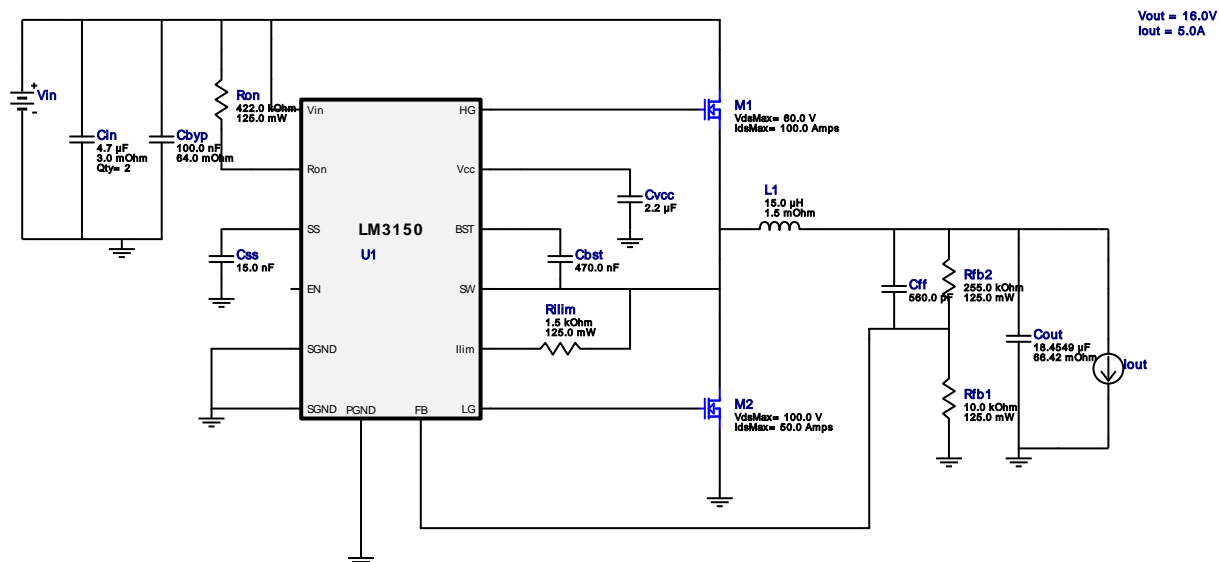


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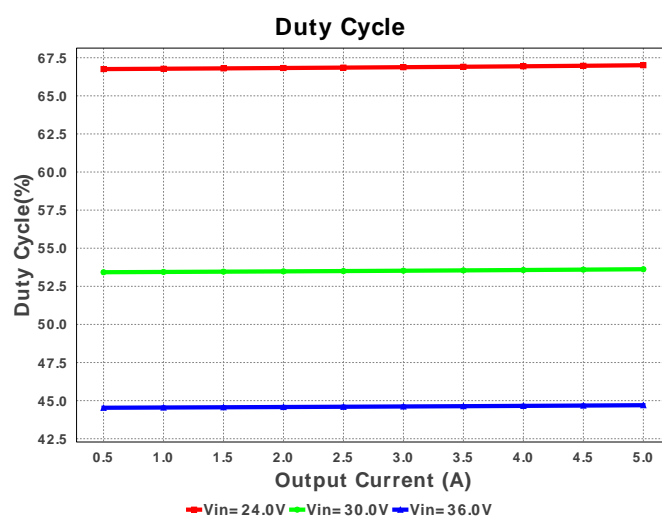
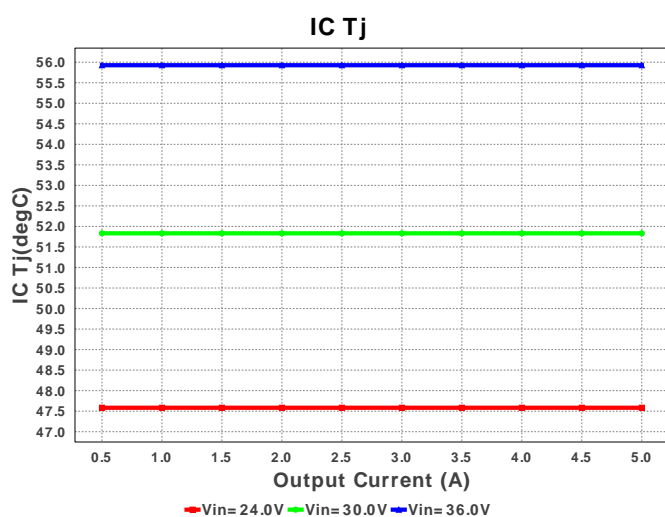
Design : 4466246/80 LM3150MH/NOPB
LM3150MH/NOPB 24.0V-36.0V to 16.00V @ 5.0A

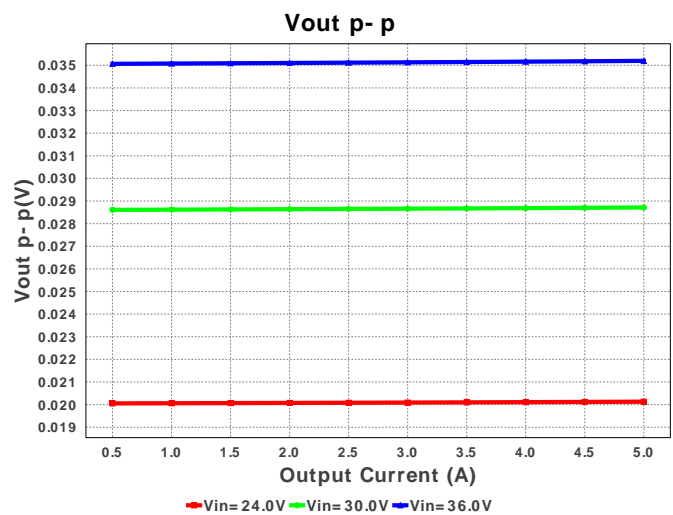
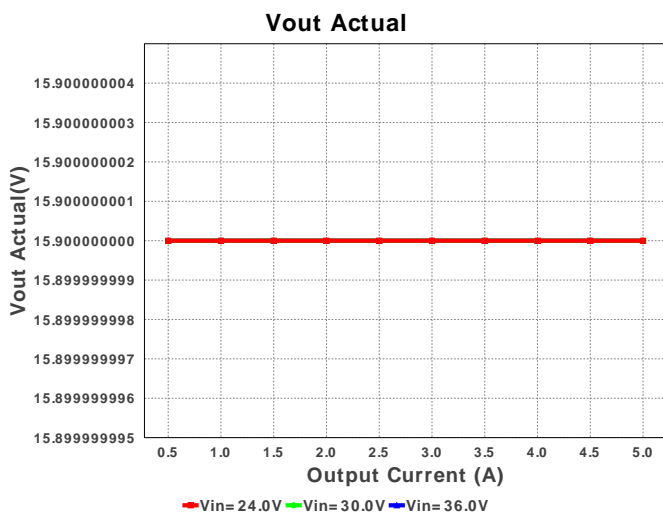
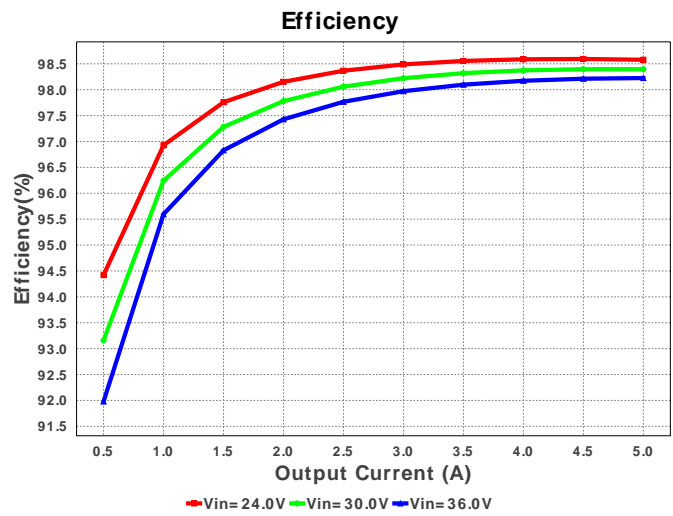
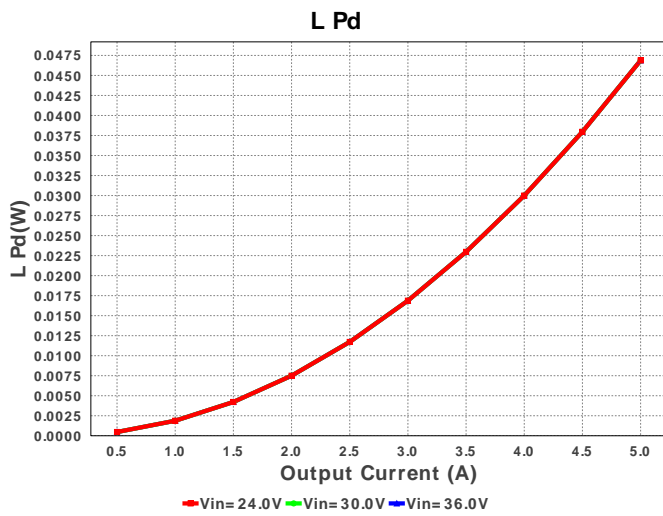
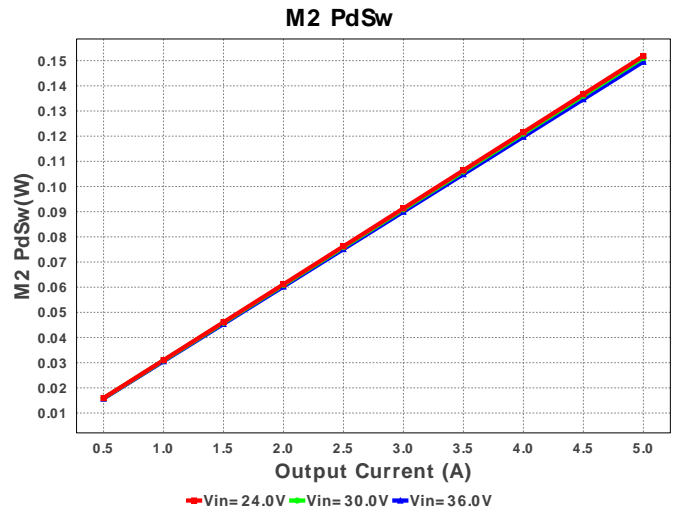
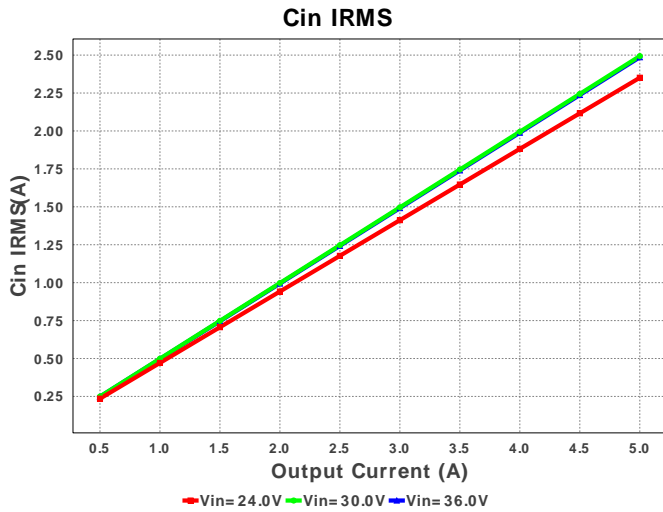


Electrical BOM

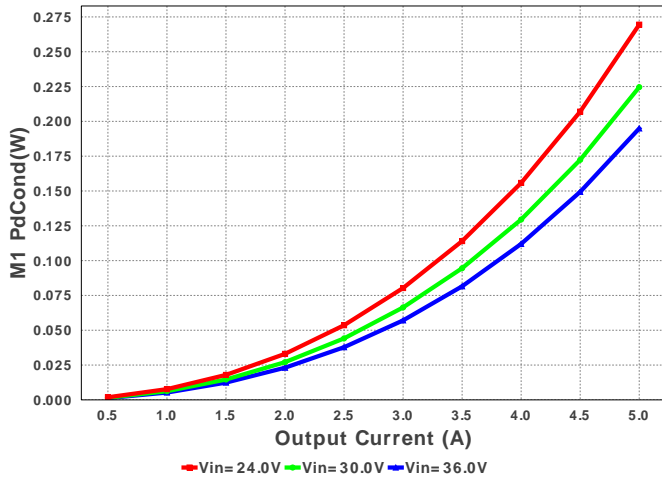
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	Taiyo Yuden	EMK212B7474KD-T Series= X7R	Cap= 470.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.02	0805 7 mm ²
2.	Cbyp	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	0805 7 mm ²
3.	Cff	Yageo America	CC0805KRX7R9BB561 Series= X7R	Cap= 560.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
4.	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
5.	Cout	CUSTOM	CUSTOM Series= ?	Cap= 18.4549 uF ESR= 66.42 mOhm VDC= 20.0 V IRMS= 505.12 mA	1	NA	CUSTOM 0 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	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
8.	L1	Coilcraft	SER2915L-153KL	L= 15.0 μ H DCR= 1.5 mOhm	1	\$1.88	 SER2915L 652 mm²
9.	M1	Texas Instruments	CSD18563Q5A	VdsMax= 60.0 V IdsMax= 100.0 Amps	1	\$0.68	 TRANS_NexFET_Q5A 55 mm²
10.	M2	Texas Instruments	CSD19534Q5A	VdsMax= 100.0 V IdsMax= 50.0 Amps	1	\$0.68	 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-6ENF2553V Series= ERJ-6E	Res= 255.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm²
13.	Rilim	Panasonic	ERJ-6ENF1501V Series= ERJ-6E	Res= 1.5 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm²
14.	Ron	Panasonic	ERJ-6ENF4223V Series= ERJ-6E	Res= 422.0 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

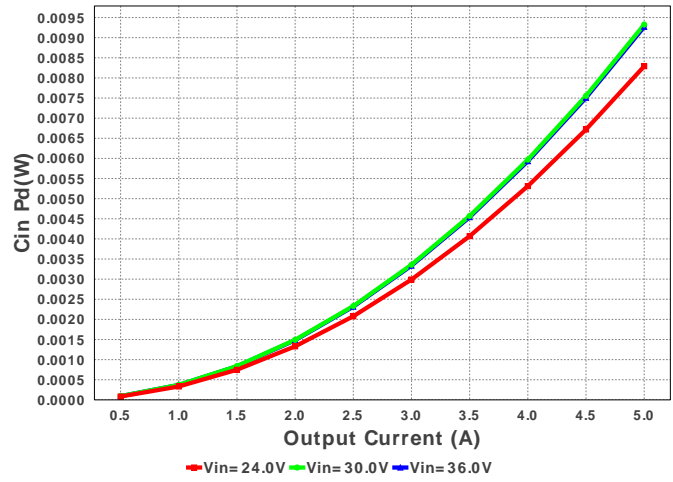




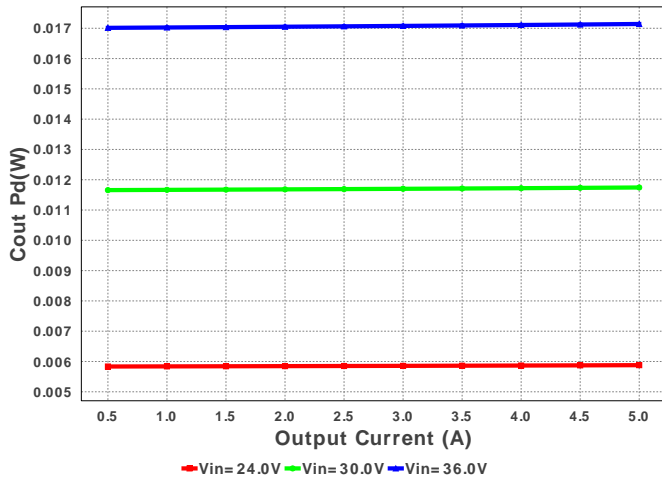
M1 PdCond



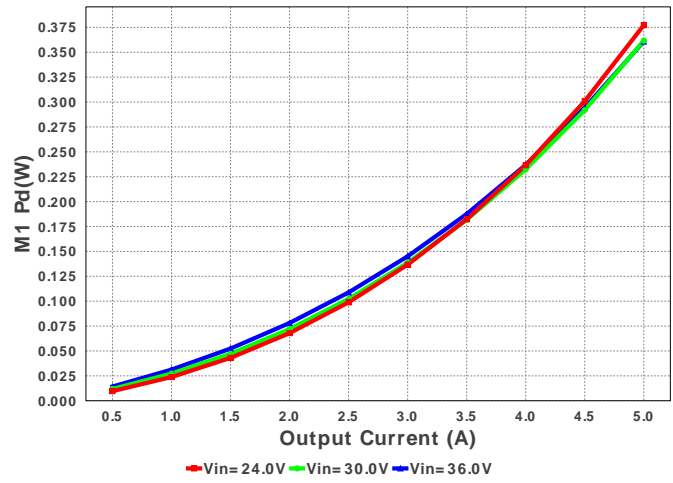
Cin Pd



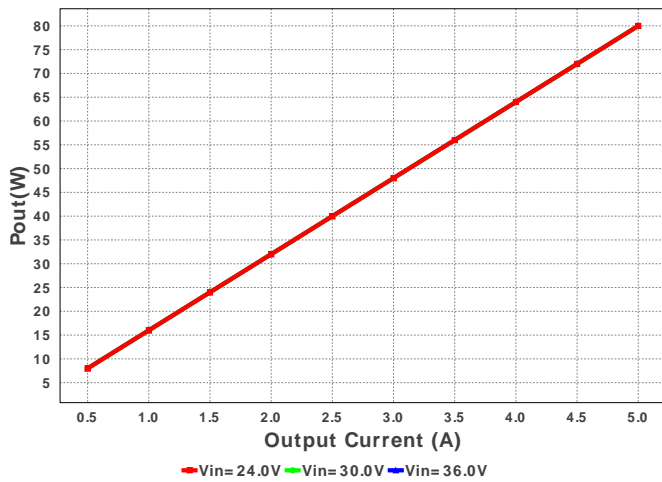
Cout Pd



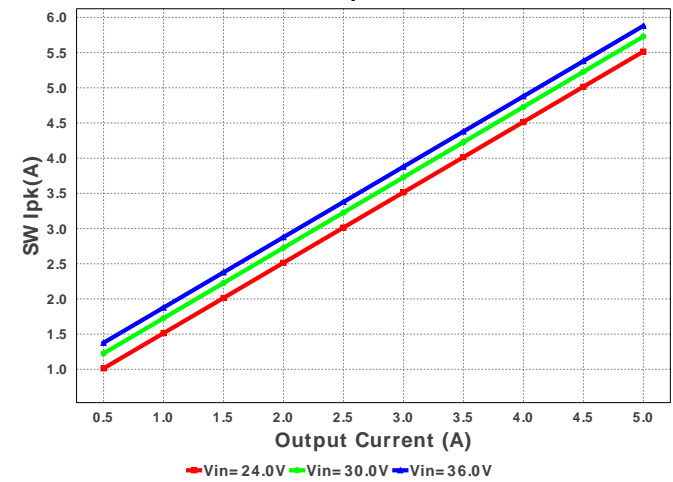
M1 Pd

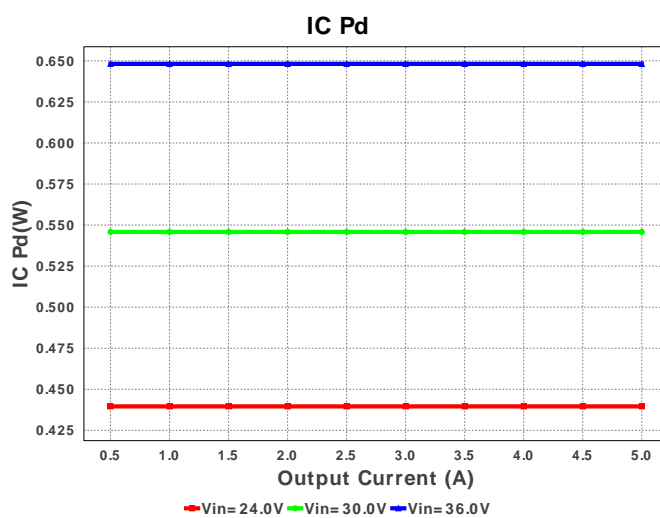
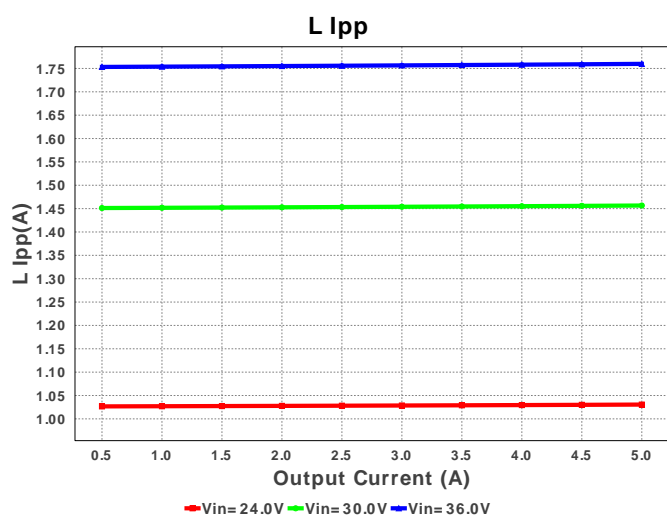
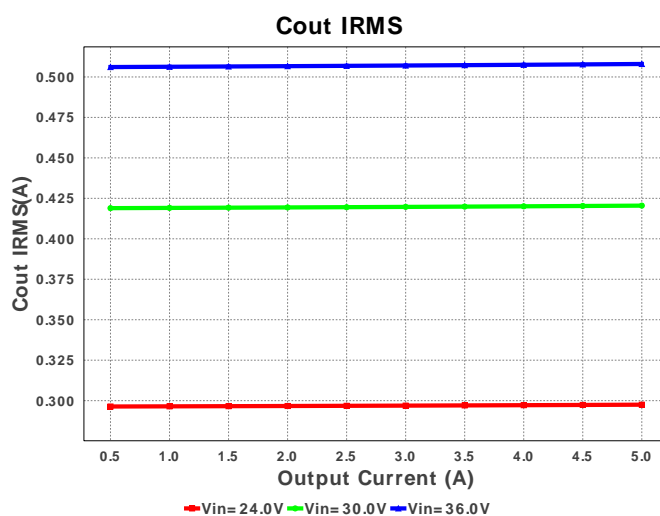
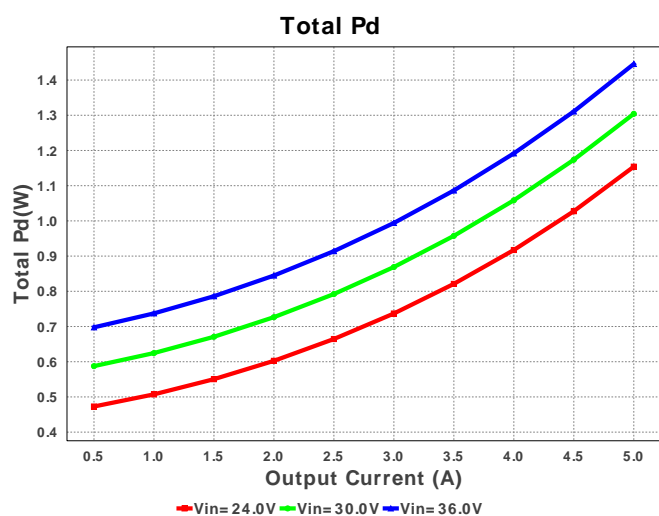
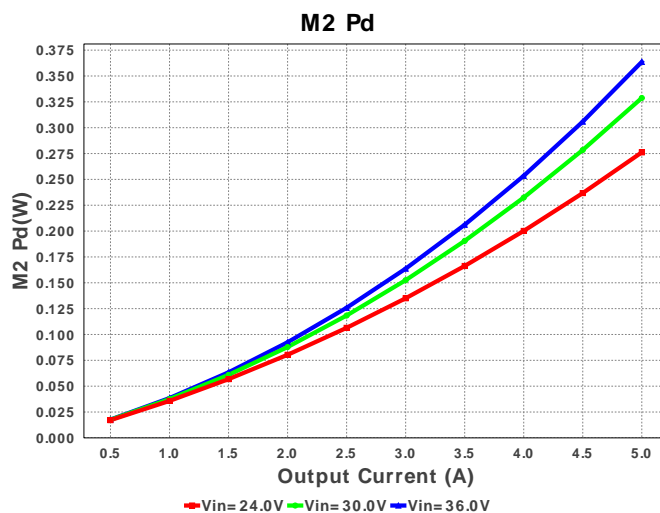
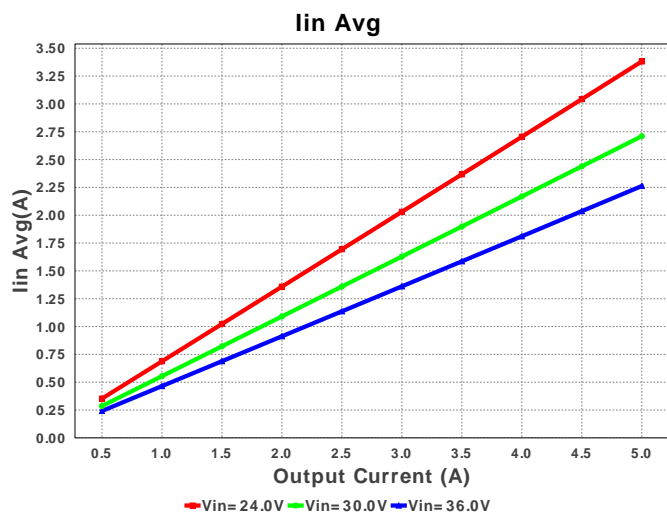


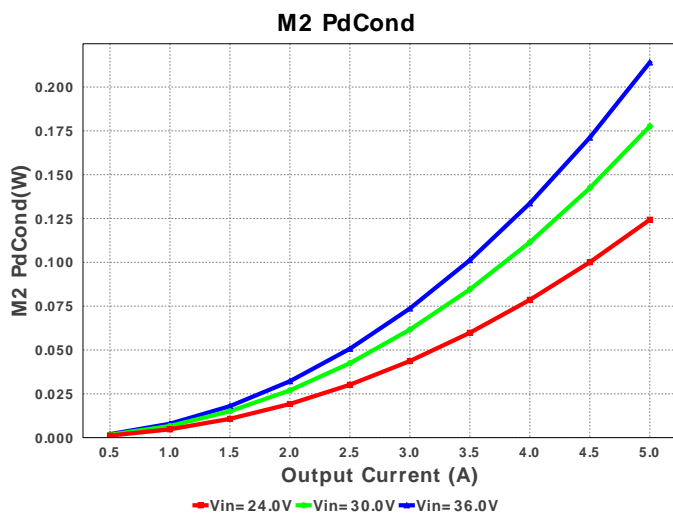
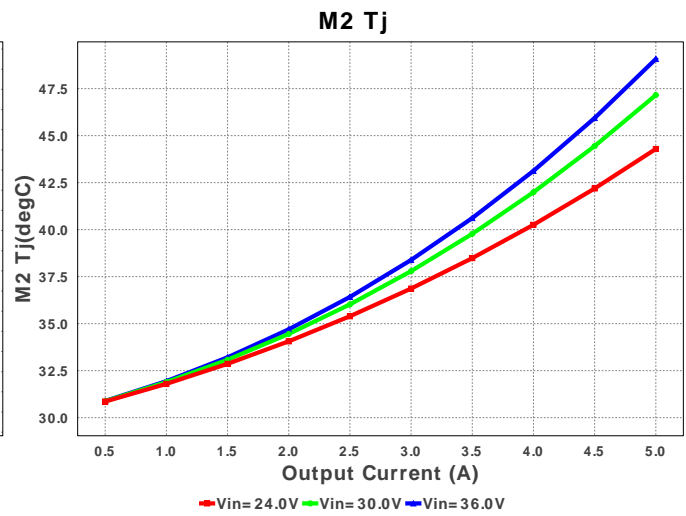
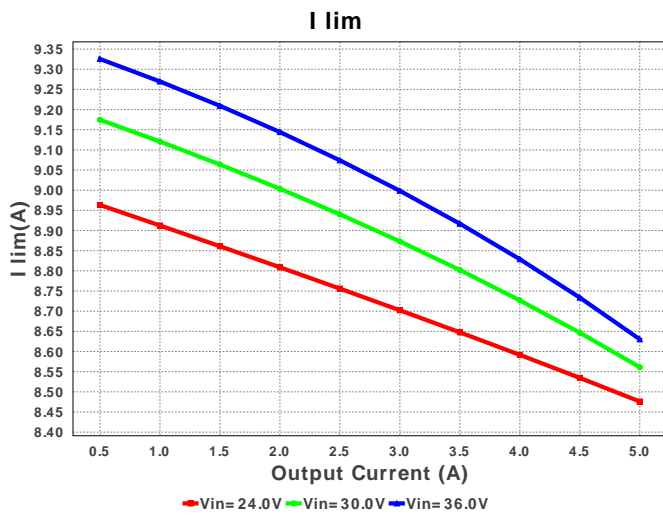
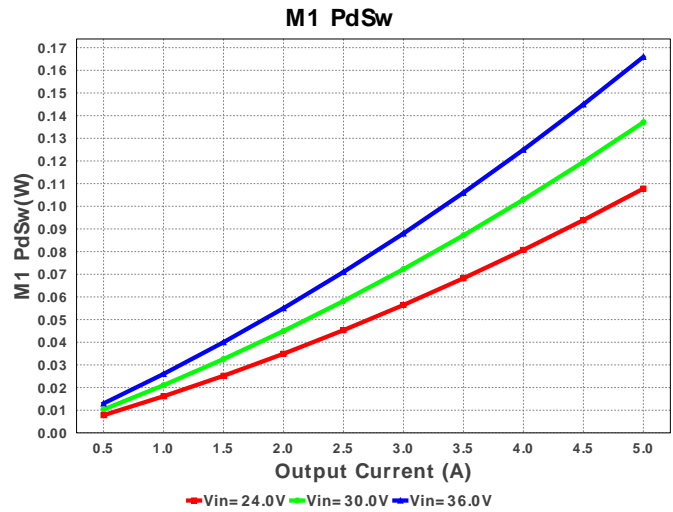
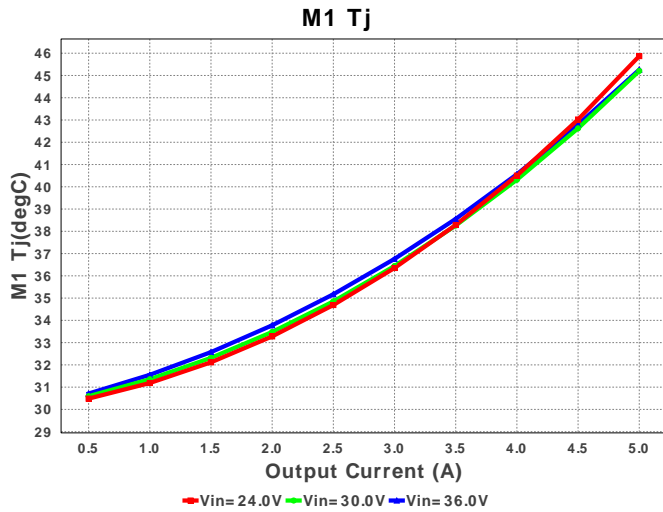
Pout



SW Ipk







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	2.486 A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	508.015 mA	Current	Output capacitor RMS ripple current
3.	I lim	8.631 A	Current	Current limit threshold
4.	Iin Avg	2.262 A	Current	Average input current
5.	L Ipp	1.76 A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	5.88 A	Current	Peak switch current
7.	BOM Count	16	General	Total Design BOM count
8.	FootPrint	944.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	338.664 kHz	General	Switching frequency
10.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
11.	Pout	80.0 W	General	Total output power

#	Name	Value	Category	Description
12.	Total BOM	\$0.0	General	Total BOM Cost
13.	Vout Actual	15.9 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
14.	Duty Cycle	44.699 %	Op_point	Duty cycle
15.	Efficiency	98.225 %	Op_point	Steady state efficiency
16.	IC Tj	72.131 degC	Op_point	IC junction temperature
17.	IOUT_OP	5.0 A	Op_point	Iout operating point
18.	M1 Tj	45.26 degC	Op_point	M1 MOSFET junction temperature
19.	M2 Tj	49.073 degC	Op_point	M2 MOSFET junction temperature
20.	VIN_OP	36.0 V	Op_point	Vin operating point
21.	Vout p-p	35.196 mV	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	9.27 mW	Power	Input capacitor power dissipation
23.	Cout Pd	17.142 mW	Power	Output capacitor power dissipation
24.	IC Pd	648.169 mW	Power	IC power dissipation
25.	L Pd	46.875 mW	Power	Inductor power dissipation
26.	M1 Pd	360.818 mW	Power	M1 MOSFET total power dissipation
27.	M1 PdCond	194.886 mW	Power	M1 MOSFET conduction losses
28.	M1 PdSw	165.933 mW	Power	M1 MOSFET switching losses
29.	M2 Pd	363.593 mW	Power	M2 MOSFET total power dissipation
30.	M2 PdCond	214.052 mW	Power	M2 MOSFET conduction losses
31.	M2 PdSw	149.541 mW	Power	M2 MOSFET switching losses
32.	Total Pd	1.446 W	Power	Total Power Dissipation
33.	Vout Tolerance	3.983 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	5.0	Maximum Output Current
2.	VinMax	36.0	Maximum input voltage
3.	VinMin	24.0	Minimum input voltage
4.	Vout	16.0	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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