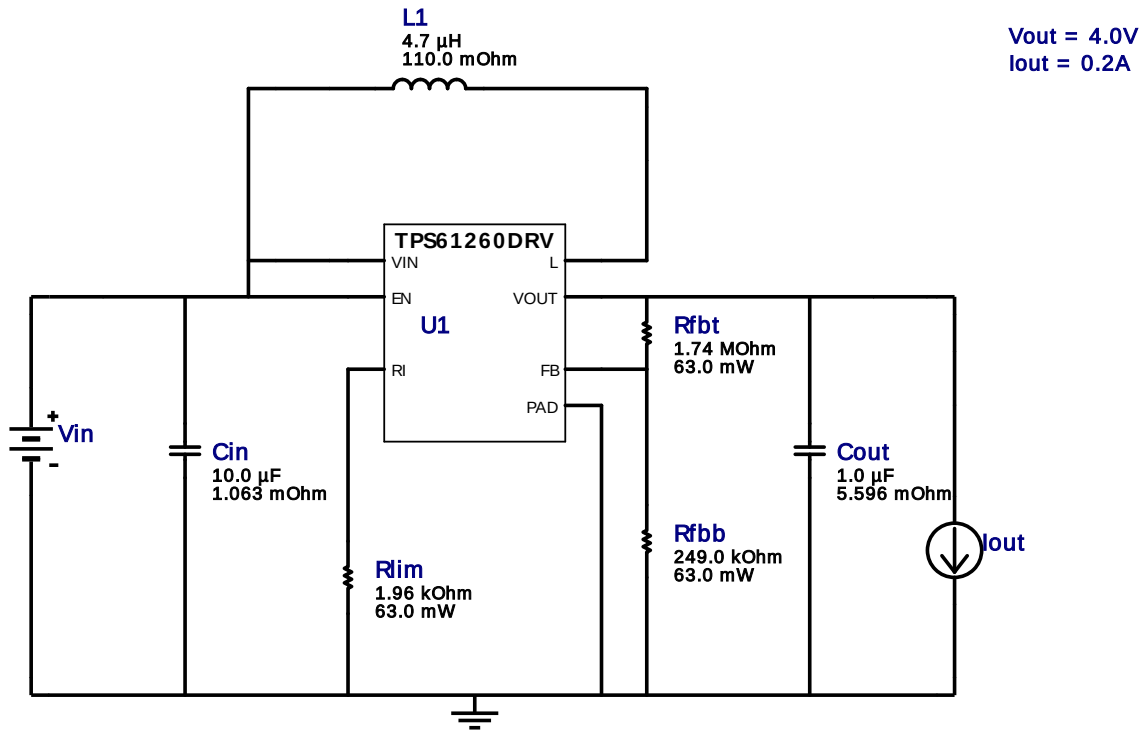
WEBENCH® Design Report

VinMin = 2.0V
VinMax = 3.3V
Vout = 4.0V
Iout = 0.2A

Device = TPS61260DRVR
Topology = Boost
Created = 2018-01-09 22:16:47.362
BOM Cost = $0.63
BOM Count = 7
Total Pd = 0.07W

Design : 5003529/17 TPS61260DRVR
TPS61260DRVR 2.0V-3.3V to 4.00V @ 0.1A



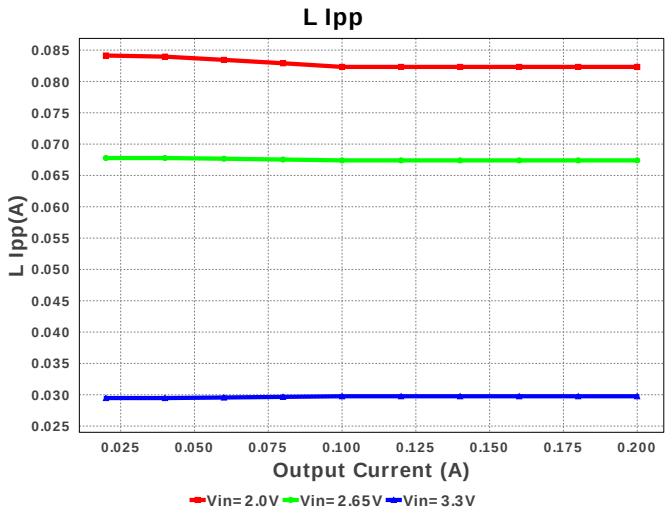
My Comments

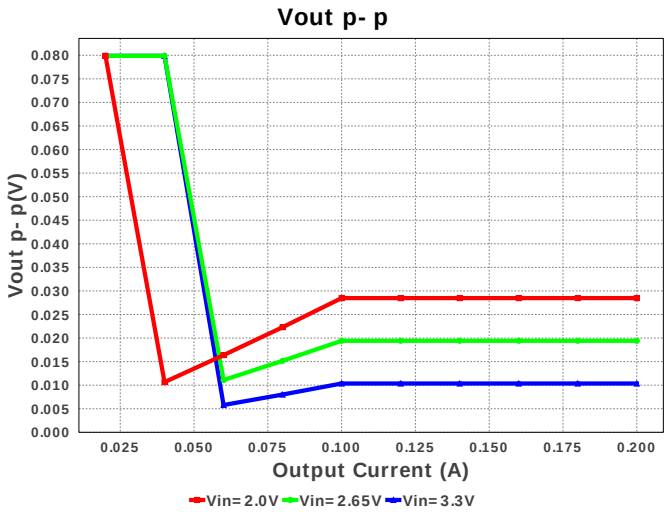
No comments

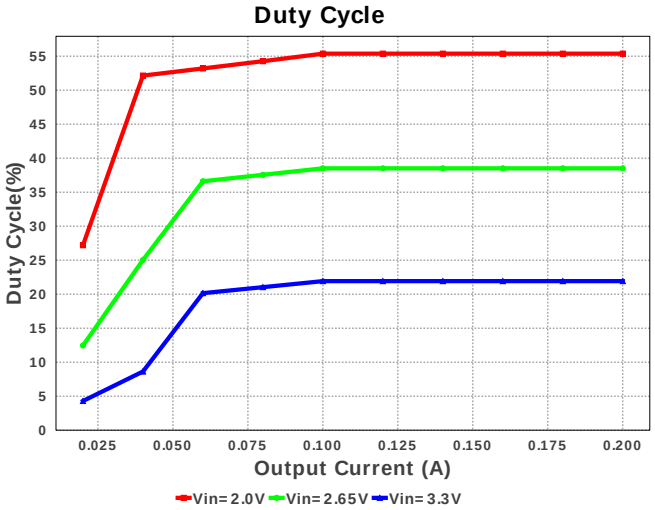
Electrical BOM

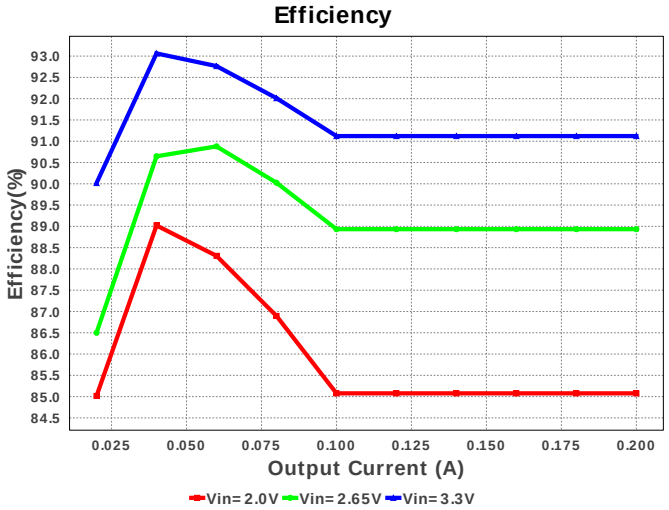
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	TDK	C2012X7R1A106K125AC Series= X7R	Cap= 10.0 uF ESR= 1.063 mOhm VDC= 10.0 V IRMS= 6.3291 A	1	$0.08	0805 7 mm²
2.	Cout	MuRata	GRM21BR71C105KA01L Series= X7R	Cap= 1.0 uF ESR= 5.596 mOhm VDC= 16.0 V IRMS= 1.449 A	1	$0.02	0805 7 mm²
3.	L1	MuRata	LQM2HPN4R7MG0L	L= 4.7 µH DCR= 110.0 mOhm	1	$0.12	1008 10 mm²
4.	Rfbb	Vishay-Dale	CRCW0402249KFKED Series= CRCW..e3	Res= 249.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
5.	Rfbt	Vishay-Dale	CRCW04021M74FKED Series= CRCW..e3	Res= 1.74 MOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
6.	Rlim	Vishay-Dale	CRCW04021K96FKED Series= CRCW..e3	Res= 1.96 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

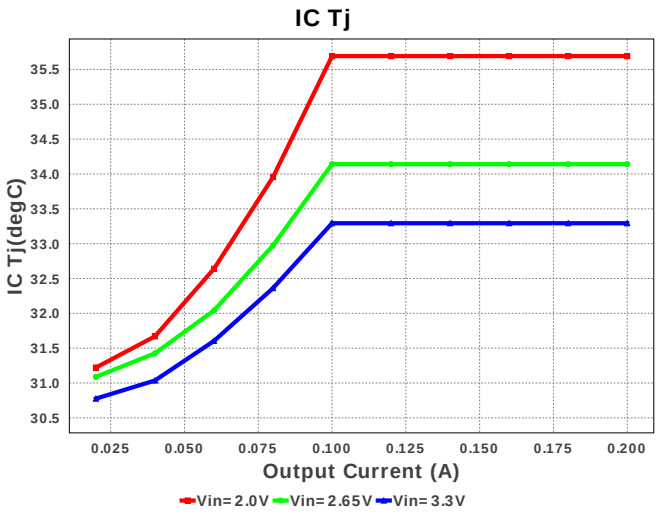
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
7.	U1	Texas Instruments	TPS61260DRVR	Switcher	1	$0.38	DRV0006A 9 mm²

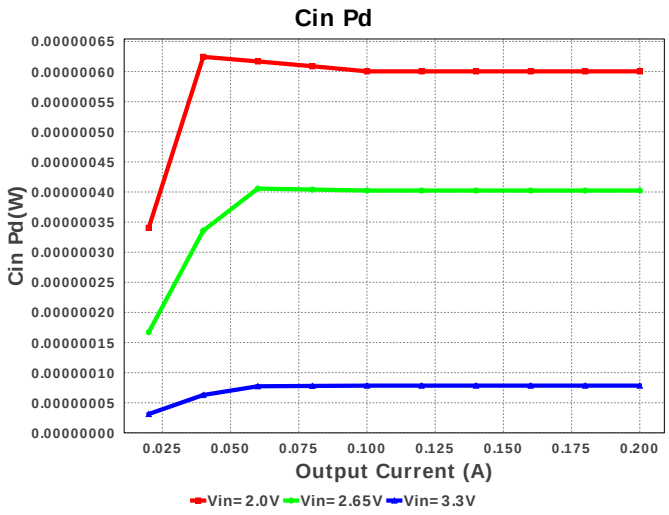


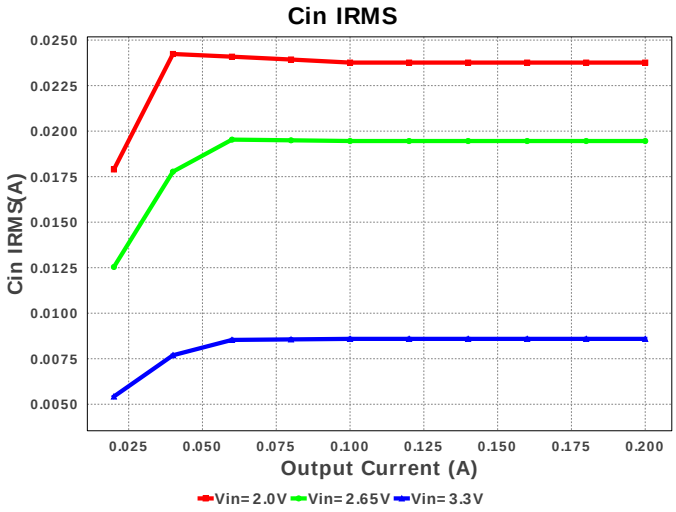


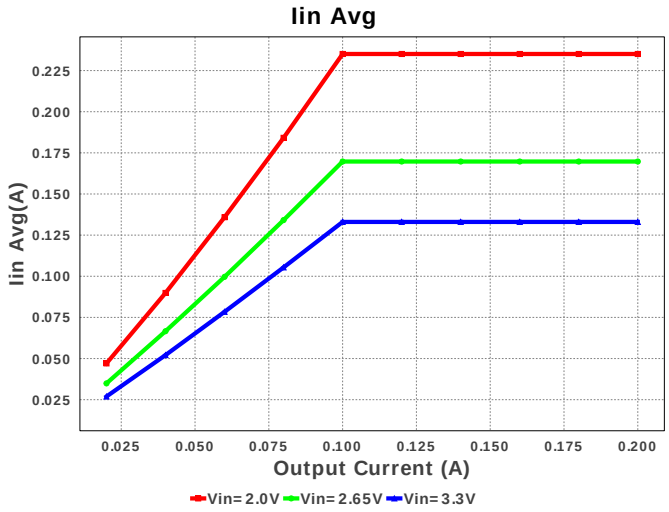


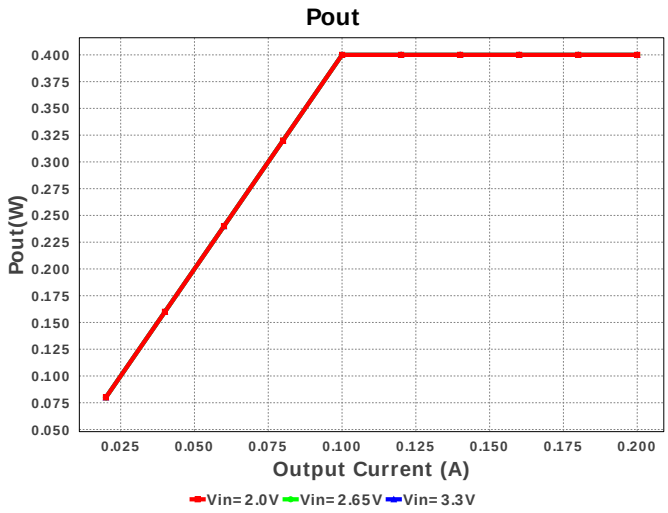


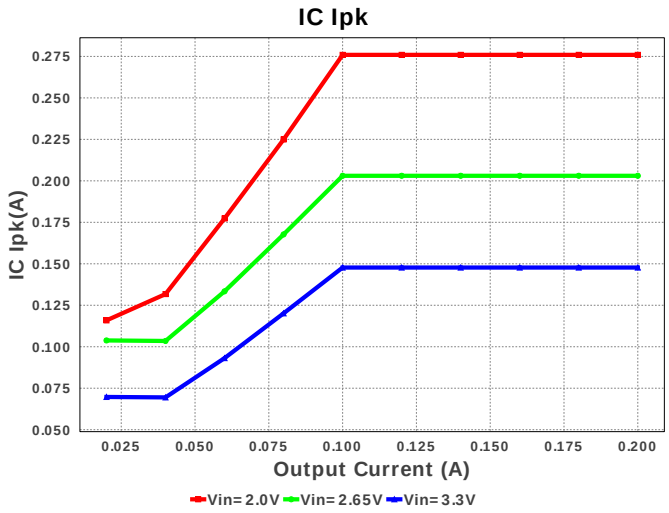


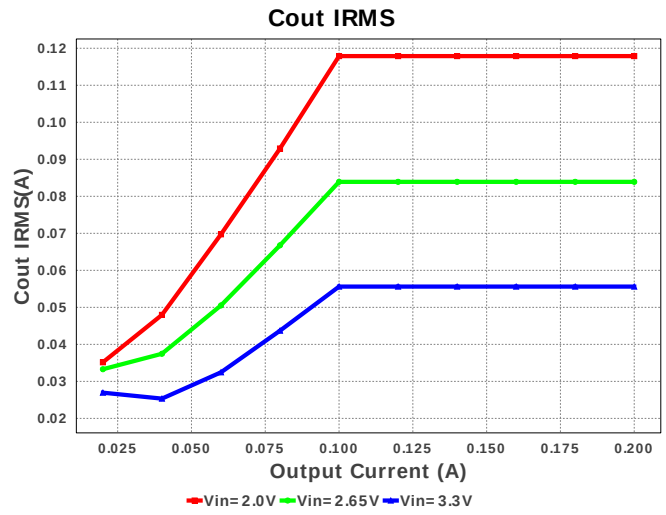


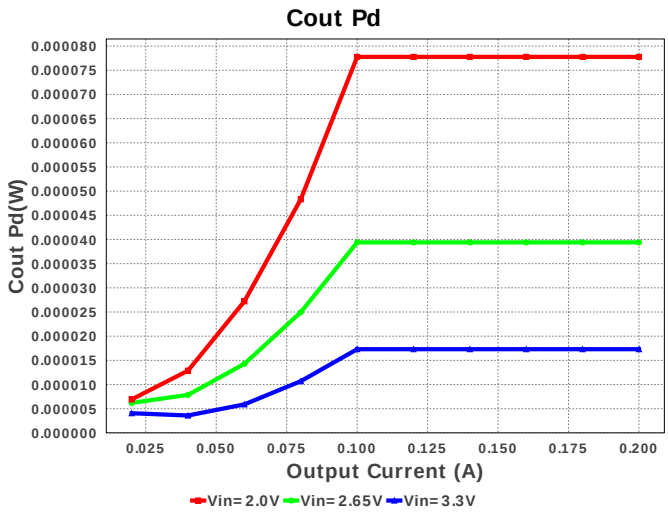


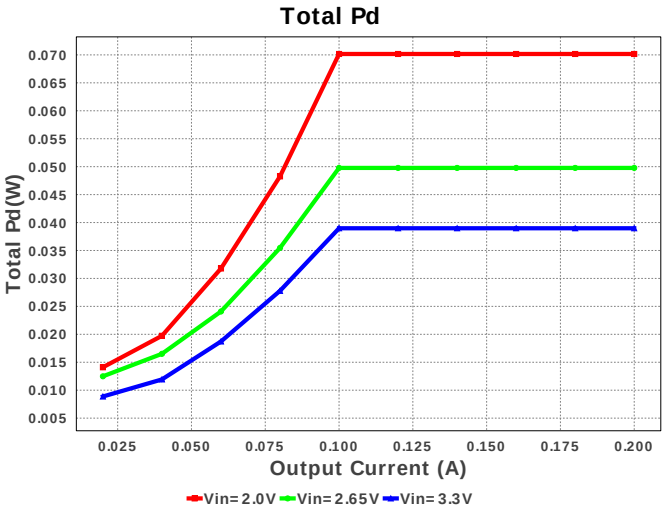


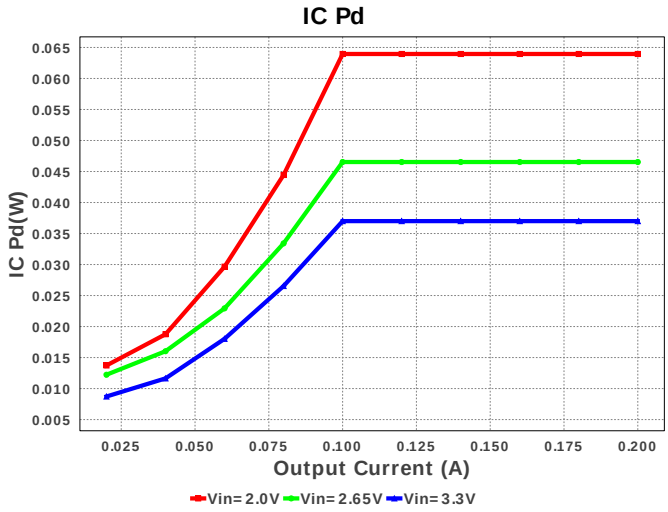


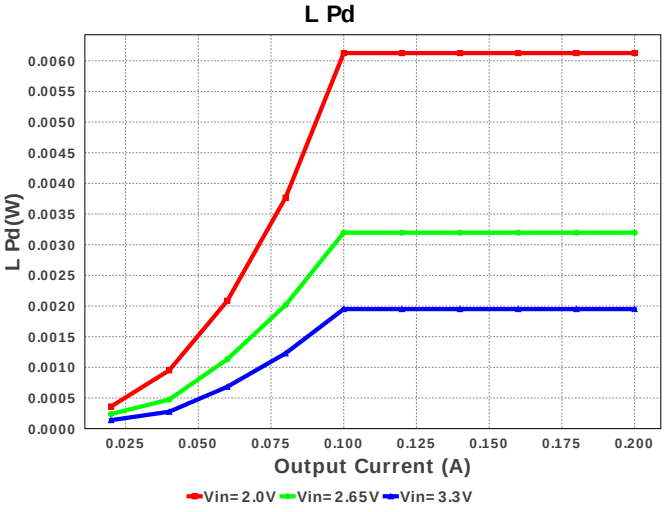


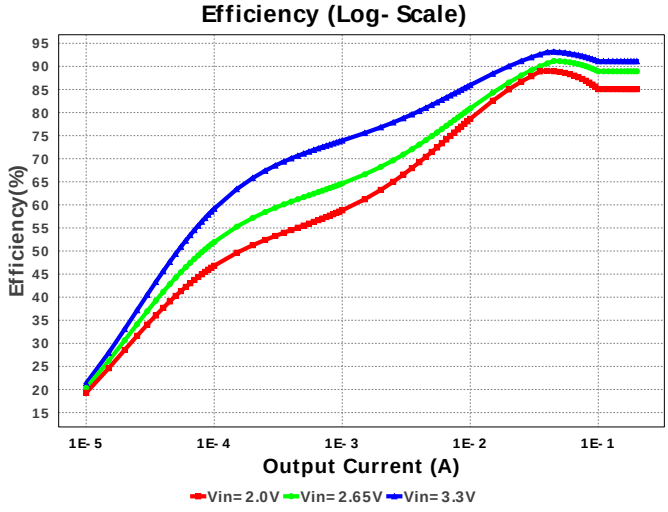












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	23.764 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	117.882 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	275.936 mA	Current	Peak switch current in IC
4.	Iin Avg	235.08 mA	Current	Average input current
5.	L Ipp	82.321 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	7	General	Total Design BOM count
7.	FootPrint	42.0 mm^2	General	Total Foot Print Area of BOM components
8.	Frequency	2.024 MHz	General	Switching frequency
9.	Mode	CCM	General	Conduction Mode
10.	Pout	400.0 mW	General	Total output power
11.	Total BOM	$0.63	General	Total BOM Cost

#	Name	Value	Category	Description
12.	Vout Actual	3.994 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
13.	Vout OP	4.0 V	Op_Point	Operational Output Voltage
14.	Duty Cycle	55.368 %	Op_point	Duty cycle
15.	Efficiency	85.077 %	Op_point	Steady state efficiency
16.	IC Tj	35.691 degC	Op_point	IC junction temperature
17.	ICThetaJA	89.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
18.	IOUT_OP	100.0 mA	Op_point	Iout operating point
19.	VIN_OP	2.0 V	Op_point	Vin operating point
20.	Vout p-p	28.478 mV	Op_point	Peak-to-peak output ripple voltage
21.	Cin Pd	600.311 nW	Power	Input capacitor power dissipation
22.	Cout Pd	77.762 µW	Power	Output capacitor power dissipation
23.	IC Pd	63.948 mW	Power	IC power dissipation
24.	L Pd	6.125 mW	Power	Inductor power dissipation
25.	Total Pd	70.162 mW	Power	Total Power Dissipation
26.	Vout Tolerance	2.785 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	200.0 m	Maximum Output Current
2.	VinMax	3.3	Maximum input voltage
3.	VinMin	2.0	Minimum input voltage
4.	Vout	4.0	Output Voltage
5.	base_pn	TPS61260	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. TPS61260 Product Folder : http://www.ti.com/product/TPS61260 : contains the data sheet and other resources.