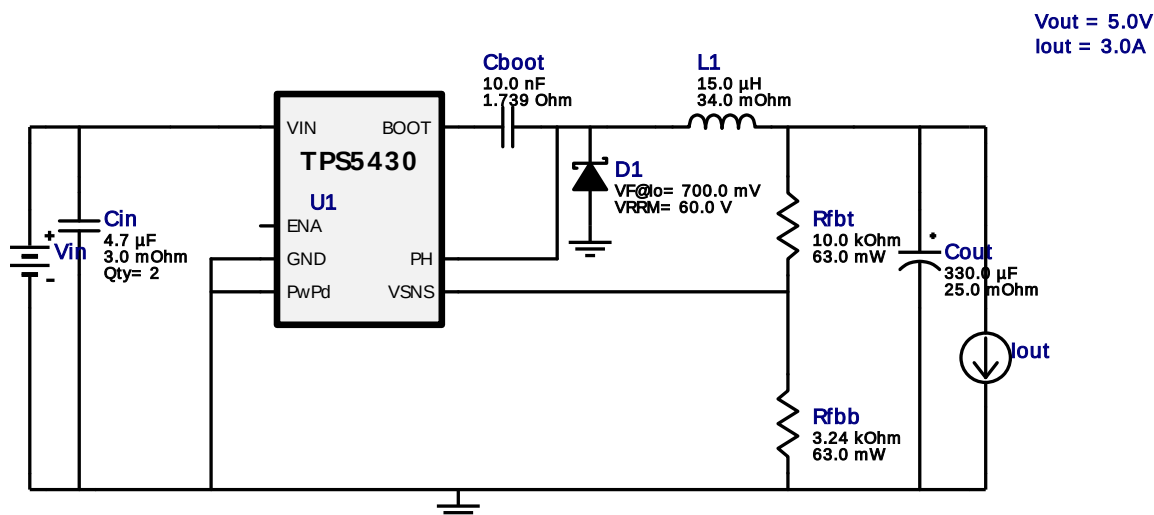
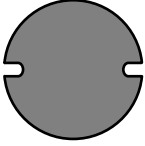


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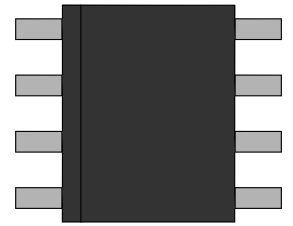
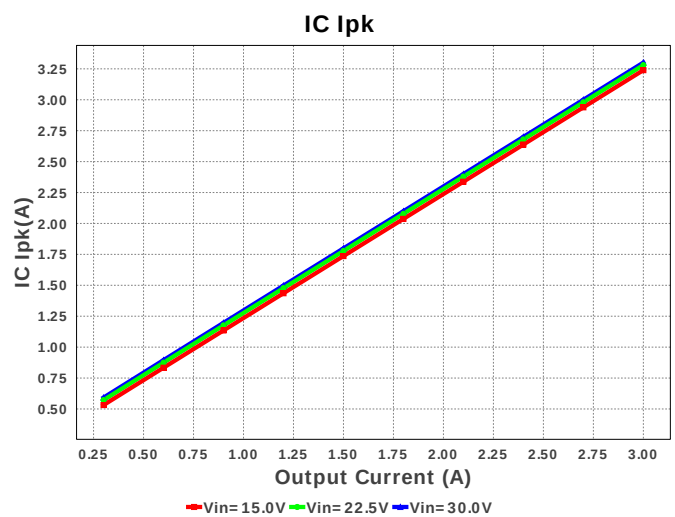
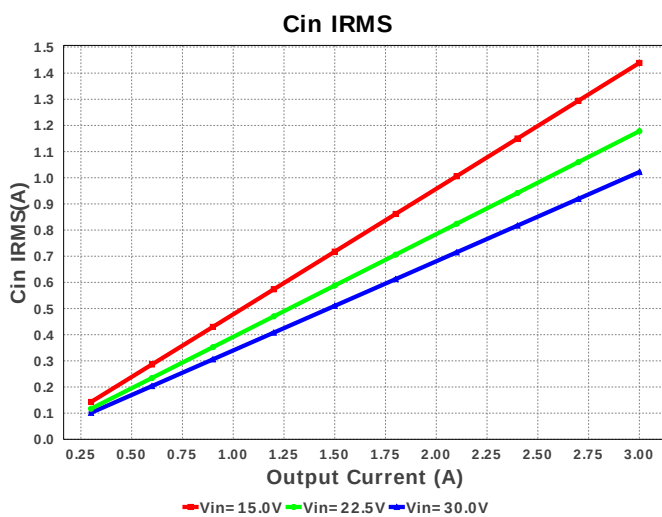
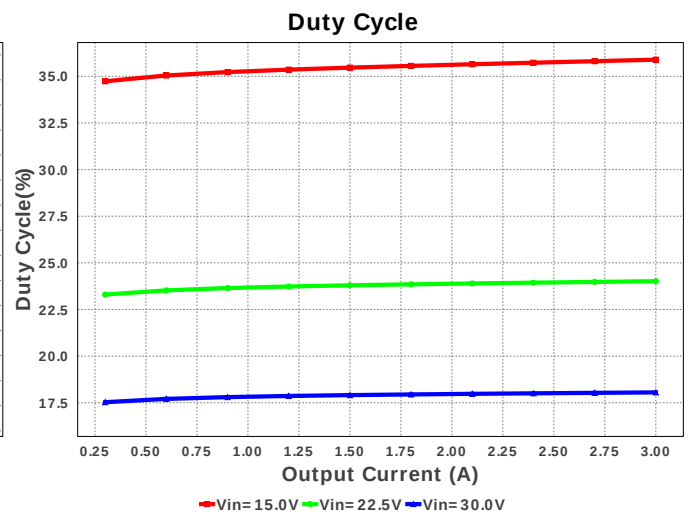
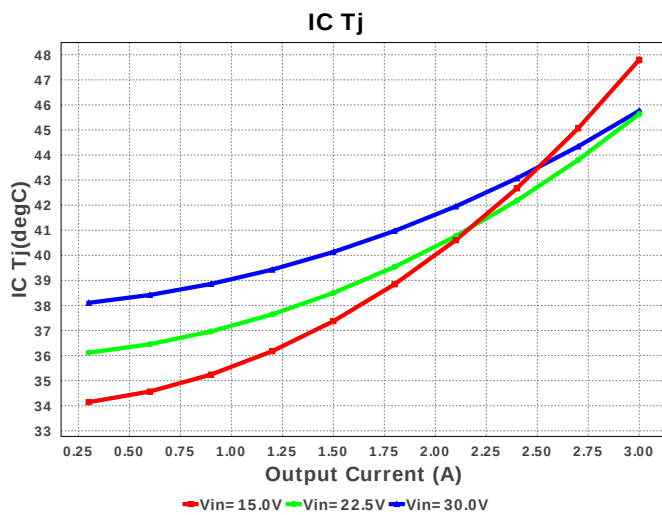
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TPS5430DDAR 15.0V-30.0V to 5.00V @ 3.0A

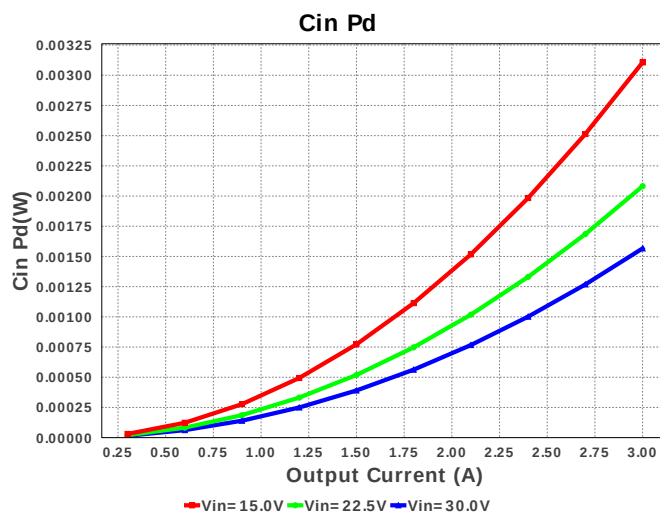
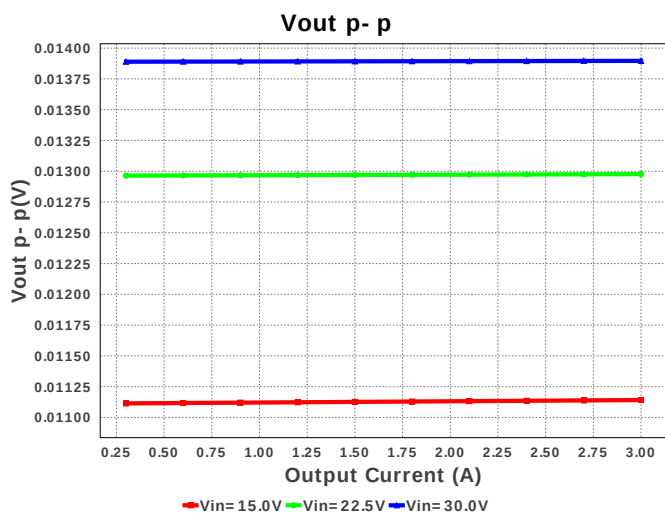
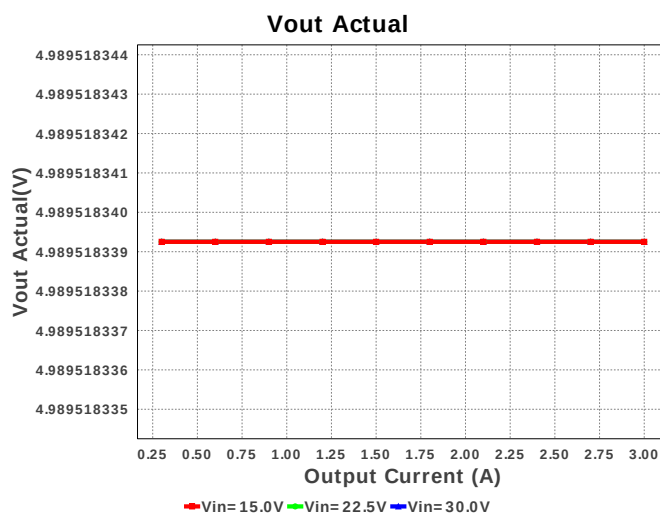
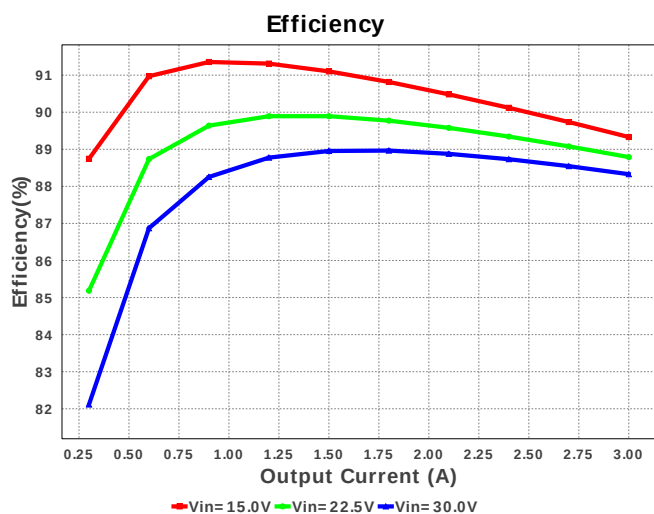
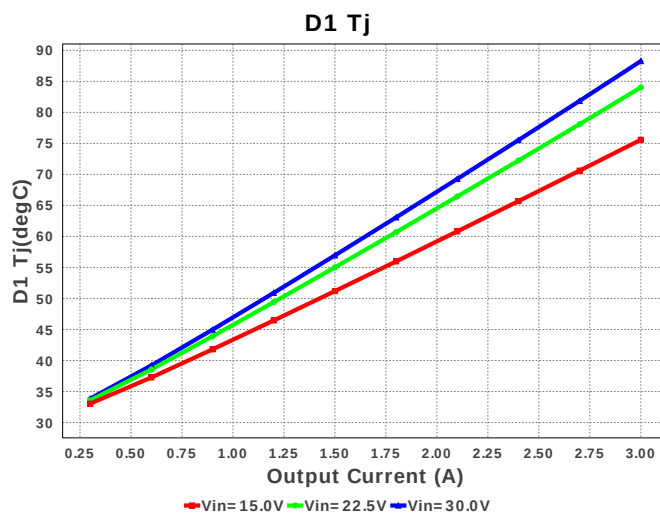
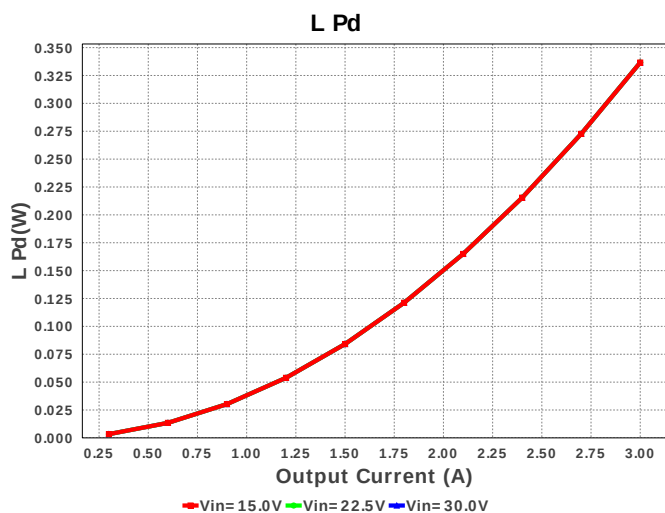


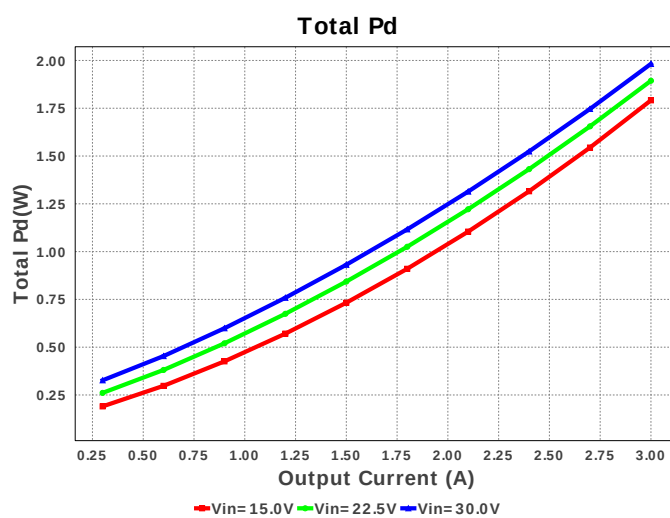
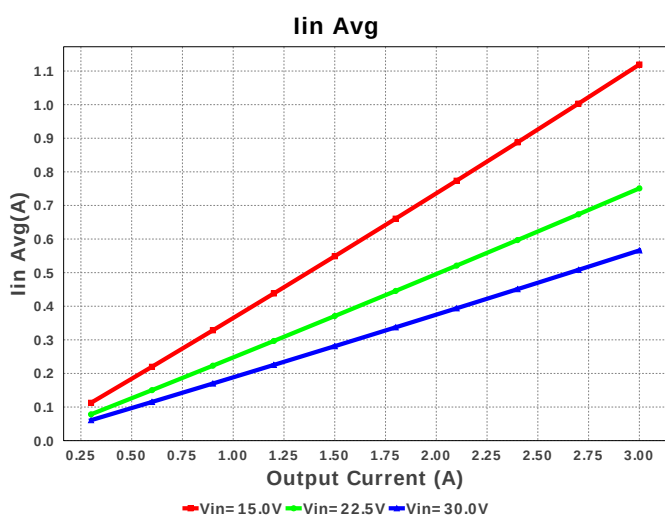
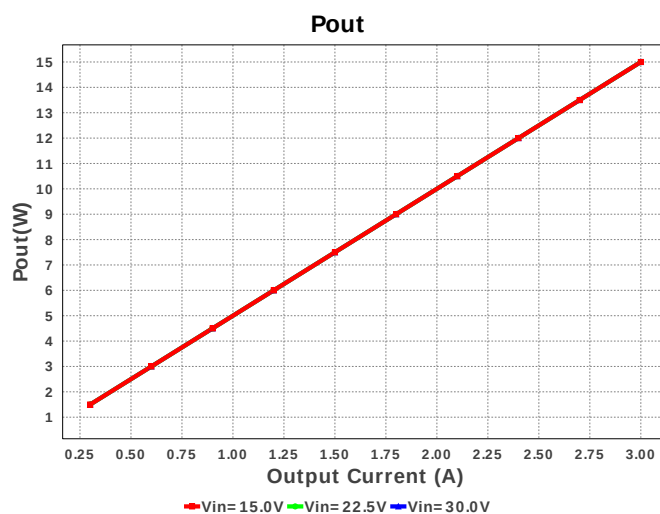
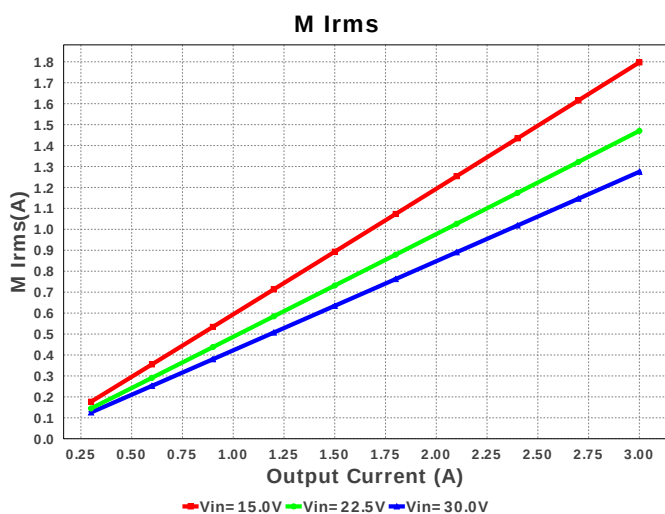
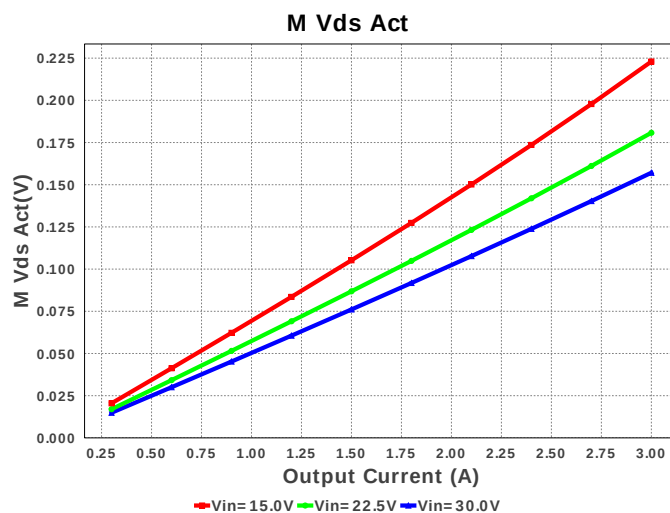
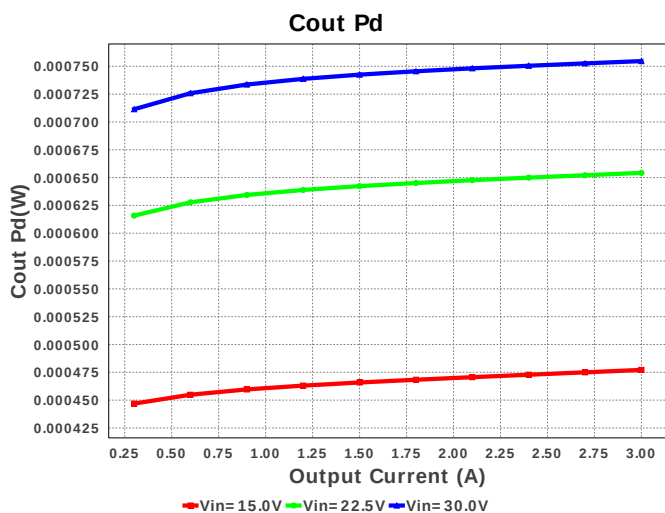
Electrical BOM

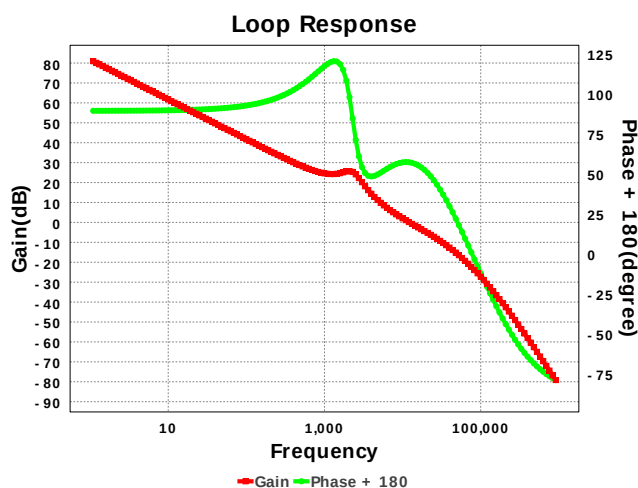
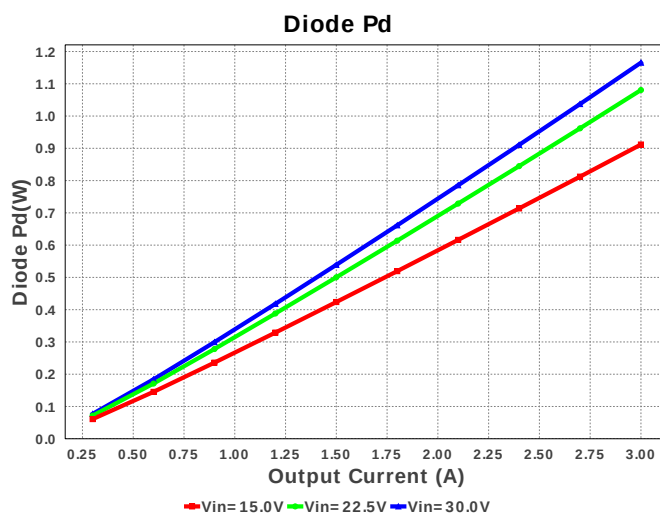
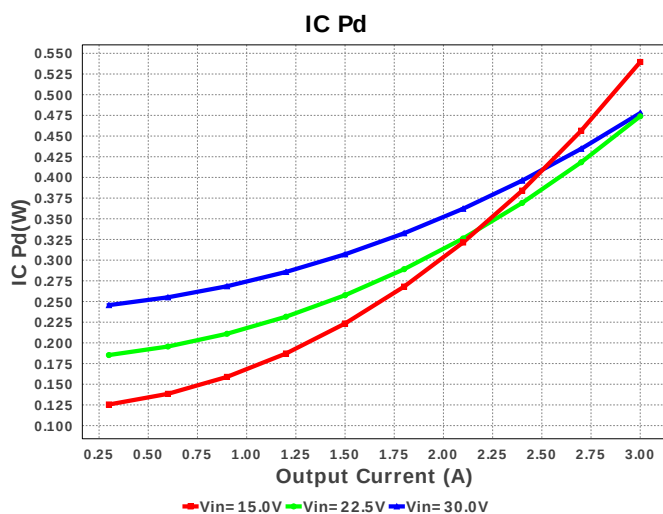
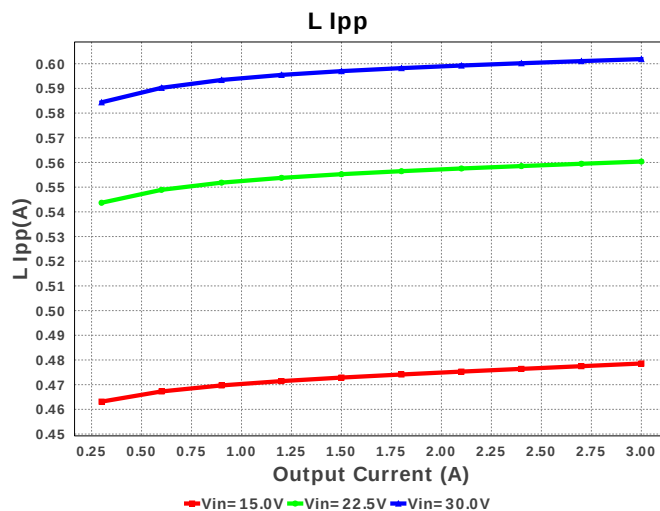
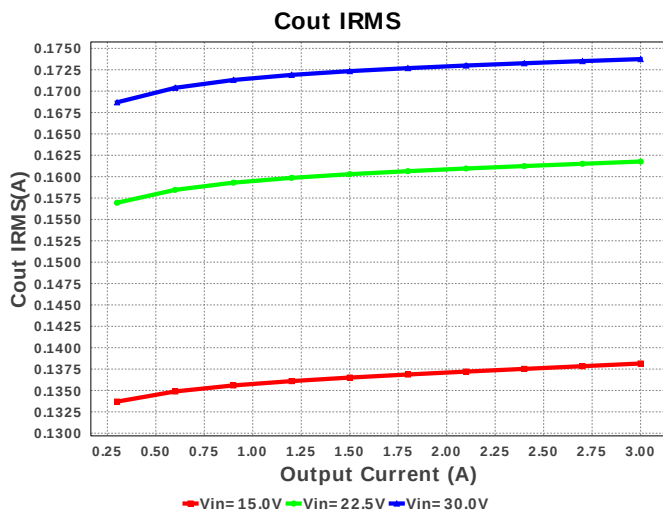
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	Kemet	C0805C103K5RACTU Series= X7R	Cap= 10.0 nF ESR= 1.739 Ohm VDC= 50.0 V IRMS= 411.0 mA	1	\$0.01	 0805 7 mm ²
2.	Cin	MuRata	GRM31CR71H475KA12L Series= X7R	Cap= 4.7 uF ESR= 3.0 mOhm VDC= 50.0 V IRMS= 4.98 A	2	\$0.07	 1206 11 mm ²
3.	Cout	Panasonic	6TPE330MAP Series= ?	Cap= 330.0 uF ESR= 25.0 mOhm VDC= 6.3 V IRMS= 2.4 A	1	\$0.56	 CAPSMT_6_D2E 62 mm ²
4.	D1	Diodes Inc.	B560C-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	\$0.17	 SMC 83 mm ²
5.	L1	Bourns	SDR1307-150ML	L= 15.0 µH DCR= 34.0 mOhm	1	\$0.35	 SDR1307 227 mm ²
6.	Rfbb	Vishay-Dale	CRCW04023K24FKED Series= CRCW..e3	Res= 3.24 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
7.	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

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
8.	U1	Texas Instruments	TPS5430DDAR	Switcher	1	\$1.85	

R-PDSO-G8 55 mm²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.022 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	173.745 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	3.301 A	Current	Peak switch current in IC
4.	Iin Avg	566.07 mA	Current	Average input current
5.	L Ipp	601.87 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	1.275 A	Current	Q lavg
7.	BOM Count	9	General	Total Design BOM count
8.	FootPrint	461.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	500.0 kHz	General	Switching frequency
10.	IC Tolerance	18.315 mV	General	IC Feedback Tolerance
11.	M Vds Act	157.093 mV	General	Voltage drop across the MosFET

#	Name	Value	Category	Description
12.	Mode	CCM	General	Conduction Mode
13.	Pout	15.0 W	General	Total output power
14.	Total BOM	\$3.1	General	Total BOM Cost
15.	D1 Tj	88.269 degC	Op_Point	D1 junction temperature
16.	Vout Actual	4.99 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
17.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
18.	Cross Freq	12.253 kHz	Op_point	Bode plot crossover frequency
19.	Duty Cycle	18.056 %	Op_point	Duty cycle
20.	Efficiency	88.328 %	Op_point	Steady state efficiency
21.	IC Tj	45.766 degC	Op_point	IC junction temperature
22.	ICThetaJA	33.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
23.	IOUT_OP	3.0 A	Op_point	Iout operating point
24.	Phase Marg	57.867 deg	Op_point	Bode Plot Phase Margin
25.	VIN_OP	30.0 V	Op_point	Vin operating point
26.	Vout p-p	15.054 mV	Op_point	Peak-to-peak output ripple voltage
27.	Cin Pd	1.566 mW	Power	Input capacitor power dissipation
28.	Cout Pd	754.681 μ W	Power	Output capacitor power dissipation
29.	Diode Pd	1.165 W	Power	Diode power dissipation
30.	IC Pd	477.758 mW	Power	IC power dissipation
31.	L Pd	336.6 mW	Power	Inductor power dissipation
32.	Total Pd	1.982 W	Power	Total Power Dissipation
33.	Vout Tolerance	3.049 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	3.0	Maximum Output Current
2.	VinMax	30.0	Maximum input voltage
3.	VinMin	15.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS5430	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. Feature Highlights: 3A, 500kHz Fixed Switching Frequency, Internal Compensation
2. **TPS5430** Product Folder : <http://www.ti.com/product/TPS5430> : contains the data sheet and other resources.

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