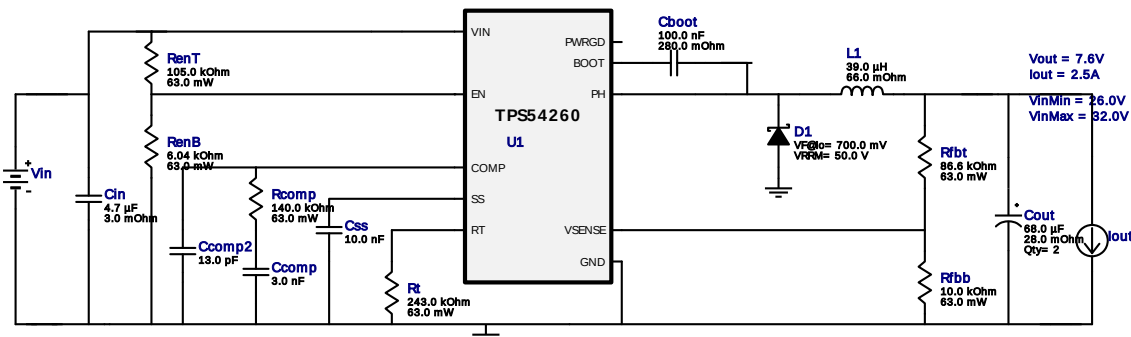


WEBENCH® Design Report

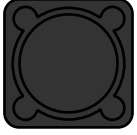
Design : 1217044/6 TPS54260DRCR
TPS54260DRCR 26.0V-32.0V to 7.6V @ 2.5A

VinMin = 26.0V
VinMax = 32.0V
Vout = 7.6V
Iout = 2.5A

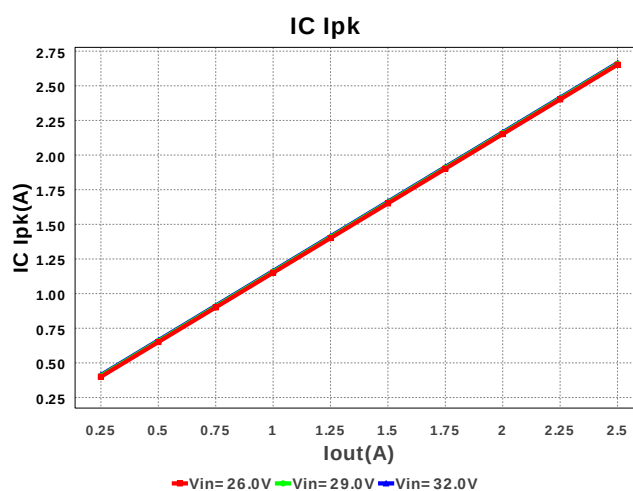
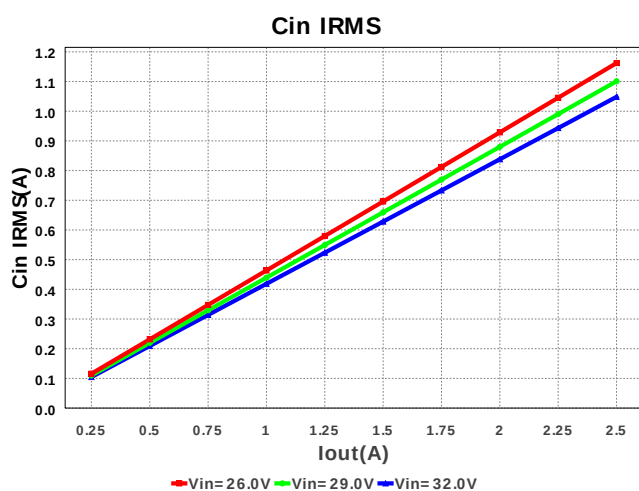
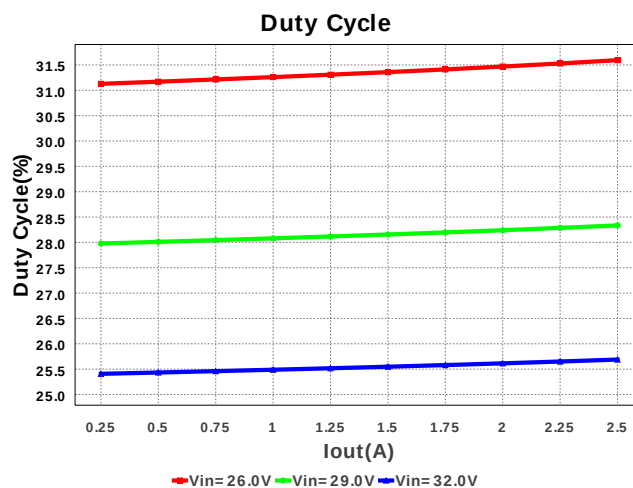
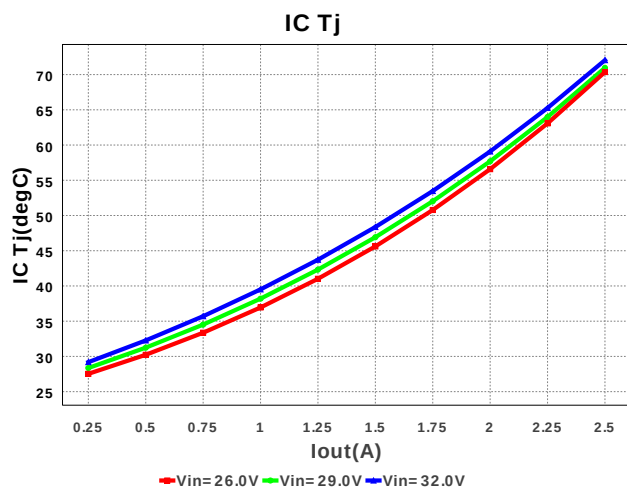
Device = TPS54260DRCR
Topology = Buck
Created = 12/18/13 12:18:47 PM
BOM Cost = \$3.56
Total Pd = 3.08W
Footprint = 448.0mm2
BOM Count = 16

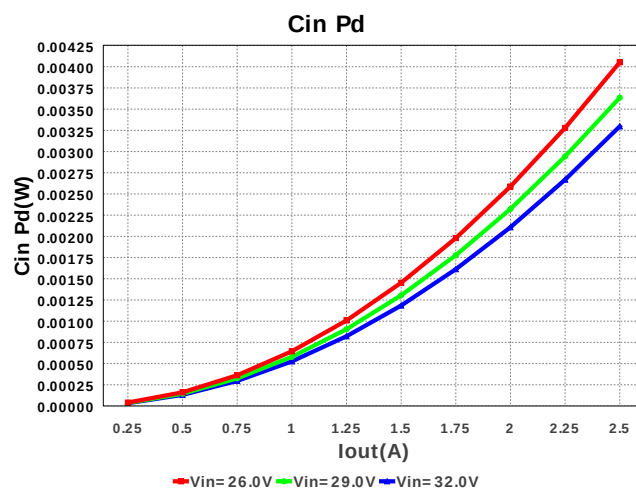
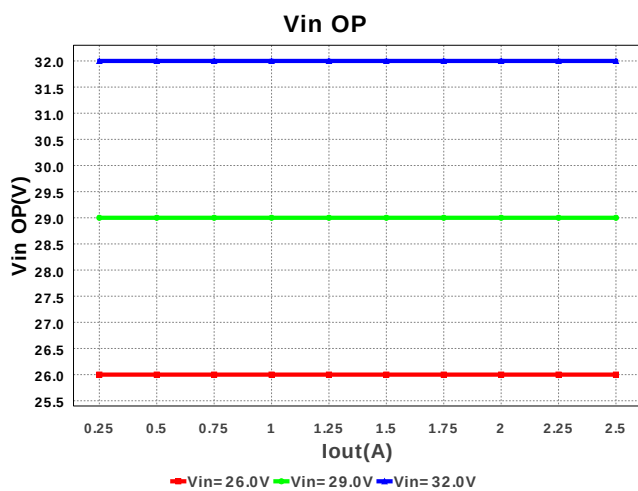
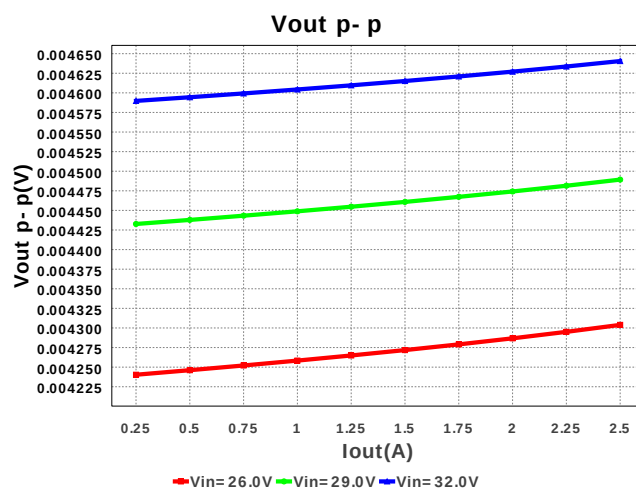
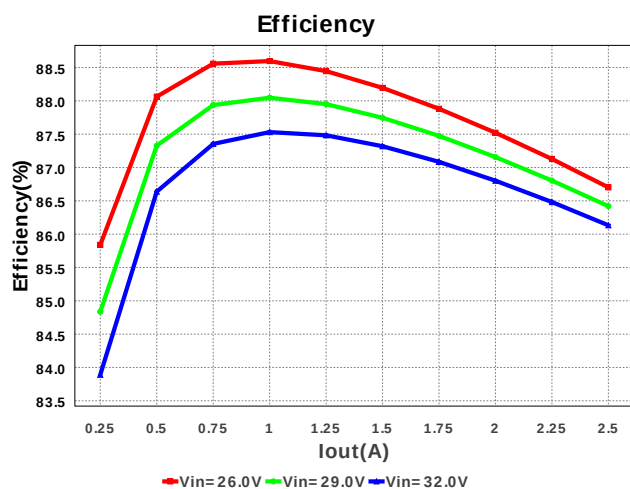
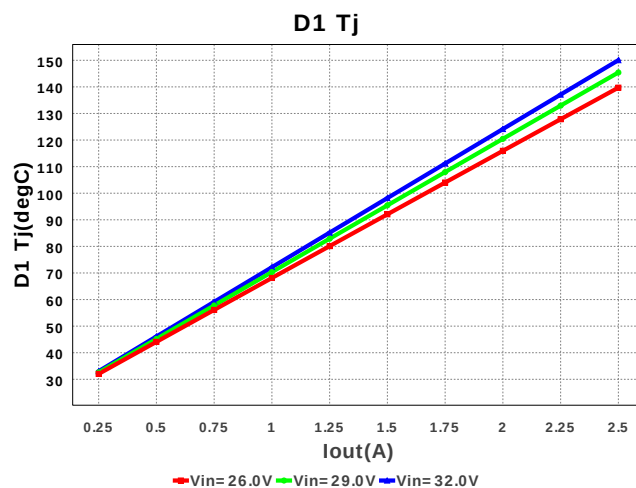
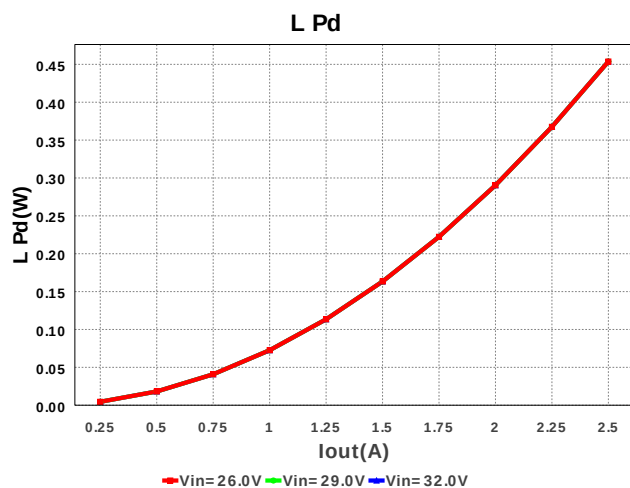


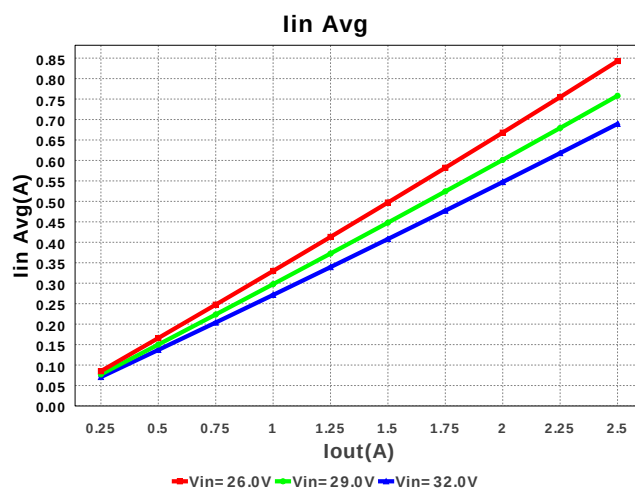
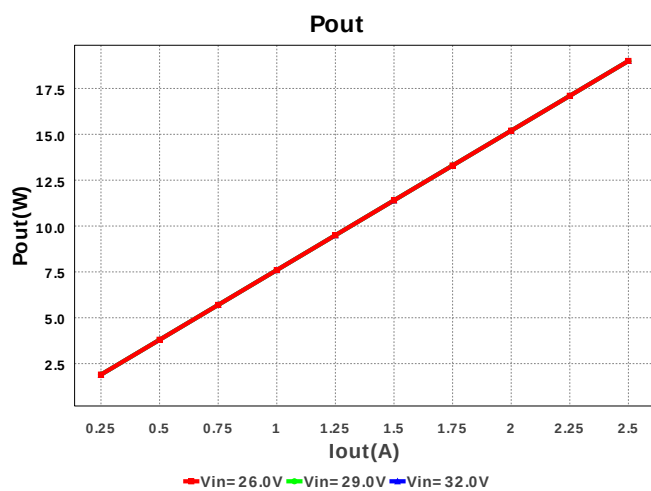
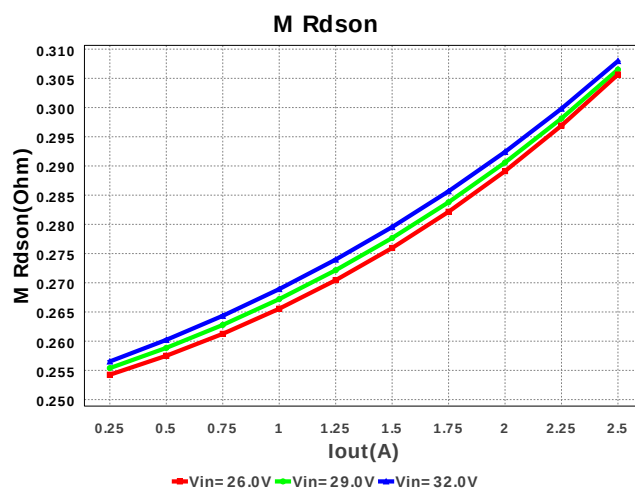
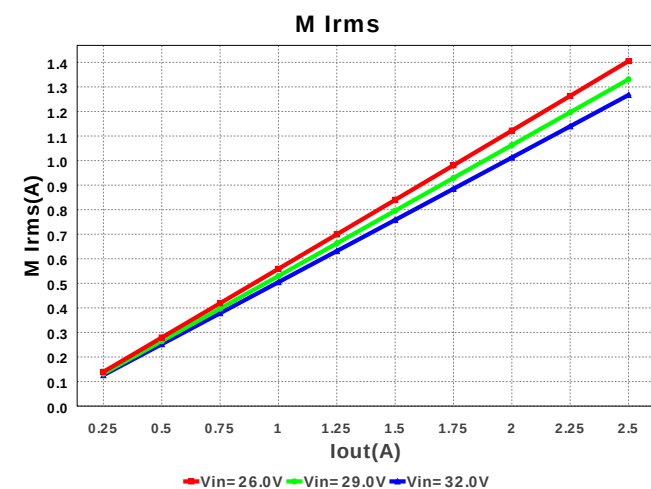
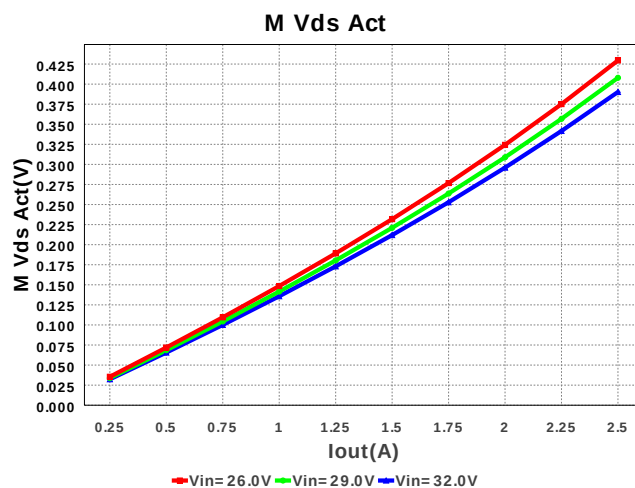
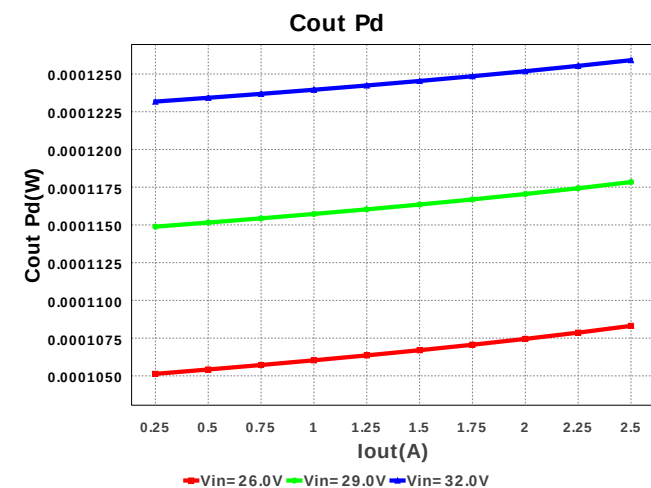
Electrical BOM

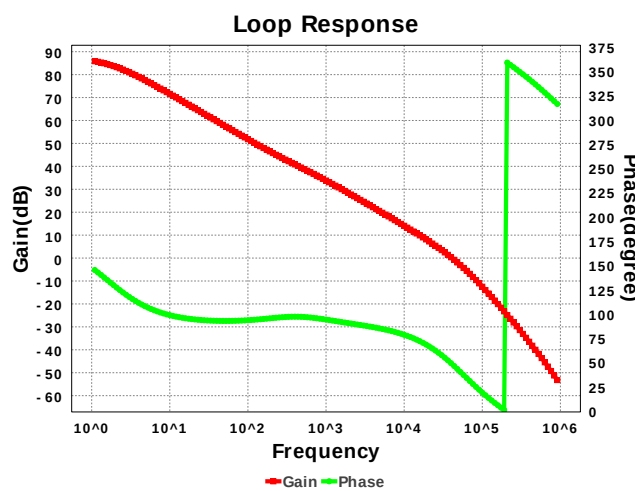
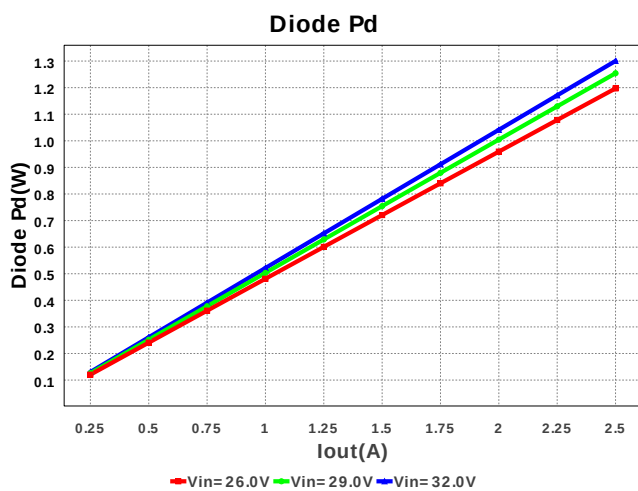
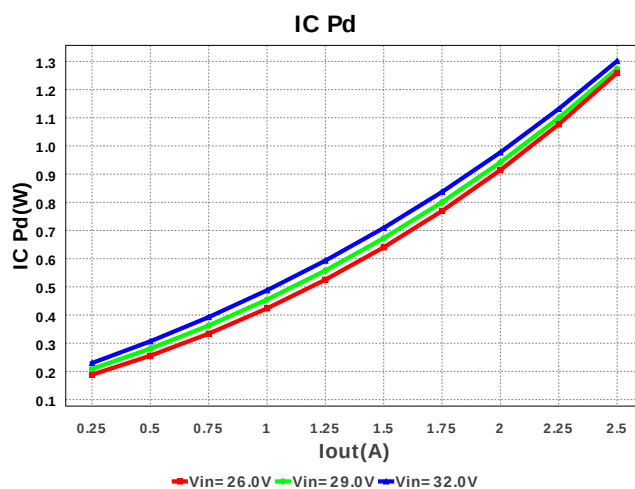
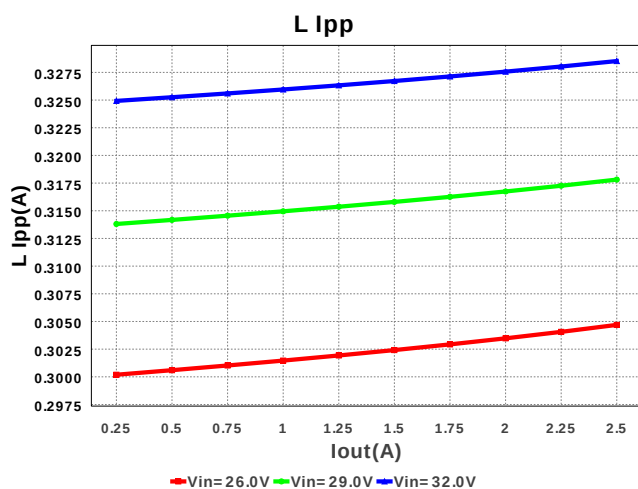
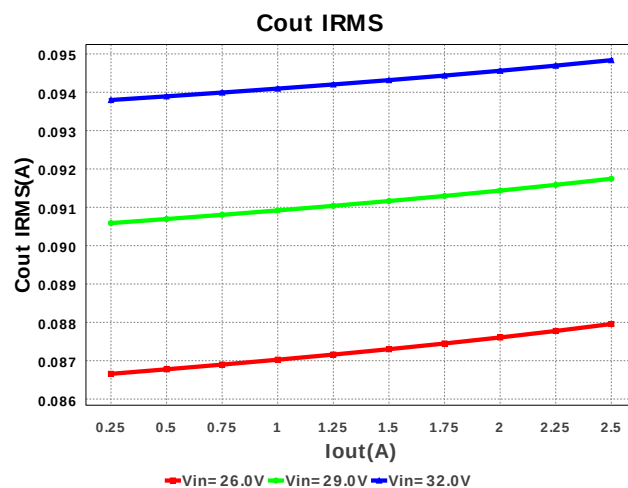
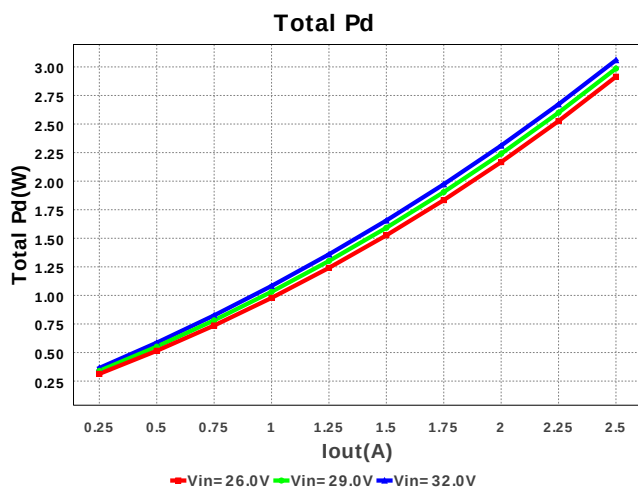
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	 0805 7mm2
2.	Ccomp	MuRata	GRM2165C1H302JA01D Series= C0G/NP0	Cap= 3.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.04	 0805 7mm2
3.	Ccomp2	MuRata	GRM1885C1H130JA01D Series= C0G/NP0	Cap= 13.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0603 5mm2
4.	Cin	MuRata	GRM31CR71H475KA12L Series= X7R	Cap= 4.7 µF ESR= 3.0 mOhm VDC= 50.0 V IRMS= 4.98 A	1	\$0.10	 1206 11mm2
5.	Cout	Nippon Chemi-Con	APXE160ARA680MF61G Series= PXE	Cap= 68.0 µF ESR= 28.0 mOhm VDC= 16.0 V IRMS= 2.39 A	2	\$0.44	 CAPSMT_62_F61 74mm2
6.	Css	MuRata	GRM155R61A103KA01D Series= X5R	Cap= 10.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0402 3mm2
7.	D1	Diodes Inc.	B350A-13-F	VF@Io= 700.0 mV VRRM= 50.0 V	1	\$0.14	 SMA 37mm2
8.	L1	Bourns	SRR1210-390M	L= 39.0 µH DCR= 66.0 mOhm	1	\$0.40	 SRR1210 196mm2
9.	Rcomp	Vishay-Dale	CRCW0402140KFKED Series= CRCW..e3	Res= 140.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
10.	RenB	Vishay-Dale	CRCW04026K04FKED Series= CRCW..e3	Res= 6.04 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
11.	RenT	Vishay-Dale	CRCW0402105KFKED Series= CRCW..e3	Res= 105.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
13.	Rfbt	Vishay-Dale	CRCW040286K6FKED Series= CRCW..e3	Res= 86.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
14.	Rt	Vishay-Dale	CRCW0402243KFKED Series= CRCW..e3	Res= 243.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
15.	U1	Texas Instruments	TPS54260DRCR	Switcher	1	\$1.91	 S-PVSON-N10 17mm2









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.048 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	92.862 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.5 A	Current	Peak switch current in IC
4.	Iin Avg	689.92 mA	Current	Average input current
5.	L Ipp	321.684 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	1.267 A	Current	Q Iavg
7.	BOM Count	16	General	Total Design BOM count
8.	FootPrint	448.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	499.639 kHz	General	Switching frequency
10.	IC Tolerance	8.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	391.395 mV	General	Voltage drop across the MosFET

#	Name	Value	Category	Description
12.	Pout	19.0 W	General	Total output power
13.	Total BOM	\$3.56	General	Total BOM Cost
14.	D1 Tj	150.043 degC	Op_Point	D1 junction temperature
15.	Vout OP	7.6 V	Op_Point	Operational Output Voltage
16.	Cross Freq	40.924 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	25.69 %	Op_point	Duty cycle
18.	Efficiency	86.061 %	Op_point	Steady state efficiency
19.	IC Tj	72.791 degC	Op_point	IC junction temperature
20.	ICThetaJA	40.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	2.5 A	Op_point	Iout operating point
22.	Phase Marg	49.175 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	32.0 V	Op_point	Vin operating point
24.	Vout p-p	4.542 mV	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	3.297 mW	Power	Input capacitor power dissipation
26.	Cout Pd	120.727 μ W	Power	Output capacitor power dissipation
27.	Diode Pd	1.3 W	Power	Diode power dissipation
28.	IC Pd	1.32 W	Power	IC power dissipation
29.	L Pd	453.75 mW	Power	Inductor power dissipation
30.	Total Pd	3.077 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	2.5 A	Maximum Output Current
2.	Iout1	2.5 Amps	Output Current #1
3.	VinMax	32.0 V	Maximum input voltage
4.	VinMin	26.0 V	Minimum input voltage
5.	Vout	7.6 V	Output Voltage
6.	Vout1	7.6 Volt	Output Voltage #1
7.	base_pn	TPS54260	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	20.0 degC	Ambient temperature

Design Assistance

1. **TPS54260** Product Folder : <http://www.ti.com/product/tps54260> : contains the data sheet and other resources.

Texas Instruments' WEBENCH simulation tools attempt to recreate the performance of a substantially equivalent physical implementation of the design. Simulations are created using Texas Instruments' published specifications as well as the published specifications of other device manufacturers. While Texas Instruments does update this information periodically, this information may not be current at the time the simulation is built. Texas Instruments does not warrant the accuracy or completeness of the specifications or any information contained therein. Texas Instruments does not warrant that any designs or recommended parts will meet the specifications you entered, will be suitable for your application or fit for any particular purpose, or will operate as shown in the simulation in a physical implementation. Texas Instruments does not warrant that the designs are production worthy.

You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

Use of Texas Instruments' WEBENCH simulation tools is subject to [Texas Instruments' Site Terms and Conditions of Use](#). Prototype boards based on WEBENCH created designs are provided AS IS without warranty of any kind for evaluation and testing purposes and are subject to the terms of the [Evaluation License Agreement](#).