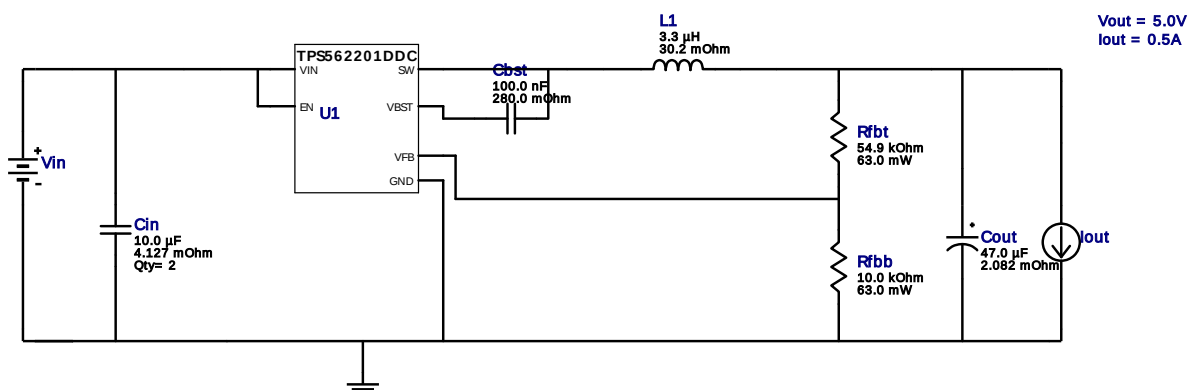


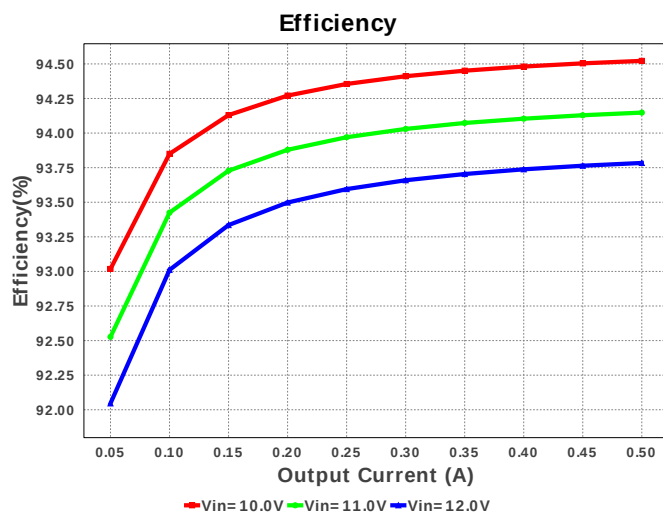
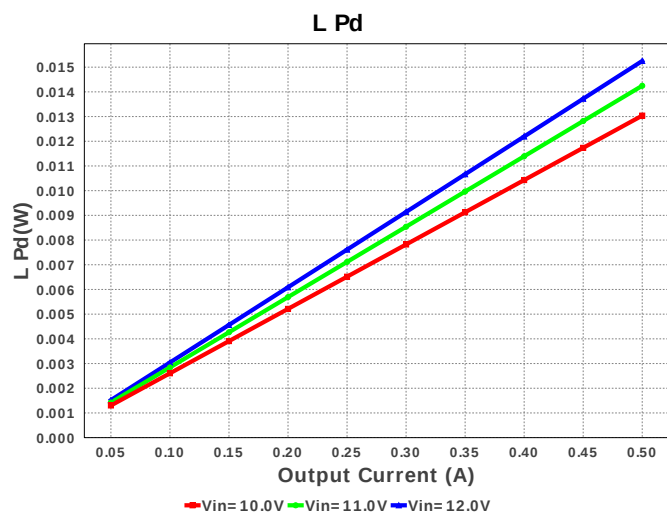
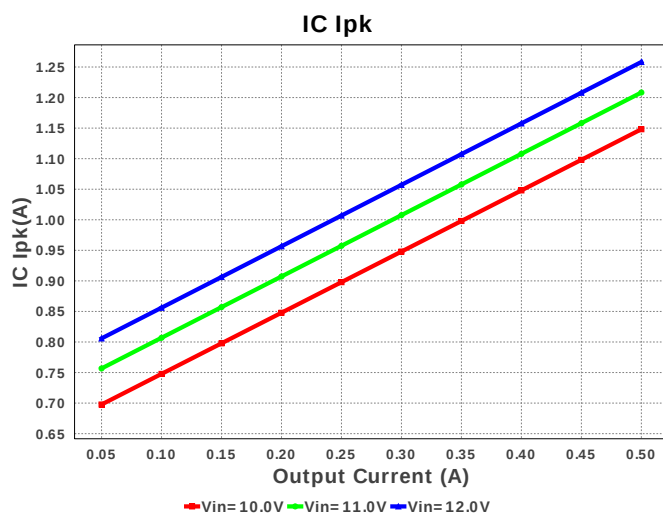
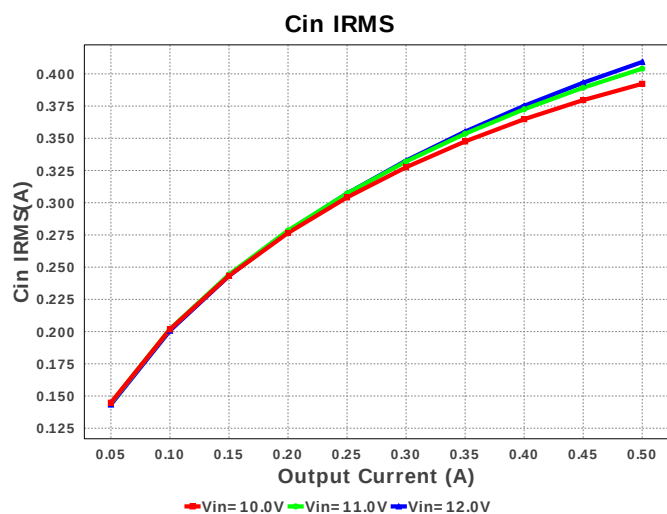
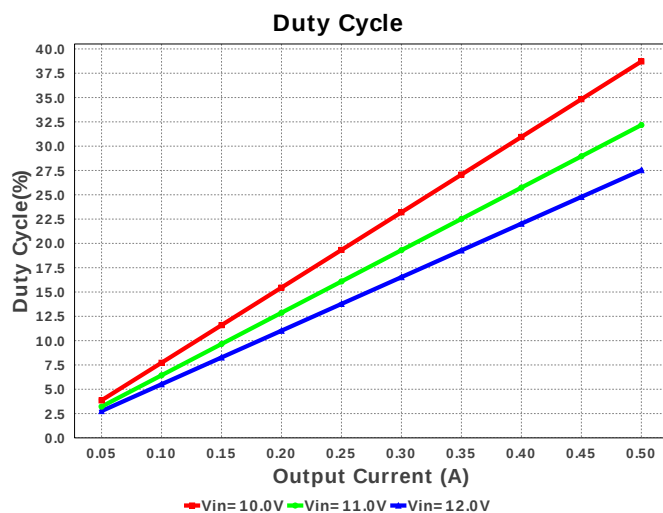
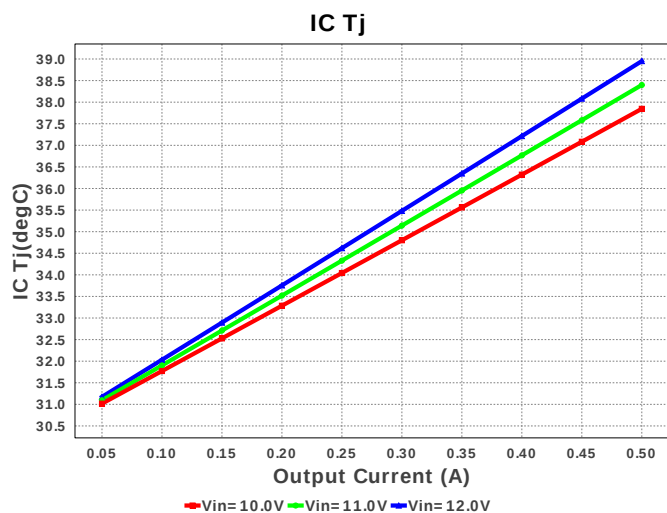
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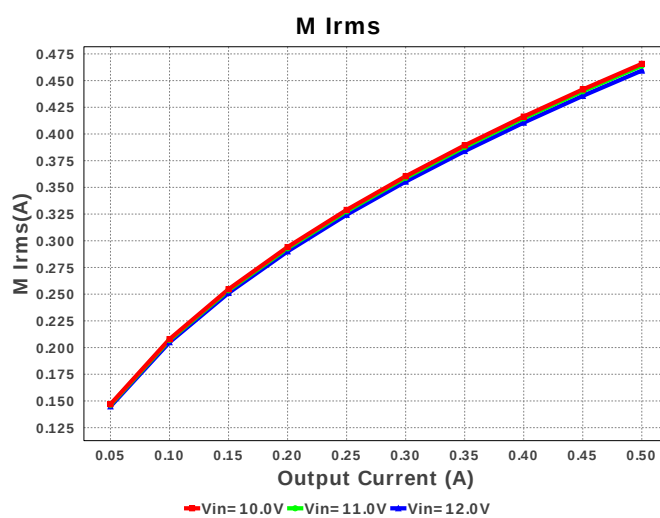
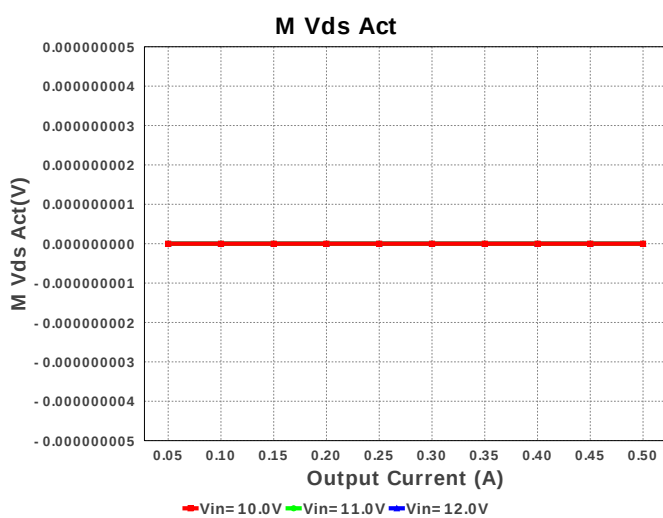
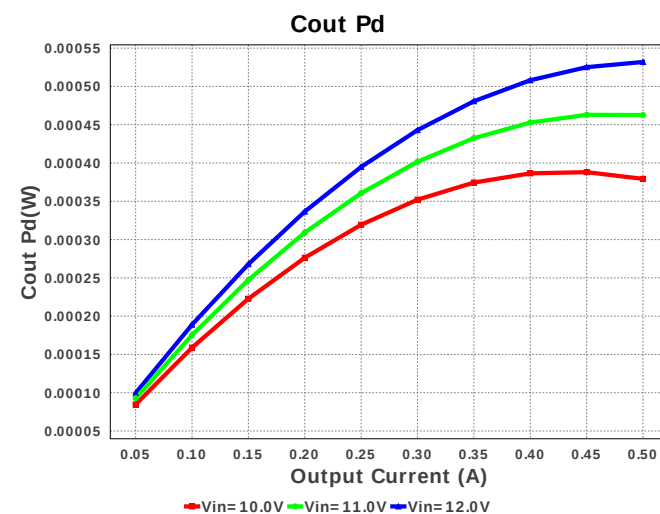
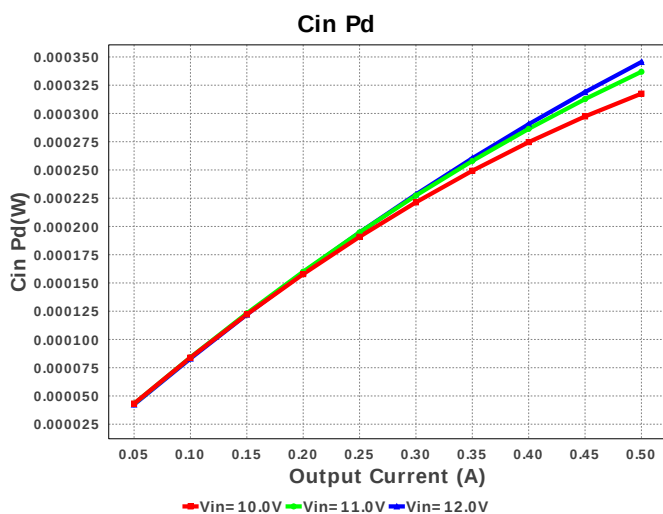
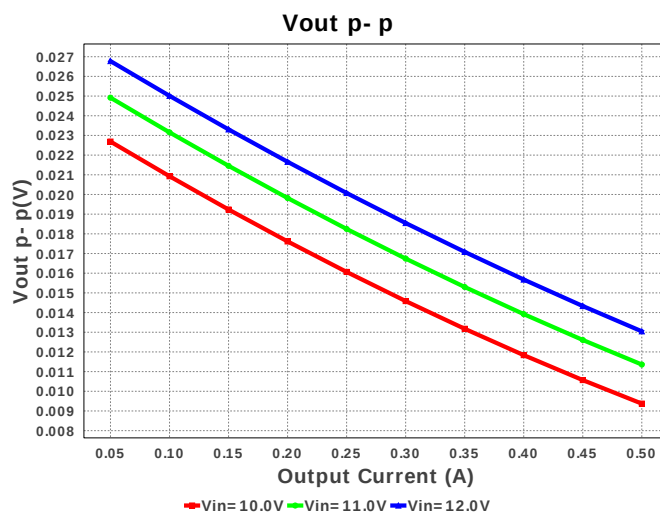
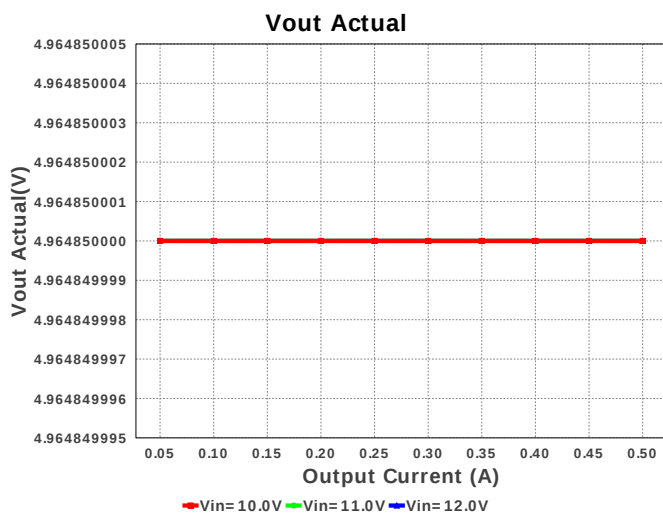
Design : 4742013/207 TPS562201DDCR
TPS562201DDCR 10.0V-12.0V to 5.00V @ 0.5A

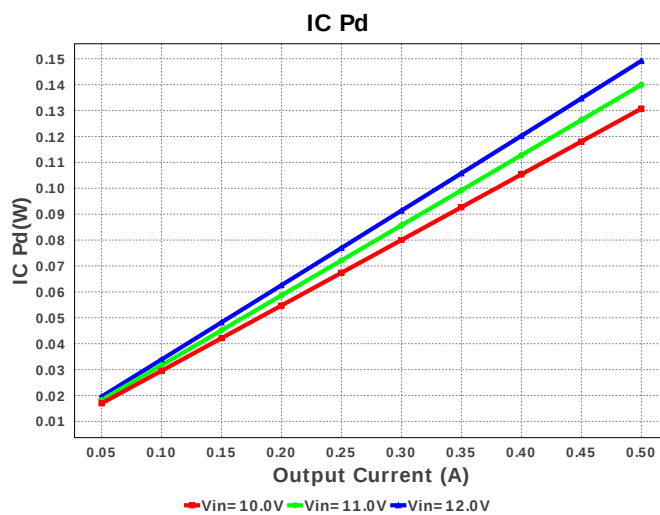
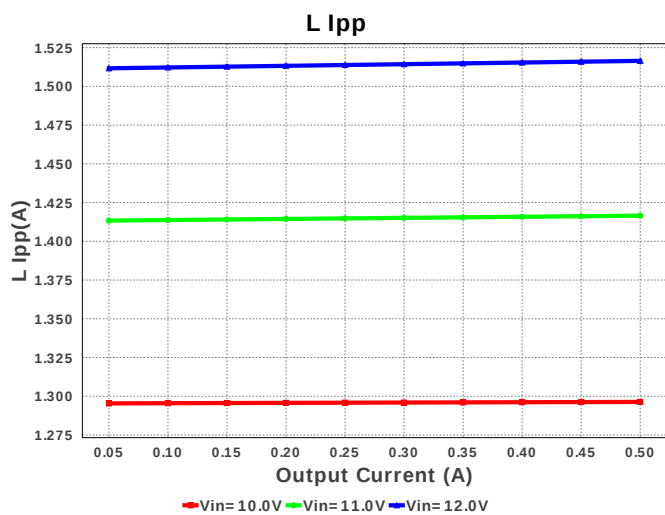
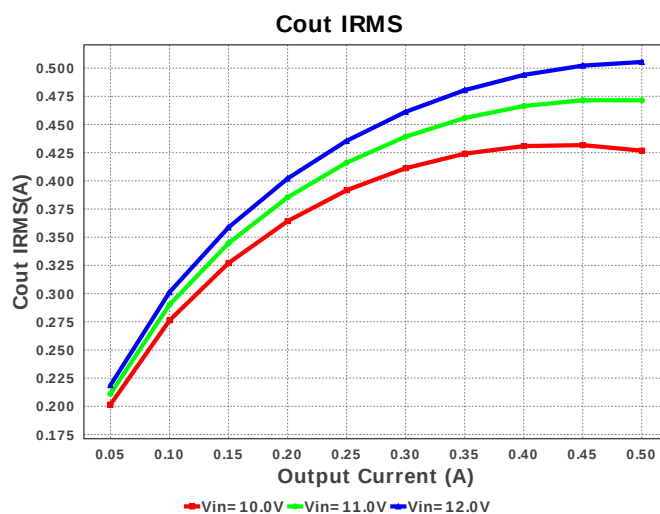
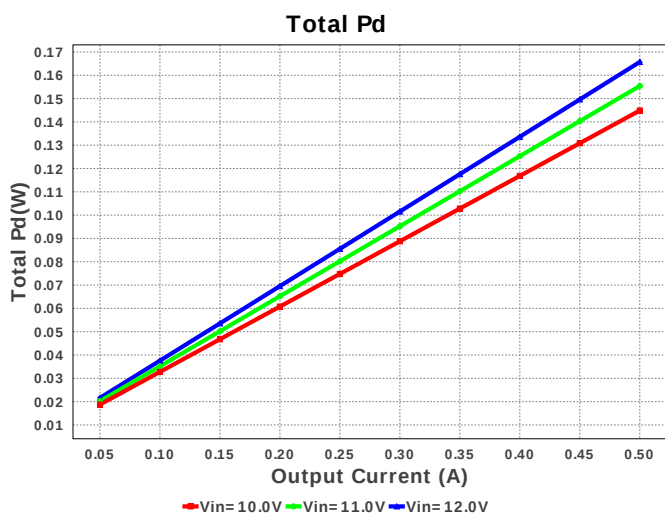
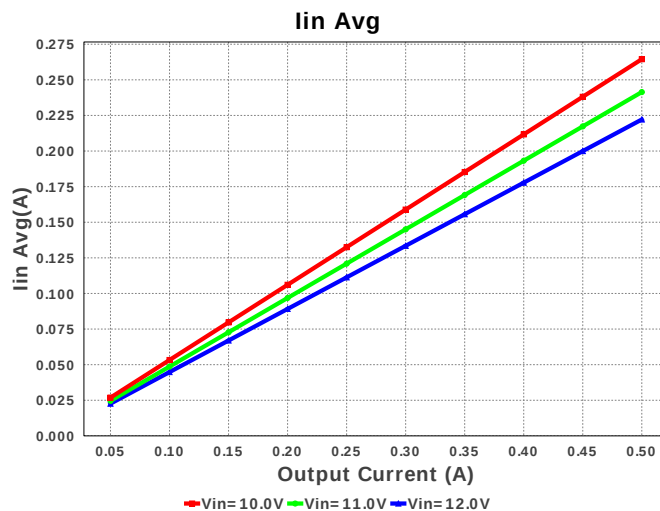
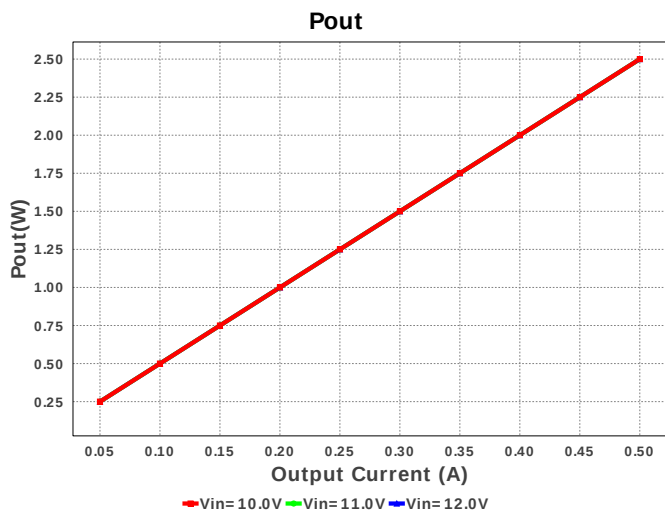


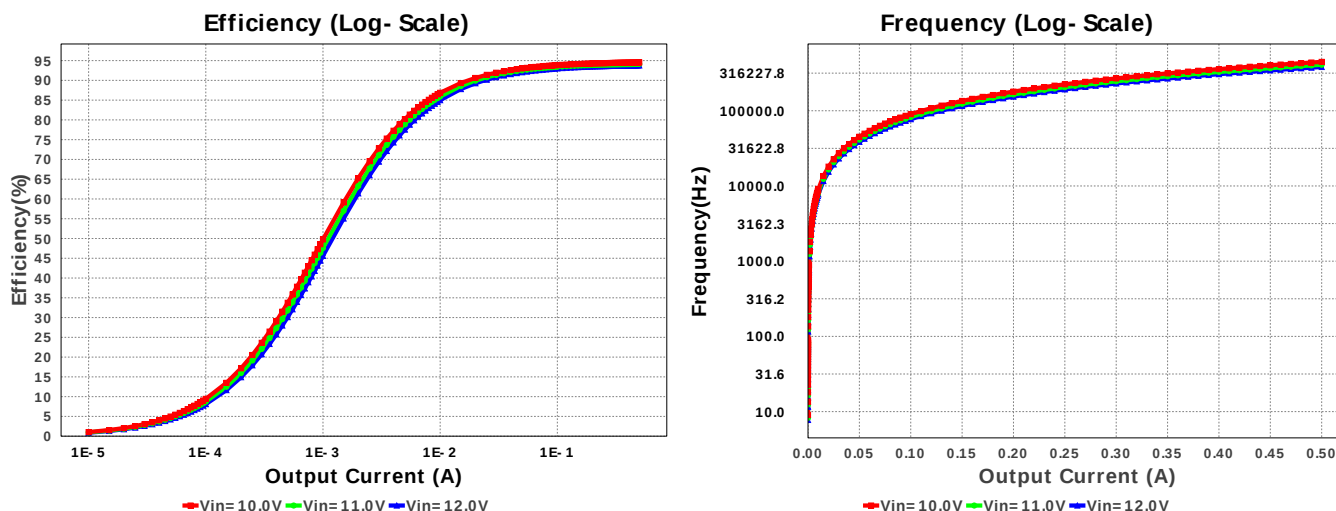
Electrical BOM

#	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 7 mm ²
2.	Cin	MuRata	GRM21BR61C106KE15L Series= X5R	Cap= 10.0 uF ESR= 4.127 mOhm VDC= 16.0 V IRMS= 2.46634 A	2	\$0.03	 0805 7 mm ²
3.	Cout	TDK	C3216X5R1E476M160AC Series= X5R	Cap= 47.0 uF ESR= 2.082 mOhm VDC= 25.0 V IRMS= 5.0279 A	1	\$0.35	 1206 11 mm ²
4.	L1	Bourns	SRN6045-3R3Y	L= 3.3 uH DCR= 30.2 mOhm	1	\$0.16	 SRN6045 64 mm ²
5.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	Rfht	Vishay-Dale	CRCW040254K9FKED Series= CRCW..e3	Res= 54.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	U1	Texas Instruments	TPS562201DDCR	Switcher	1	\$0.30	 DDC0006A 10 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	409.215 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	505.449 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.258 A	Current	Peak switch current in IC
4.	Iin Avg	222.14 mA	Current	Average input current
5.	L Ipp	1.516 A	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	459.379 mA	Current	Q lavg
7.	BOM Count	8	General	Total Design BOM count
8.	FootPrint	112.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	381.705 kHz	General	Switching frequency
10.	IC Tolerance	19.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	0.0 V	General	Voltage drop across the MosFET
12.	Pout	2.5 W	General	Total output power
13.	Total BOM	\$0.9	General	Total BOM Cost
14.	Vout Actual	4.965 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
15.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
16.	Duty Cycle	27.53 %	Op_point	Duty cycle
17.	Efficiency	93.784 %	Op_point	Steady state efficiency
18.	IC Tj	38.951 degC	Op_point	IC junction temperature
19.	ICThetaJA	60.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
20.	IOUT_OP	500.0 mA	Op_point	Iout operating point
21.	VIN_OP	12.0 V	Op_point	Vin operating point
22.	Vout p-p	13.046 mV	Op_point	Peak-to-peak output ripple voltage
23.	Cin Pd	345.547 μW	Power	Input capacitor power dissipation
24.	Cout Pd	531.906 μW	Power	Output capacitor power dissipation
25.	IC Pd	149.188 mW	Power	IC power dissipation
26.	L Pd	15.251 mW	Power	Inductor power dissipation
27.	Total Pd	165.699 mW	Power	Total Power Dissipation
28.	Vout Tolerance	4.235 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 m	Maximum Output Current
2.	VinMax	12.0	Maximum input voltage
3.	VinMin	10.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS562201	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS562201** Product Folder : <http://www.ti.com/product/TPS562201> : contains the data sheet and other resources.

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