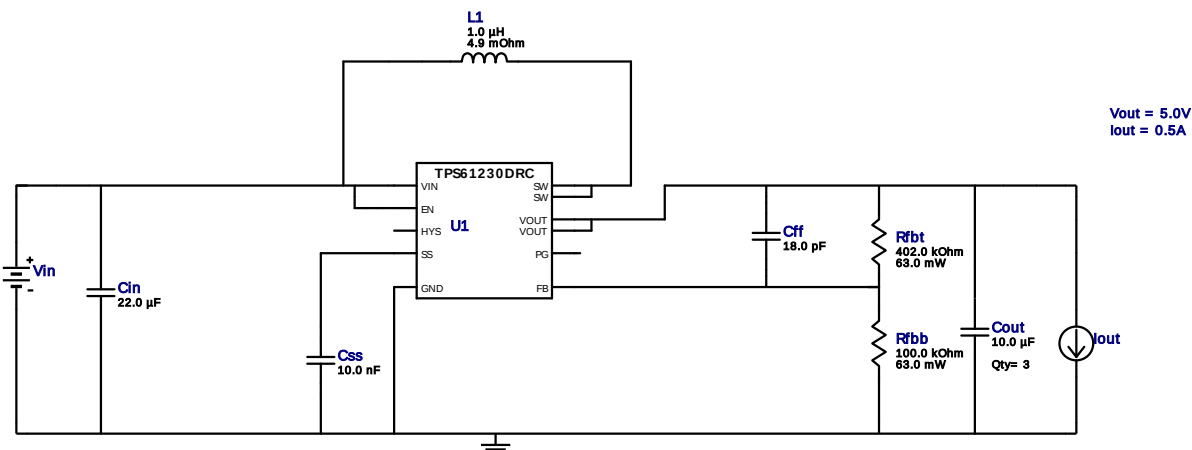


WEBENCH® Design Report

Design : 3473280/68 TPS61230DRCR
TPS61230DRCR 2.5V-3.5V to 5.00V @ 0.5A

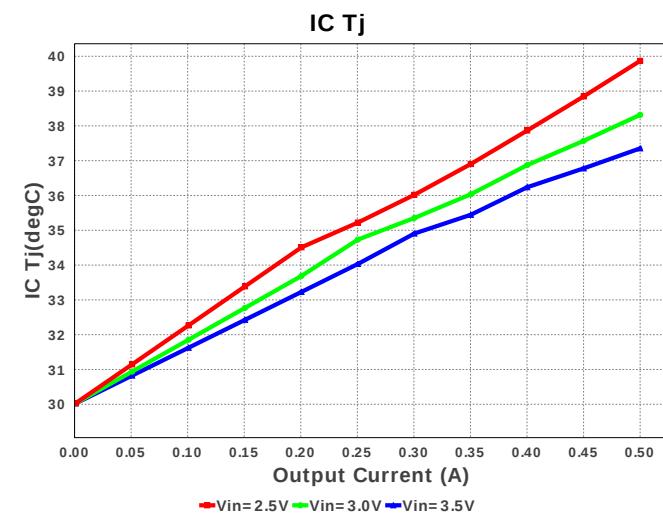
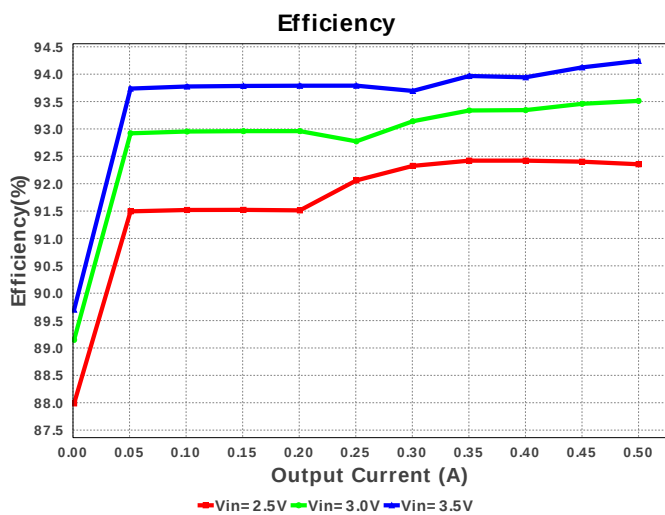
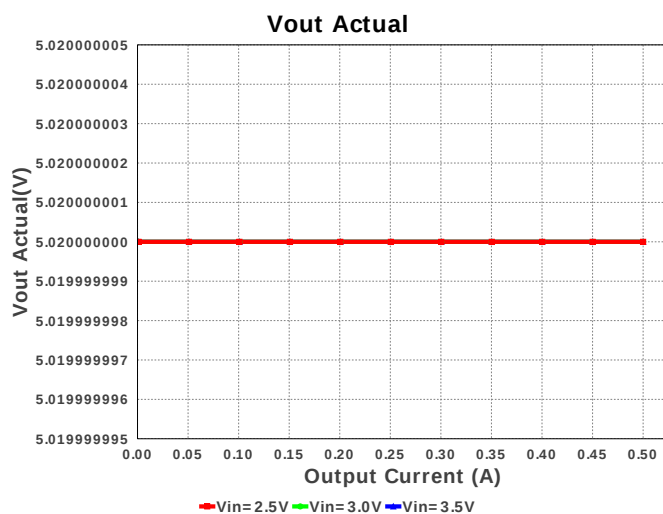
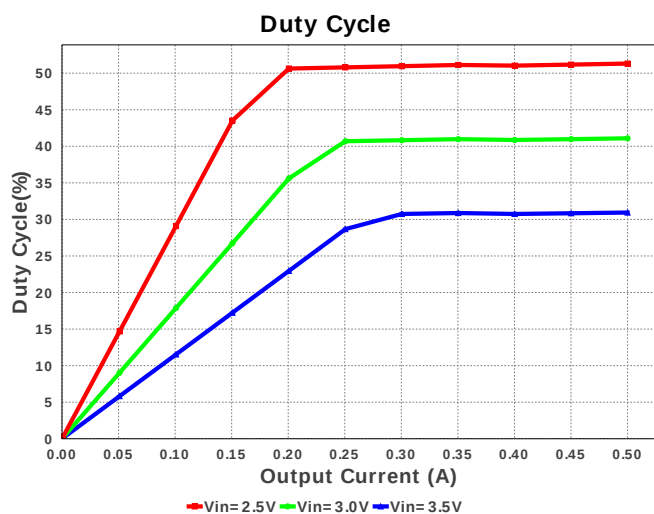
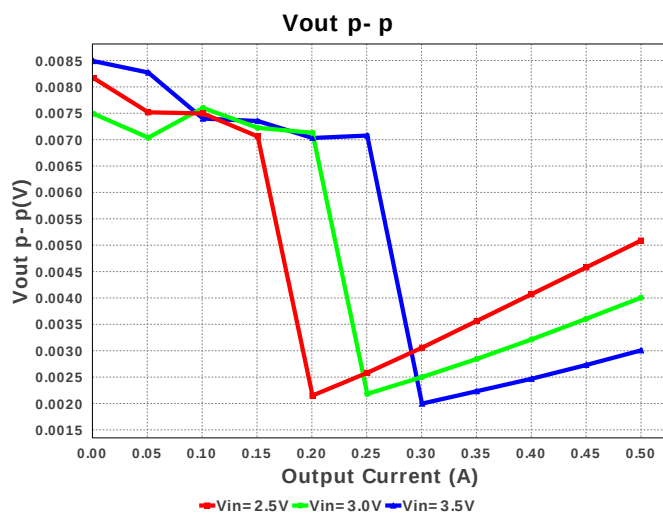
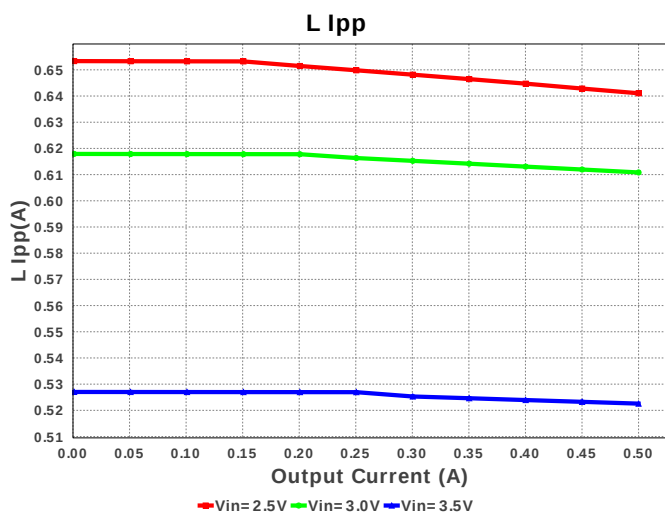


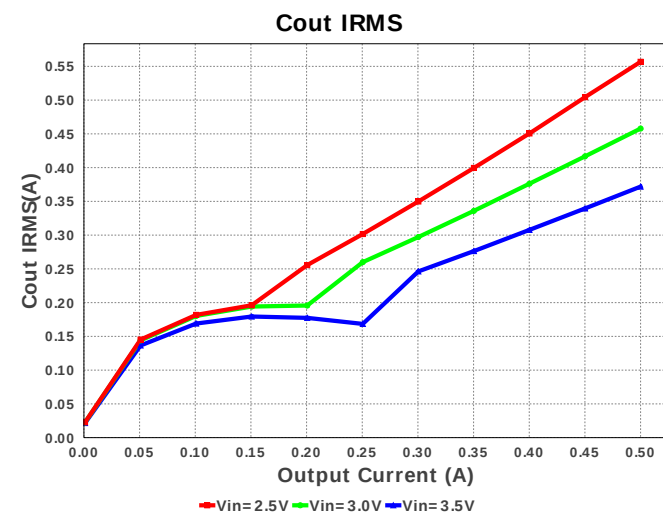
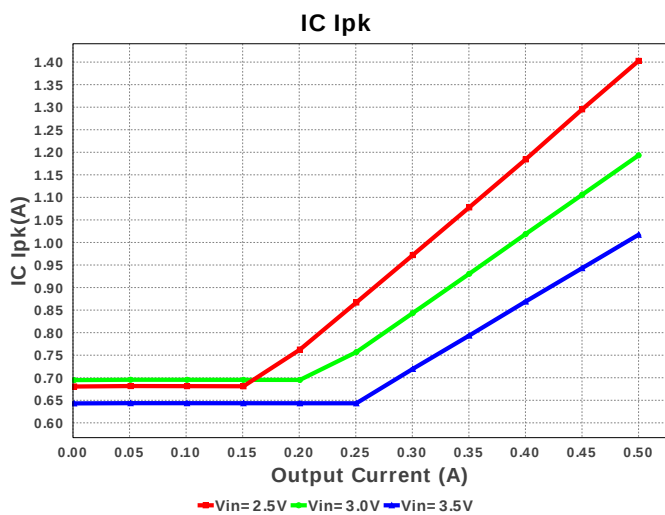
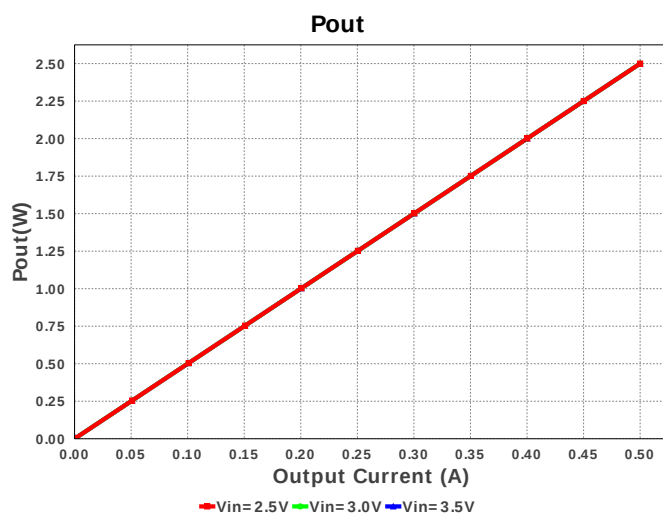
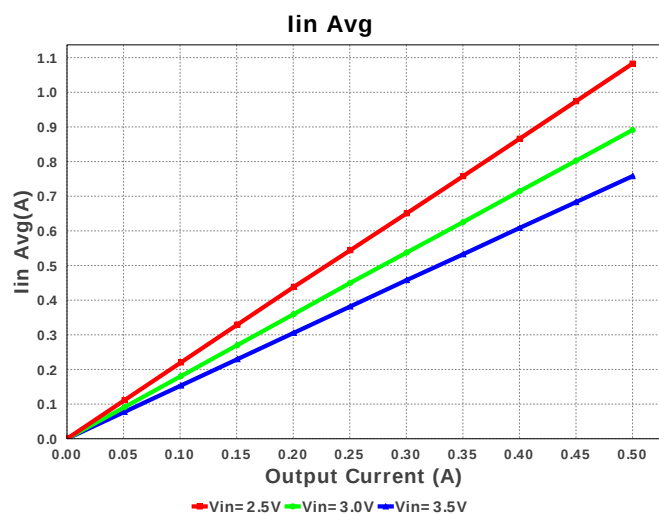
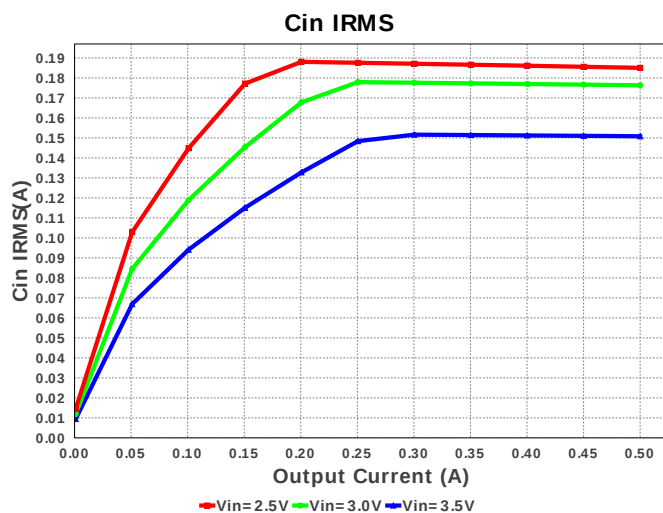
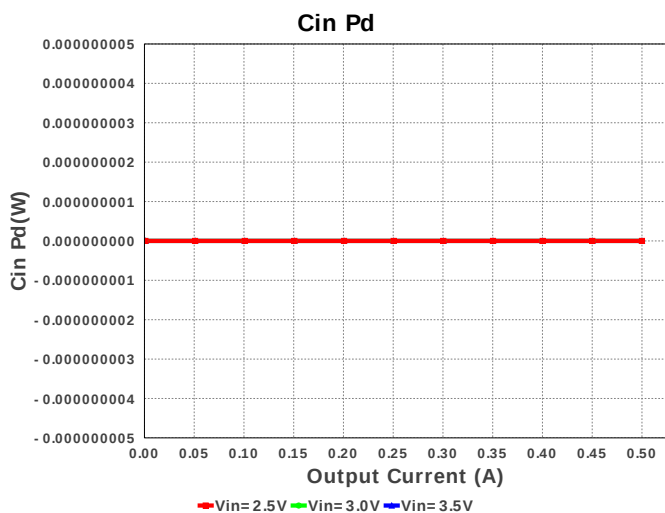
My Comments

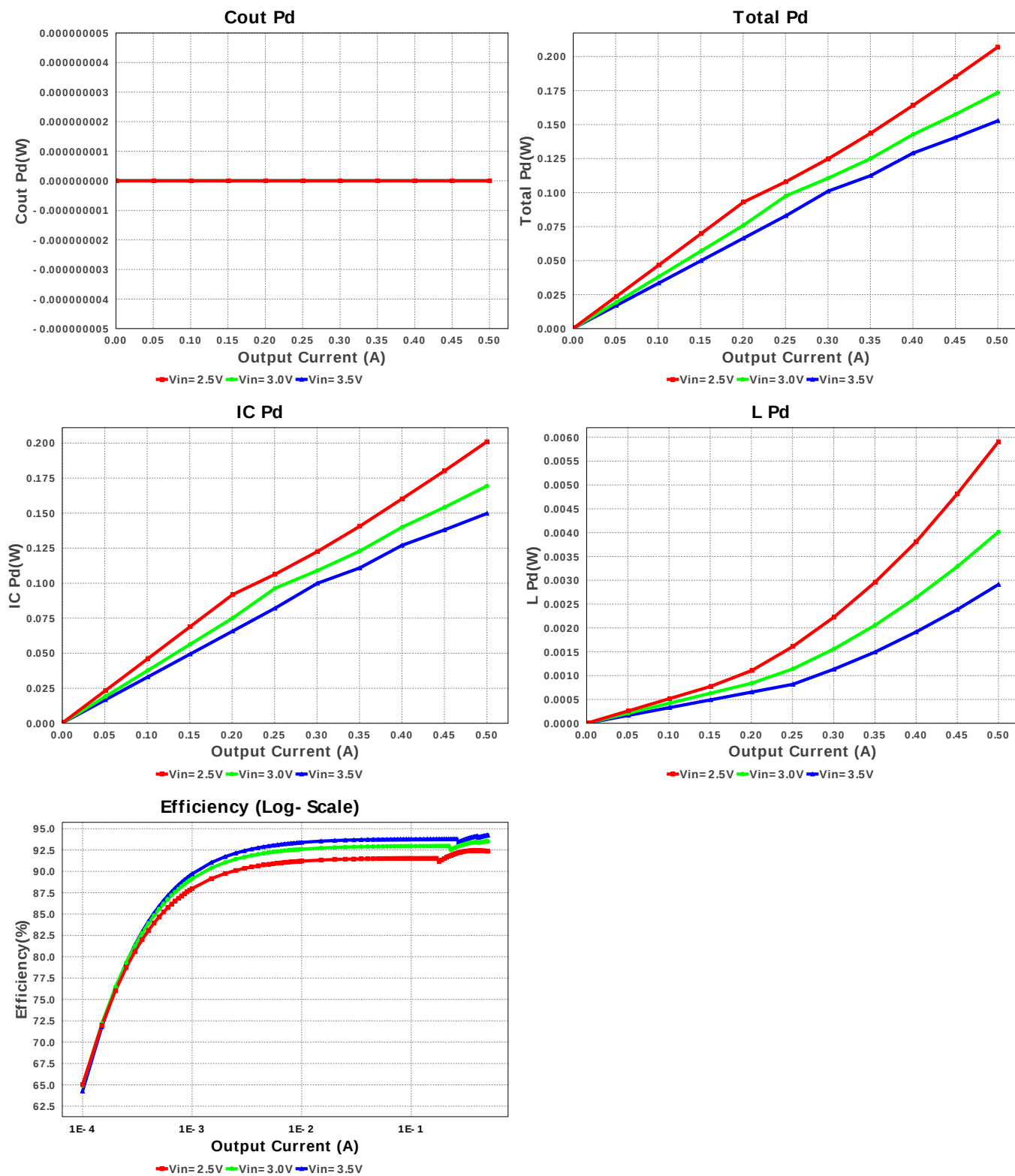
No comments

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cff	Kemet	C0603C180K5GACTU Series= C0G/NP0	Cap= 18.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0603 5 mm ²
2.	Cin	Taiyo Yuden	JMK212BJ226MG-T Series= X5R	Cap= 22.0 uF VDC= 6.3 V IRMS= 0.0 A	1	\$0.05	0805 7 mm ²
3.	Cout	Taiyo Yuden	LMK212BJ106KG-T Series= X5R	Cap= 10.0 uF VDC= 10.0 V IRMS= 0.0 A	3	\$0.03	0805 7 mm ²
4.	Css	MuRata	GRM033R60J103KA01D Series= X5R	Cap= 10.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
5.	L1	Bourns	SRU1028-1R0Y	L= 1.0 uH DCR= 4.9 mOhm	1	\$0.33	SRU1028 144 mm ²
6.	Rfbb	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	Rfht	Vishay-Dale	CRCW0402402KFKED Series= CRCW..e3	Res= 402.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	U1	Texas Instruments	TPS61230DRCR	Switcher	1	\$1.15	DRC0010G 16 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	185.056 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	556.743 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.403 A	Current	Peak switch current in IC
4.	Iin Avg	1.083 A	Current	Average input current
5.	L Ipp	641.05 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	10	General	Total Design BOM count
7.	FootPrint	200.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	1.949 MHz	General	Switching frequency
9.	Pout	2.5 W	General	Total output power
10.	Total BOM	\$1.66	General	Total BOM Cost
11.	Vout Actual	5.02 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors

#	Name	Value	Category	Description
12.	Duty Cycle	51.313 %	Op_point	Duty cycle
13.	Efficiency	92.355 %	Op_point	Steady state efficiency
14.	IC Tj	39.868 degC	Op_point	IC junction temperature
15.	ICThetaJA	49.1 degC/W	Op_point	IC junction-to-ambient thermal resistance
16.	IOUT_OP	500.0 mA	Op_point	Iout operating point
17.	VIN_OP	2.5 V	Op_point	Vin operating point
18.	Vout p-p	5.087 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
20.	Cout Pd	0.0 W	Power	Output capacitor power dissipation
21.	IC Pd	200.982 mW	Power	IC power dissipation
22.	L Pd	5.906 mW	Power	Inductor power dissipation
23.	Total Pd	206.95 mW	Power	Total Power Dissipation
24.	Vout Tolerance	3.142 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 m	Maximum Output Current
2.	VinMax	3.5	Maximum input voltage
3.	VinMin	2.5	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS61230	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. TPS61230 Product Folder : <http://www.ti.com/product/TPS61230> : contains the data sheet and other resources.

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