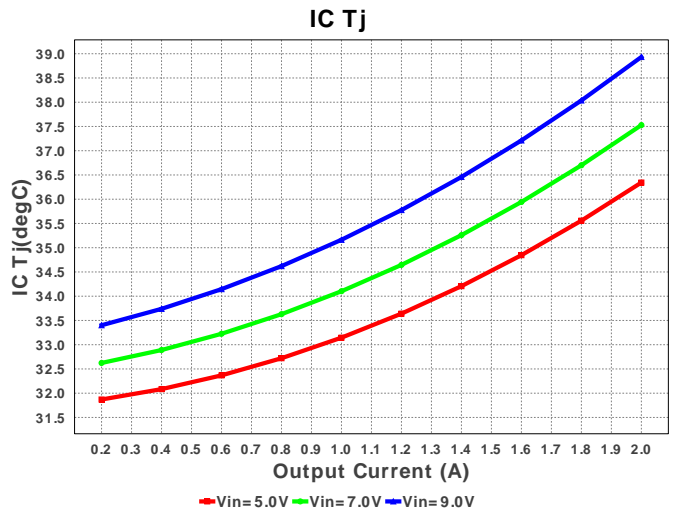
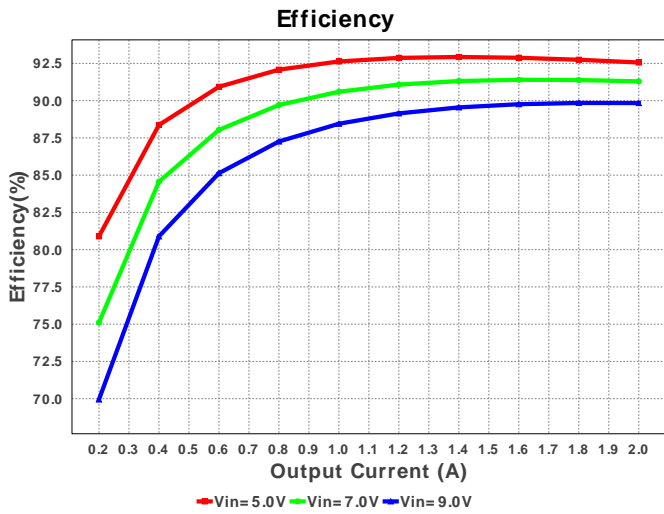
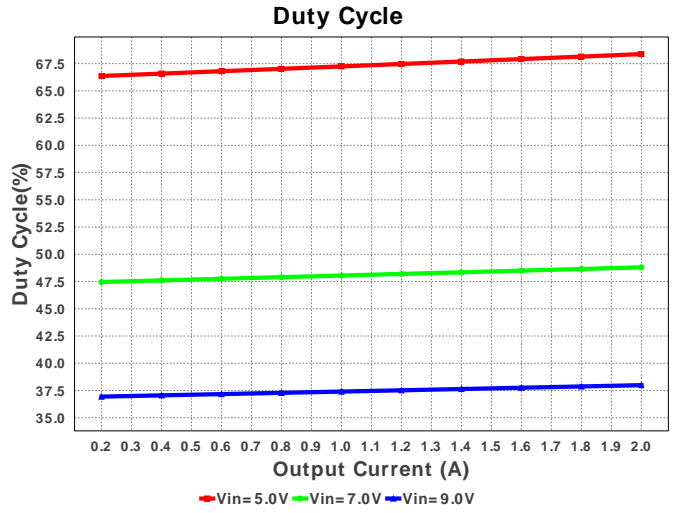
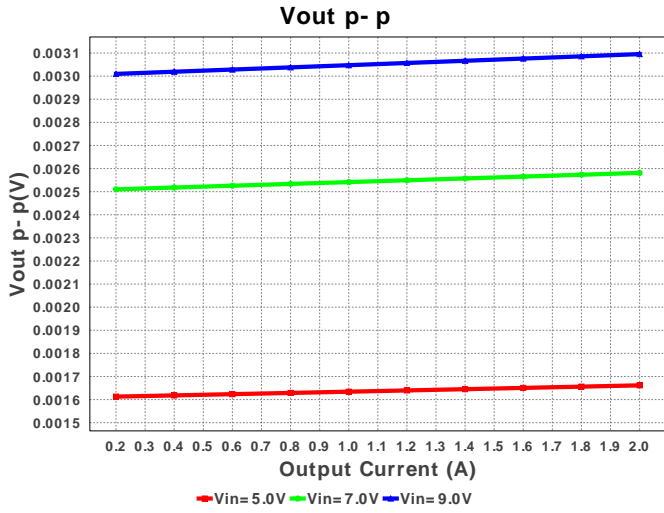
 Design : 4417704/22 LMZ31503RUQR
 LMZ31503RUQR 5.0V-9.0V to 3.30V @ 2.0A

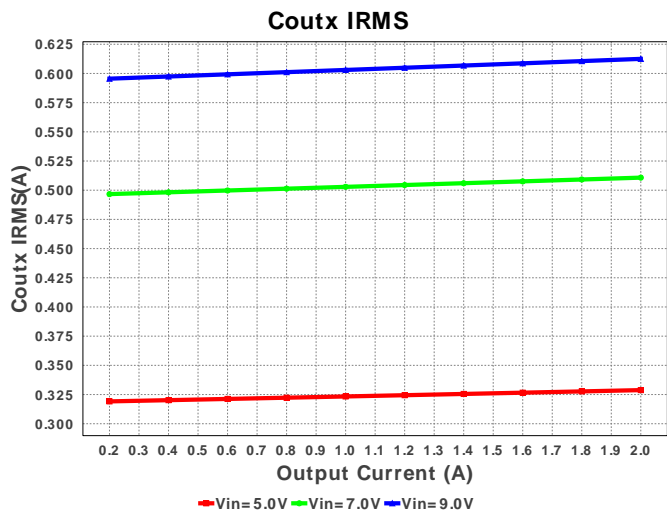
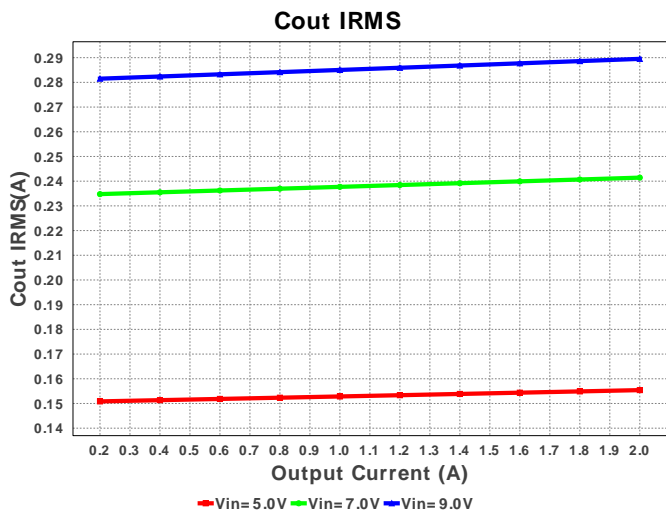
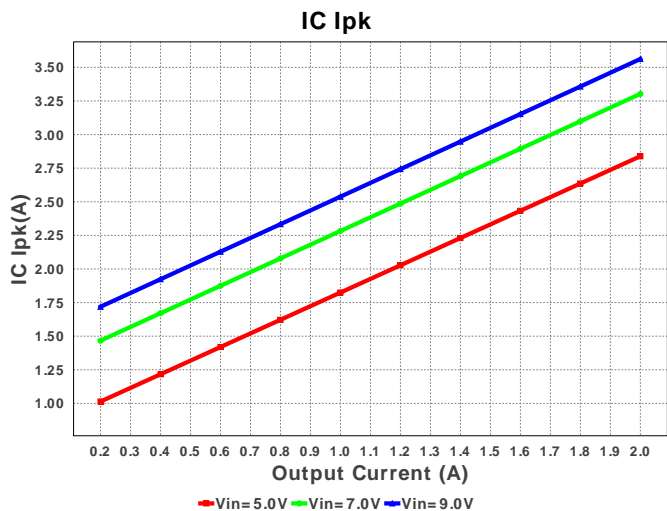
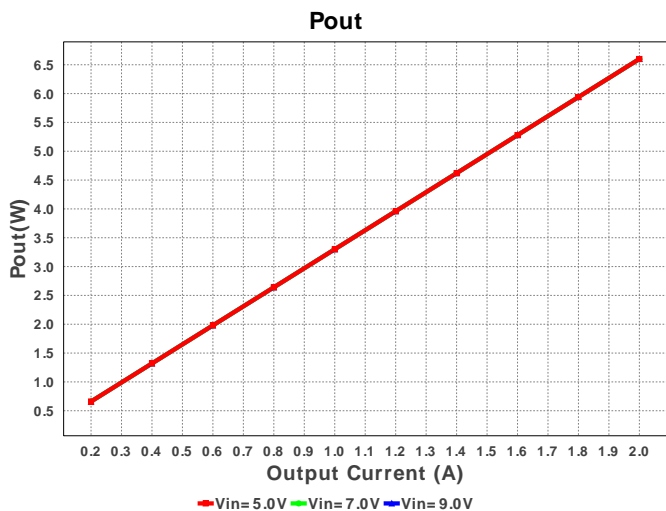
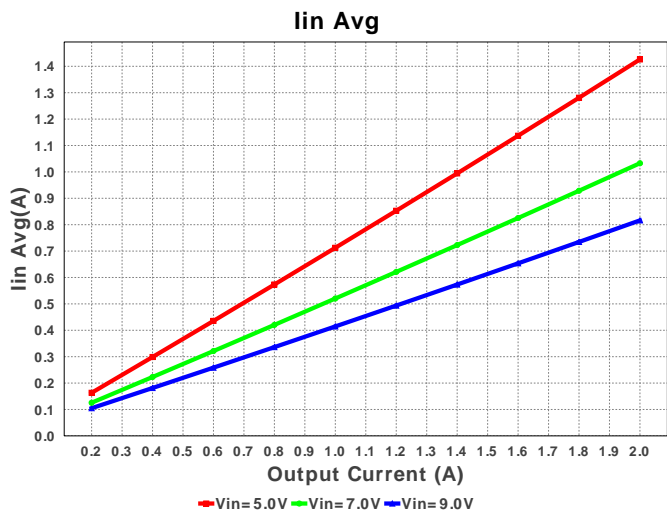
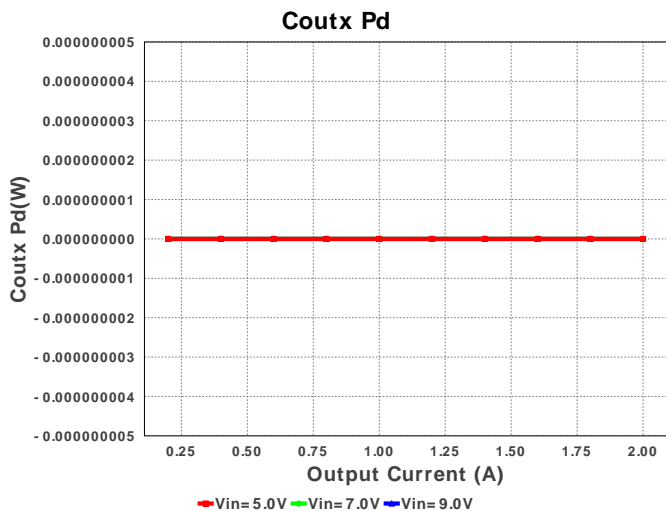
VinMax = 9.0V

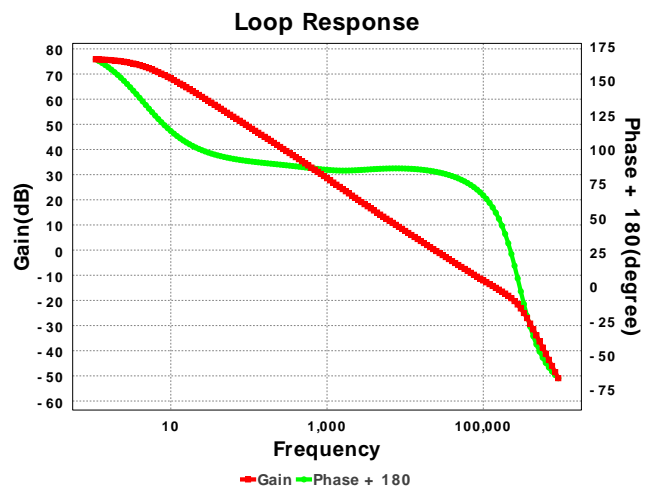
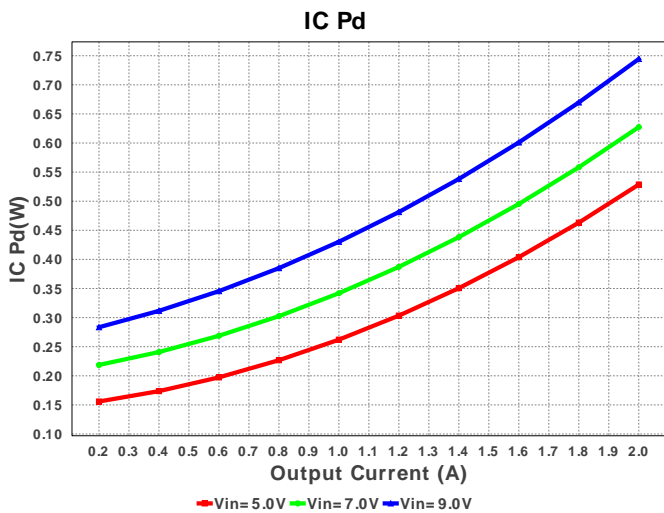
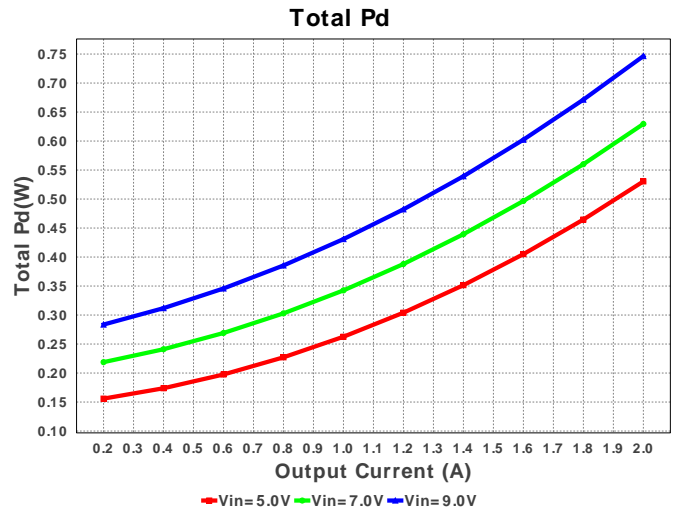
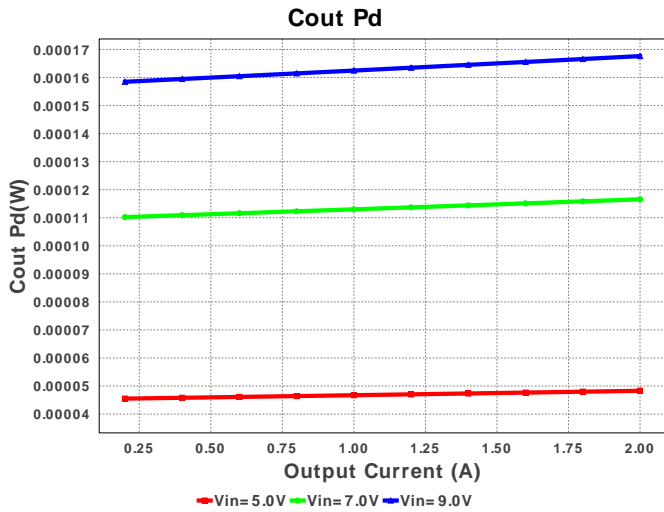
Iout = 2.0A


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	MuRata	GRM32ER61C226KE20L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 16.0 V IRMS= 3.68 A	1	\$0.16	 1210 15 mm ²
2.	Cout	MuRata	GRM32ER60J107ME20L Series= X5R	Cap= 100.0 uF ESR= 2.0 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.26	 1210 15 mm ²
3.	Coutx	TDK	C3216JB1A686M Series= JB	Cap= 68.0 uF VDC= 10.0 V IRMS= 0.0 A	2	\$0.46	 1206 11 mm ²
4.	Css	Yageo America	CC0805KRX7R9BB472 Series= X7R	Cap= 4.7 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
5.	Rrt	Vishay-Dale	CRCW0402158KFKED Series= CRCW..e3	Res= 158.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	Rset	Vishay-Dale	CRCW0402453RFBKED Series= CRCW..e3	Res= 453.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	Ruvlo1	Vishay-Dale	CRCW040268K1FKED Series= CRCW..e3	Res= 68.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
8.	Ruvlo2	Vishay-Dale	CRCW040221K5FKED Series= CRCW..e3	Res= 21.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
9.	U1	Texas Instruments	LMZ31503RUQR	Switcher	1	\$4.25	 R-PB1QFN-N47 191 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	970.729 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	289.529 mA	Current	Output capacitor RMS ripple current
3.	Coutx IRMS	612.528 mA	Current	Output capacitor_x RMS ripple current
4.	IC Ipk	3.562 A	Current	Peak switch current in IC
5.	Iin Avg	816.34 mA	Current	Average input current
6.	BOM Count	10	General	Total Design BOM count
7.	FootPrint	261.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	630.0 kHz	General	Switching frequency
9.	Pout	6.6 W	General	Total output power
10.	Total BOM	\$5.64	General	Total BOM Cost
11.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
12.	Cross Freq	24.049 kHz	Op_point	Bode plot crossover frequency
13.	Duty Cycle	37.991 %	Op_point	Duty cycle
14.	Efficiency	89.832 %	Op_point	Steady state efficiency
15.	IC Tj	39.685 degC	Op_point	IC junction temperature
16.	ICThetaJA	13.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	2.0 A	Op_point	Iout operating point
18.	Phase Marg	84.264 deg	Op_point	Bode Plot Phase Margin
19.	VIN_OP	9.0 V	Op_point	Vin operating point
20.	Vout p-p	3.096 mV	Op_point	Peak-to-peak output ripple voltage
21.	Cin Pd	1.885 mW	Power	Input capacitor power dissipation
22.	Cout Pd	167.654 μW	Power	Output capacitor power dissipation
23.	Coutx Pd	0.0 W	Power	Output capacitor_x power loss
24.	IC Pd	744.975 mW	Power	IC power dissipation
25.	Total Pd	747.049 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	Iout1	2.0	Output Current #1

#	Name	Value	Description
3.	VinMax	9.0	Maximum input voltage
4.	VinMin	5.0	Minimum input voltage
5.	Vout	3.3	Output Voltage
6.	Vout1	3.3	Output Voltage #1
7.	base_pn	LMZ31503	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

1. LMZ31503 Product Folder : <http://www.ti.com/product/LMZ31503> : contains the data sheet and other resources.

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