







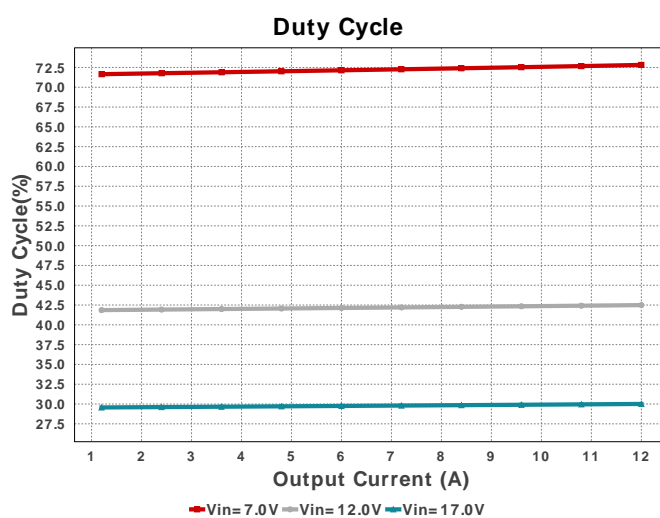
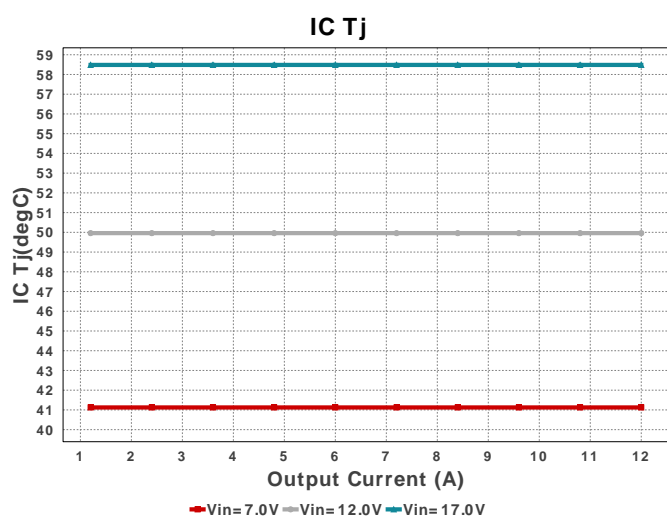


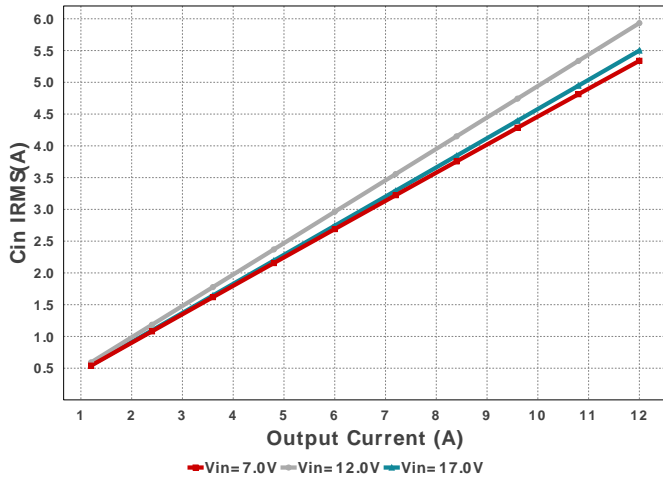


Device = LM3150MH/NOPB
Topology = Buck
Created = 8/22/16 6:20:49 AM
BOM Cost = \$6.39
BOM Count = 17
Total Pd = 2.95W

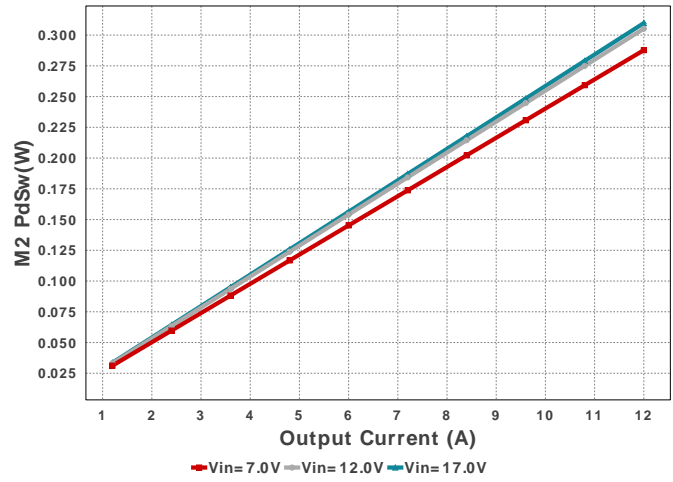
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
8.	L1	Coilcraft	XAL1010-472MEB	L= 4.7 μ H DCR= 5.2 mOhm	1	\$1.71	 XAL1010 160 mm ²
9.	M1	Texas Instruments	CSD16321Q5	VdsMax= 25.0 V IdsMax= 100.0 Amps	1	\$0.69	 TRANS_NexFET_Q5 55 mm ²
10.	M2	Texas Instruments	CSD18509Q5B	VdsMax= 40.0 V IdsMax= 100.0 Amps	1	\$0.89	 TRANS_NexFET_Q5B 58 mm ²
11.	Rfb1	Panasonic	ERJ-6ENF1002V Series= ERJ-6E	Res= 10.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
12.	Rfb2	Panasonic	ERJ-6ENF7322V Series= ERJ-6E	Res= 73.2 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
13.	Rilim	Vishay-Dale	CRCW0805464RFKEA Series= CRCW...e3	Res= 464.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
14.	Ron	Panasonic	ERJ-6ENF2373V Series= ERJ-6E	Res= 237.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
15.	U1	Texas Instruments	LM3150MH/NOPB	Switcher	1	\$1.62	 MXA14A 59 mm ²



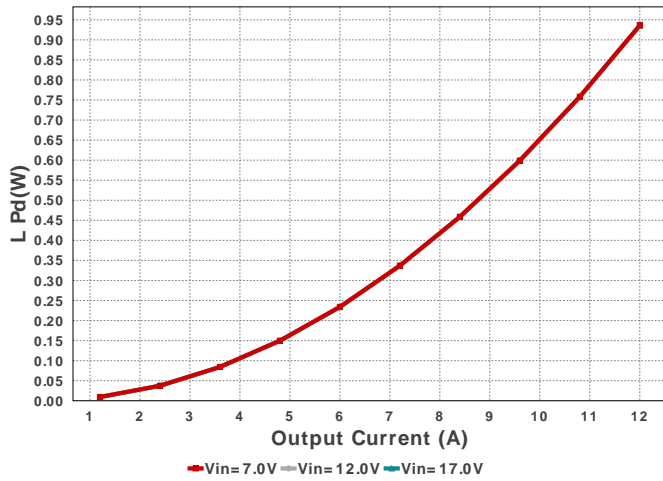
Cin IRMS



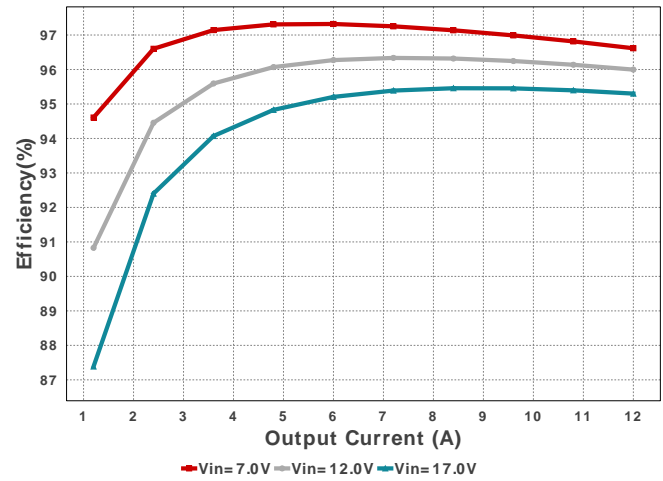
M2 PdSw



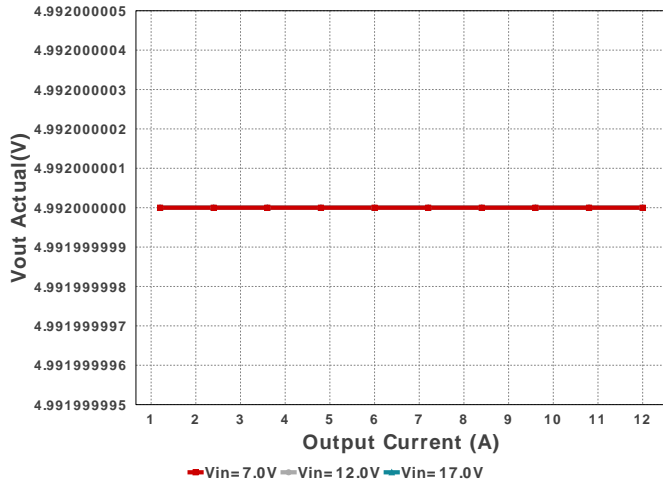
L Pd



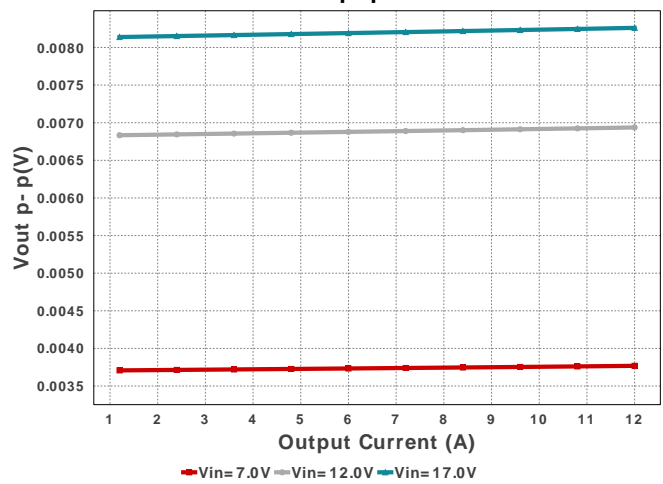
Efficiency



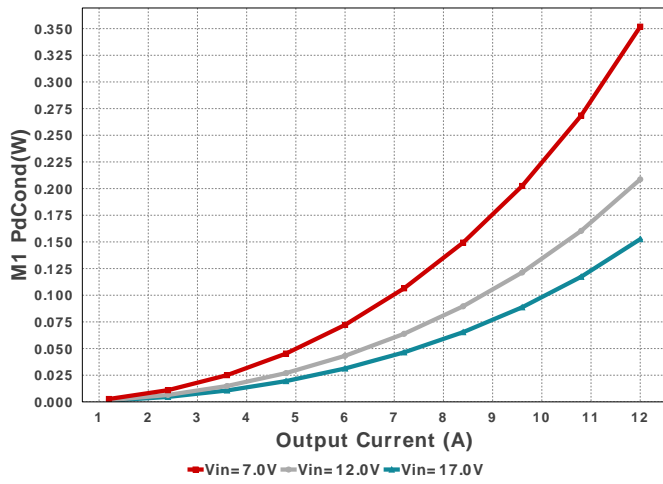
Vout Actual



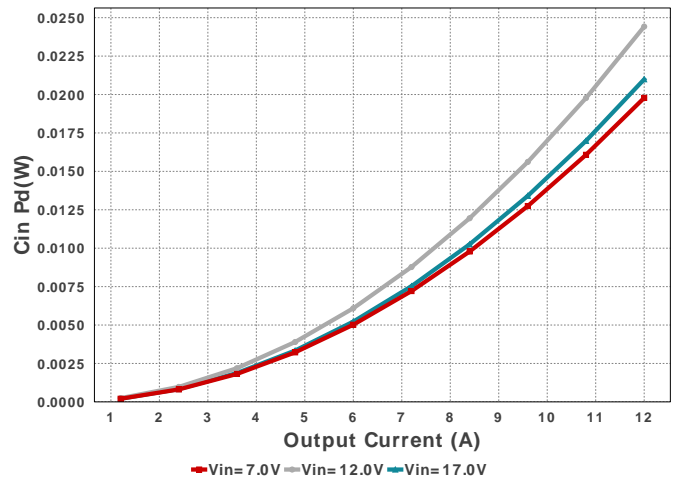
Vout p-p



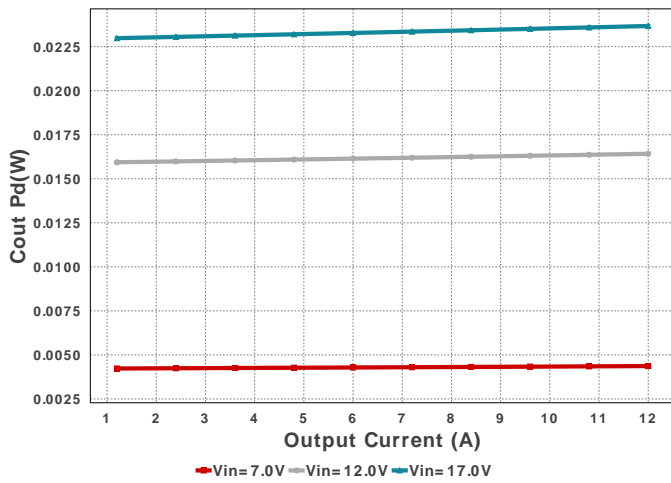
M1 PdCond



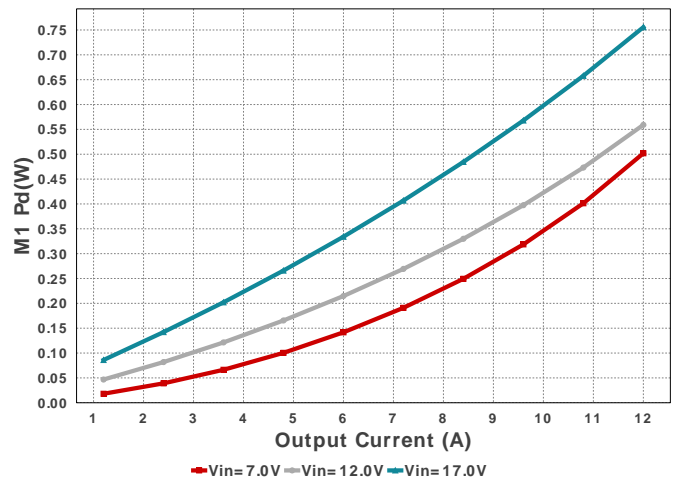
Cin Pd



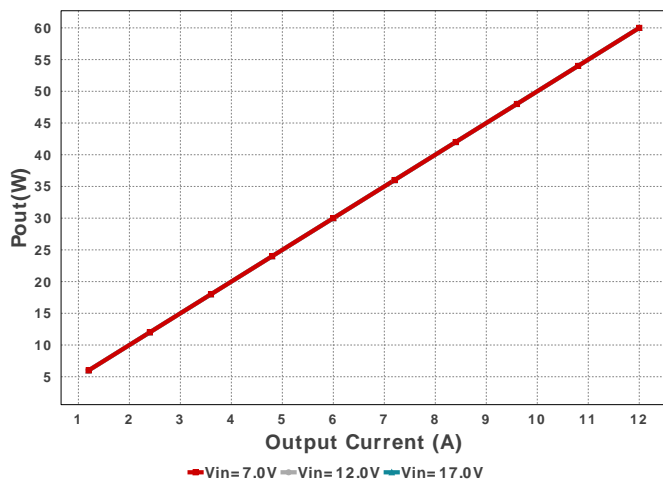
Cout Pd



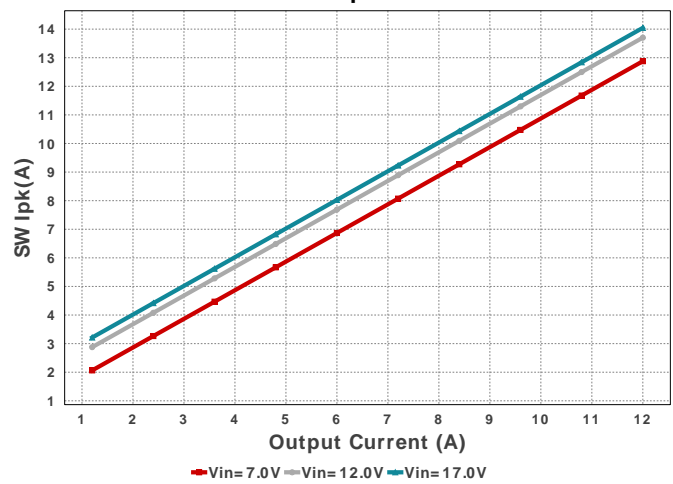
M1 Pd

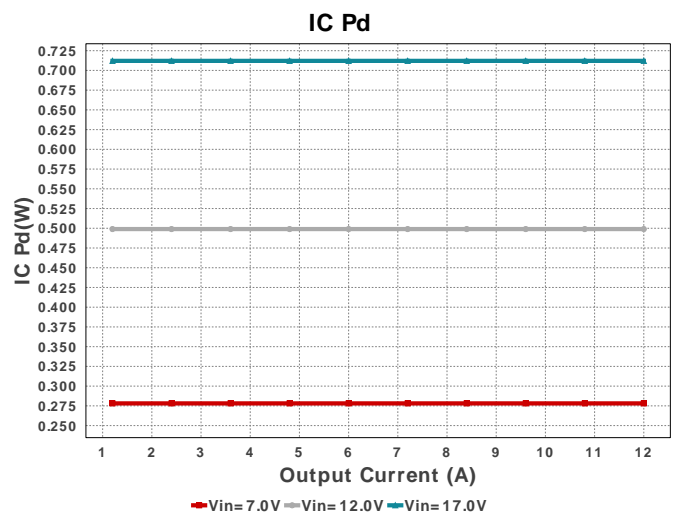
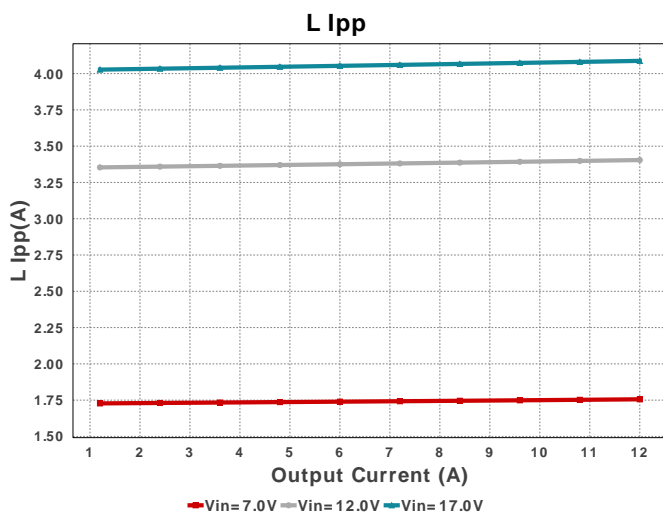
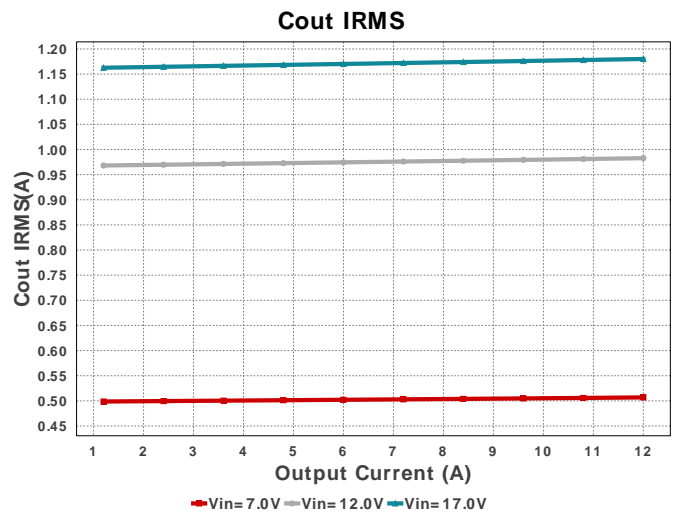
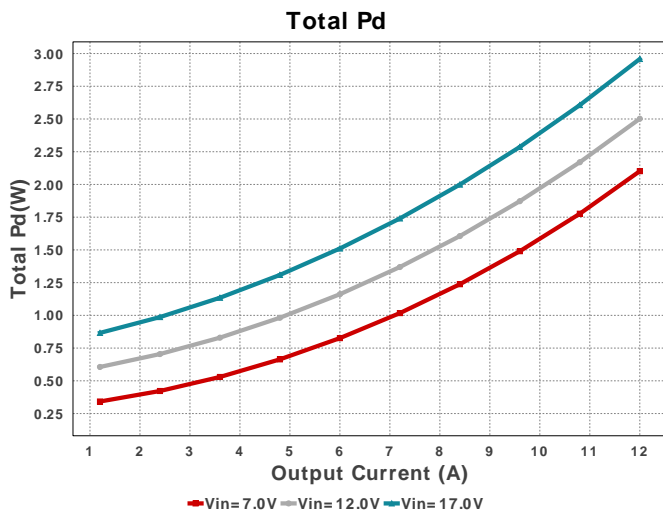
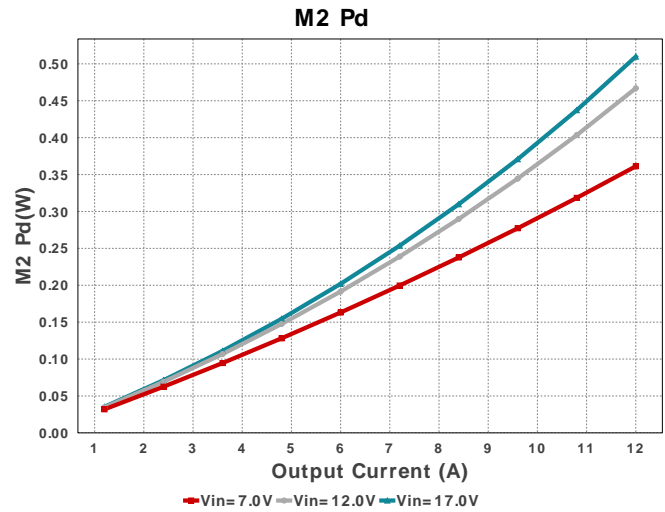
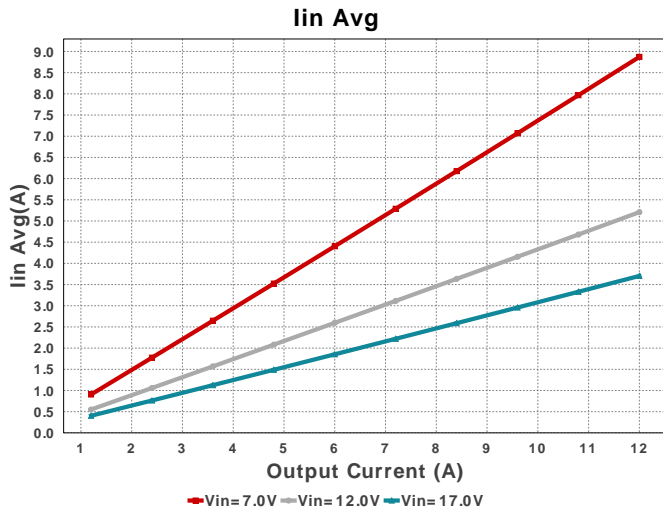


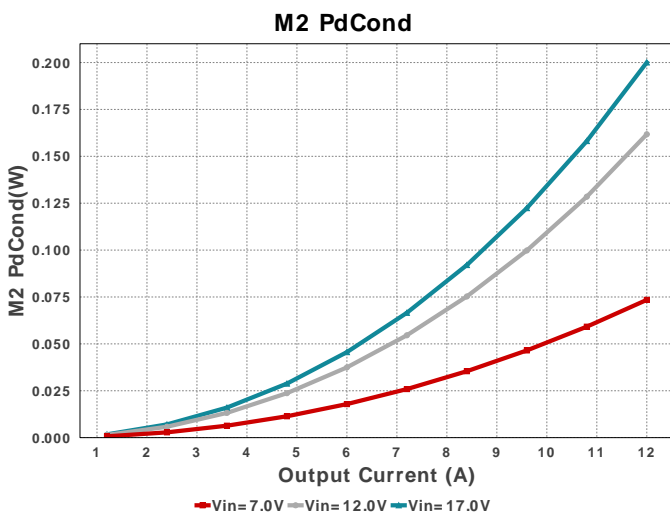
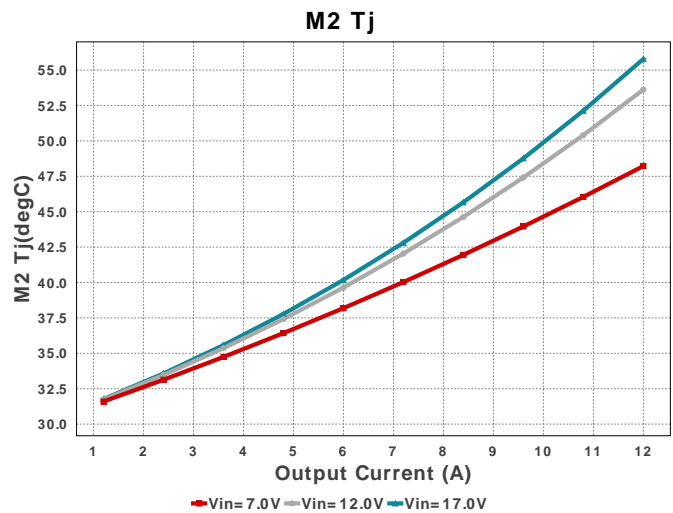
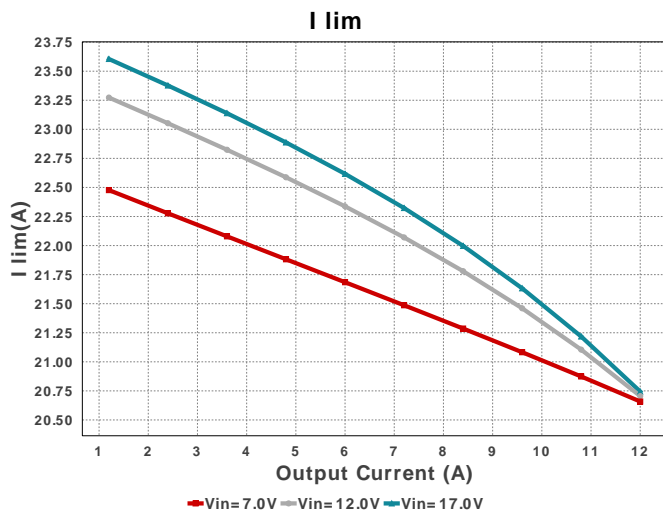
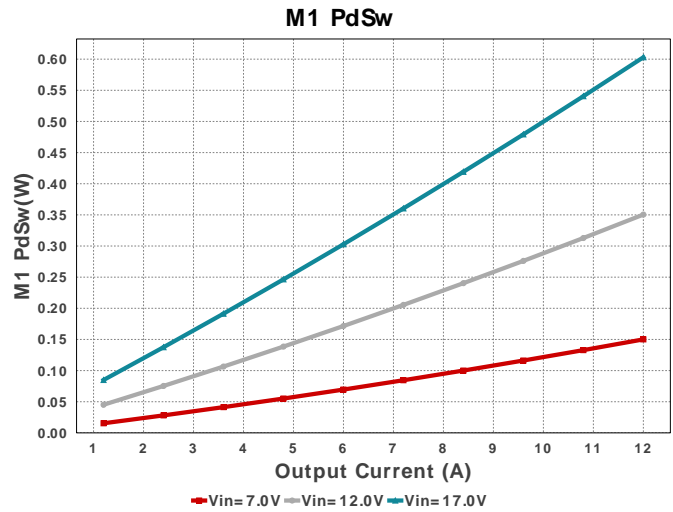
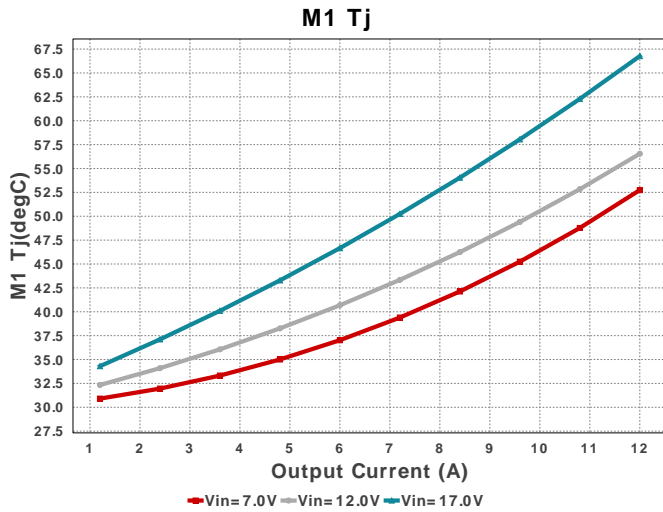
Pout



SW Ipk







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	5.5 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.18 A	Current	Output capacitor RMS ripple current
3.	I lim	20.764 A	Current	Current limit threshold
4.	Iin Avg	3.703 A	Current	Average input current
5.	L Ipp	4.088 A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	14.044 A	Current	Peak switch current
7.	BOM Count	17	General	Total Design BOM count
8.	FootPrint	505.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	187.44 kHz	General	Switching frequency
10.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
11.	Mode	CCM	General	Conduction Mode

#	Name	Value	Category	Description
12.	Pout	60.0 W	General	Total output power
13.	Total BOM	\$6.39	General	Total BOM Cost
14.	Vout Actual	4.992 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
15.	Duty Cycle	30.01 %	Op_point	Duty cycle
16.	Efficiency	95.307 %	Op_point	Steady state efficiency
17.	IC Tj	76.286 degC	Op_point	IC junction temperature
18.	IOUT_OP	12.0 A	Op_point	Iout operating point
19.	M1 Tj	66.764 degC	Op_point	M1 MOSFET junction temperature
20.	M2 Tj	55.599 degC	Op_point	M2 MOSFET junction temperature
21.	VIN_OP	17.0 V	Op_point	Vin operating point
22.	Vout p-p	8.261 mV	Op_point	Peak-to-peak output ripple voltage
23.	Cin Pd	20.99 mW	Power	Input capacitor power dissipation
24.	Cout Pd	23.672 mW	Power	Output capacitor power dissipation
25.	IC Pd	712.099 mW	Power	IC power dissipation
26.	L Pd	936.0 mW	Power	Inductor power dissipation
27.	M1 Pd	755.32 mW	Power	M1 MOSFET total power dissipation
28.	M1 PdCond	152.286 mW	Power	M1 MOSFET conduction losses
29.	M1 PdSw	603.034 mW	Power	M1 MOSFET switching losses
30.	M2 Pd	506.094 mW	Power	M2 MOSFET total power dissipation
31.	M2 PdCond	199.851 mW	Power	M2 MOSFET conduction losses
32.	M2 PdSw	306.243 mW	Power	M2 MOSFET switching losses
33.	Total Pd	2.954 W	Power	Total Power Dissipation
34.	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	12.0	Maximum Output Current
2.	VinMax	17.0	Maximum input voltage
3.	VinMin	7.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	LM3150	Base Product Number
6.	source	DC	Input Source Type
7.	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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