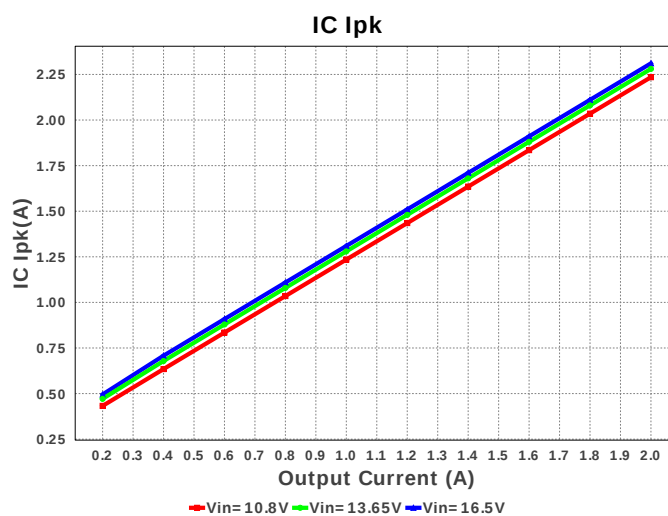
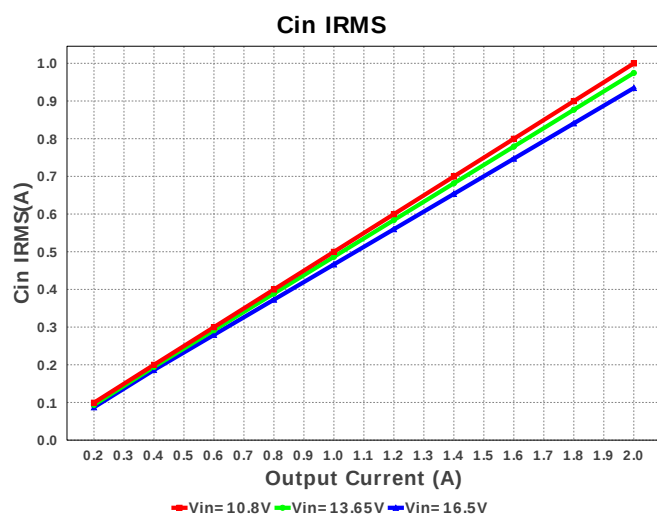
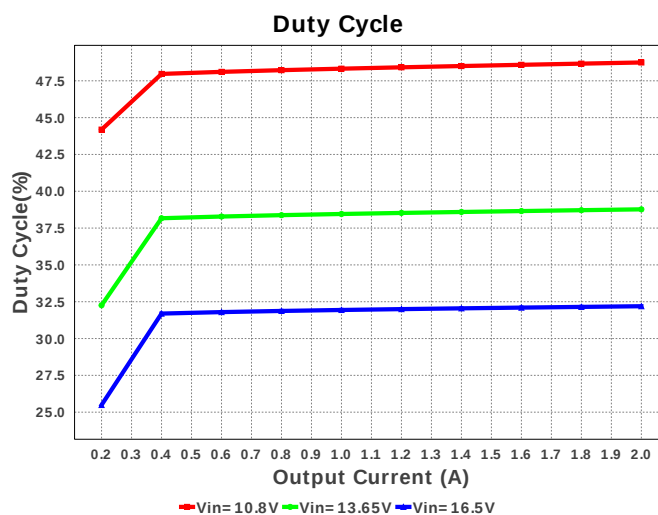
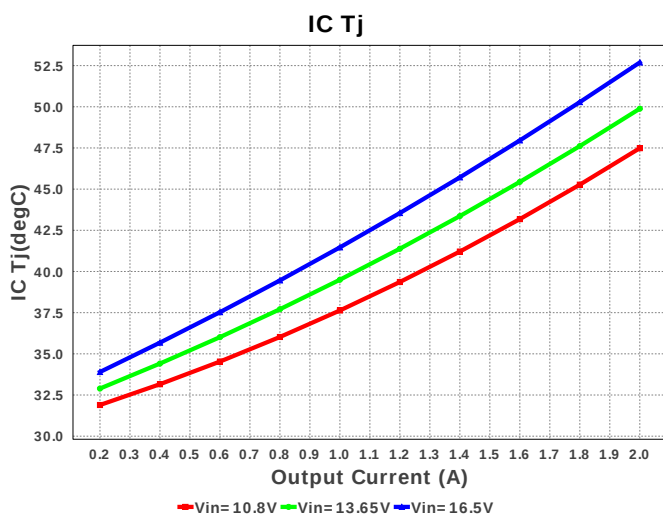
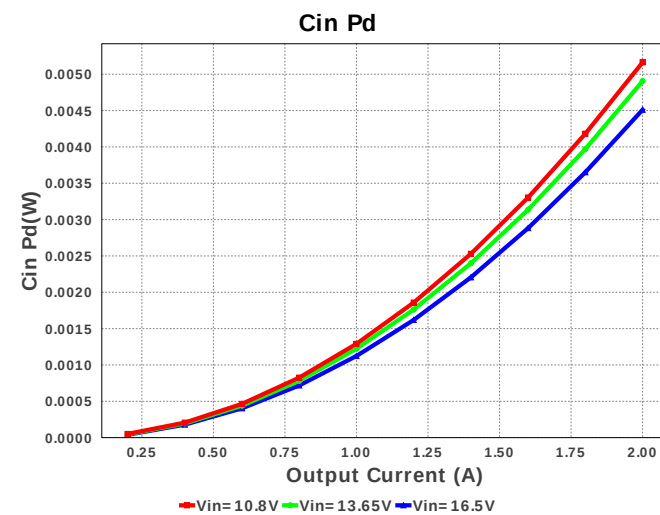
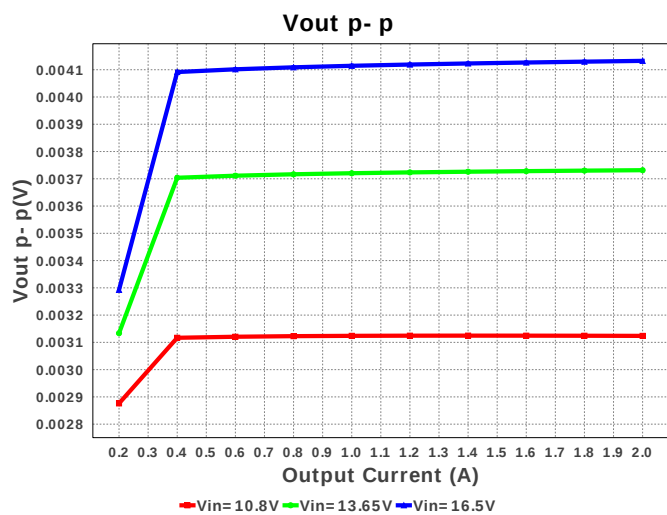
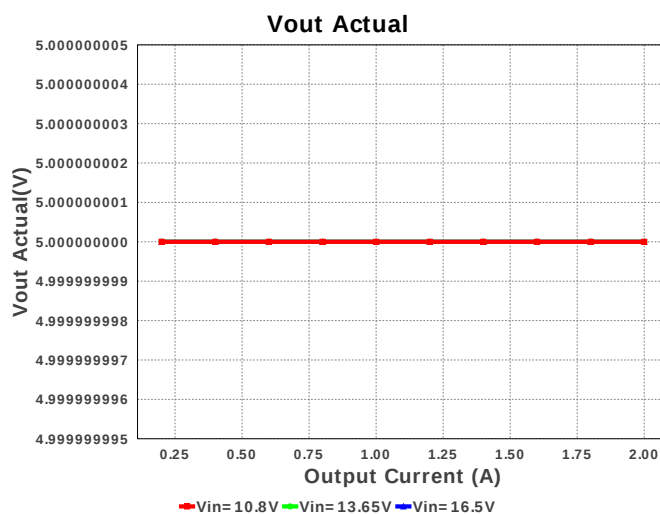
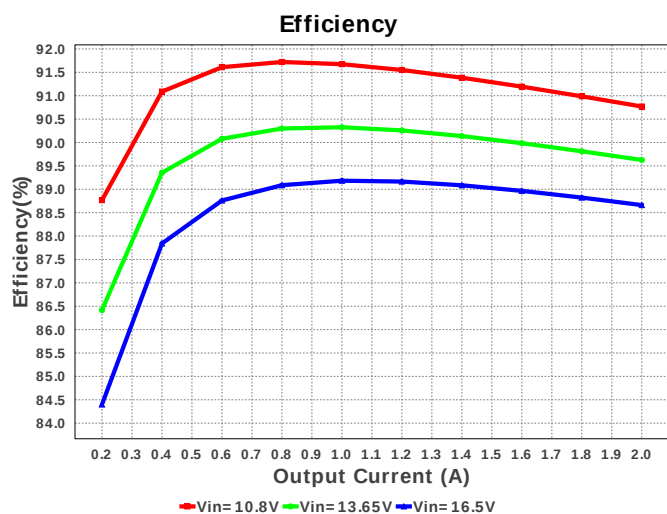
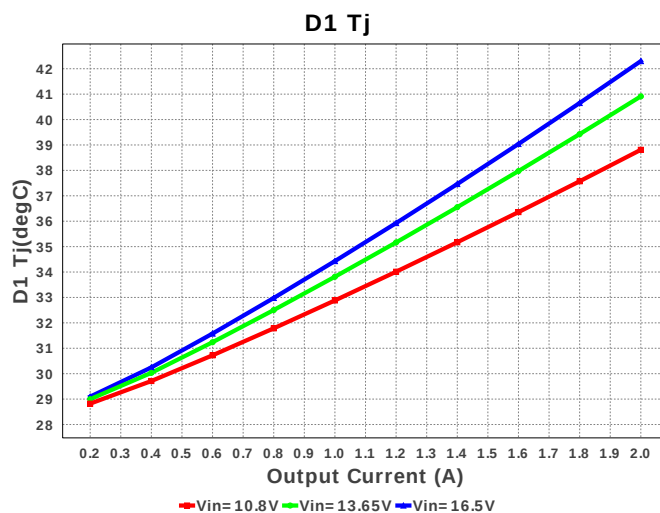
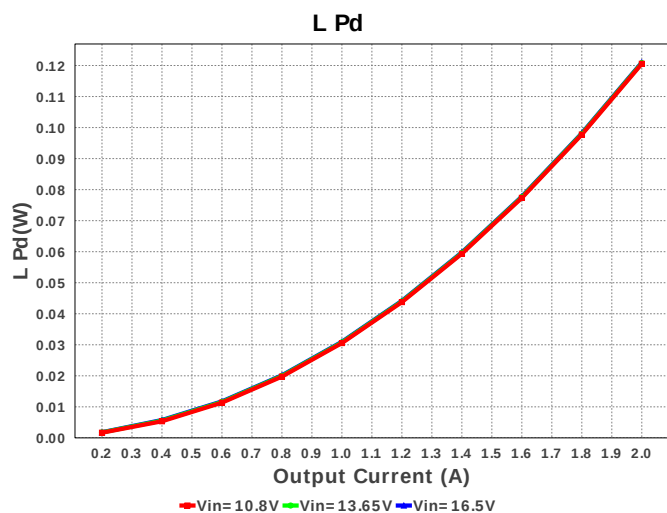


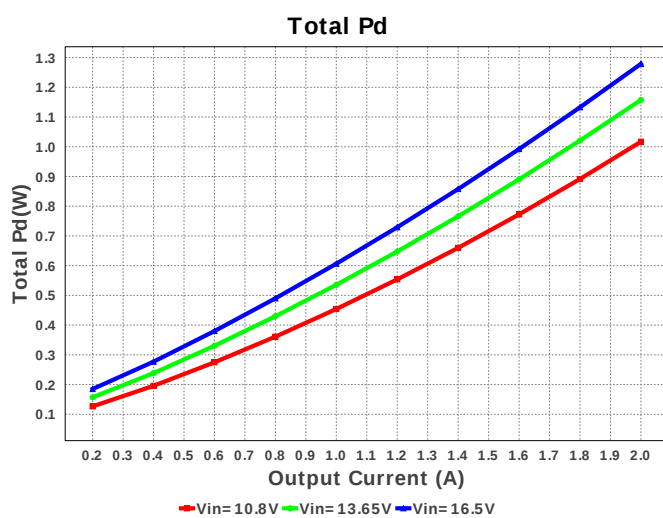
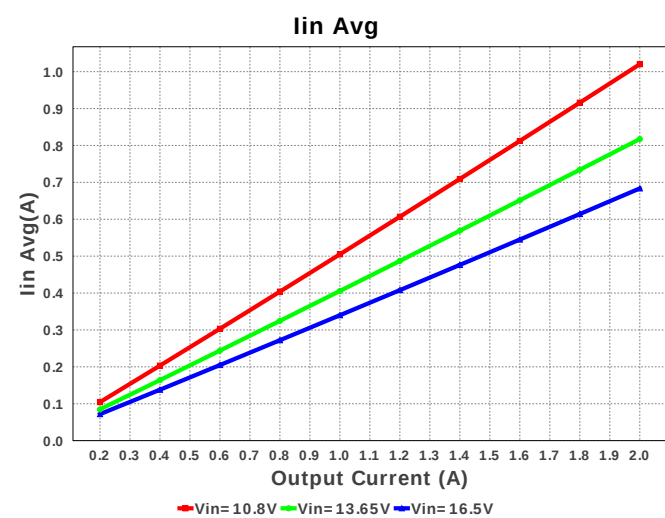
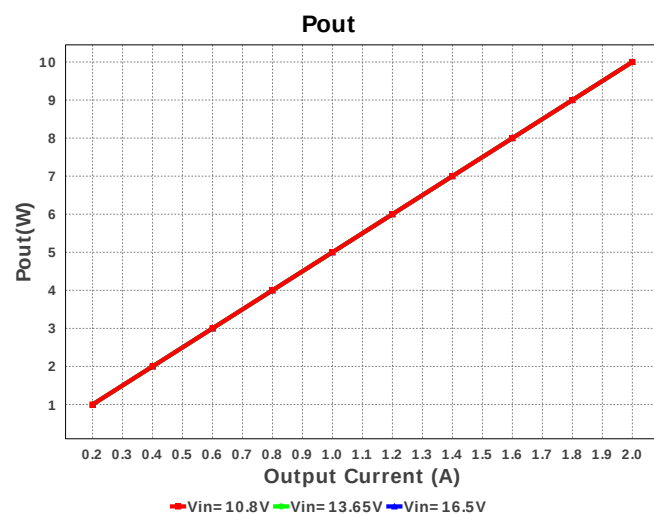
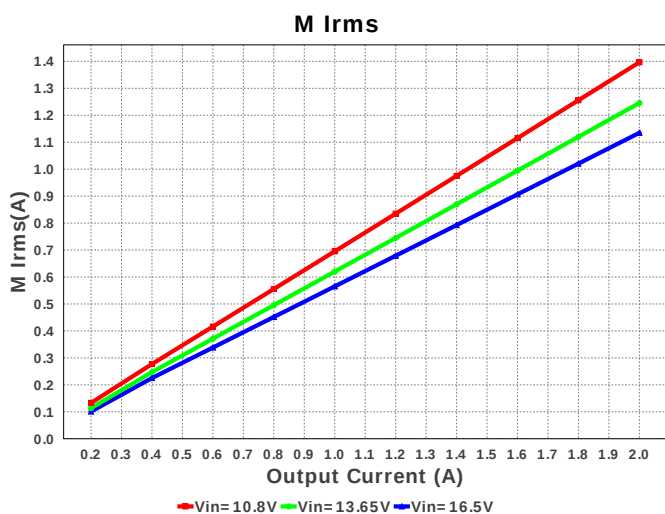
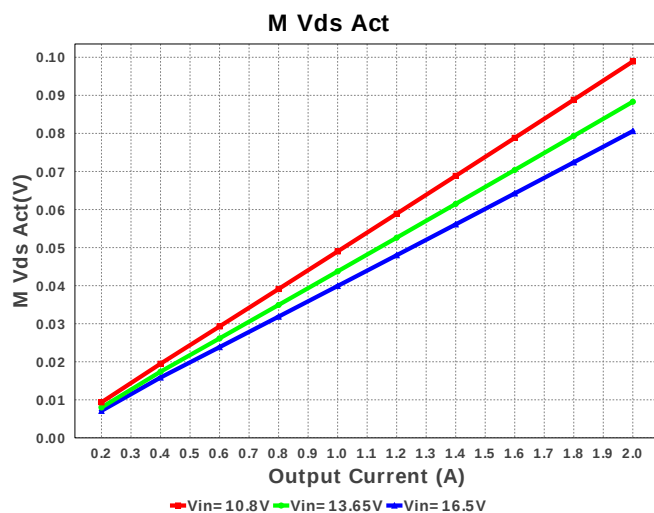
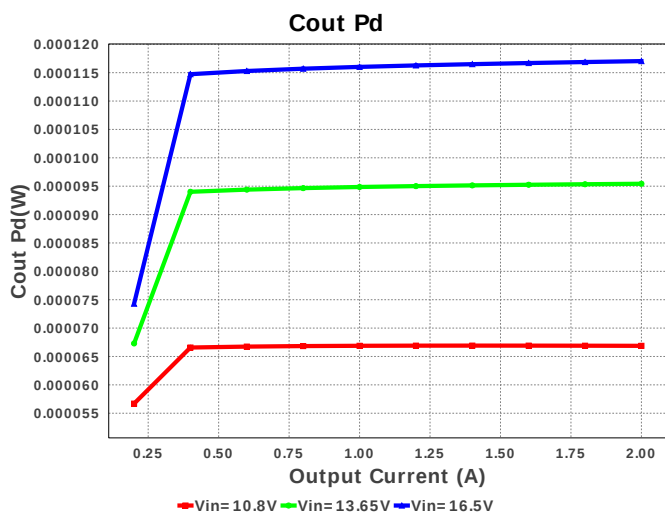


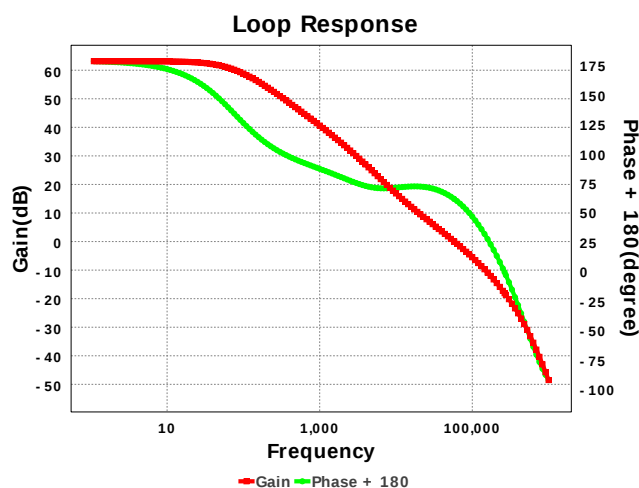
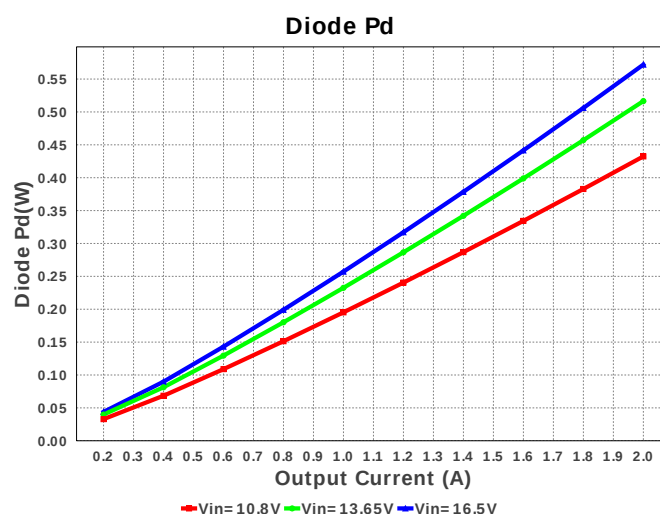
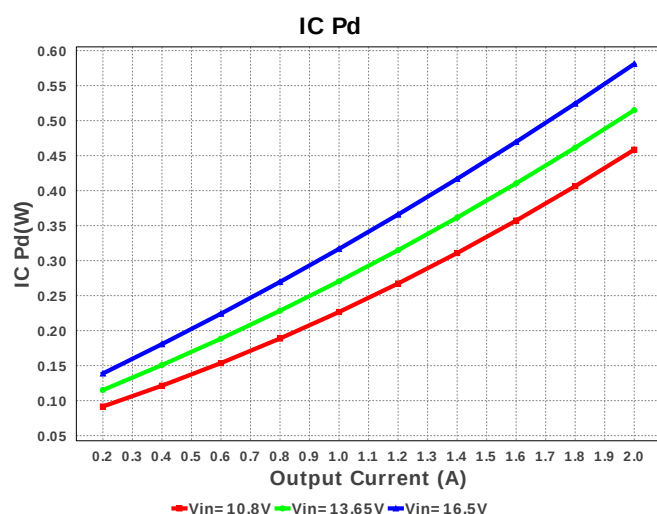
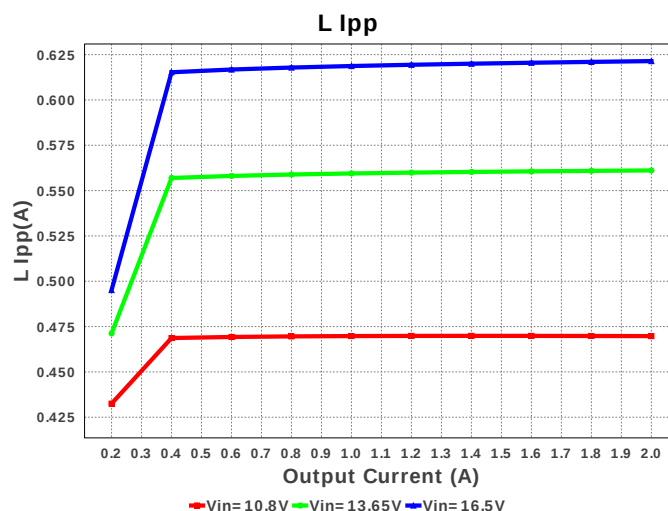
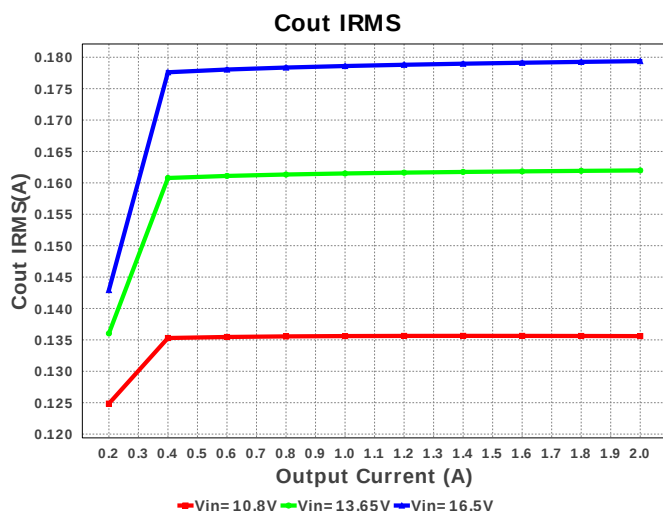
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Topology = Buck
Created = 7/19/16 1:41:28 AM
BOM Cost = \$1.95
BOM Count = 10
Total Pd = 1.28W

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	U1	Texas Instruments	LMR14020SDDAR	Switcher	1	\$1.46	 DDA0008E_N 57 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	934.466 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	179.388 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.311 A	Current	Peak switch current in IC
4.	Iin Avg	683.59 mA	Current	Average input current
5.	L Ipp	621.42 mA	Current	Peak-to-peak inductor ripple current
6.	M Irms	1.135 A	Current	MOSFET RMS current
7.	BOM Count	10	General	Total Design BOM count
8.	FootPrint	212.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	1.183 MHz	General	Switching frequency
10.	IC Tolerance	18.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	80.588 mV	General	Voltage drop across the MosFET

#	Name	Value	Category	Description
12.	Pout	10.0 W	General	Total output power
13.	Total BOM	\$1.95	General	Total BOM Cost
14.	D1 Tj	42.3 degC	Op_Point	D1 junction temperature
15.	Vout Actual	5.0 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
17.	Cross Freq	58.018 kHz	Op_point	Bode plot crossover frequency
18.	Duty Cycle	32.194 %	Op_point	Duty cycle
19.	Efficiency	88.662 %	Op_point	Steady state efficiency
20.	IC Tj	52.399 degC	Op_point	IC junction temperature
21.	ICThetaJA	42.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
22.	IOUT_OP	2.0 A	Op_point	Iout operating point
23.	Phase Marg	62.233 deg	Op_point	Bode Plot Phase Margin
24.	VIN_OP	16.5 V	Op_point	Vin operating point
25.	Vout p-p	4.132 mV	Op_point	Peak-to-peak output ripple voltage
26.	Cin Pd	4.511 mW	Power	Input capacitor power dissipation
27.	Cout Pd	117.038 µW	Power	Output capacitor power dissipation
28.	Diode Pd	572.009 mW	Power	Diode power dissipation
29.	IC Pd	580.923 mW	Power	IC power dissipation
30.	L Pd	120.973 mW	Power	Inductor power dissipation
31.	Total Pd	1.279 W	Power	Total Power Dissipation
32.	Vout Tolerance	4.158 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	VinMax	16.5	Maximum input voltage
3.	VinMin	10.8	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	LMR14020S	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	28.0	Ambient temperature

Design Assistance

1. LMR14020S Product Folder : <http://www.ti.com/product/LMR14020> : contains the data sheet and other resources.

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