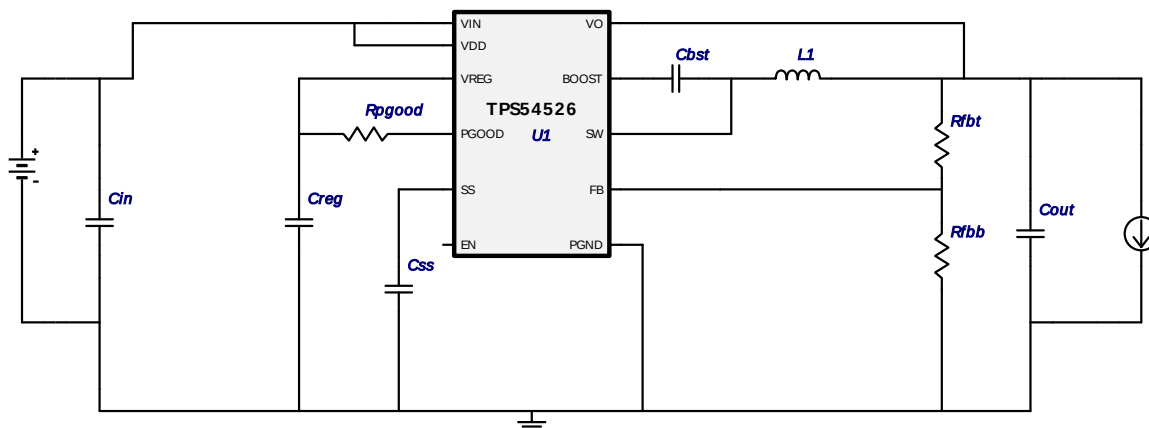
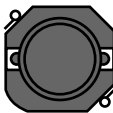


WEBENCH[®] Design Report

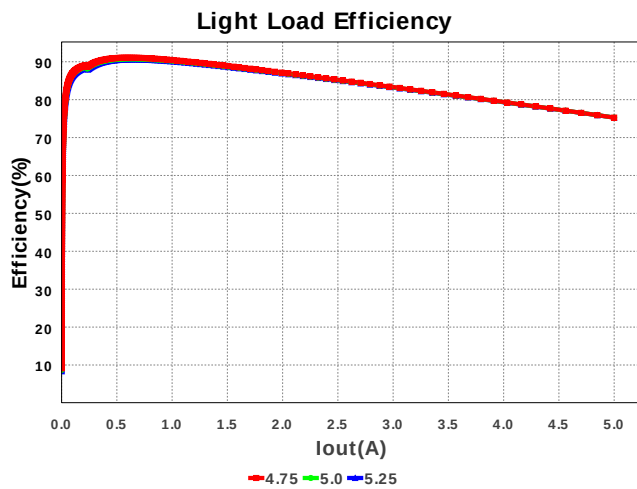
Design : 964463/434 TPS54526PWPR
TPS54526PWPR 4.75V-5.25V to 1.0V @ 5.0A



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	 0805 13mm2
2.	Cin	TDK	C3225X5R1A226M Series= X5R	Cap= 22.0 µF ESR= 2.0 mOhm VDC= 10.0 V IRMS= 3.2 A	1	\$0.19	 1210 23mm2
3.	Cout	MuRata	GRM31CR60J476ME19L Series= X5R	Cap= 47.0 µF ESR= 3.0 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.20	 1206 19mm2
4.	Creg	MuRata	GRM155R61A105KE15D Series= X5R	Cap= 1.0 µF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0402 8mm2
5.	Css	Kemet	C0805C103K5RACTU Series= X7R	Cap= 10.0 nF ESR= 1.739 Ohm VDC= 50.0 V IRMS= 411.0 mA	1	\$0.01	 0805 13mm2
6.	L1	Coilcraft	MSS1038-152NLB	L= 1.5 µH DCR= 10.0 mOhm	1	\$0.48	 MSS1038 151mm2
7.	Rfbb	Vishay-Dale	CRCW040222K1FKED Series= CRCW..e3	Res= 22.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
8.	Rfbbt	Vishay-Dale	CRCW04026K81FKED Series= CRCW..e3	Res= 6.81 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
9.	Rpgood	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	U1	Texas Instruments	TPS54526PWPR	Switcher	1	\$1.90	 R-PDSO-G14 46mm2



Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	2.117 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	303.045 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	5.525 A	Current	Peak switch current in IC
4.	Iin Avg	1.265 A	Current	Average input current
5.	L Ipp	1.05 A	Current	Peak-to-peak inductor ripple current
6.	BOM Count	10	General	Total Design BOM count
7.	FootPrint	296.0 mm2	General	Total Foot Print Area of BOM components
8.	Frequency	632.062 kHz	General	Switching frequency
9.	Mode	CCM	General	Conduction Mode
10.	Pout	5.0 W	General	Total output power
11.	Total BOM	\$2.83	General	Total BOM Cost
12.	Vout OP	1.0 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	23.419 %	Op_point	Duty cycle
14.	Efficiency	75.285 %	Op_point	Steady state efficiency
15.	IC Tj	58.754 degC	Op_point	IC junction temperature
16.	ICThetaJA	43.7 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	5.0 A	Op_point	Iout operating point
18.	VIN_OP	5.25 V	Op_point	Vin operating point
19.	Vout p-p	5.384 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	8.967 mW	Power	Input capacitor power dissipation
21.	Cout Pd	275.509 μ W	Power	Output capacitor power dissipation
22.	IC Iq Pd	4.2 mW	Power	IC Iq Pd
23.	IC Pd	1.32 W	Power	IC power dissipation
24.	L Pd	312.5 mW	Power	Inductor power dissipation
25.	Total Pd	1.641 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	5.0 A	Maximum Output Current
2.	Iout1	5.0 Amps	Output Current #1
3.	VinMax	5.25 V	Maximum input voltage
4.	VinMin	4.75 V	Minimum input voltage
5.	Vout	1.0 V	Output Voltage
6.	Vout1	1.0 Volt	Output Voltage #1
7.	base_pn	TPS54526	National Based Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. **TPS54526** Product Folder : <http://www.ti.com/product/tps54526> : contains the data sheet and other resources.

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