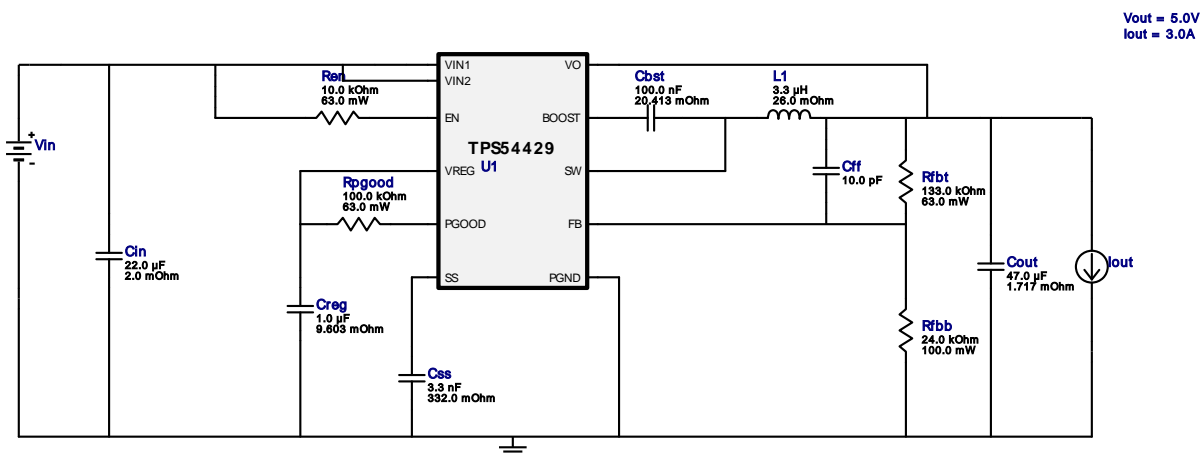


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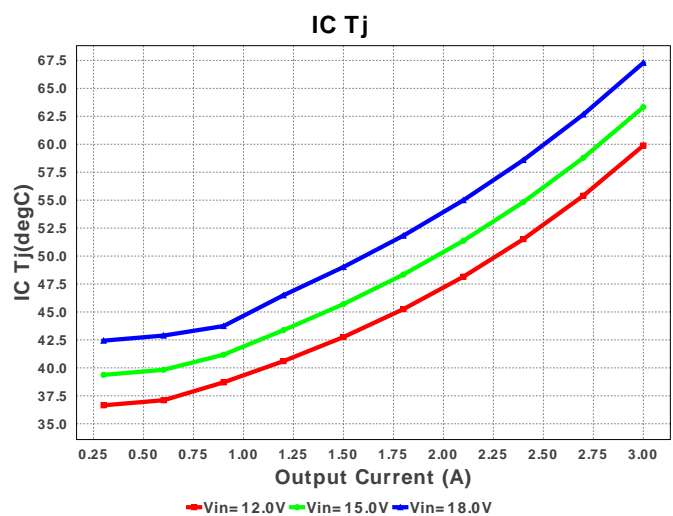
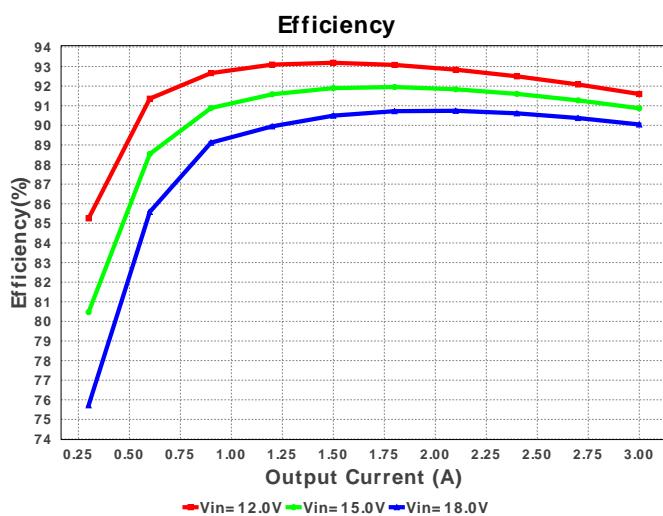
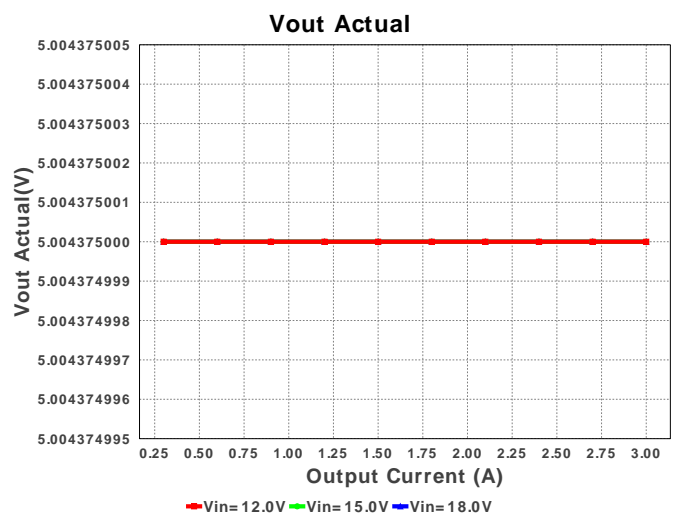
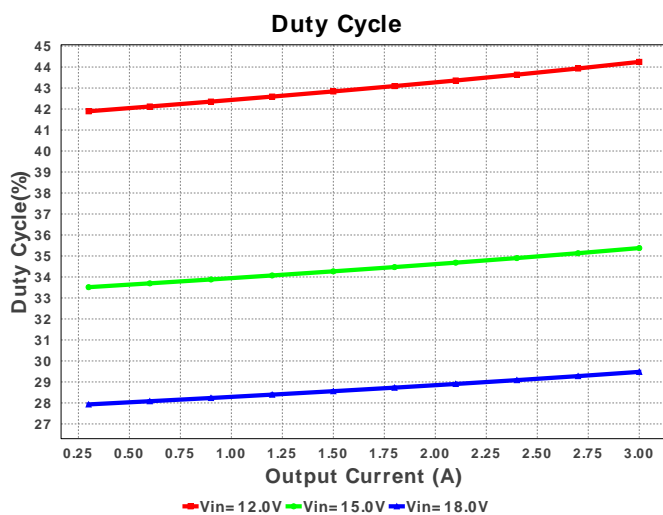
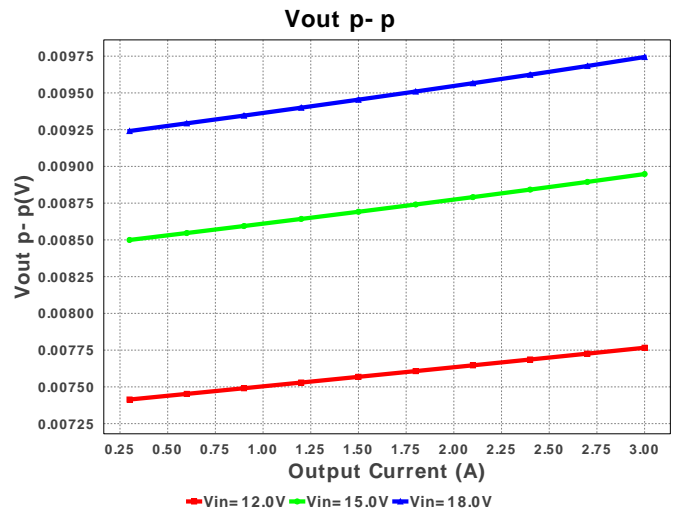
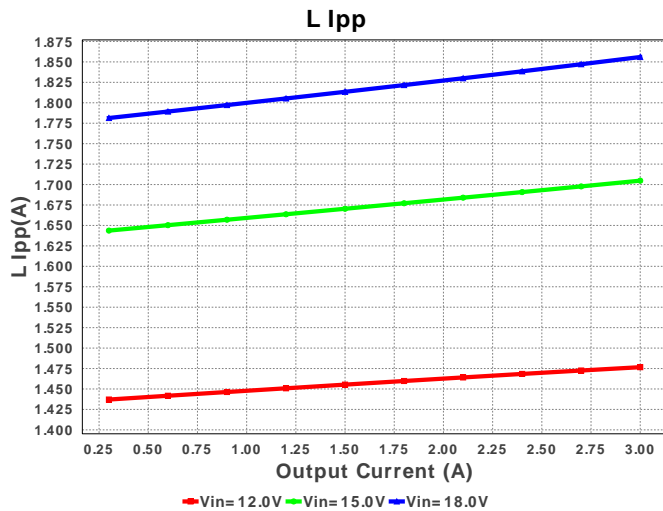
Design : 4079392/3 TPS54429PWPR
TPS54429PWPR 12.0V-18.0V to 5.00V @ 3.0A

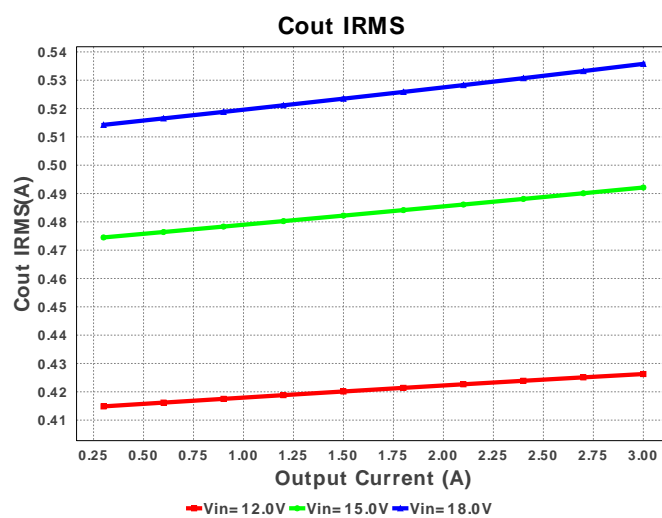
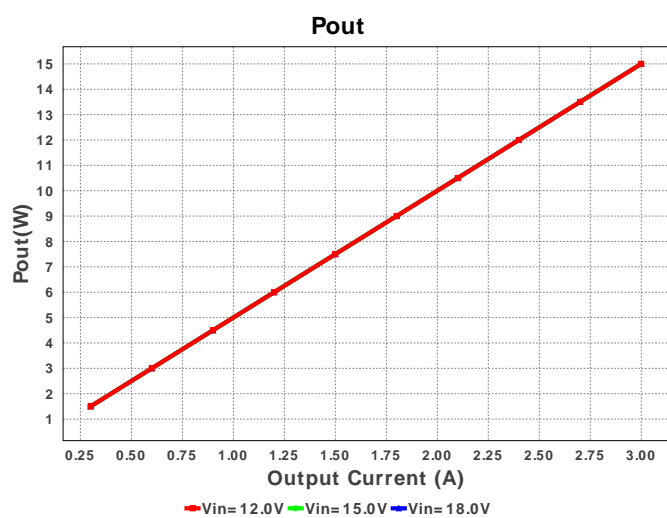
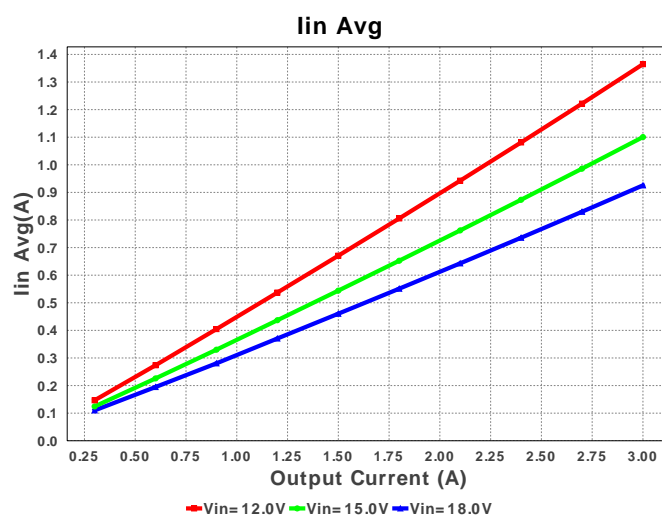
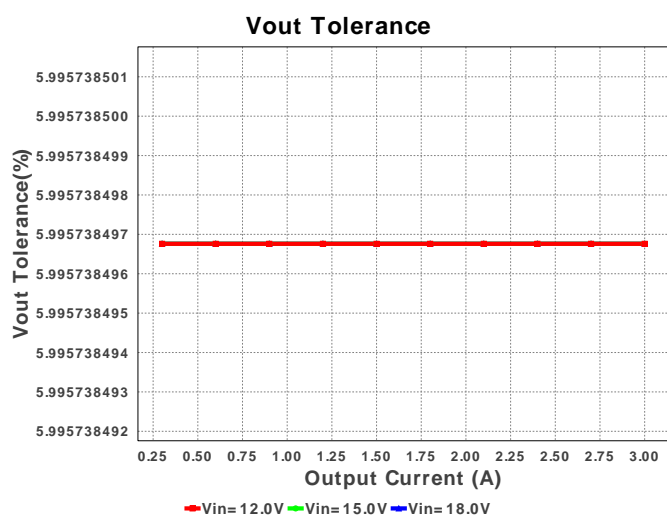
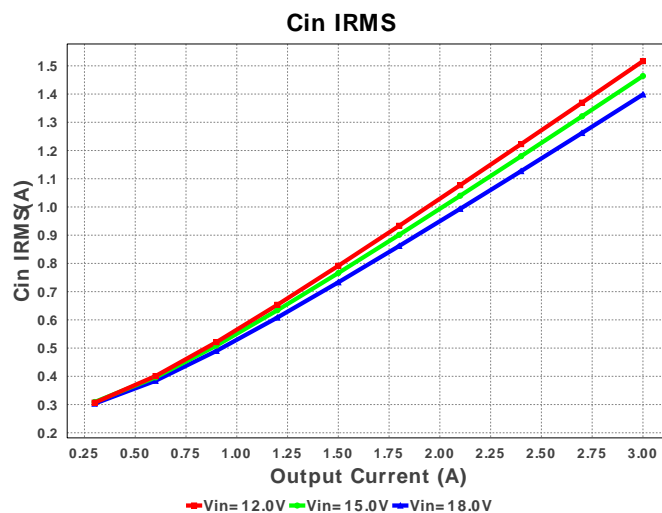
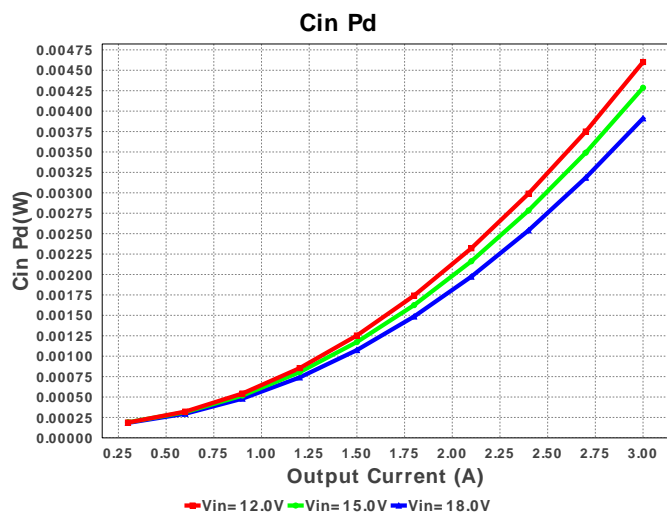


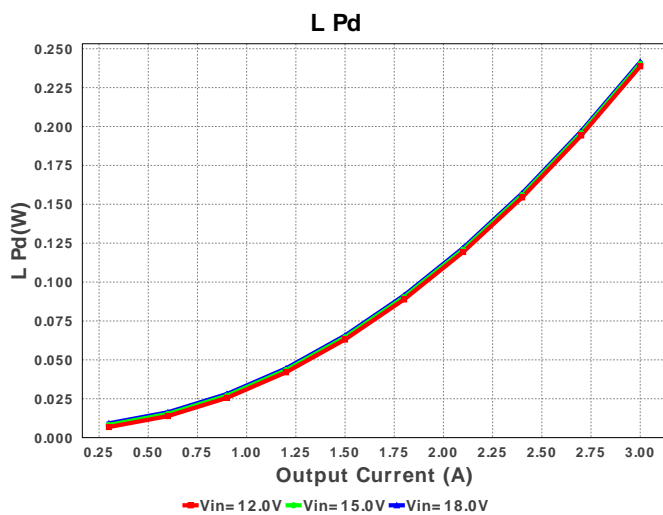
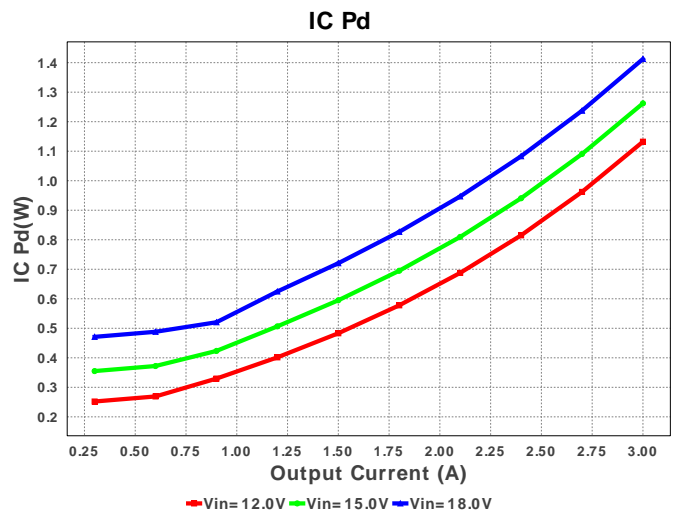
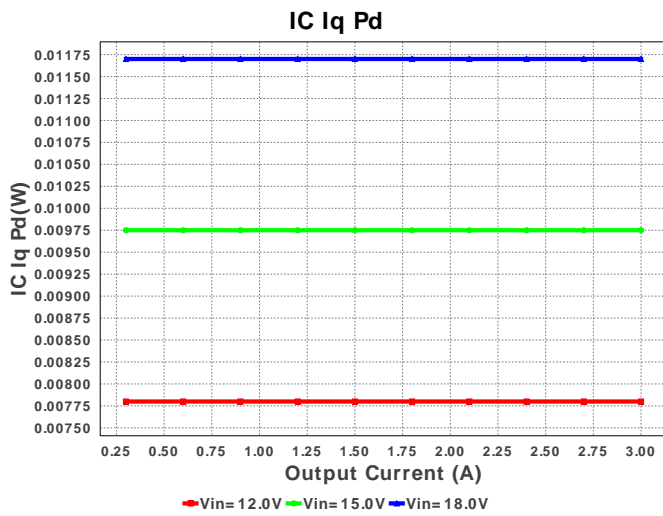
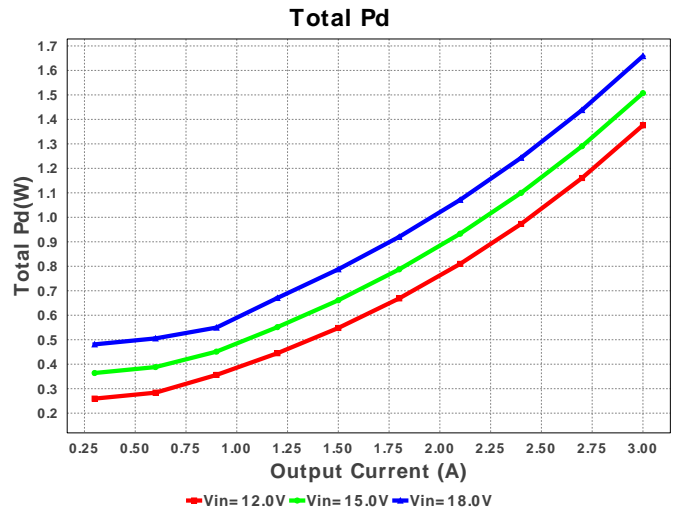
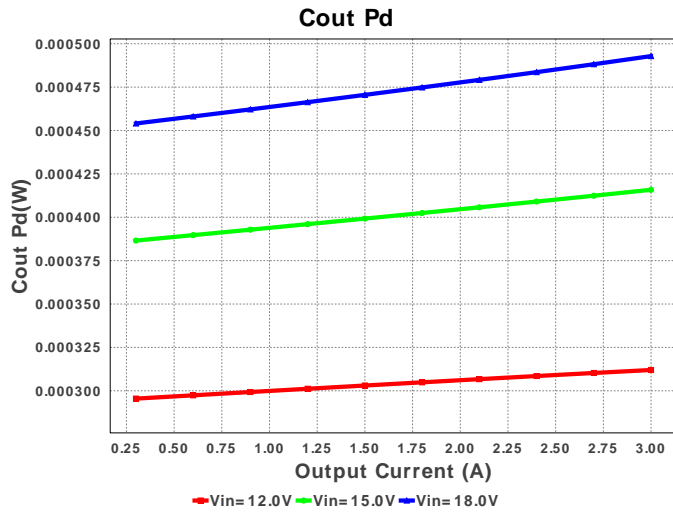
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	TDK	C1005X5R1A104K Series= X5R	Cap= 100.0 nF ESR= 20.413 mOhm VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	1005 3 mm ²
2.	Cff	Kemet	C0805C100M4GACTU Series= C0G/NP0	Cap= 10.0 pF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	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 mm ²
4.	Cout	TDK	C3216X6S1A476M Series= X6S	Cap= 47.0 uF ESR= 1.717 mOhm VDC= 10.0 V IRMS= 0.0 A	1	\$0.26	1206 11 mm ²
5.	Creg	TDK	C1608X5R1A105K Series= X5R	Cap= 1.0 uF ESR= 9.603 mOhm VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	1608 5 mm ²
6.	Css	Kemet	C0805C332K5RACTU Series= X7R	Cap= 3.3 nF ESR= 332.0 mOhm VDC= 50.0 V IRMS= 319.0 mA	1	\$0.01	0805 7 mm ²
7.	L1	Coilcraft	XAL4030-332MEB	L= 3.3 uH DCR= 26.0 mOhm	1	\$0.72	XAL4030 25 mm ²
8.	Ren	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
9.	Rfbb	Yageo America	RC0603FR-0724KL Series= ?	Res= 24.0 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	0603 5 mm ²
10.	Rfbb	Vishay-Dale	CRCW0402133KFKED Series= CRCW..e3	Res= 133.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	Rpgood	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
12.	U1	Texas Instruments	TPS54429PWPR	Switcher	1	\$1.07	R-PDSO-G14 61 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.398 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	535.774 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	925.47 mA	Current	Average input current
4.	L Ipp	1.856 A	Current	Peak-to-peak inductor ripple current
5.	BOM Count	12	General	Total Design BOM count
6.	FootPrint	147.0 mm ²	General	Total Foot Print Area of BOM components
7.	Frequency	607.515 kHz	General	Switching frequency
8.	Pout	15.0 W	General	Total output power
9.	Total BOM	\$2.29	General	Total BOM Cost
10.	ICThetaJA Effective	26.4 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
11.	Vout Actual	5.004 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors

#	Name	Value	Category	Description
12.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	29.479 %	Op_point	Duty cycle
14.	Efficiency	90.044 %	Op_point	Steady state efficiency
15.	IC Tj	67.289 degC	Op_point	IC junction temperature
16.	IOUT_OP	3.0 A	Op_point	Iout operating point
17.	VIN_OP	18.0 V	Op_point	Vin operating point
18.	Vout p-p	9.744 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	3.911 mW	Power	Input capacitor power dissipation
20.	Cout Pd	492.871 μ W	Power	Output capacitor power dissipation
21.	IC Iq Pd	11.7 mW	Power	IC Iq Pd
22.	IC Pd	1.412 W	Power	IC power dissipation
23.	L Pd	241.463 mW	Power	Inductor power dissipation
24.	Total Pd	1.659 W	Power	Total Power Dissipation
25.	Vout Tolerance	5.996 %	Unknown	Vout Tolerance based on IC Tolerance and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	3.0	Maximum Output Current
2.	VinMax	18.0	Maximum input voltage
3.	VinMin	12.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS54429	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS54429** Product Folder : <http://www.ti.com/product/TPS54429> : contains the data sheet and other resources.

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