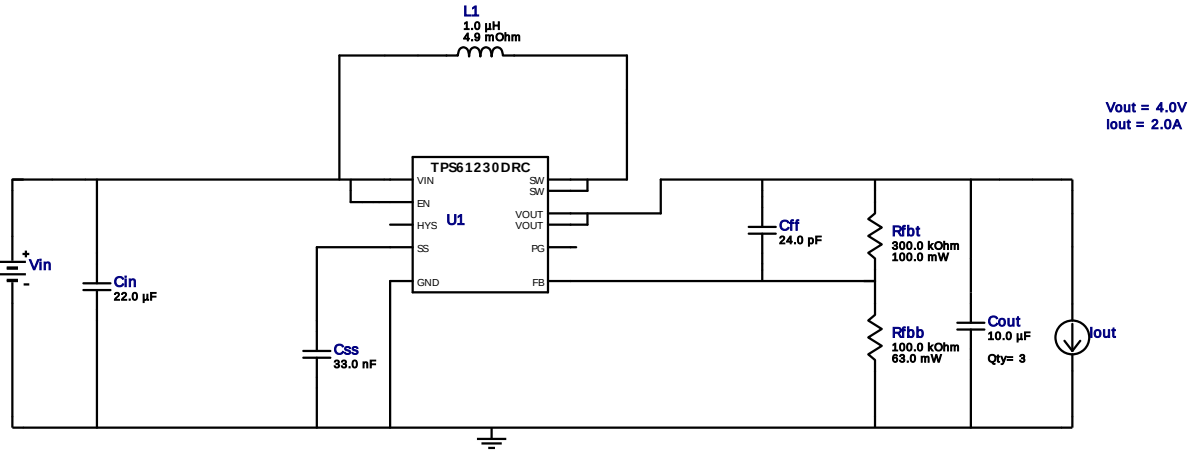


WEBENCH® Design Report

Design : 1177446/99 TPS61230DRCR
TPS61230DRCR 3.0V-3.7V to 4.00V @ 2.0A

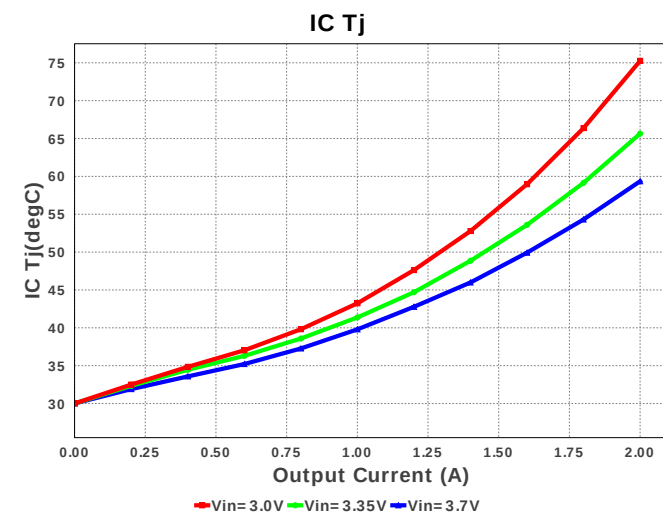
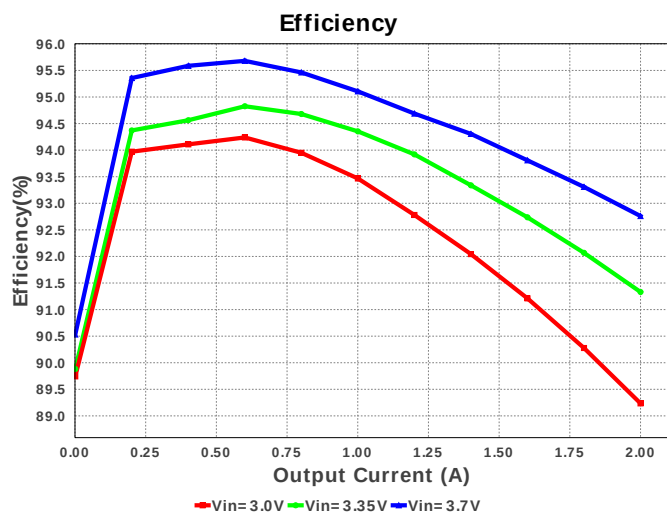
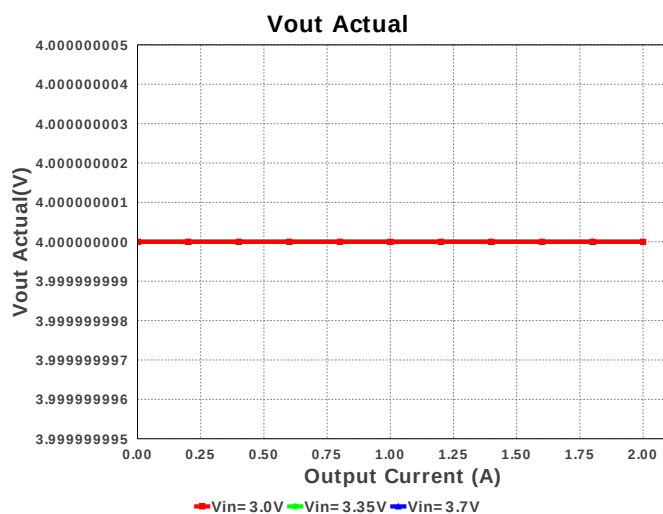
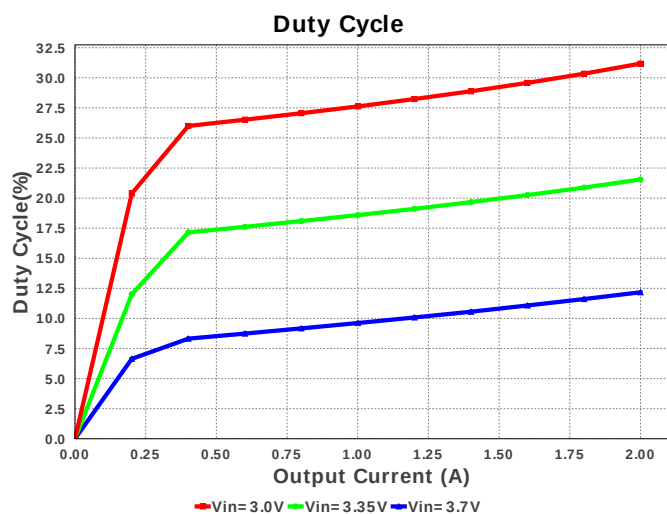
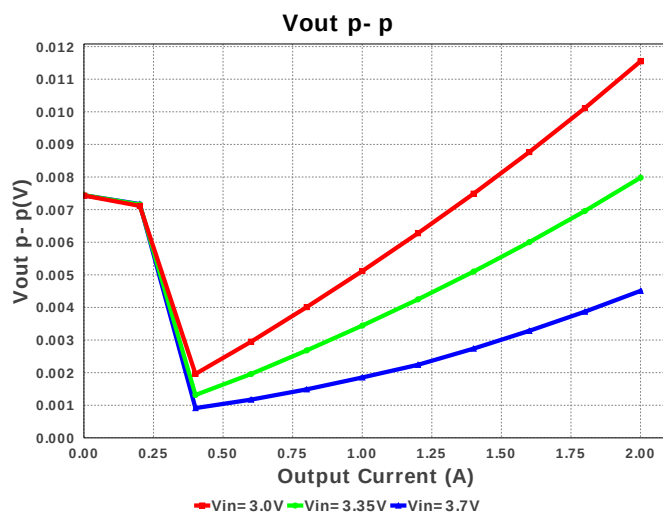
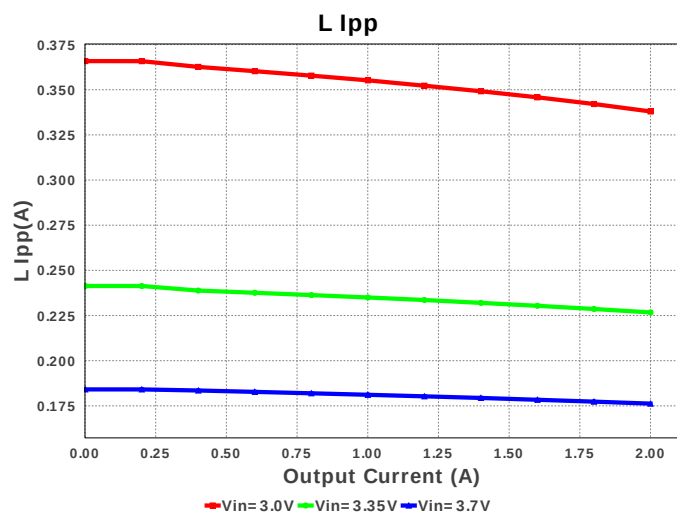


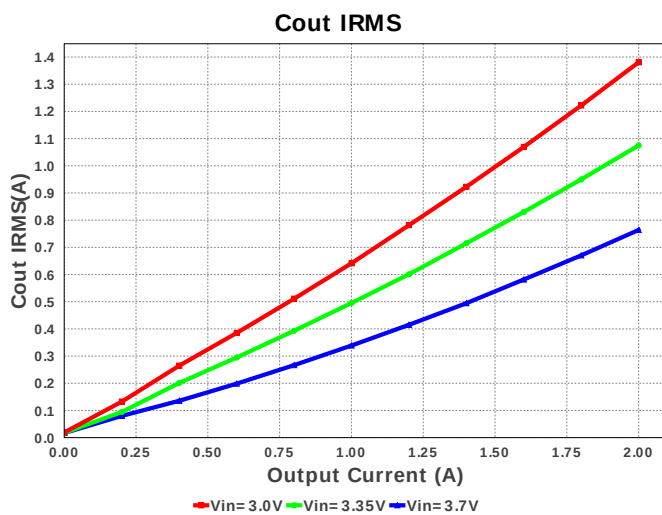
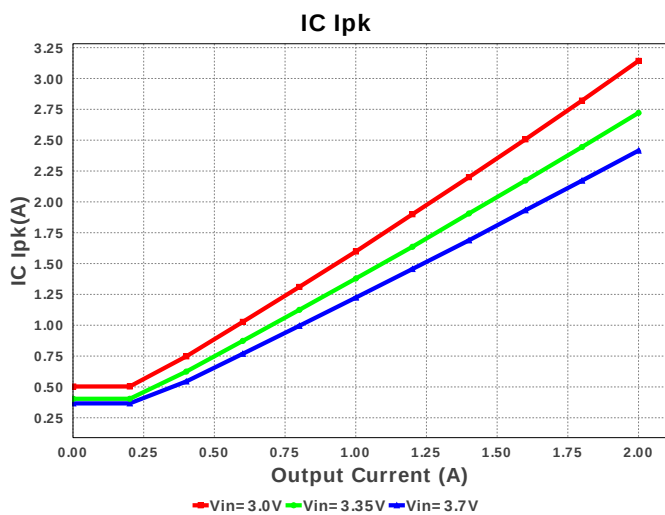
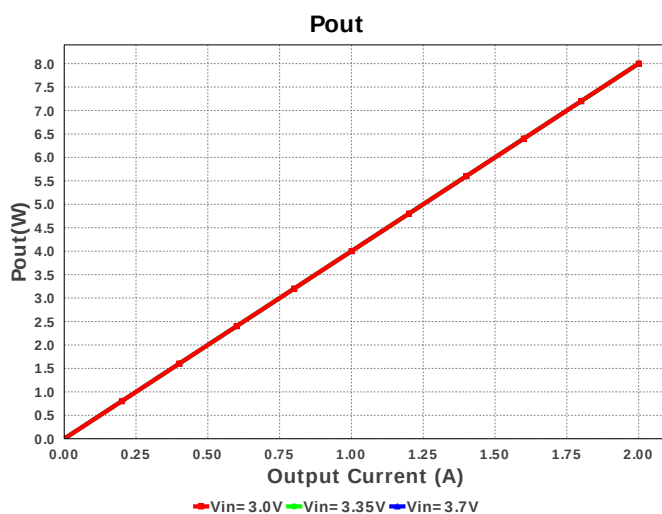
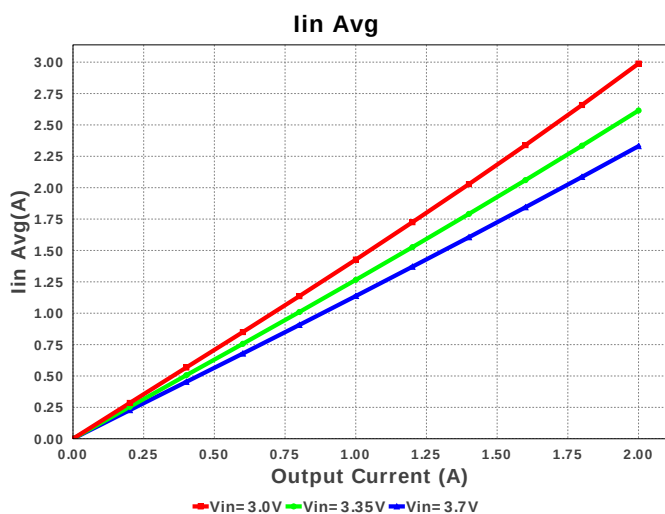
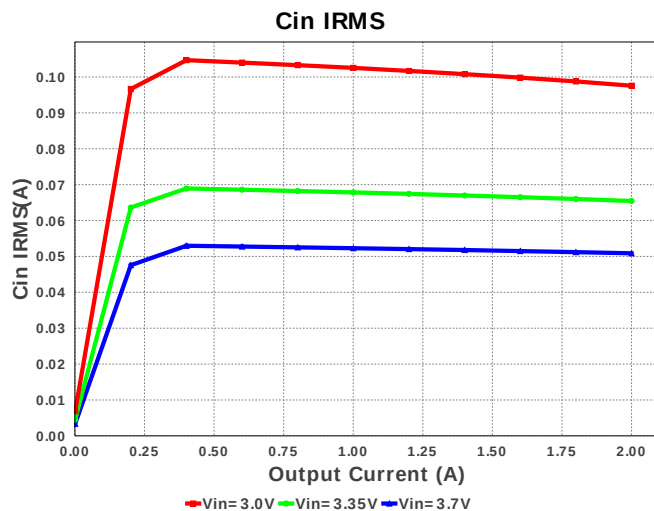
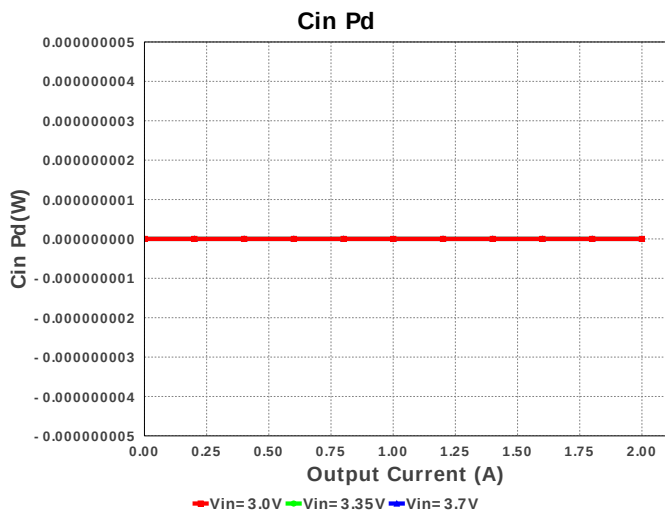
My Comments

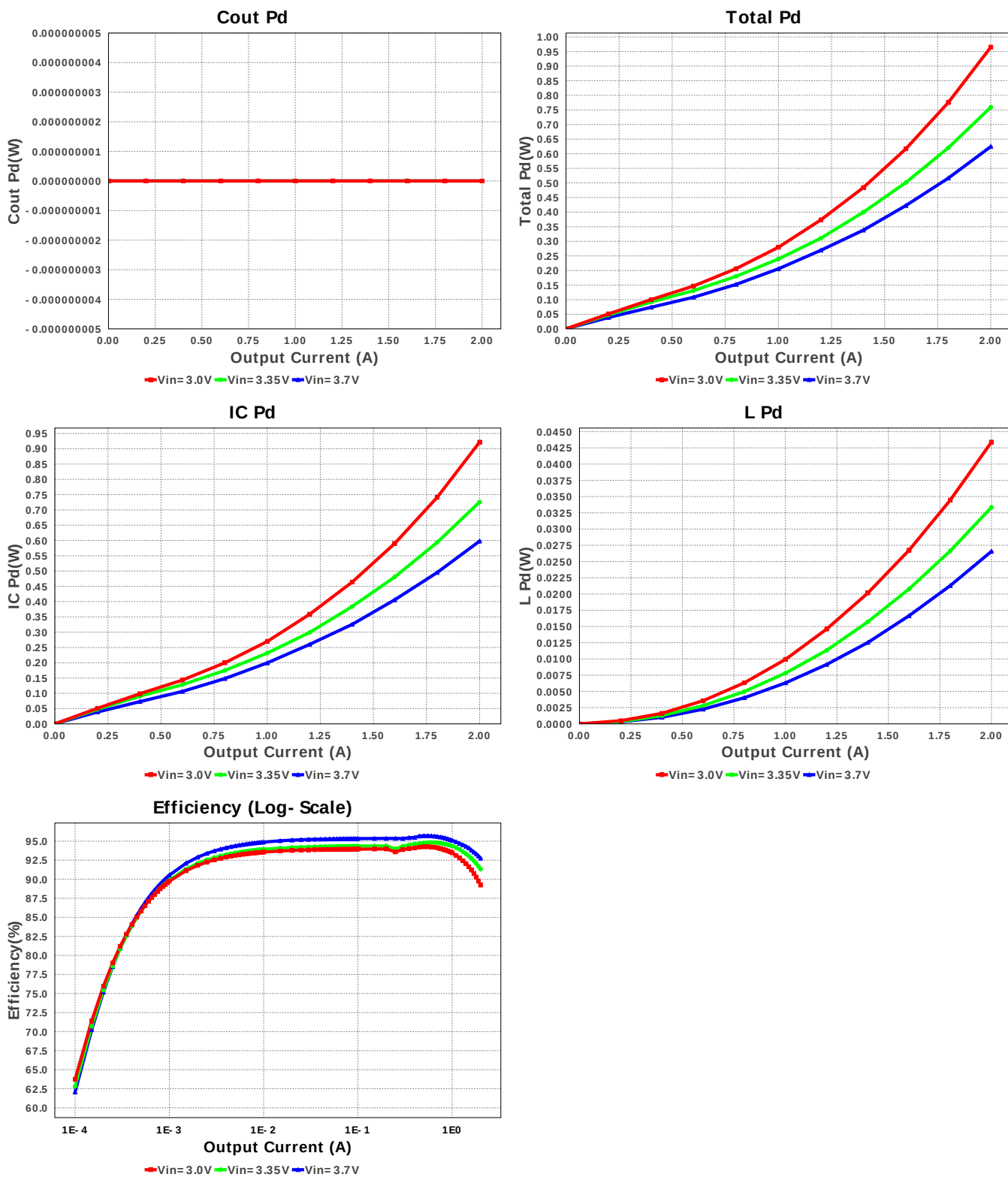
No comments

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cff	Samsung Electro-Mechanics	CL10C240JB8NCNC Series= C0G/NP0	Cap= 24.0 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	GRM033R60J333KE01D Series= X5R	Cap= 33.0 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	Yageo America	RC0603FR-07300KL Series= ?	Res= 300.0 kOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.01	0603 5 mm ²
8.	U1	Texas Instruments	TPS61230DRCR	Switcher	1	\$1.15	DRC0010G 16 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	97.566 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.381 A	Current	Output capacitor RMS ripple current
3.	IC IpK	3.143 A	Current	Peak switch current in IC
4.	Iin Avg	2.988 A	Current	Average input current
5.	L Ipp	337.98 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	10	General	Total Design BOM count
7.	FootPrint	201.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	2.0 MHz	General	Switching frequency
9.	Mode	BOOST PWM CCM	General	PWM/PFM Mode
10.	Pout	8.0 W	General	Total output power
11.	Total BOM	\$1.66	General	Total BOM Cost

#	Name	Value	Category	Description
12.	Vout Actual	4.0 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
13.	Duty Cycle	31.181 %	Op_point	Duty cycle
14.	Efficiency	89.235 %	Op_point	Steady state efficiency
15.	IC Tj	75.256 degC	Op_point	IC junction temperature
16.	ICThetaJA	49.1 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	2.0 A	Op_point	Iout operating point
18.	VIN_OP	3.0 V	Op_point	Vin operating point
19.	Vout p-p	11.548 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
21.	Cout Pd	0.0 W	Power	Output capacitor power dissipation
22.	IC Pd	921.72 mW	Power	IC power dissipation
23.	L Pd	43.382 mW	Power	Inductor power dissipation
24.	Total Pd	965.104 mW	Power	Total Power Dissipation
25.	Vout Tolerance	3.038 %		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	3.7	Maximum input voltage
3.	VinMin	3.0	Minimum input voltage
4.	Vout	4.0	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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