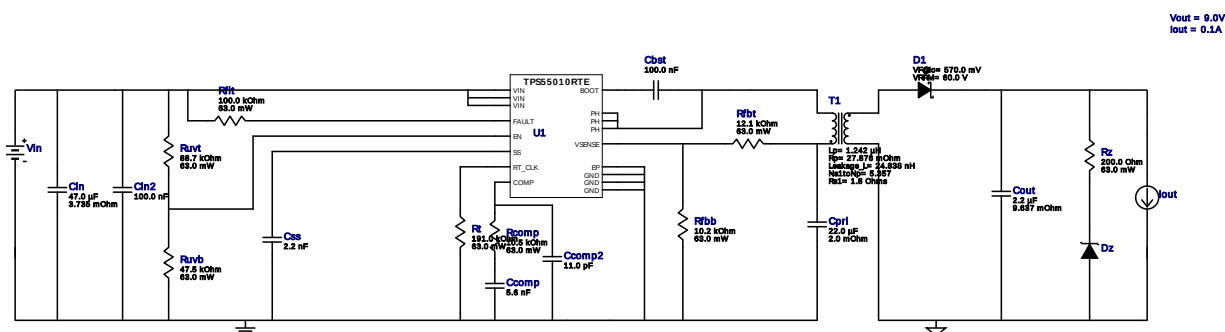


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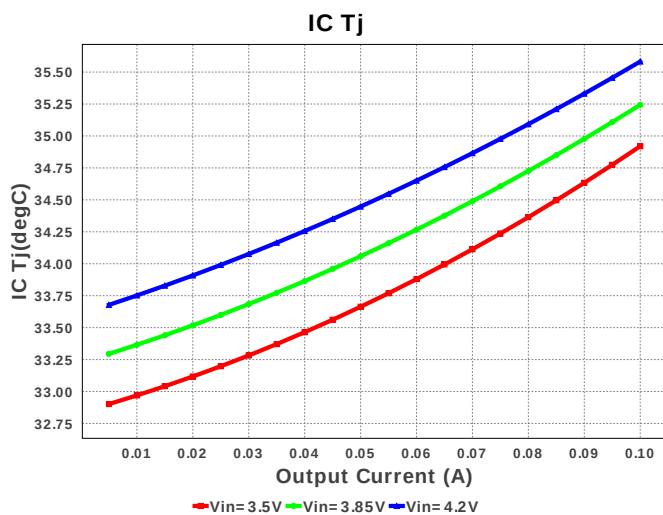
Design : 4759963/12 TPS55010RTER
TPS55010RTER 3.5V-4.2V to 9.00V @ 0.1A

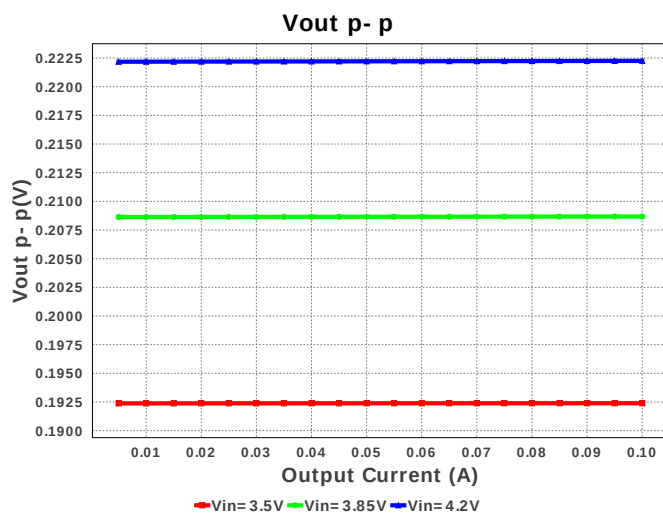
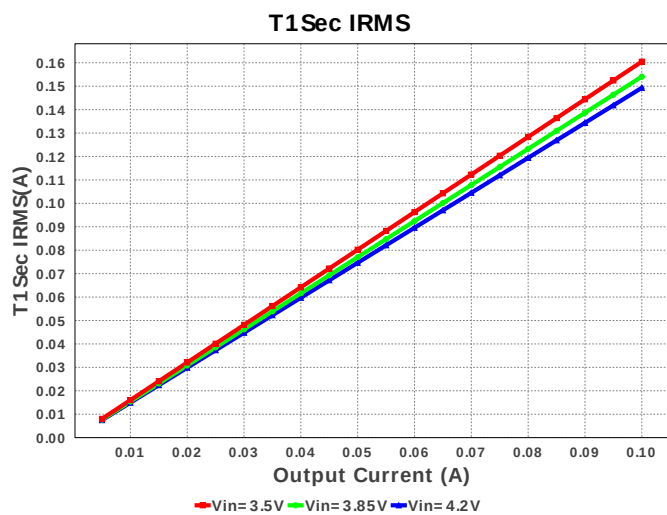
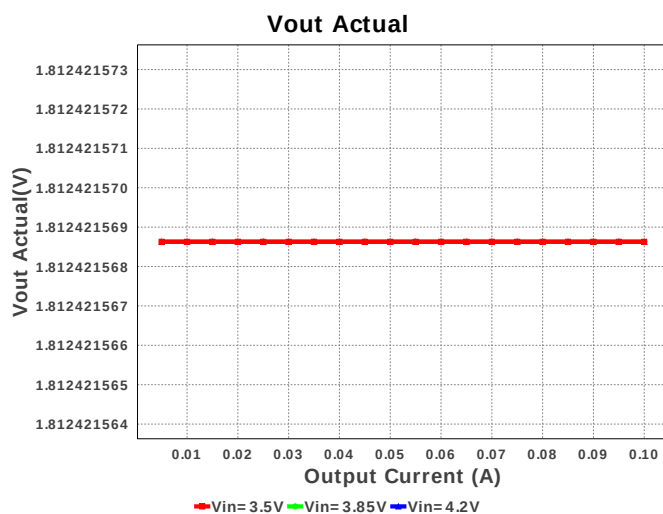
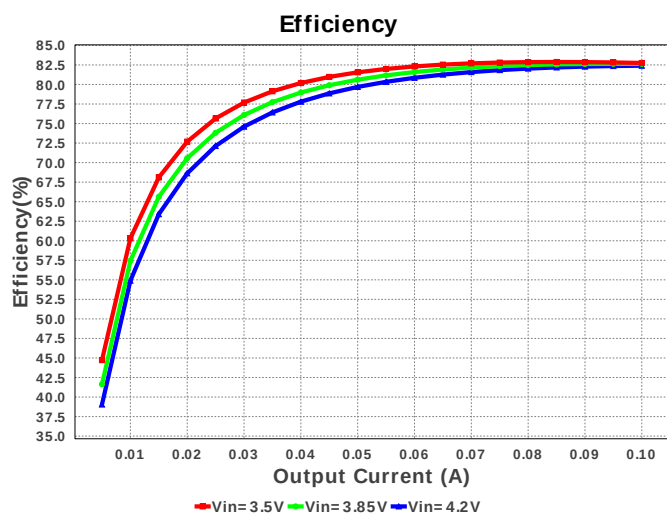
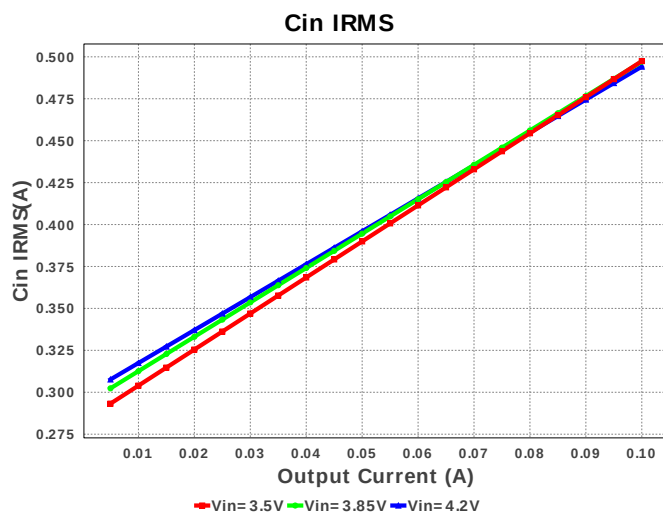
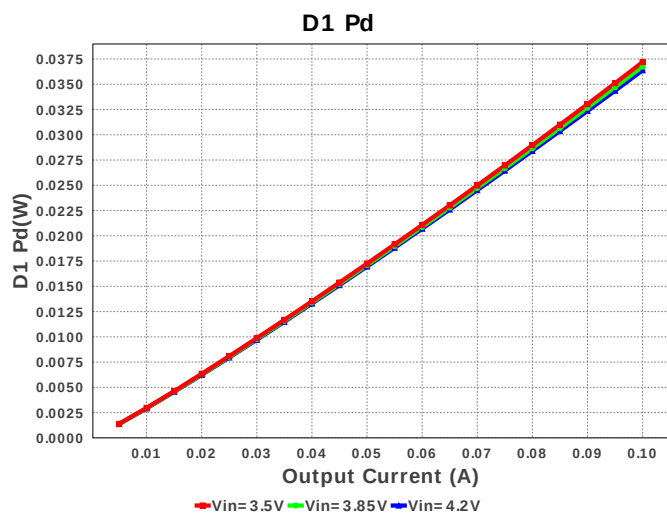


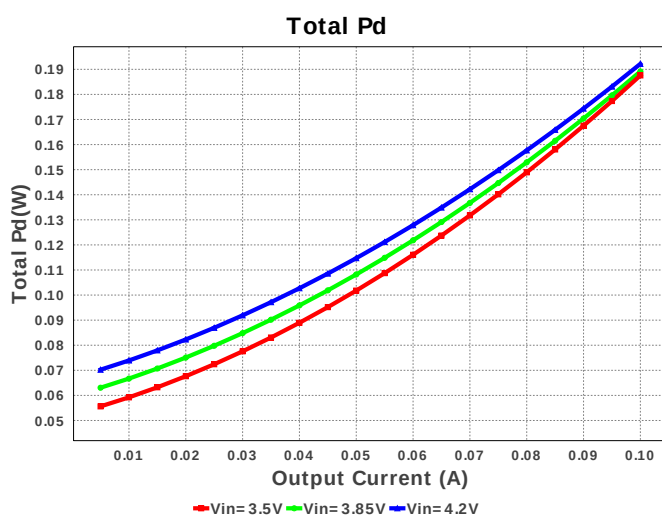
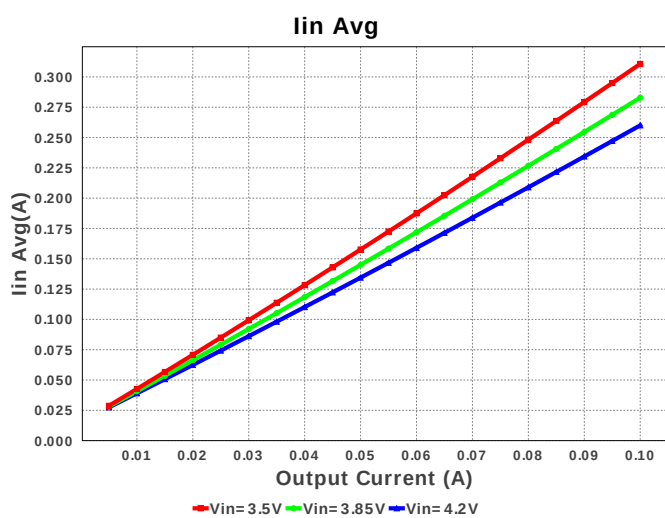
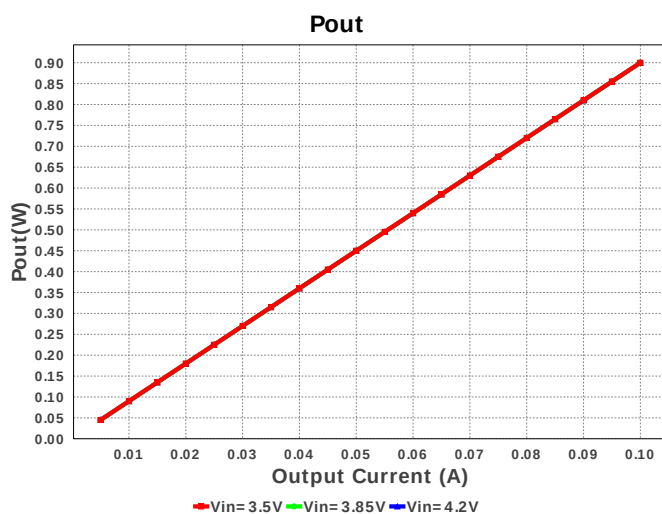
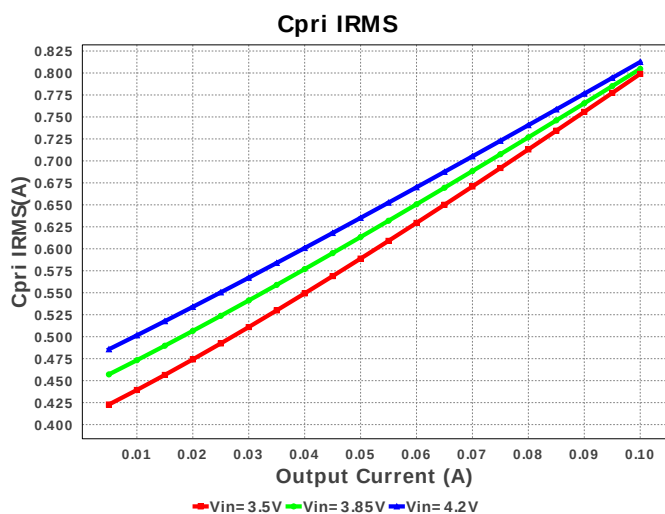
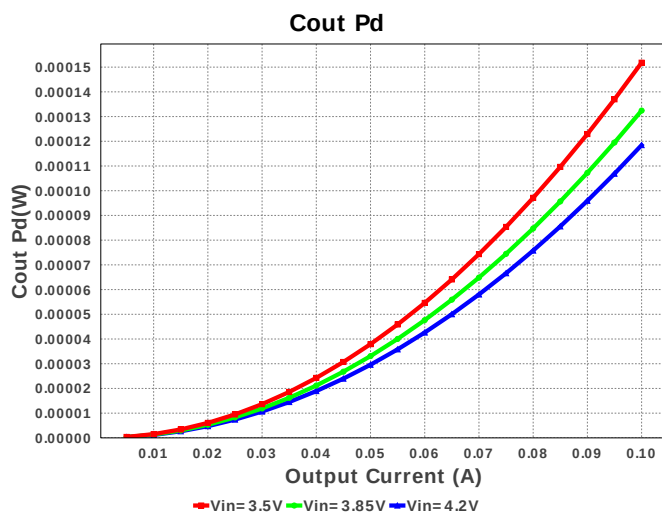
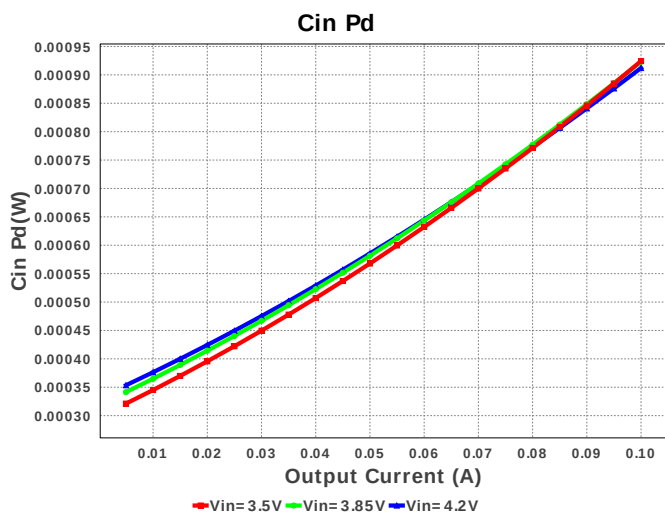
Electrical BOM

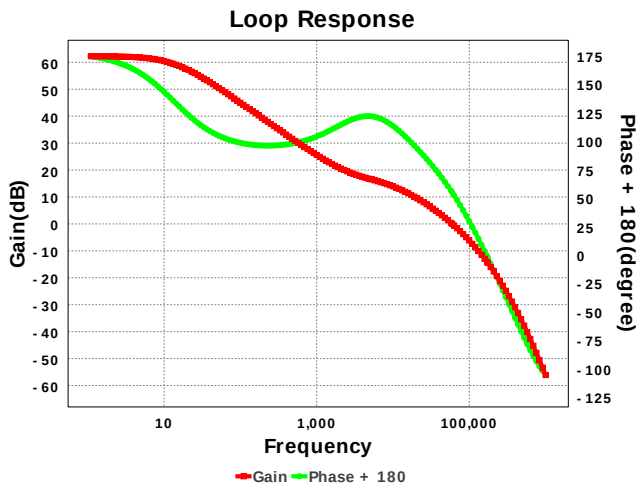
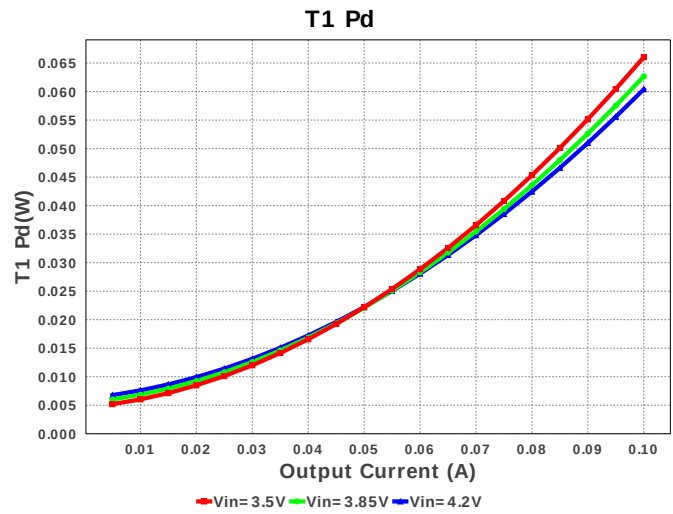
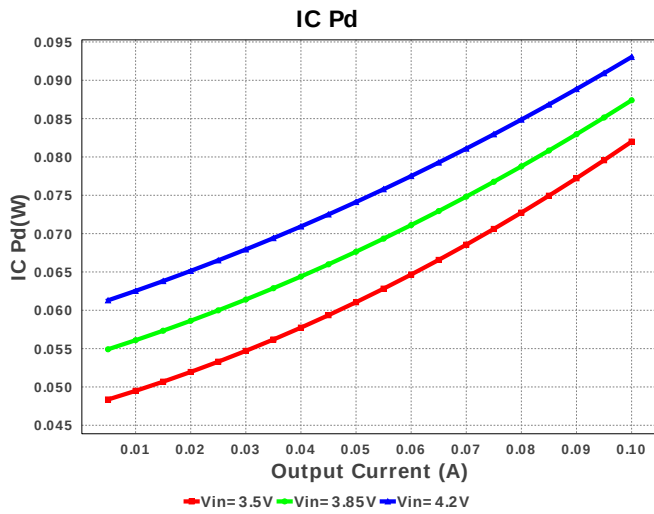
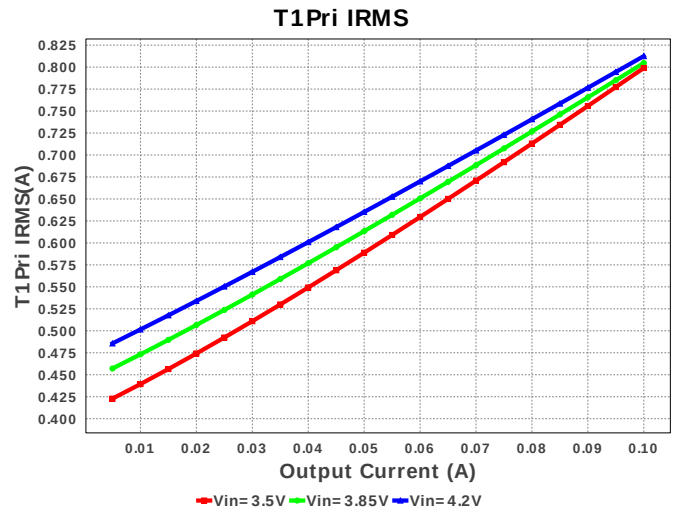
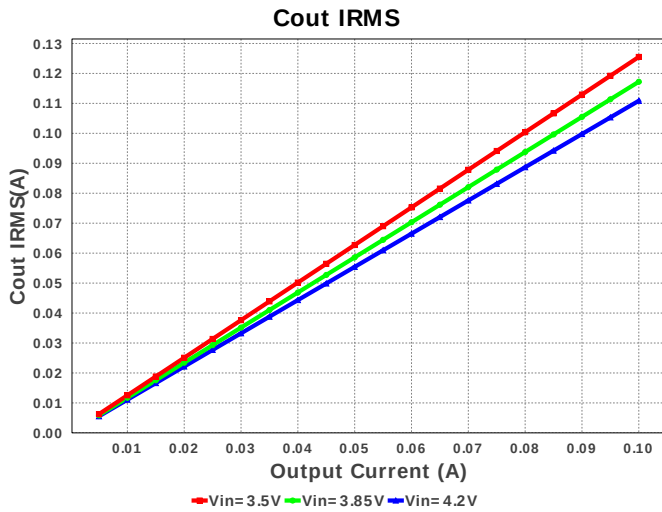
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	MuRata	GRM155R61A104KA01D Series= X5R	Cap= 100.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
2.	Ccomp	Yageo America	CC0805KRX7R9BB562 Series= X7R	Cap= 5.6 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Ccomp2	TDK	C0603C0G1E110G Series= C0G/NP0	Cap= 11.0 pF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
4.	Cin	MuRata	GRM31CC80J476KE18L Series= X6S	Cap= 47.0 uF ESR= 3.735 mOhm VDC= 6.3 V IRMS= 4.0522 A	1	\$0.10	1206_190 11 mm ²
5.	Cin2	MuRata	GRM155R60J104KA01D Series= X5R	Cap= 100.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
6.	Cout	MuRata	GRM188R61C225KE15D Series= X5R	Cap= 2.2 uF ESR= 9.637 mOhm VDC= 16.0 V IRMS= 1.20373 A	1	\$0.02	0603 5 mm ²
7.	Cpri	MuRata	GRM32ER61C226ME20L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 16.0 V IRMS= 3.68 A	1	\$0.12	1210 15 mm ²
8.	Css	Yageo America	CC0805KRX7R9BB222 Series= X7R	Cap= 2.2 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
9.	D1	NXP Semiconductor	PMEG6010CEH,115	VF@Io= 570.0 mV VRRM= 60.0 V	1	\$0.04	SOD-123F 12 mm ²
10.	Dz	Diodes Inc.	DFLZ10-7	Zener	1	\$0.13	PowerDI123 13 mm ²
11.	Rcomp	Vishay-Dale	CRCW040210K5FKED Series= CRCW..e3	Res= 10.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
12.	Rfbb	Vishay-Dale	CRCW040210K2FKED Series= CRCW..e3	Res= 10.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
13.	Rfbt	Vishay-Dale	CRCW040212K1FKED Series= CRCW..e3	Res= 12.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
14.	Rft	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
15.	Rt	Vishay-Dale	CRCW0402191KFKED Series= CRCW..e3	Res= 191.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
16.	Ruvb	Vishay-Dale	CRCW040247K5FKED Series= CRCW..e3	Res= 47.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
17.	Ruvt	Vishay-Dale	CRCW040288K7FKED Series= CRCW..e3	Res= 88.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
18.	Rz	Vishay-Dale	CRCW0402200RFKED Series= CRCW..e3	Res= 200.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
19.	T1	CUSTOM	CUSTOM	Lp= 1.242 μ H Rp= 27.876 mOhm Leakage_L= 24.838 nH Ns1toNp= 5.357 Rs1= 1.8 Ohms	1	NA	CUSTOM 0 mm ²
20.	U1	Texas Instruments	TPS55010RTER	Switcher	1	\$0.99	RTE0016C 16 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	494.154 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	110.865 mA	Current	Output capacitor RMS ripple current
3.	Cpri IRMS	812.526 mA	Current	Primary Capacitor RMS Current
4.	Iin Avg	264.96 mA	Current	Average input current
5.	T1Pri IRMS	812.526 mA	Current	Transformer Primary RMS Current
6.	T1Sec IRMS	149.302 mA	Current	Transformer Secondary RMS Current
7.	BOM Count	20	General	Total Design BOM count
8.	FootPrint	122.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	499.033 kHz	General	Switching frequency
10.	Mode	DCM	General	Conduction Mode
11.	Pout	900.0 mW	General	Total output power

#	Name	Value	Category	Description
12.	Total BOM	\$0.0	General	Total BOM Cost
13.	Low Freq Gain	62.269 dB	Op_Point	Gain at 10Hz
14.	Vout Actual	1.812 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
15.	Vout OP	9.0 V	Op_Point	Operational Output Voltage
16.	Cross Freq	59.79 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	40.185 %	Op_point	Duty cycle
18.	Efficiency	80.875 %	Op_point	Steady state efficiency
19.	IC Tj	35.582 degC	Op_point	IC junction temperature
20.	ICThetaJA	60.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	100.0 mA	Op_point	Iout operating point
22.	Phase Marg	55.649 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	4.2 V	Op_point	Vin operating point
24.	Vout p-p	186.127 mV	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	912.045 µW	Power	Input capacitor power dissipation
26.	Cout Pd	118.448 µW	Power	Output capacitor power dissipation
27.	D1 Pd	57.0 mW	Power	Output Diode Power Dissipation
28.	IC Pd	93.04 mW	Power	IC power dissipation
29.	T1 Pd	60.442 mW	Power	Transformer Power Dissipation
30.	Total Pd	212.832 mW	Power	Total Power Dissipation
31.	Vout Tolerance	2.56 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	100.0 m	Maximum Output Current
2.	VinMax	4.2	Maximum input voltage
3.	VinMin	3.5	Minimum input voltage
4.	Vout	9.0	Output Voltage
5.	base_pn	TPS55010	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. TPS55010 Product Folder : <http://www.ti.com/product/TPS55010> : contains the data sheet and other resources.

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