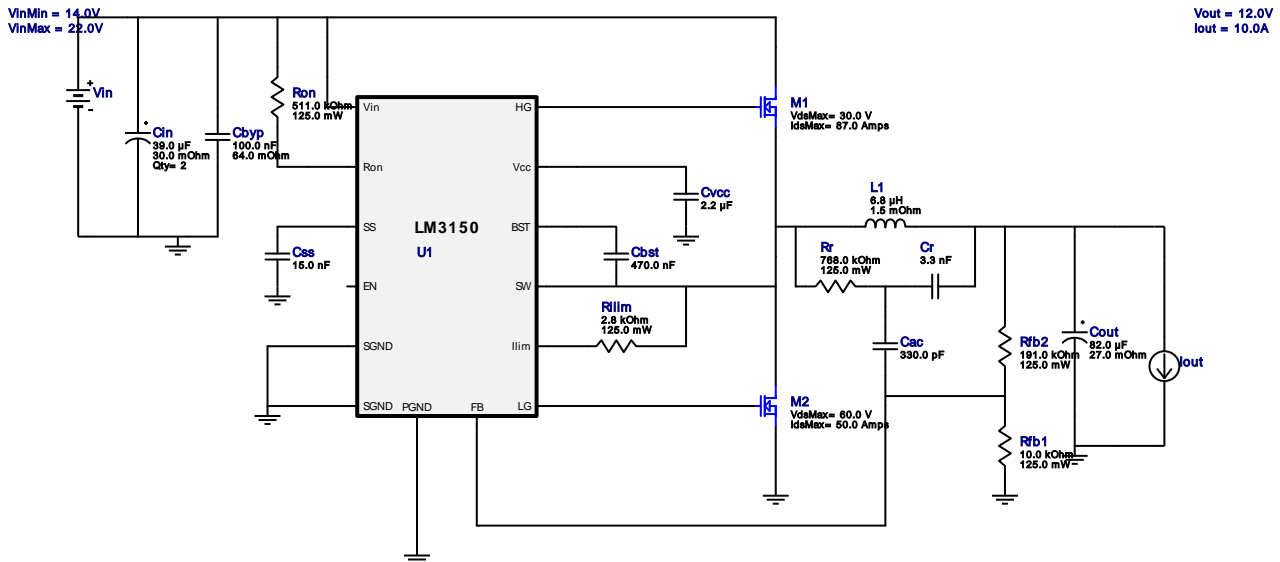








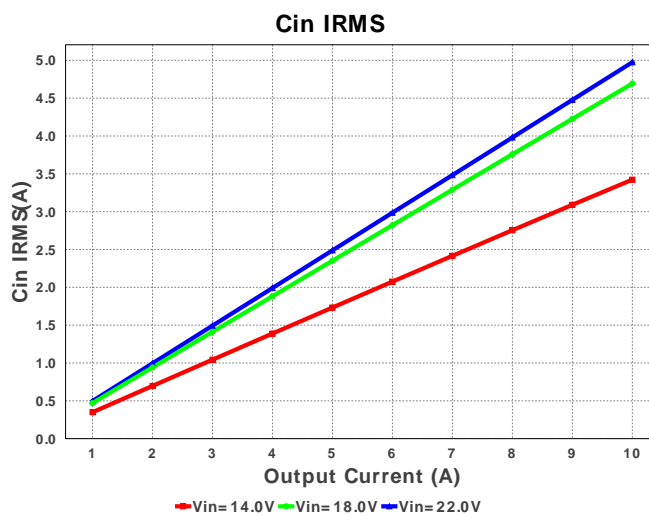
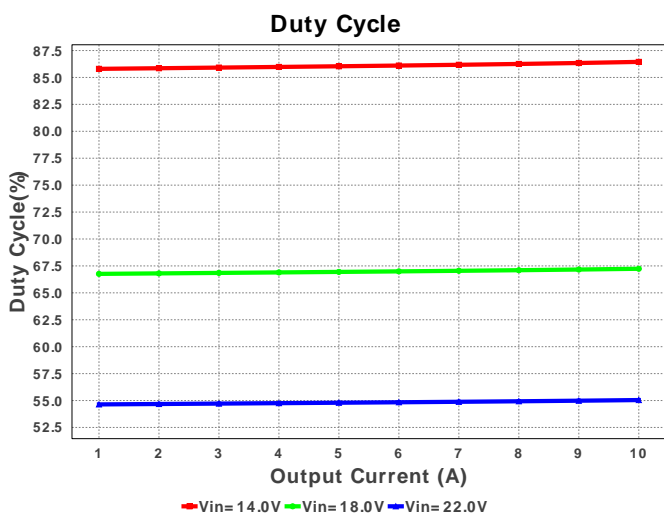


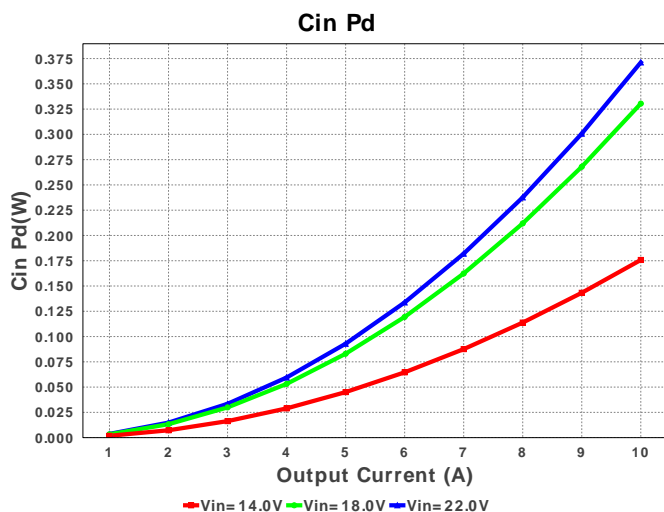
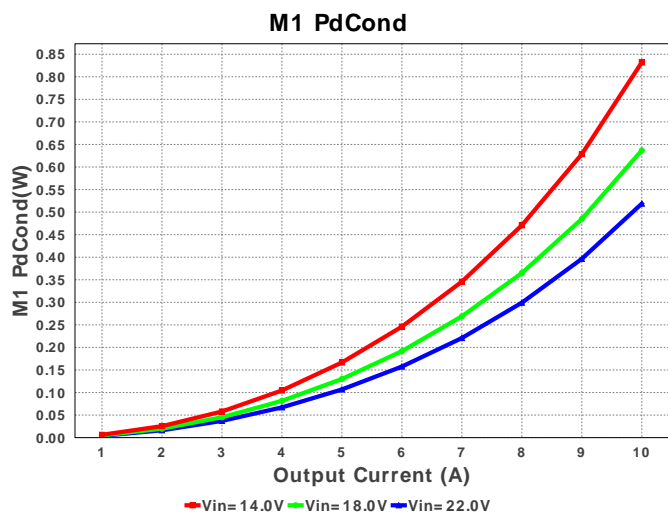
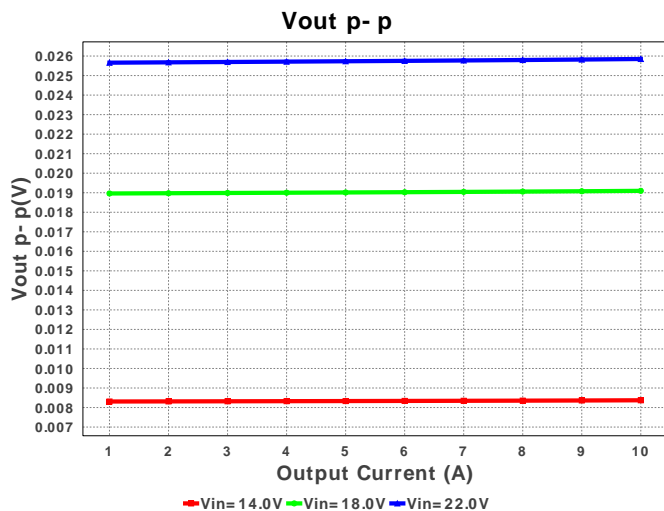
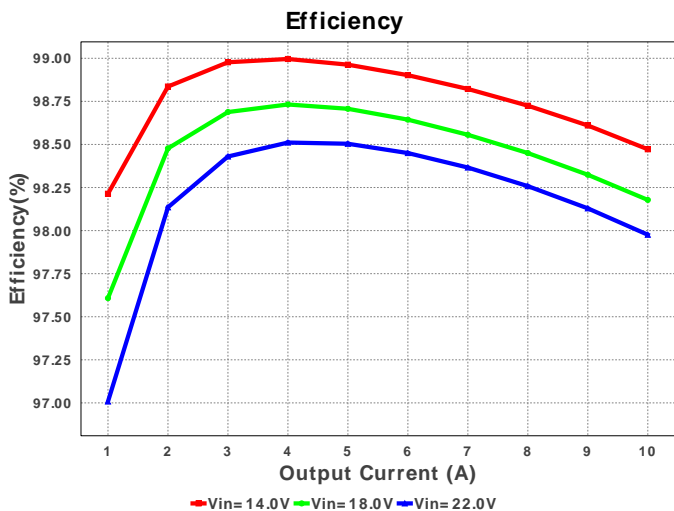
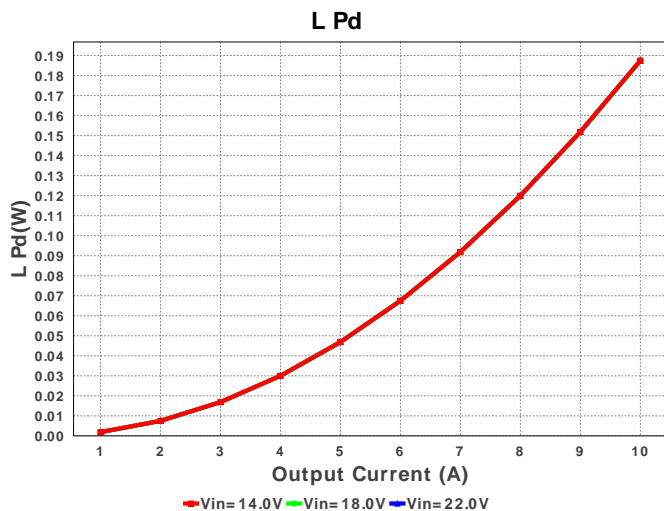
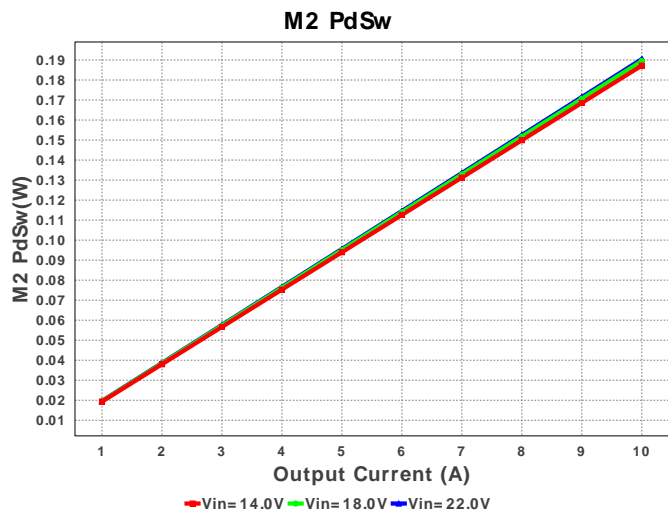
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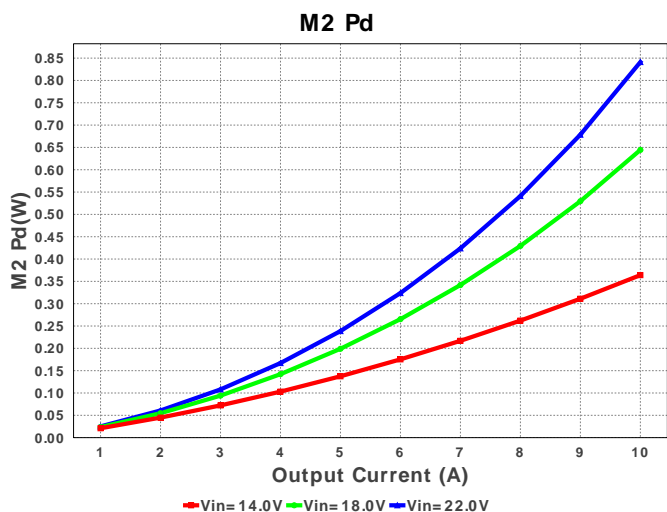
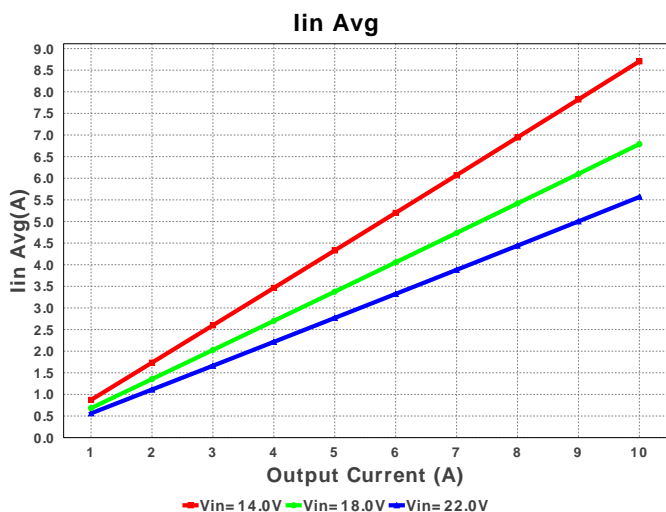
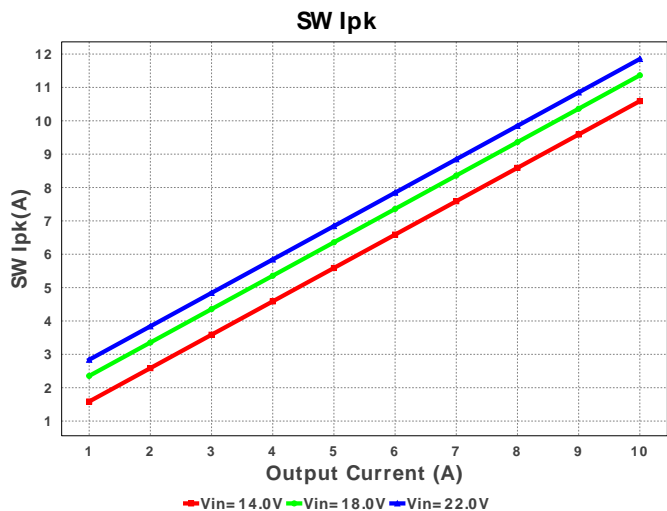
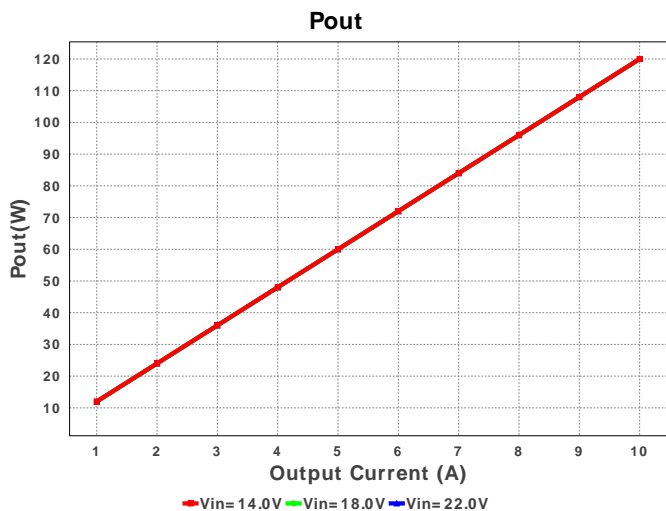
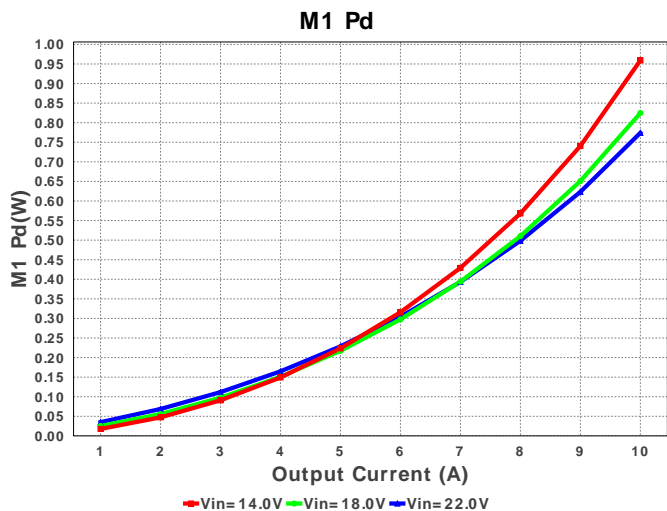
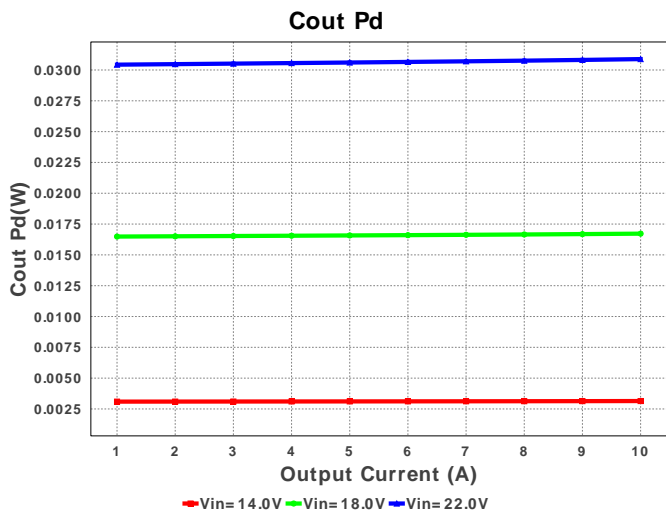
 Design : 4391610/1 LM3150MH/NOPB
 LM3150MH/NOPB 14.0V-22.0V to 12.00V @ 10.0A

Electrical BOM

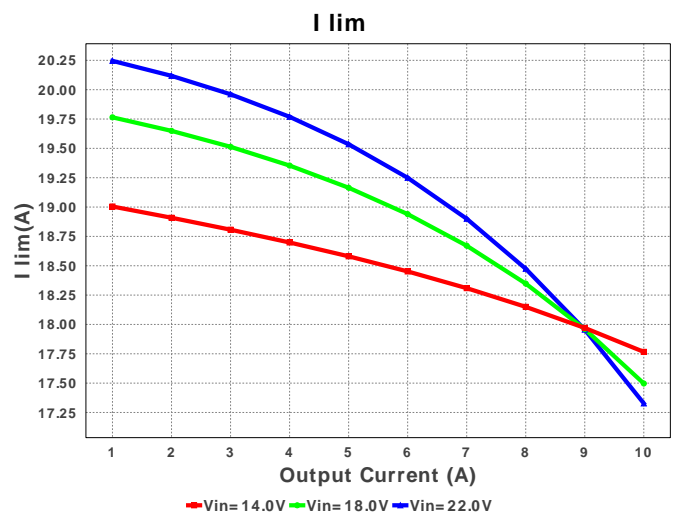
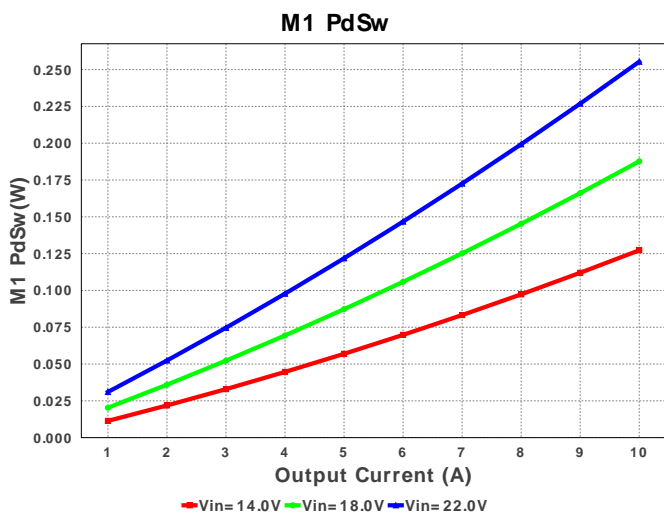
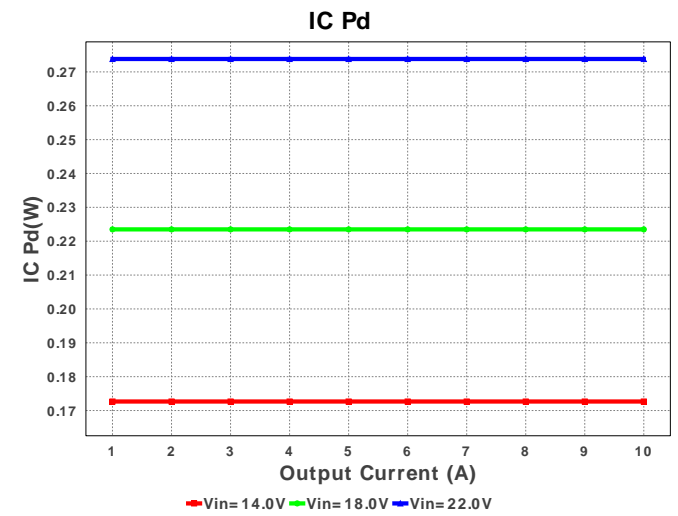
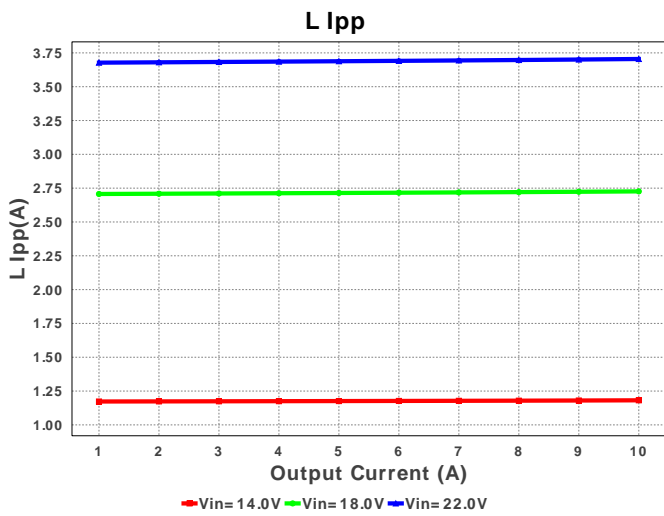
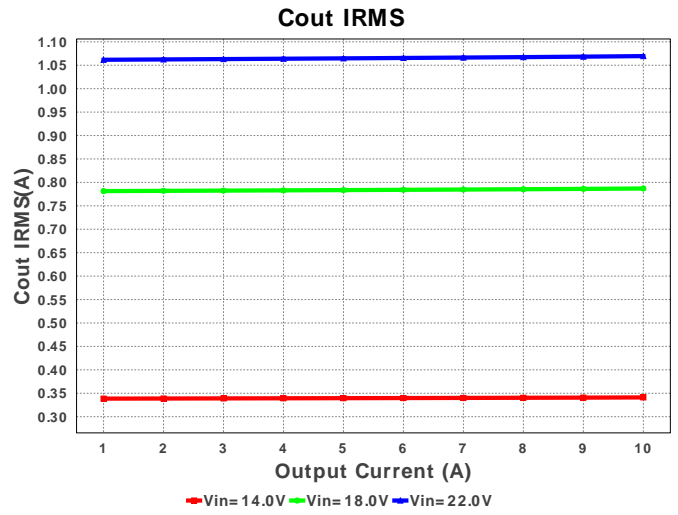
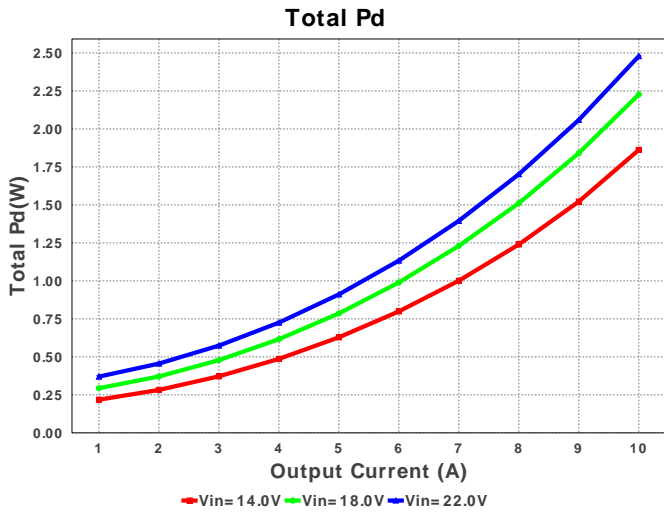
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cac	Samsung Electro-Mechanics	CL21C331JBANFNC Series= C0G/NP0	Cap= 330.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
2.	Cbst	Taiyo Yuden	EMK212B7474KD-T Series= X7R	Cap= 470.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.02	 0805 7 mm ²
3.	Cbyp	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm ²
4.	Cin	Panasonic	35SVPF39M Series= 1273	Cap= 39.0 uF ESR= 30.0 mOhm VDC= 35.0 V IRMS= 2.8 A	2	\$0.50	 CAPSMT_62_E7 106 mm ²
5.	Cout	Panasonic	16SVPF82M Series= 1273	Cap= 82.0 uF ESR= 27.0 mOhm VDC= 16.0 V IRMS= 3.0 A	1	\$0.35	 CAPSMT_62_E61 53 mm ²
6.	Cr	Yageo America	CC0805KRX7R9BB332 Series= X7R	Cap= 3.3 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
7.	Css	Yageo America	CC0805KRX7R9BB153 Series= X7R	Cap= 15.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
8.	Cvcc	Taiyo Yuden	EMK212B7225KG-T Series= X7R	Cap= 2.2 uF VDC= 16.0 V IRMS= 0.0 A	1	\$0.03	 0805 7 mm ²

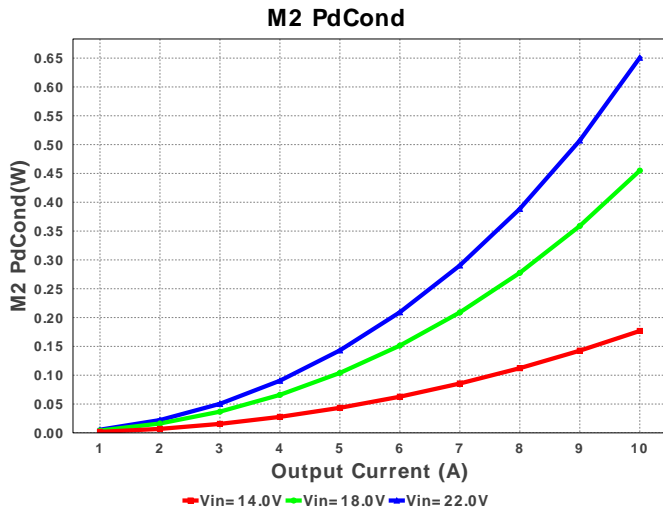
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
9.	L1	Coilcraft	SER2915L-682KL	L= 6.8 μ H DCR= 1.5 mOhm	1	\$2.05	 SER2915L 652 mm ²
10.	M1	Texas Instruments	CSD17302Q5A	VdsMax= 30.0 V IdsMax= 87.0 Amps	1	\$0.36	 TRANS_NexFET_Q5A 55 mm ²
11.	M2	Infineon Technologies	BSC067N06LS3 G	VdsMax= 60.0 V IdsMax= 50.0 Amps	1	\$0.40	 PG-TDSON-8 55 mm ²
12.	Rfb1	Panasonic	ERJ-6ENF1002V Series= 225	Res= 10.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
13.	Rfb2	Panasonic	ERJ-6ENF1913V Series= 225	Res= 191.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
14.	Rilim	Panasonic	ERJ-6ENF2801V Series= 225	Res= 2.8 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
15.	Ron	Panasonic	ERJ-6ENF5113V Series= 225	Res= 511.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
16.	Rr	Panasonic	ERJ-6ENF7683V Series= 225	Res= 768.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
17.	U1	Texas Instruments	LM3150MH/NOPB	Switcher	1	\$1.86	 MXA14A 59 mm ²











Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	4.975 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.07 A	Current	Output capacitor RMS ripple current
3.	I lim	17.324 A	Current	Current limit threshold
4.	Iin Avg	5.567 A	Current	Average input current
5.	L Ipp	3.705 A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	11.852 A	Current	Peak switch current
7.	BOM Count	18	General	Total Design BOM count
8.	FootPrint	1.161 k mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	218.485 kHz	General	Switching frequency
10.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
11.	Pout	120.0 W	General	Total output power
12.	Total BOM	\$6.16	General	Total BOM Cost
13.	Duty Cycle	55.043 %	Op_point	Duty cycle
14.	Efficiency	97.975 %	Op_point	Steady state efficiency
15.	IOUT_OP	10.0 A	Op_point	Iout operating point
16.	VIN_OP	22.0 V	Op_point	Vin operating point
17.	Vout p-p	25.849 mV	Op_point	Peak-to-peak output ripple voltage
18.	Cin Pd	371.185 mW	Power	Input capacitor power dissipation
19.	Cout Pd	30.884 mW	Power	Output capacitor power dissipation
20.	IC Pd	273.811 mW	Power	IC power dissipation
21.	L Pd	187.5 mW	Power	Inductor power dissipation
22.	M1 Pd	774.237 mW	Power	M1 MOSFET total power dissipation
23.	M1 PdCond	518.874 mW	Power	M1 MOSFET conduction losses
24.	M1 PdSw	255.364 mW	Power	M1 MOSFET switching losses
25.	M2 Pd	842.27 mW	Power	M2 MOSFET total power dissipation
26.	M2 PdCond	650.895 mW	Power	M2 MOSFET conduction losses
27.	M2 PdSw	191.376 mW	Power	M2 MOSFET switching losses
28.	Total Pd	2.48 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	10.0	Maximum Output Current
2.	Iout1	10.0	Output Current #1
3.	VinMax	22.0	Maximum input voltage
4.	VinMin	14.0	Minimum input voltage
5.	Vout	12.0	Output Voltage
6.	Vout1	12.0	Output Voltage #1
7.	base_pn	LM3150	Texas Instruments Base Part Number
8.	source	DC	Input Source Type
9.	ta	30.0	Ambient temperature

Design Assistance

1. LM3150 Product Folder : <http://www.ti.com/product/LM3150> : contains the data sheet and other resources.

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