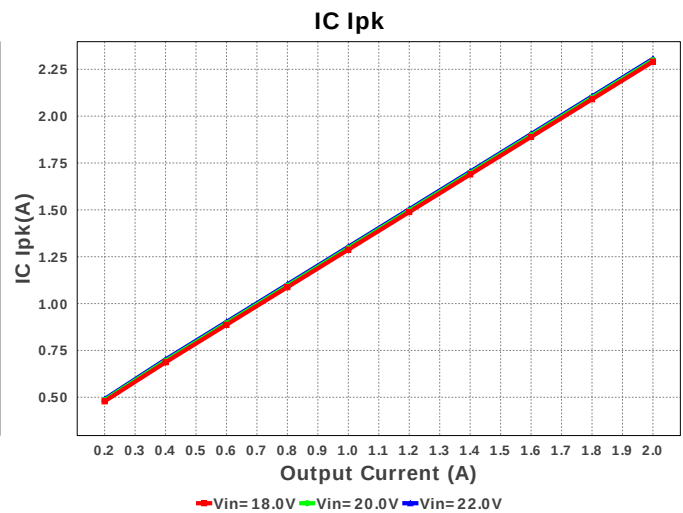
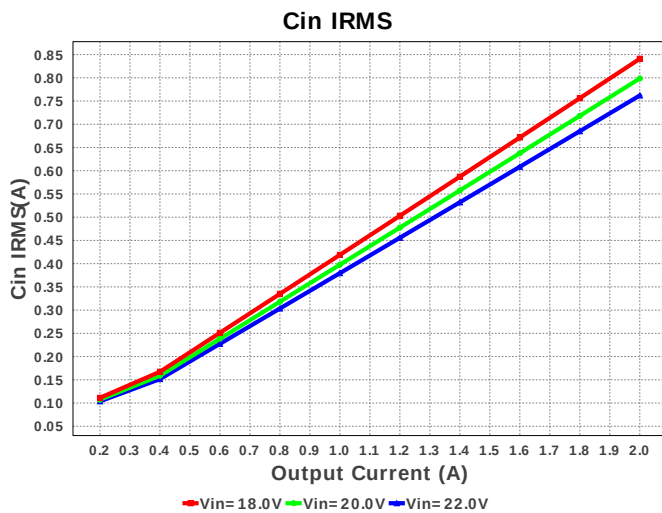
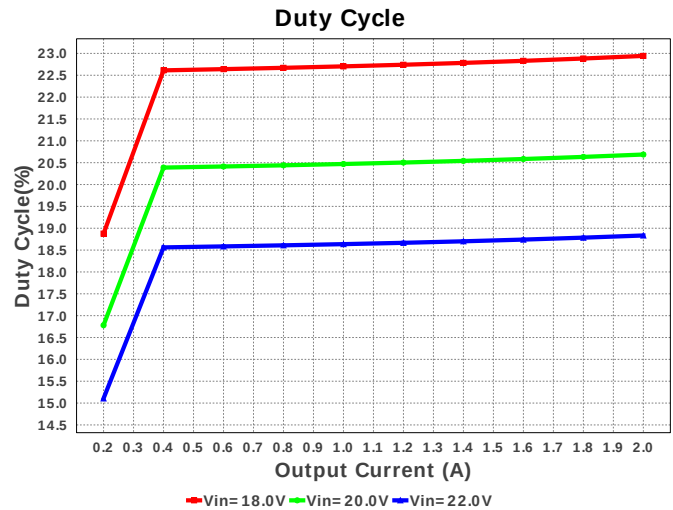
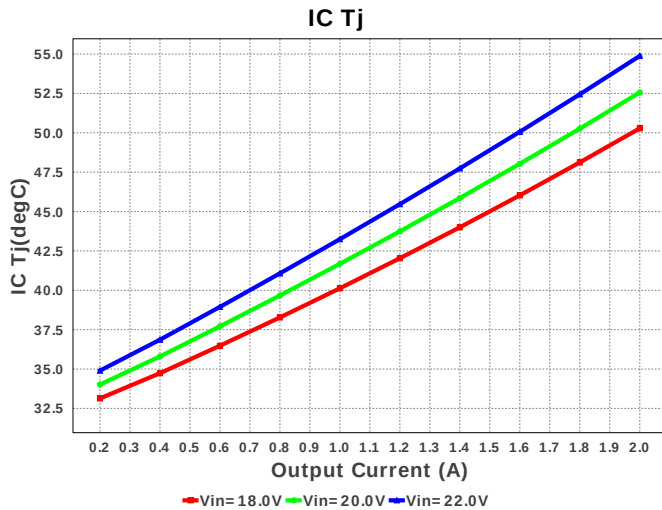
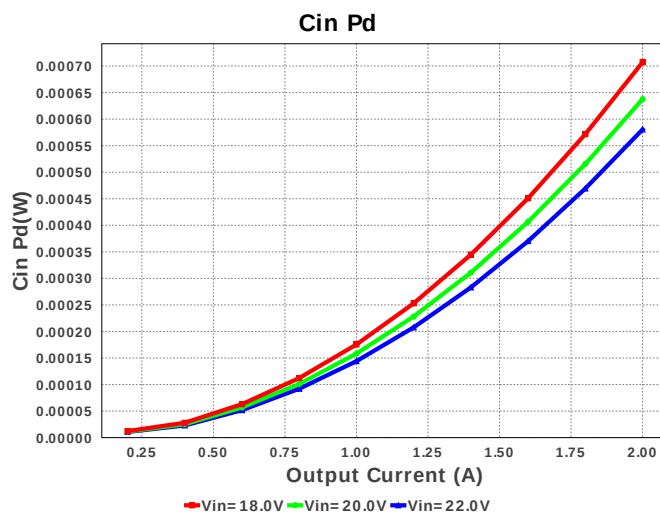
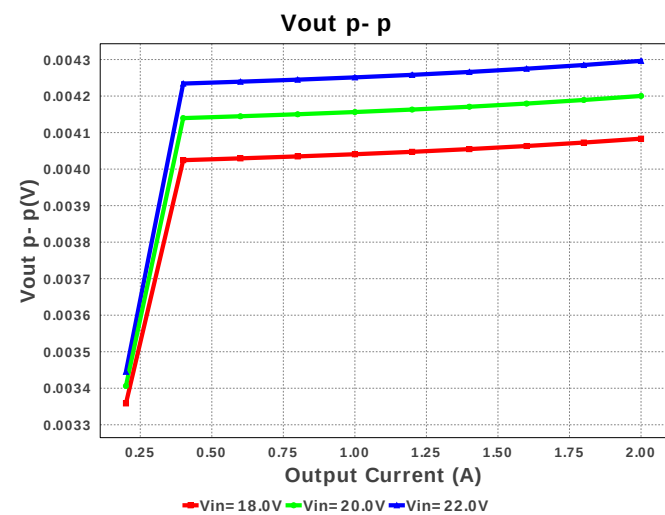
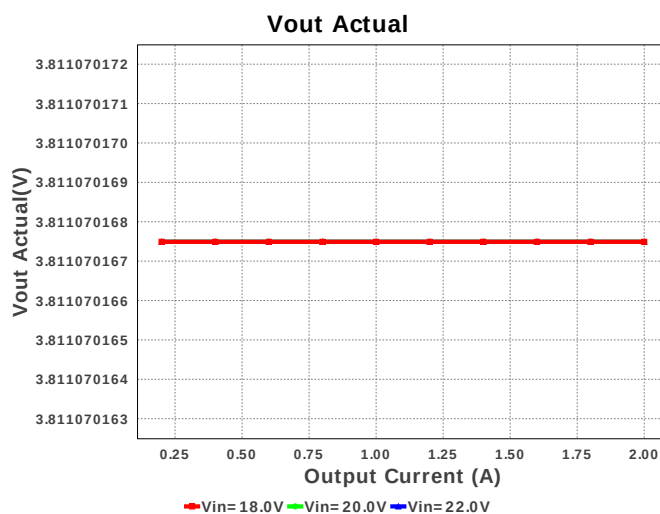
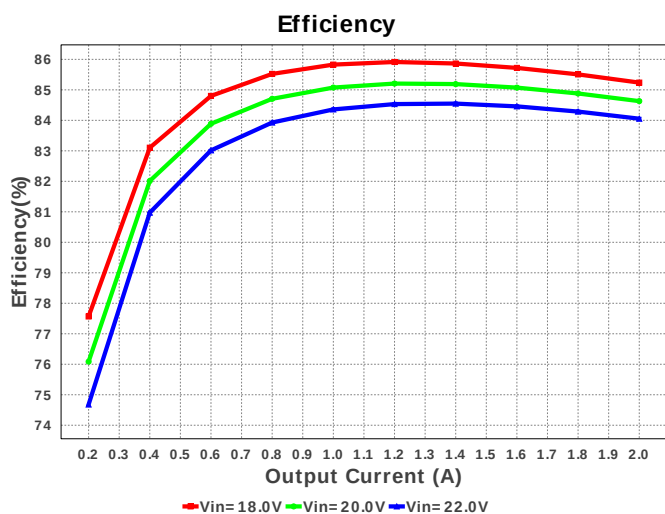
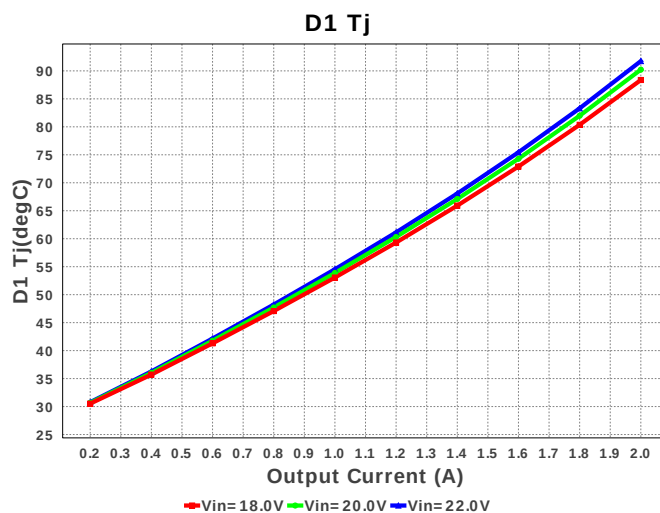
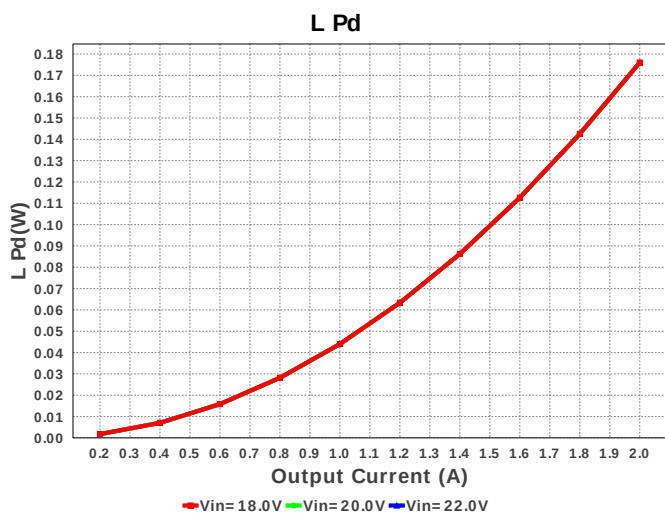


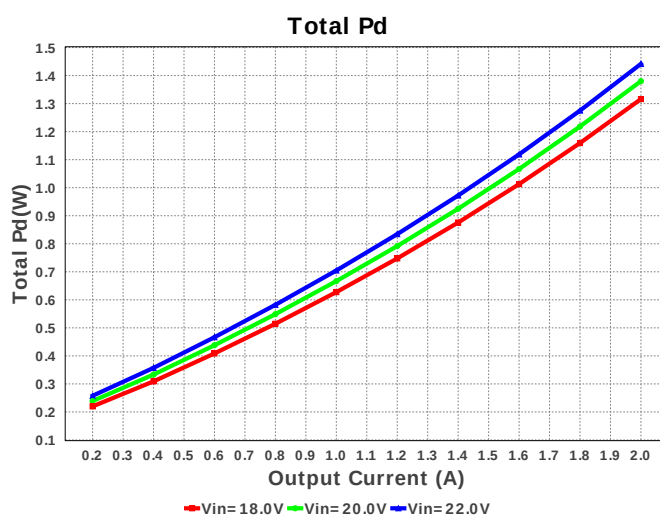
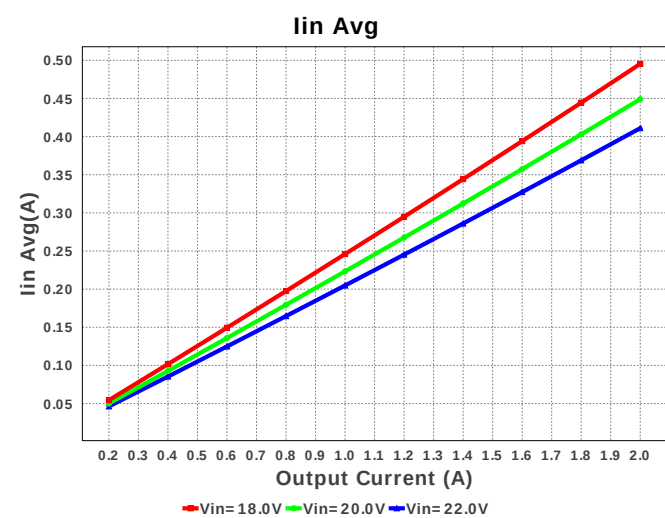
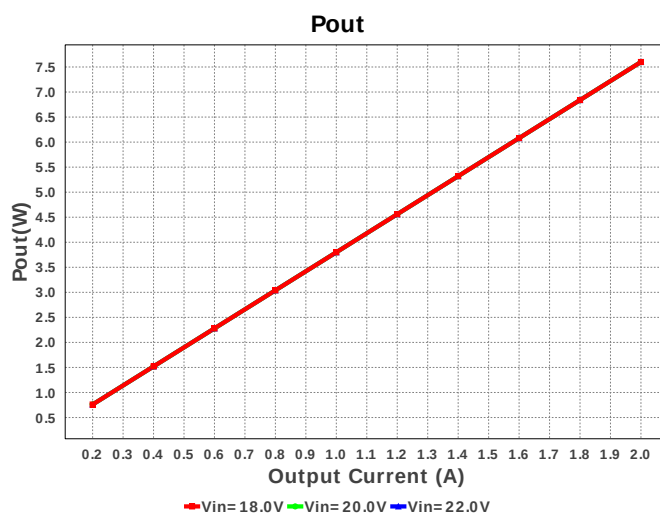
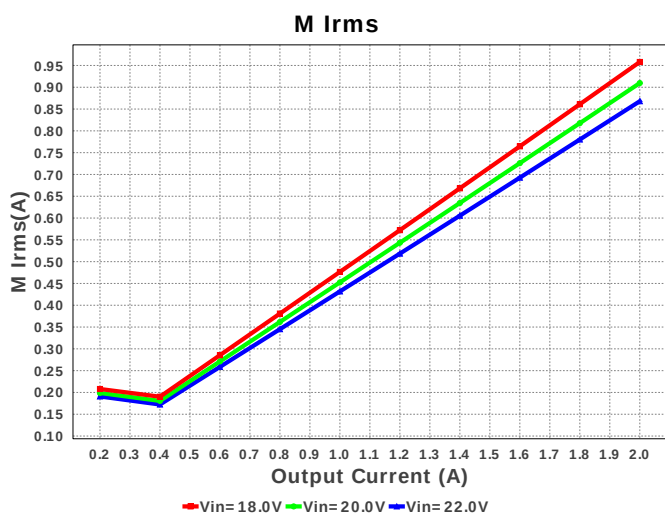
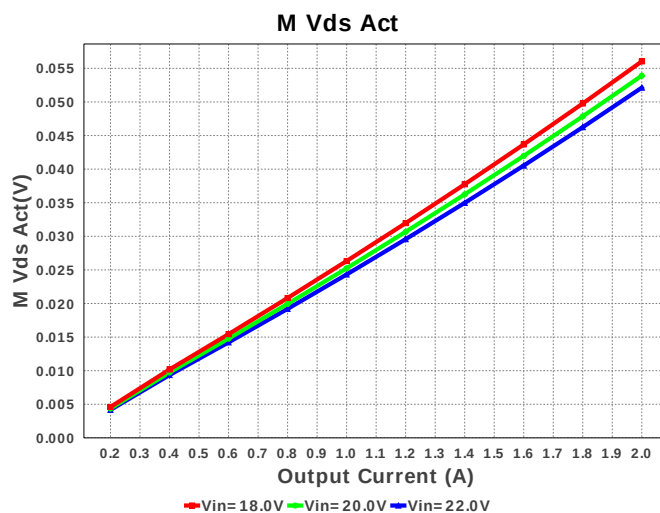
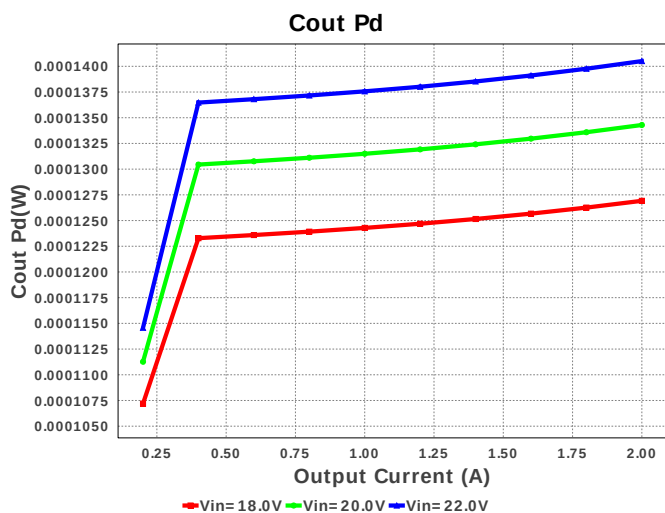


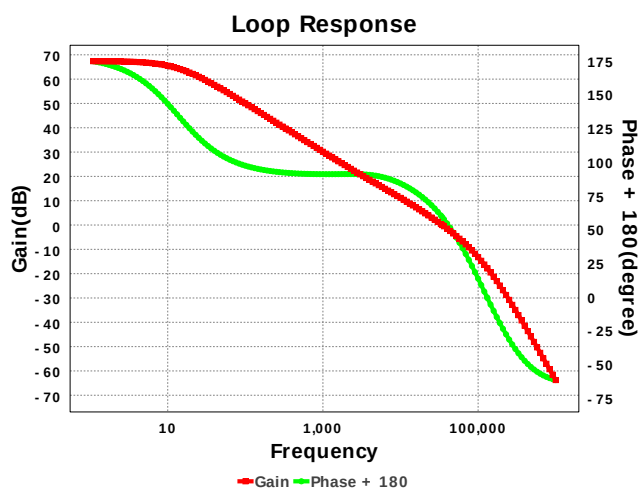
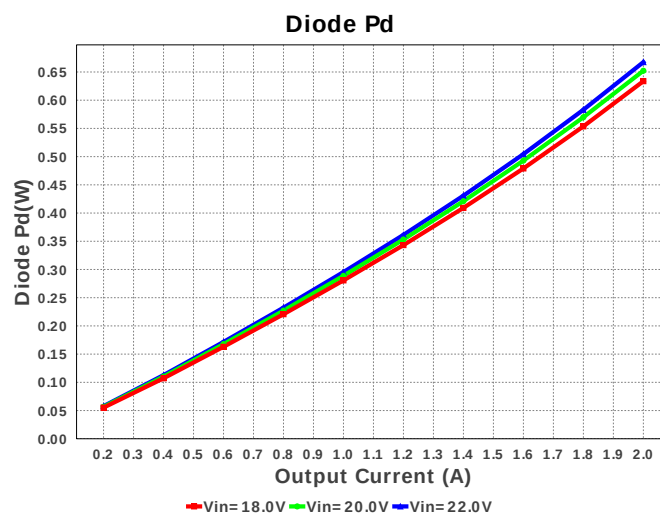
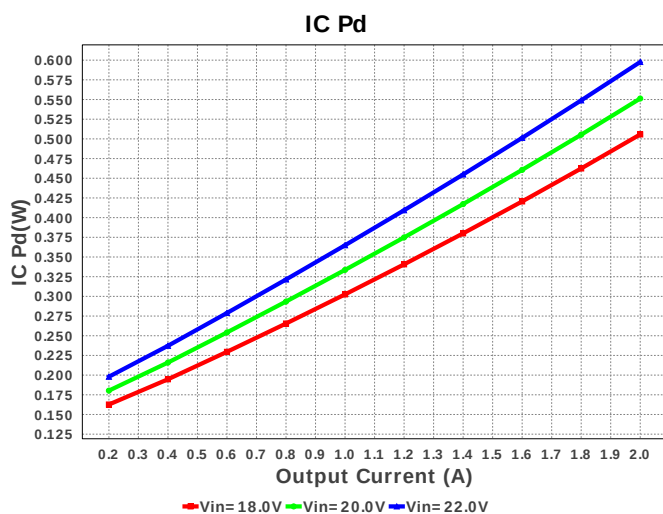
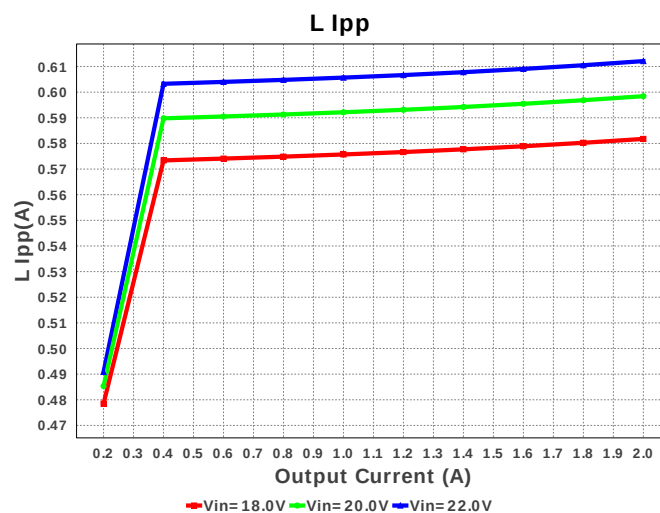
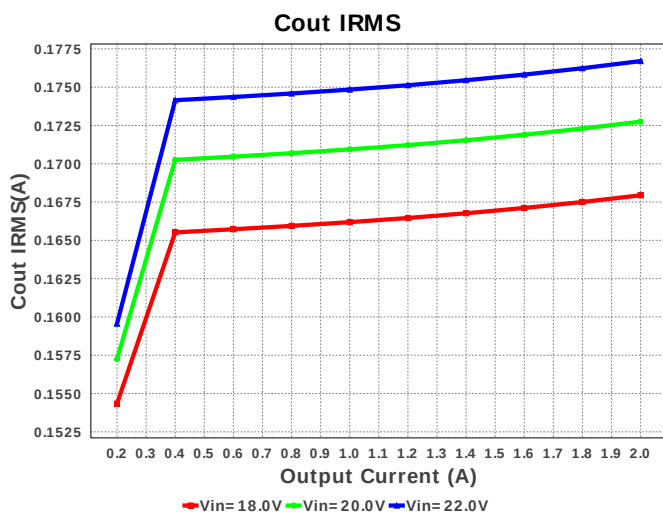
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Topology = Buck
Created = 9/15/16 5:21:57 AM
BOM Cost = \$1.65
BOM Count = 14
Total Pd = 1.44W

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	U1	Texas Instruments	TPS54332DDAR	Switcher	1	\$0.73	 DDA0008H 57 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	761.948 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	176.703 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.306 A	Current	Peak switch current in IC
4.	Iin Avg	410.99 mA	Current	Average input current
5.	L Ipp	612.12 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	867.971 mA	Current	Q lavg
7.	BOM Count	14	General	Total Design BOM count
8.	FootPrint	265.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	1000.0 kHz	General	Switching frequency
10.	M Vds Act	52.126 mV	General	Voltage drop across the MosFET
11.	Mode	CCM	General	Conduction Mode

#	Name	Value	Category	Description
12.	Pout	7.6 W	General	Total output power
13.	Total BOM	\$1.65	General	Total BOM Cost
14.	D1 Tj	91.747 degC	Op_Point	D1 junction temperature
15.	Low Freq Gain	67.368 dB	Op_Point	Gain at 10Hz
16.	Vout Actual	3.811 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
17.	Vout OP	3.8 V	Op_Point	Operational Output Voltage
18.	Cross Freq	34.531 kHz	Op_point	Bode plot crossover frequency
19.	Duty Cycle	18.834 %	Op_point	Duty cycle
20.	Efficiency	84.054 %	Op_point	Steady state efficiency
21.	Gain Marg	-17.703 dB	Op_point	Bode Plot Gain Margin
22.	IC Tj	54.883 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	59.618 deg	Op_point	Bode Plot Phase Margin
26.	VIN_OP	22.0 V	Op_point	Vin operating point
27.	Vout p-p	4.296 mV	Op_point	Peak-to-peak output ripple voltage
28.	Cin Pd	580.566 µW	Power	Input capacitor power dissipation
29.	Cout Pd	140.507 µW	Power	Output capacitor power dissipation
30.	Diode Pd	667.473 mW	Power	Diode power dissipation
31.	IC Pd	597.664 mW	Power	IC power dissipation
32.	L Pd	176.0 mW	Power	Inductor power dissipation
33.	Total Pd	1.442 W	Power	Total Power Dissipation
34.	Vout Tolerance	4.4 %		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	22.0	Maximum input voltage
3.	VinMin	18.0	Minimum input voltage
4.	Vout	3.8	Output Voltage
5.	base_pn	TPS54332	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	25.0	Ambient temperature

Design Assistance

1. **TPS54332** Product Folder : <http://www.ti.com/product/TPS54332> : contains the data sheet and other resources.

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