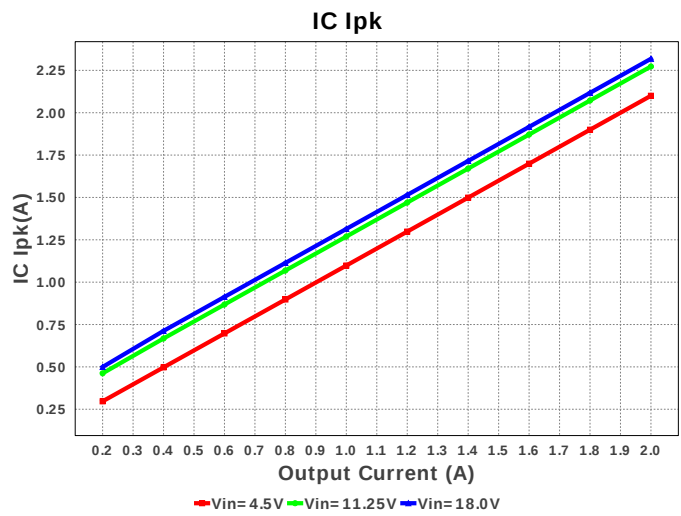
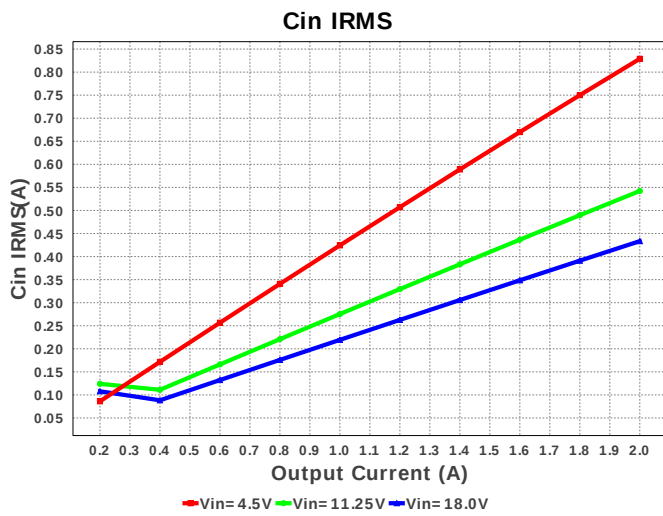
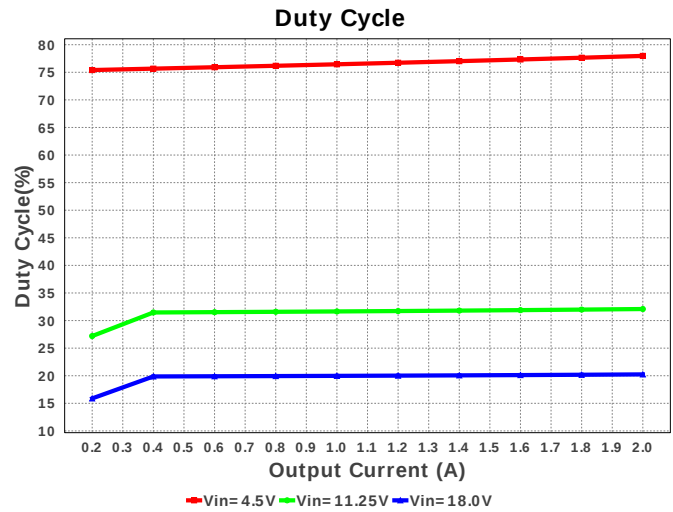
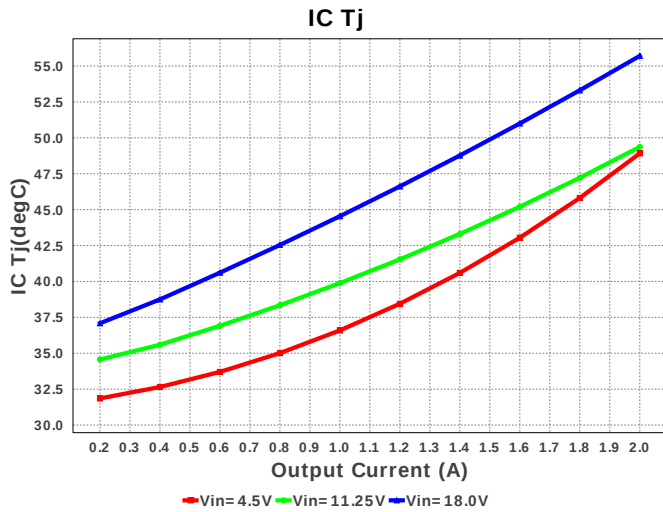
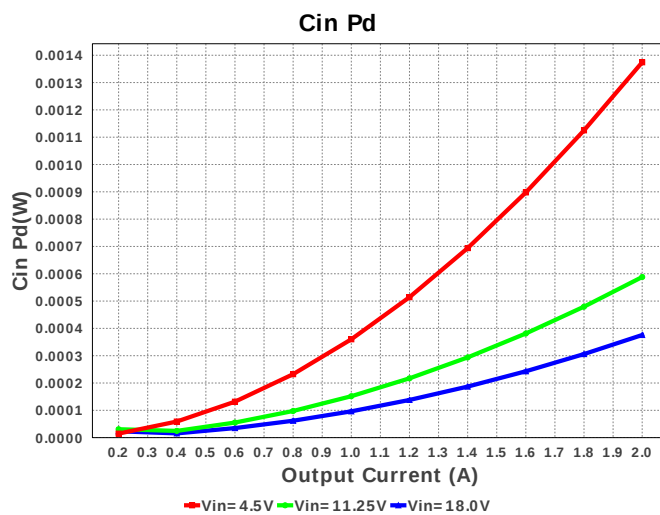
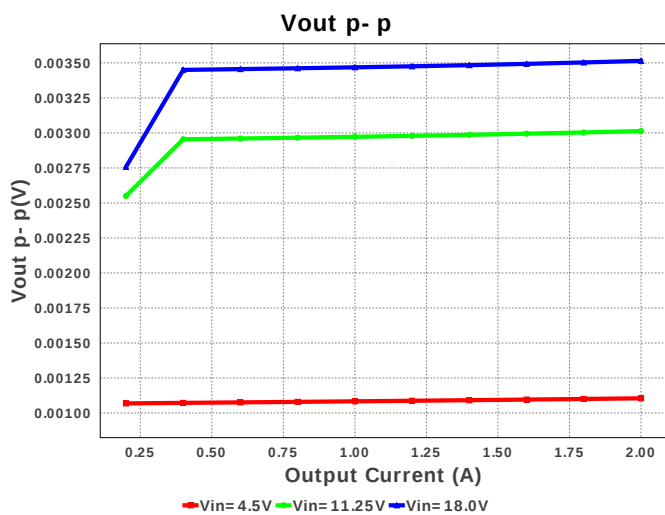
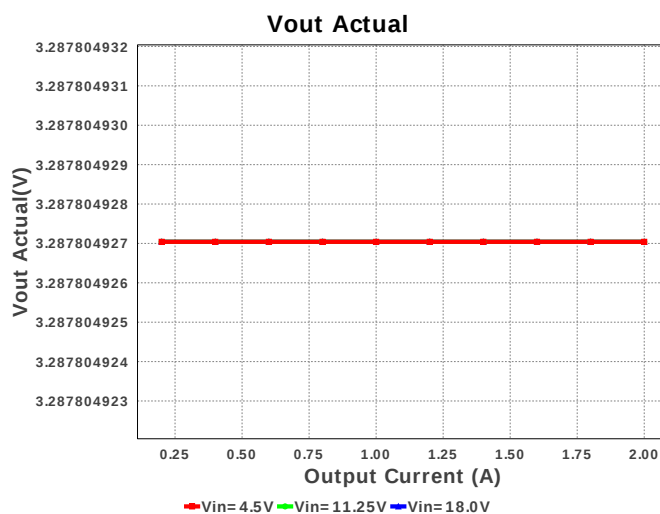
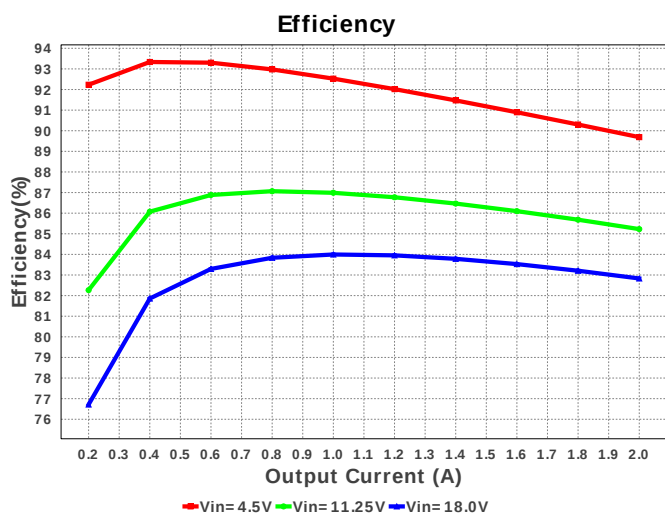
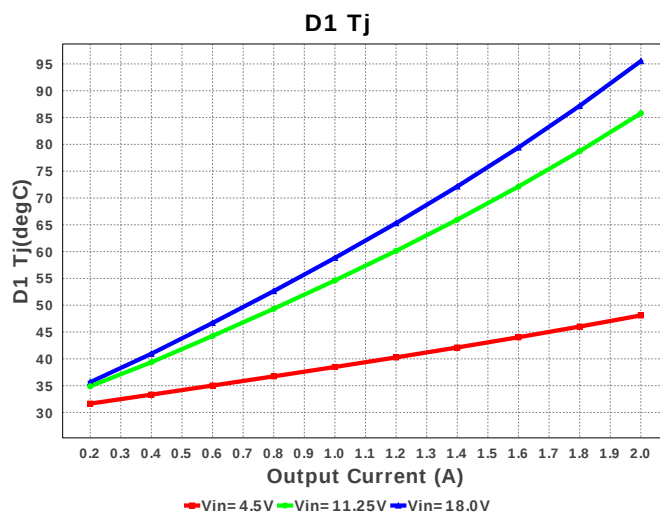
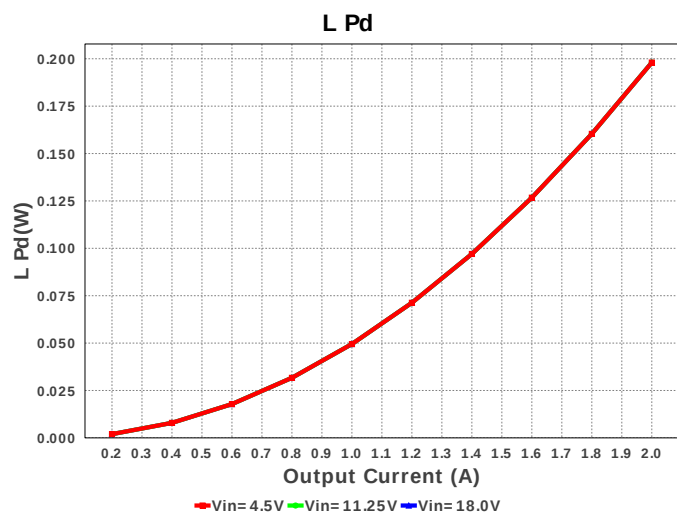


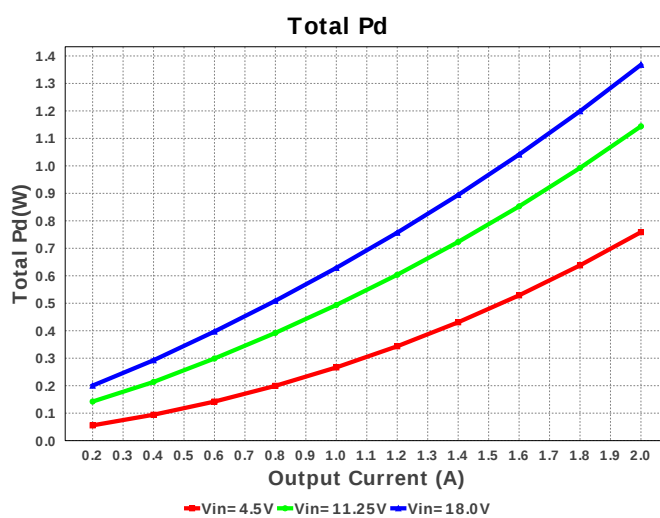
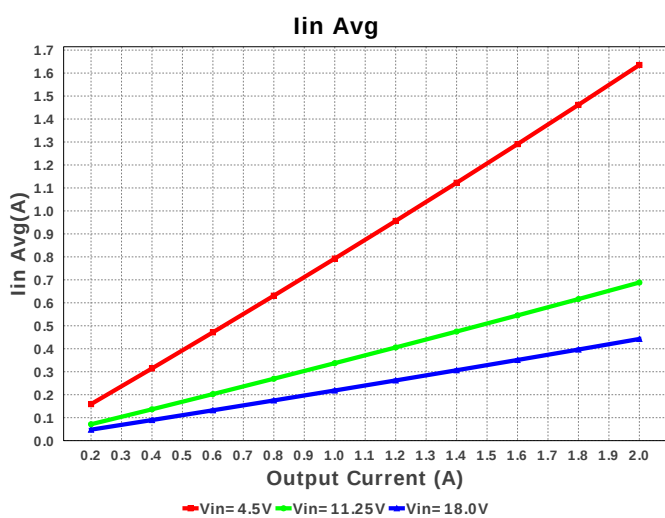
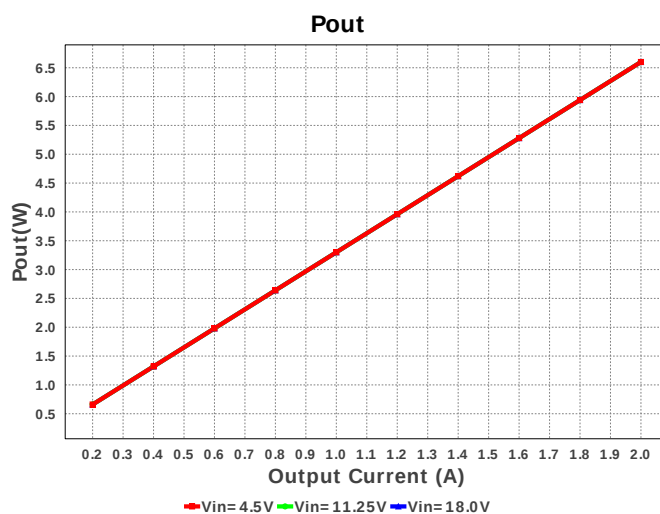
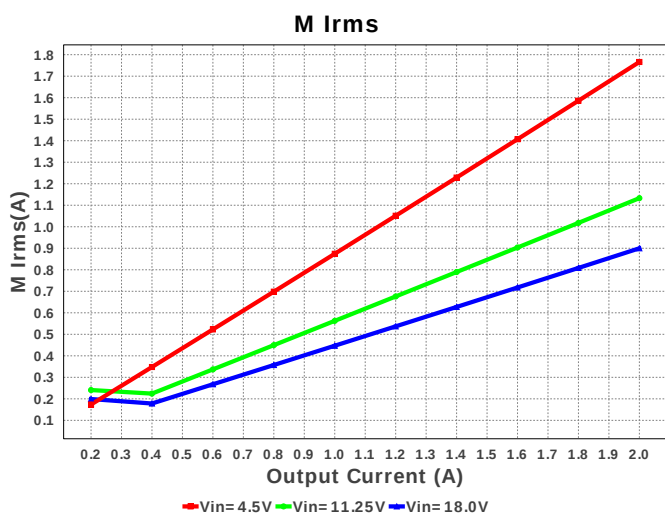
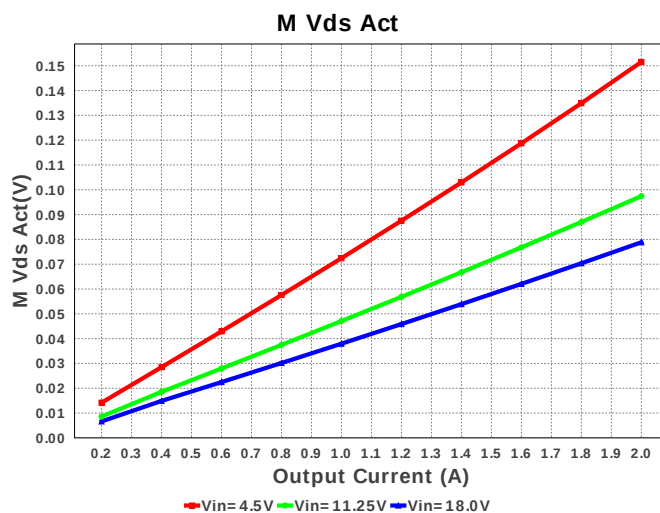
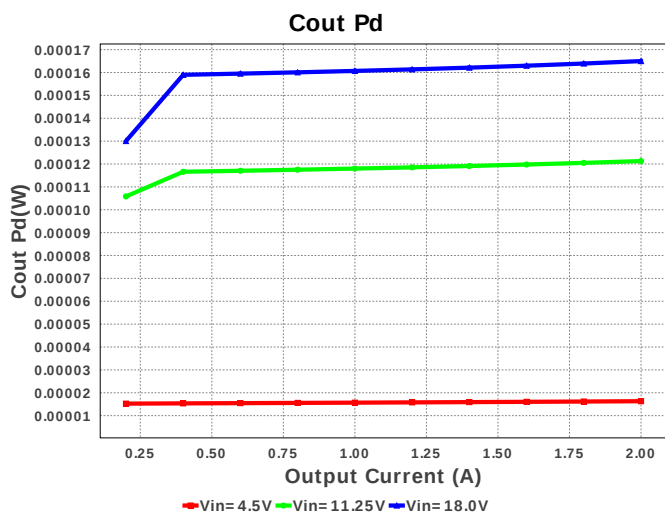


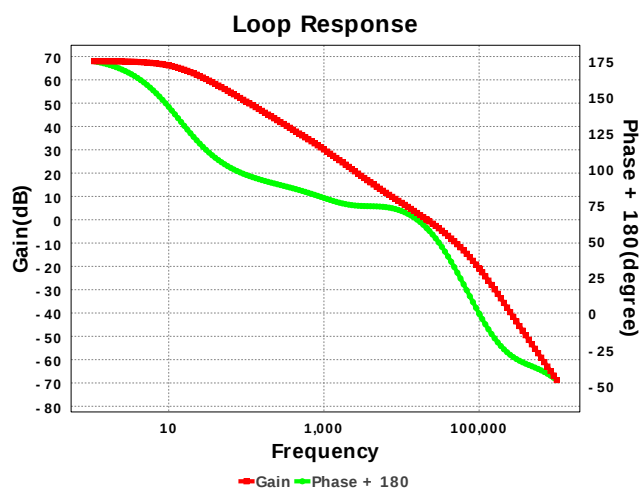
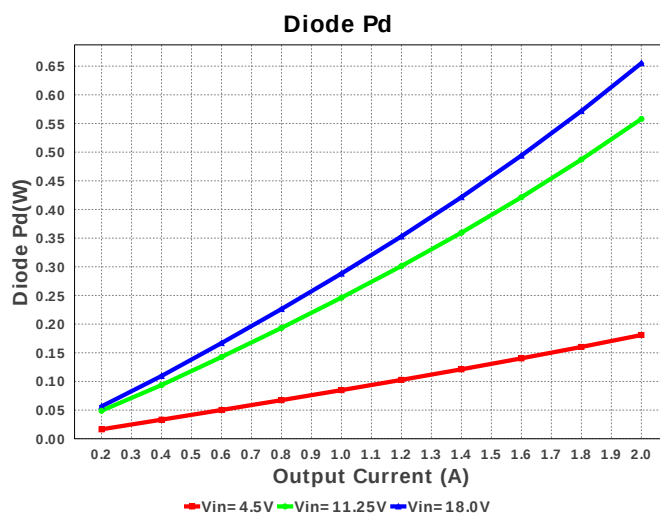
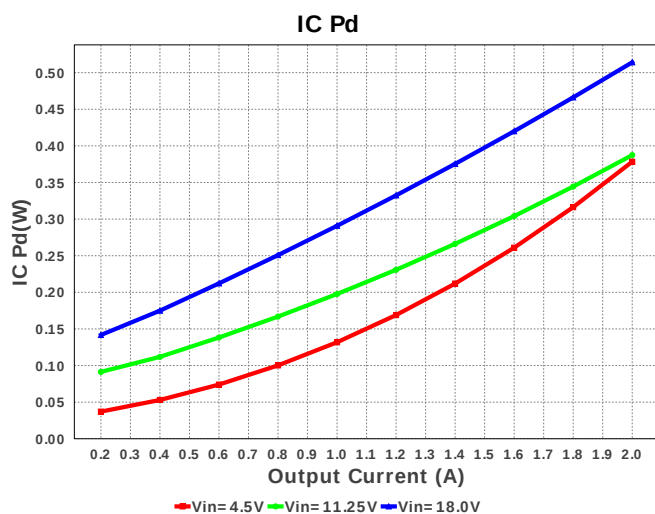
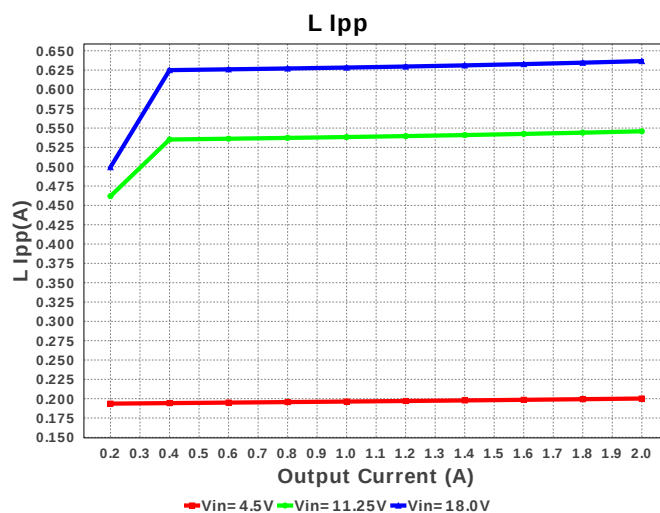
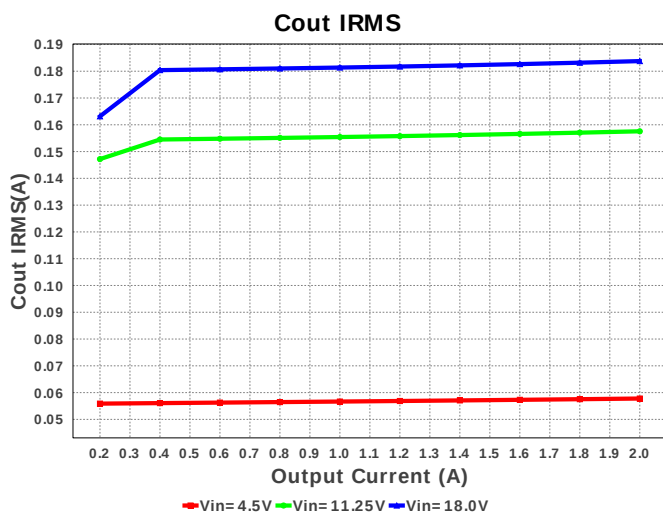
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Topology = Buck
Created = 8/9/16 5:30:06 PM
BOM Cost = \$1.41
BOM Count = 12
Total Pd = 1.37W

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	U1	Texas Instruments	TPS54331DDAR	Switcher	1	\$0.65	 DDA0008H 57 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	433.443 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	183.778 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.318 A	Current	Peak switch current in IC
4.	Iin Avg	442.66 mA	Current	Average input current
5.	L Ipp	636.63 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	899.825 mA	Current	Q lavg
7.	BOM Count	12	General	Total Design BOM count
8.	FootPrint	252.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	570.0 kHz	General	Switching frequency
10.	M Vds Act	78.839 mV	General	Voltage drop across the MosFET
11.	Mode	CCM	General	Conduction Mode

#	Name	Value	Category	Description
12.	Pout	6.6 W	General	Total output power
13.	Total BOM	\$1.41	General	Total BOM Cost
14.	D1 Tj	95.525 degC	Op_Point	D1 junction temperature
15.	Low Freq Gain	67.989 dB	Op_Point	Gain at 10Hz
16.	Vout Actual	3.288 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
17.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
18.	Cross Freq	21.336 kHz	Op_point	Bode plot crossover frequency
19.	Duty Cycle	20.242 %	Op_point	Duty cycle
20.	Efficiency	82.832 %	Op_point	Steady state efficiency
21.	Gain Marg	-21.116 dB	Op_point	Bode Plot Gain Margin
22.	IC Tj	55.705 degC	Op_point	IC junction temperature
23.	ICThetaJA	50.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
24.	IOUT_OP	2.0 A	Op_point	Iout operating point
25.	Phase Marg	59.527 deg	Op_point	Bode Plot Phase Margin
26.	VIN_OP	18.0 V	Op_point	Vin operating point
27.	Vout p-p	3.514 mV	Op_point	Peak-to-peak output ripple voltage
28.	Cin Pd	375.745 μW	Power	Input capacitor power dissipation
29.	Cout Pd	164.988 μW	Power	Output capacitor power dissipation
30.	Diode Pd	655.252 mW	Power	Diode power dissipation
31.	IC Pd	514.101 mW	Power	IC power dissipation
32.	L Pd	198.0 mW	Power	Inductor power dissipation
33.	Total Pd	1.368 W	Power	Total Power Dissipation
34.	Vout Tolerance	4.362 %		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	18.0	Maximum input voltage
3.	VinMin	4.5	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	TPS54331	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS54331** Product Folder : <http://www.ti.com/product/TPS54331> : contains the data sheet and other resources.

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