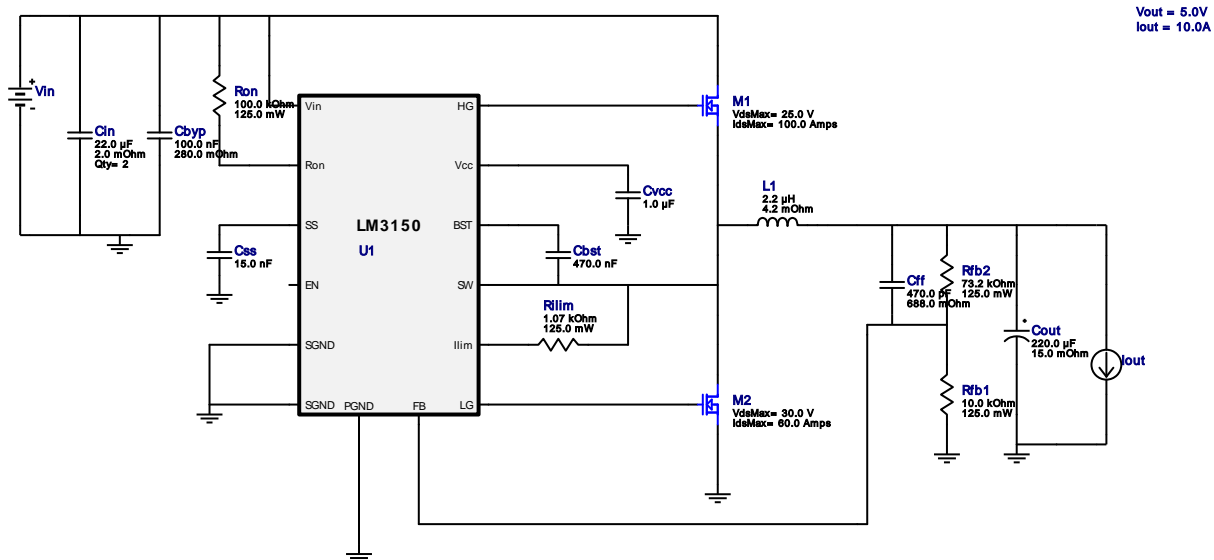


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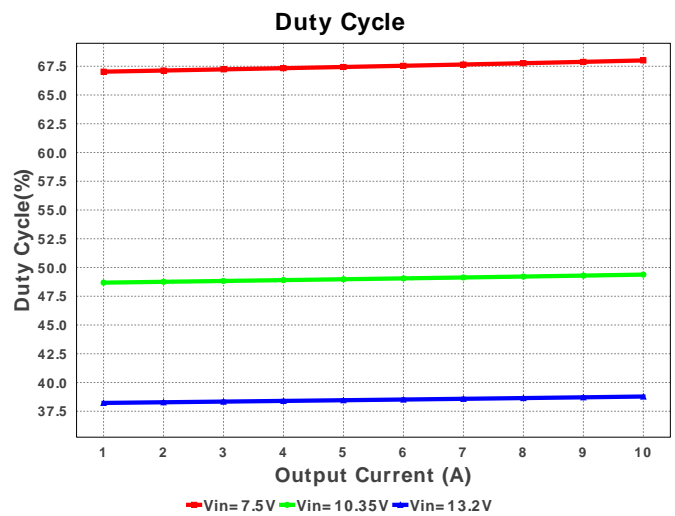
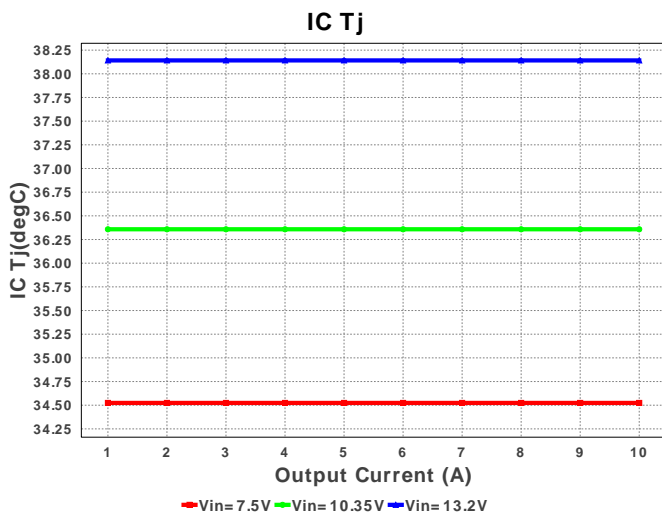
 Design : 4493365/19 LM3150MH/NOPB
 LM3150MH/NOPB 7.5V-13.2V to 5.00V @ 10.0A

My Comments

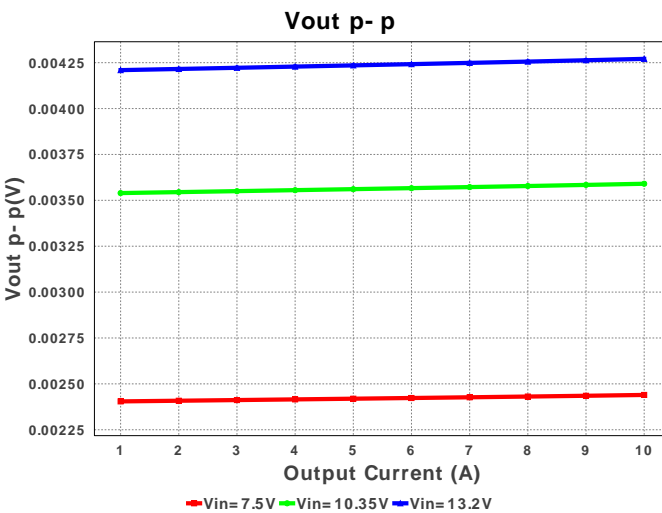
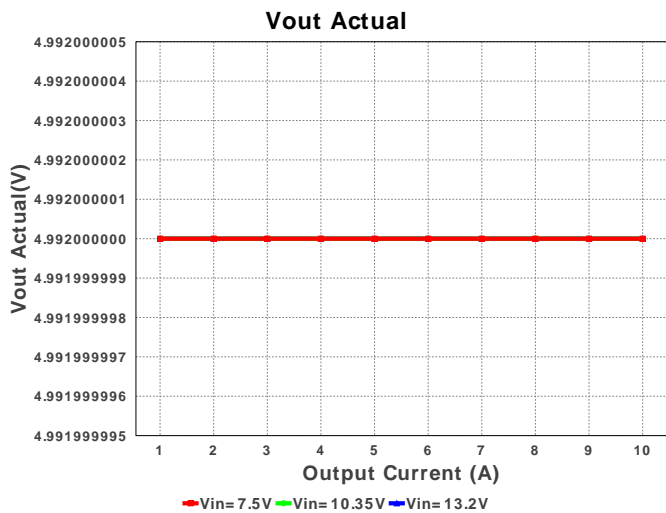
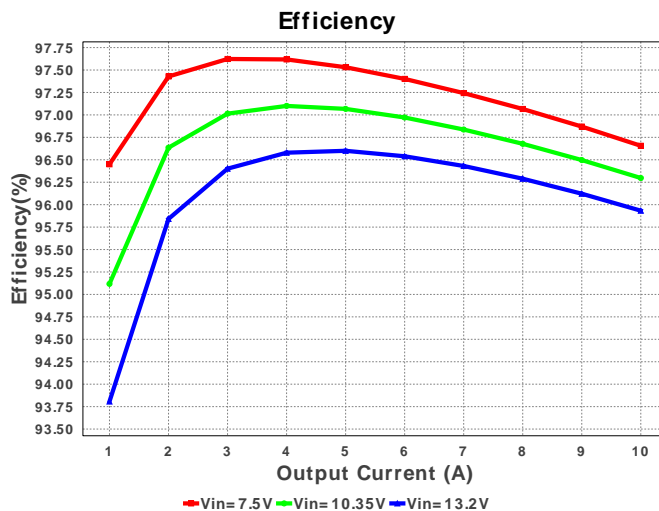
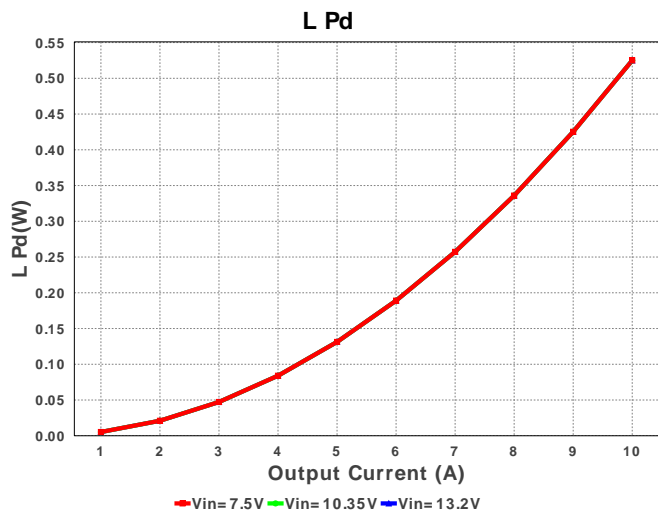
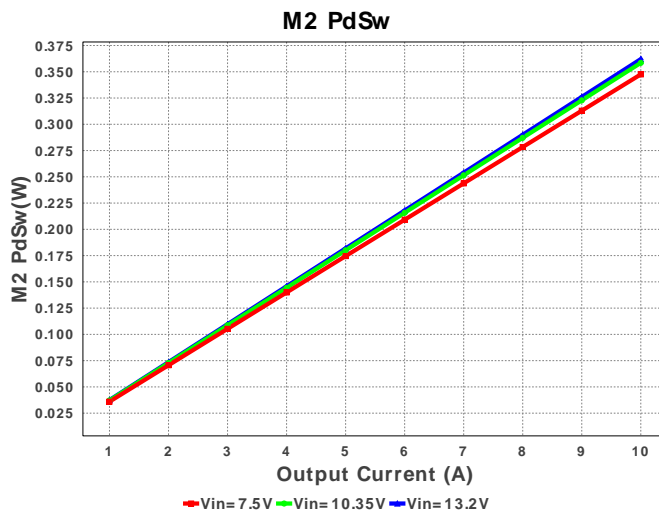
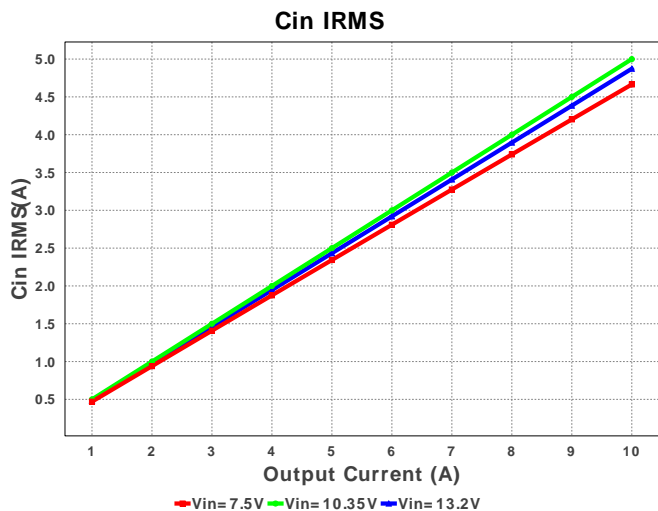
No comments

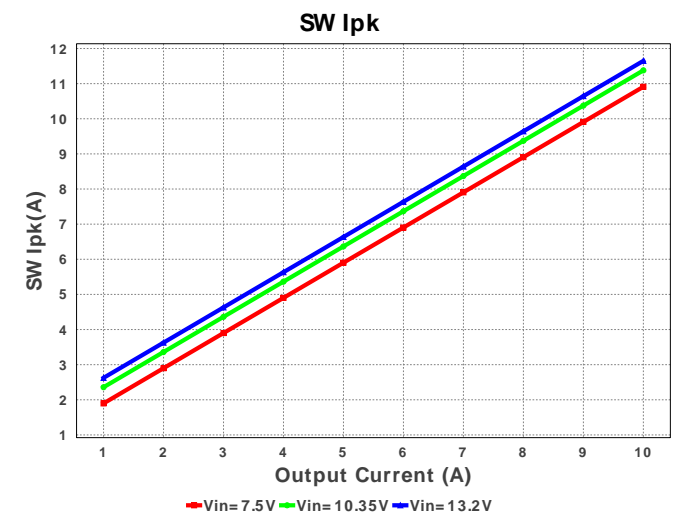
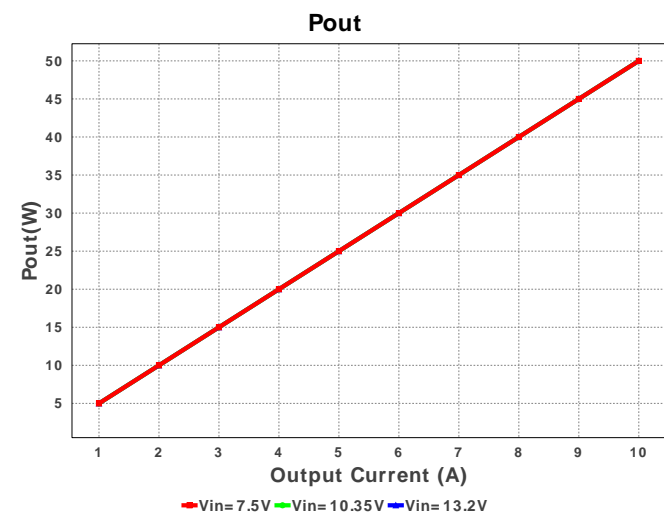
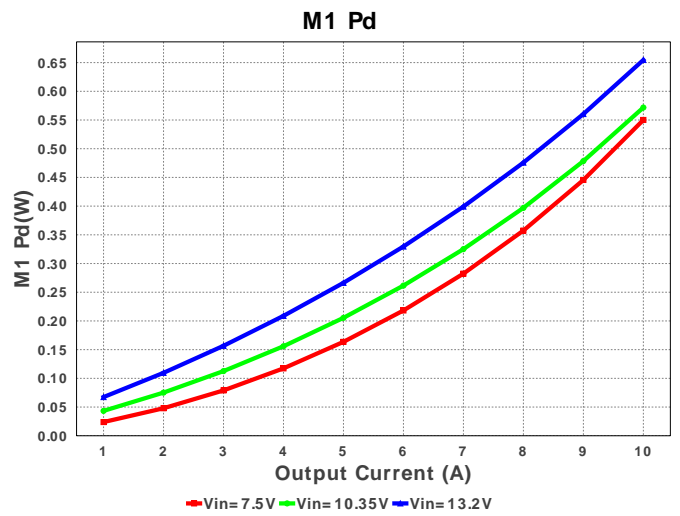
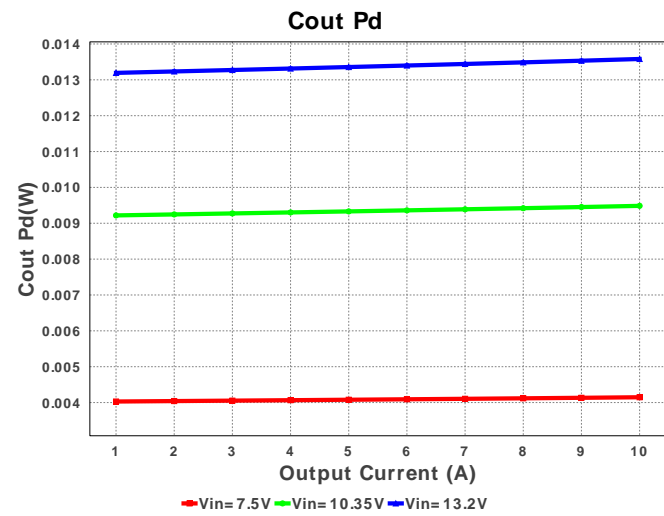
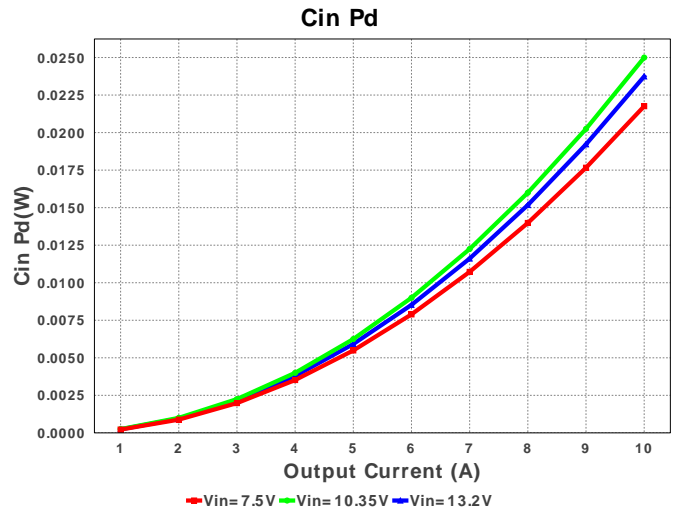
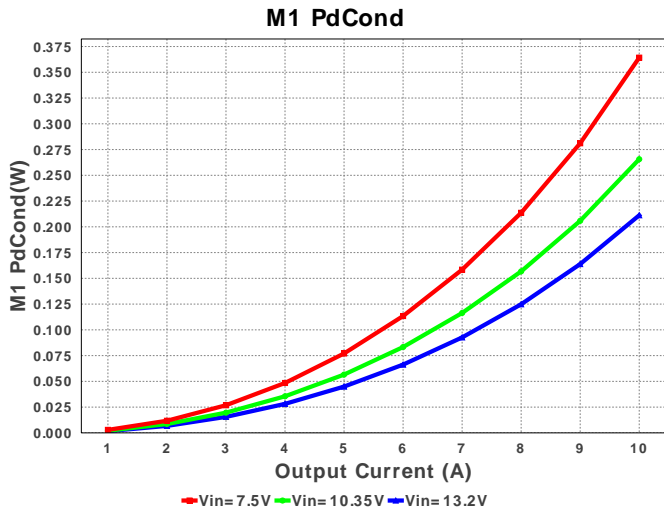
Electrical BOM

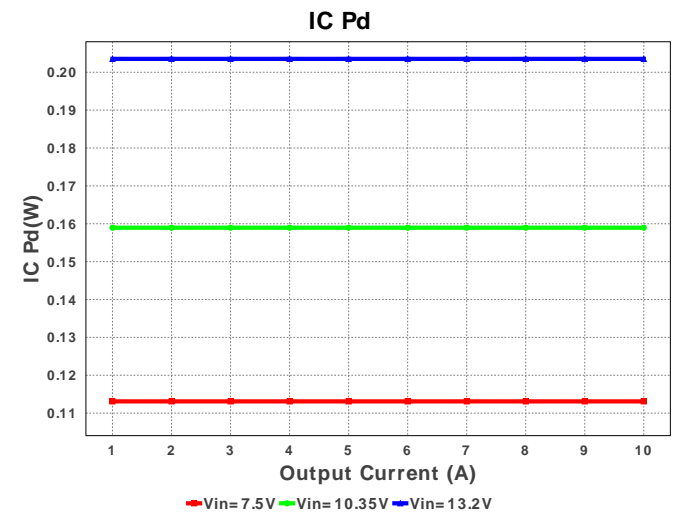
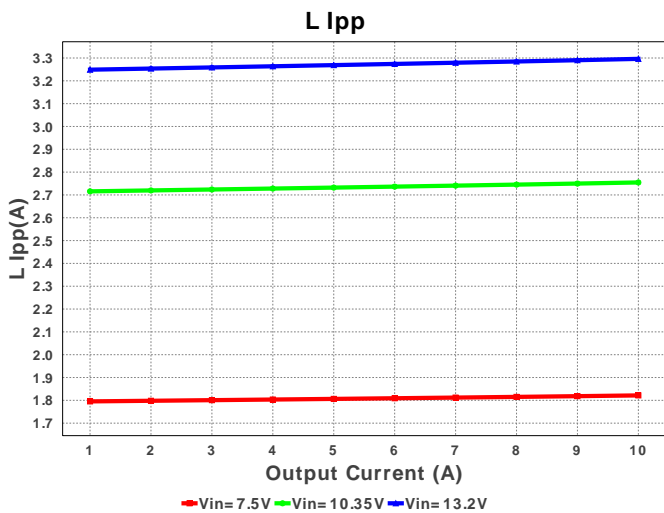
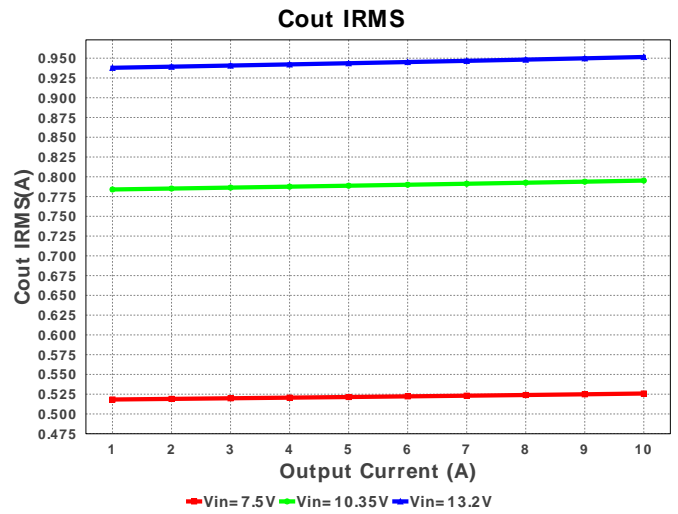
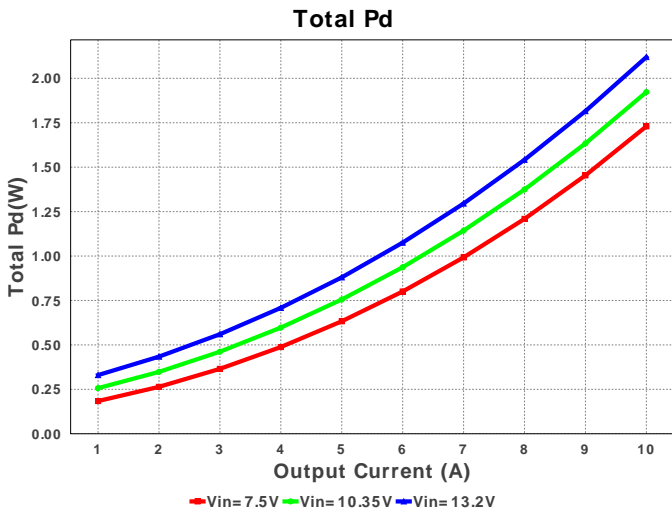
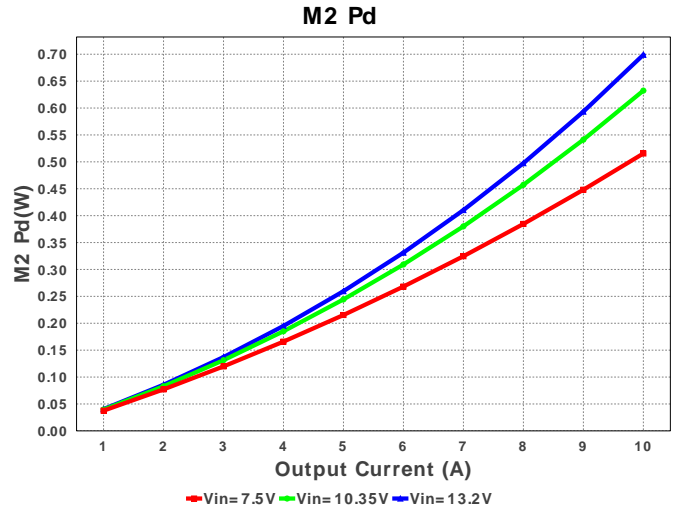
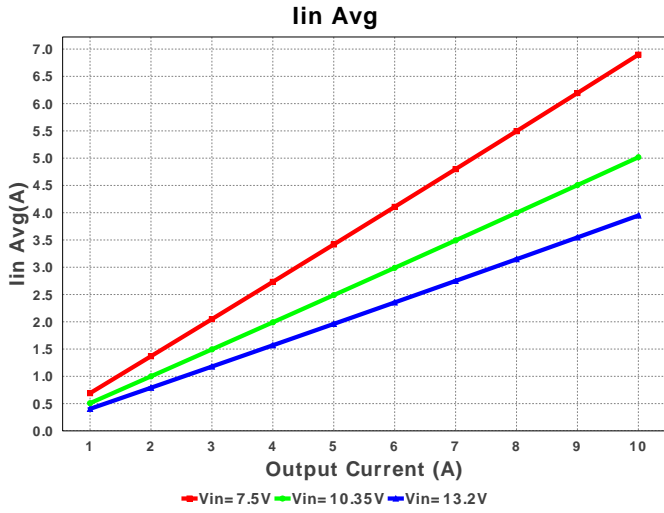
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	Taiyo Yuden	EMK212B7474KD-T Series= X7R	Cap= 470.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.02	0805 7 mm ²
2.	Cby	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Cff	Kemet	C0805C471K5RACTU Series= X7R	Cap= 470.0 pF ESR= 688.0 mOhm VDC= 50.0 V IRMS= 213.0 mA	1	\$0.01	0805 7 mm ²
4.	Cin	MuRata	GRM32ER61E226KE15L Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 3.67 A	2	\$0.16	1210 15 mm ²
5.	Cout	Panasonic	6SVPE220MW Series= SVPE	Cap= 220.0 uF ESR= 15.0 mOhm VDC= 6.3 V IRMS= 3.15 A	1	\$0.20	CAPSMT_62_E61 53 mm ²
6.	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
7.	Cvcc	Taiyo Yuden	EMK212B7105KG-T Series= X7R	Cap= 1.0 uF VDC= 16.0 V IRMS= 0.0 A	1	\$0.02	0805 7 mm ²

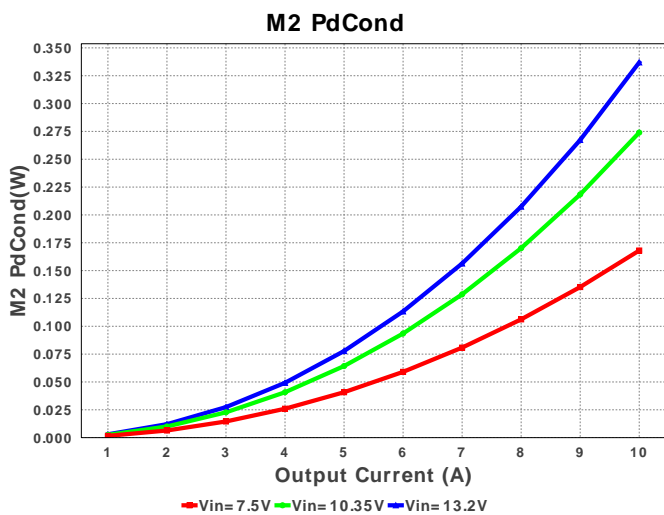
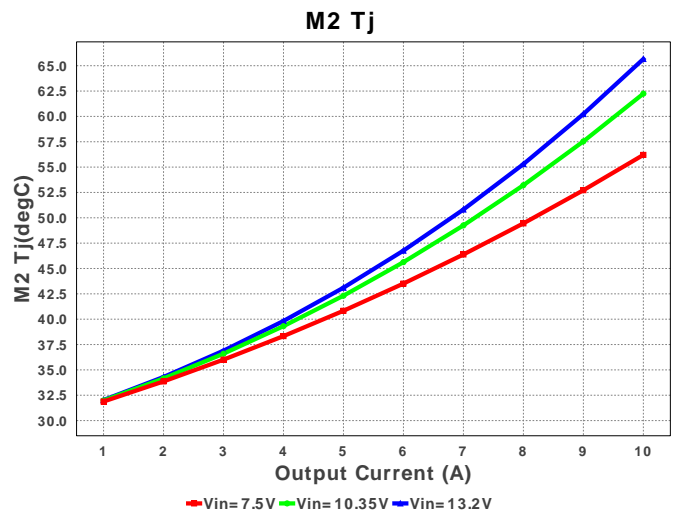
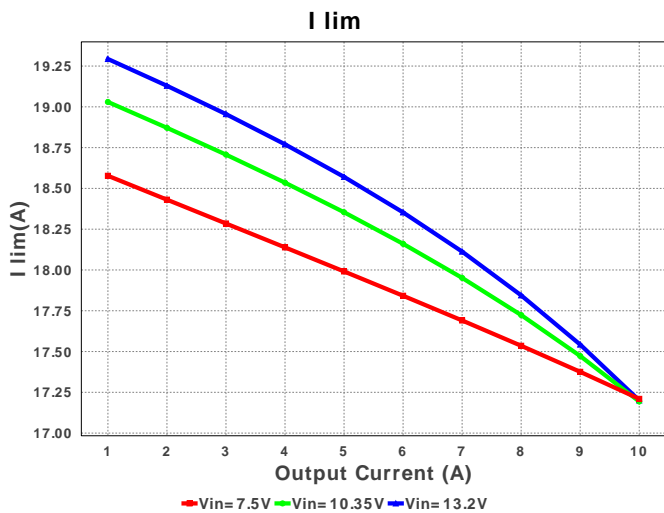
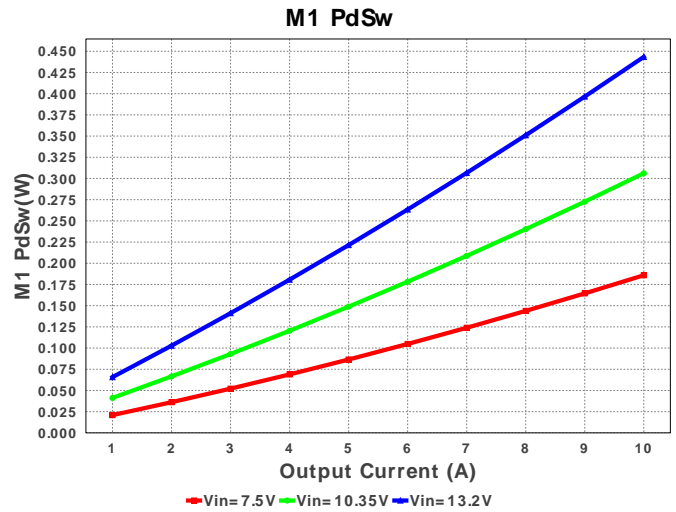
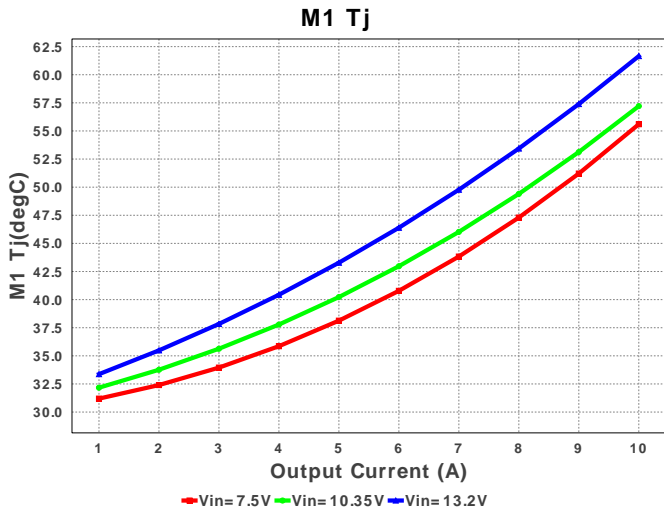
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
8.	L1	Bourns	SRP1270-2R2M	L= 2.2 µH DCR= 4.2 mOhm	1	\$0.60	 SRP1270 246 mm²
9.	M1	Texas Instruments	CSD16342Q5A	VdsMax= 25.0 V IdsMax= 100.0 Amps	1	\$0.47	 TRANS_NexFET_Q5A 55 mm²
10.	M2	Texas Instruments	CSD17577Q5A	VdsMax= 30.0 V IdsMax= 60.0 Amps	1	\$0.30	 TRANS_NexFET_Q5A 55 mm²
11.	Rfb1	Panasonic	ERJ-6ENF1002V Series= ERJ-6E	Res= 10.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm²
12.	Rfb2	Panasonic	ERJ-6ENF7322V Series= ERJ-6E	Res= 73.2 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm²
13.	Rilim	Panasonic	ERJ-6ENF1071V Series= ERJ-6E	Res= 1.07 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm²
14.	Ron	Panasonic	ERJ-6ENF1003V Series= ERJ-6E	Res= 100.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm²
15.	U1	Texas Instruments	LM3150MH/NOPB	Switcher	1	\$1.62	 MXA14A 59 mm²











Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	4.873 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	951.542 mA	Current	Output capacitor RMS ripple current
3.	I lim	17.18 A	Current	Current limit threshold
4.	Iin Avg	3.949 A	Current	Average input current
5.	L Ipp	3.296 A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	11.648 A	Current	Peak switch current
7.	BOM Count	16	General	Total Design BOM count
8.	FootPrint	559.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	438.528 kHz	General	Switching frequency
10.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
11.	Pout	50.0 W	General	Total output power

#	Name	Value	Category	Description
12.	Total BOM	\$3.62	General	Total BOM Cost
13.	Vout Actual	4.992 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
14.	Duty Cycle	38.782 %	Op_point	Duty cycle
15.	Efficiency	95.921 %	Op_point	Steady state efficiency
16.	IC Tj	43.23 degC	Op_point	IC junction temperature
17.	IOUT_OP	10.0 A	Op_point	Iout operating point
18.	M1 Tj	61.656 degC	Op_point	M1 MOSFET junction temperature
19.	M2 Tj	65.985 degC	Op_point	M2 MOSFET junction temperature
20.	VIN_OP	13.2 V	Op_point	Vin operating point
21.	Vout p-p	4.271 mV	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	23.741 mW	Power	Input capacitor power dissipation
23.	Cout Pd	13.581 mW	Power	Output capacitor power dissipation
24.	IC Pd	203.536 mW	Power	IC power dissipation
25.	L Pd	525.0 mW	Power	Inductor power dissipation
26.	M1 Pd	654.993 mW	Power	M1 MOSFET total power dissipation
27.	M1 PdCond	211.608 mW	Power	M1 MOSFET conduction losses
28.	M1 PdSw	443.385 mW	Power	M1 MOSFET switching losses
29.	M2 Pd	705.441 mW	Power	M2 MOSFET total power dissipation
30.	M2 PdCond	337.39 mW	Power	M2 MOSFET conduction losses
31.	M2 PdSw	368.05 mW	Power	M2 MOSFET switching losses
32.	Total Pd	2.126 W	Power	Total Power Dissipation
33.	Vout Tolerance	3.813 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	10.0	Maximum Output Current
2.	SoftStart	1.0 ms	Soft Start Time (ms)
3.	VinMax	13.2	Maximum input voltage
4.	VinMin	7.5	Minimum input voltage
5.	Vout	5.0	Output Voltage
6.	base_pn	LM3150	Base Product Number
7.	source	DC	Input Source Type
8.	Ta	30.0	Ambient temperature
9.	UserFsw	585.762 k	Customer Selected Frequency

Design Assistance

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

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