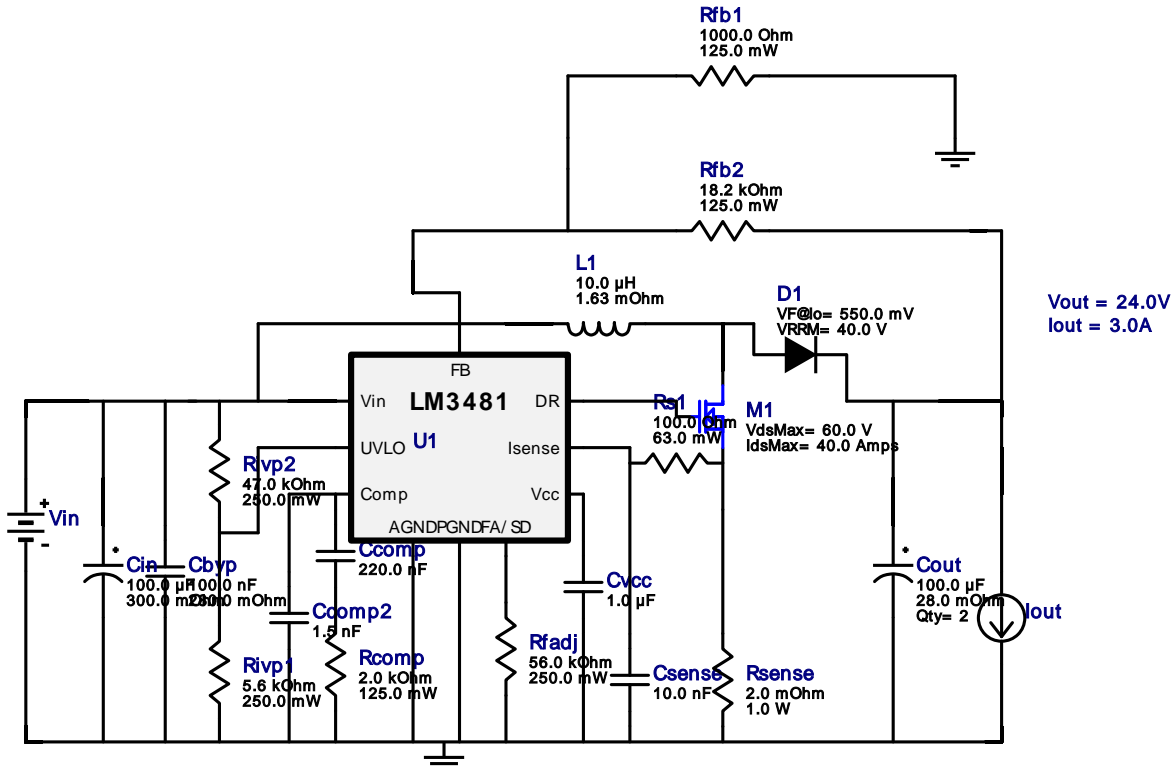
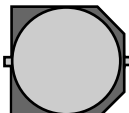
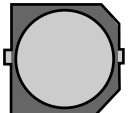


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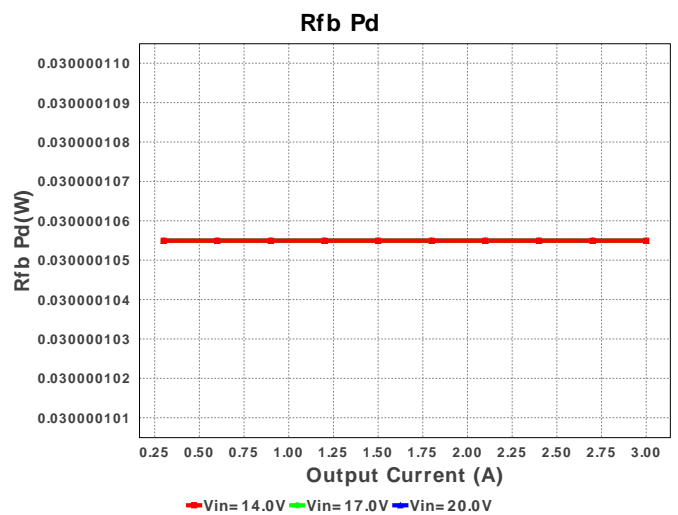
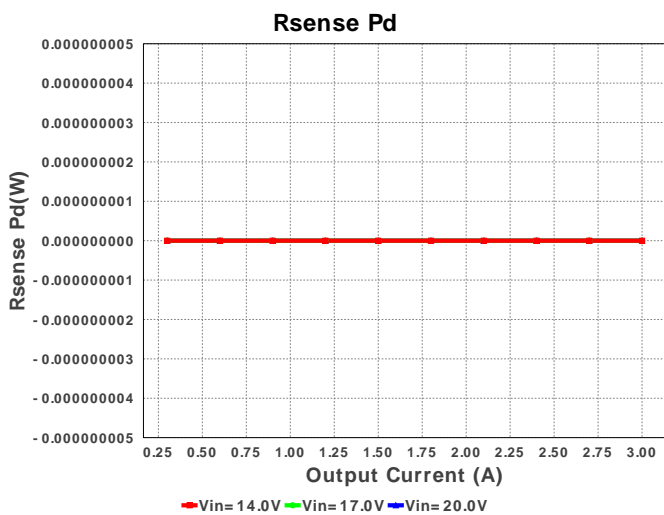
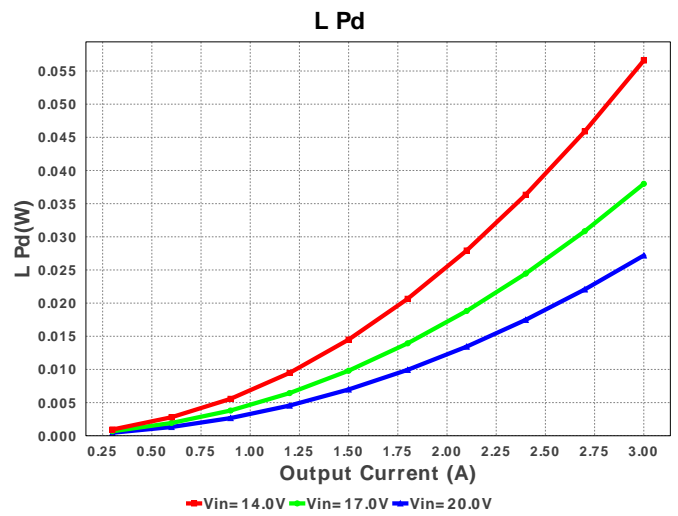
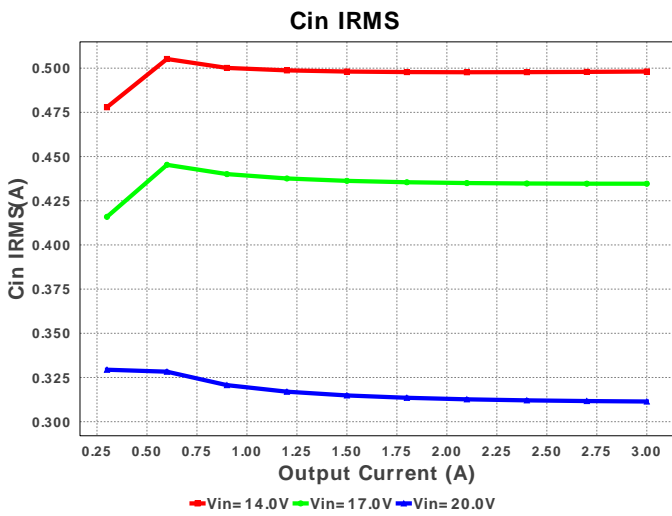
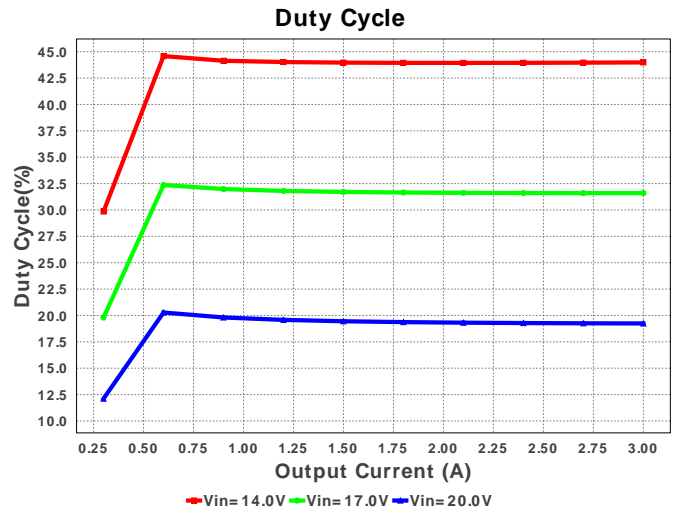
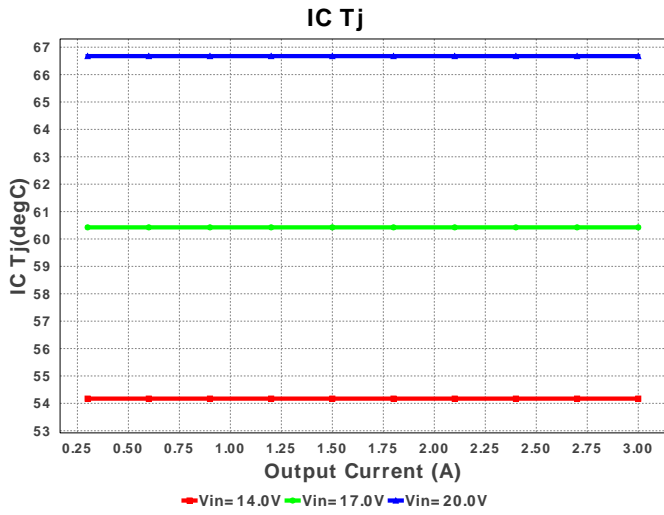
 Design : 4687533/44 LM3481MM/NOPB
 LM3481MM/NOPB 14.0V-20.0V to 24.00V @ 3.0A

My Comments

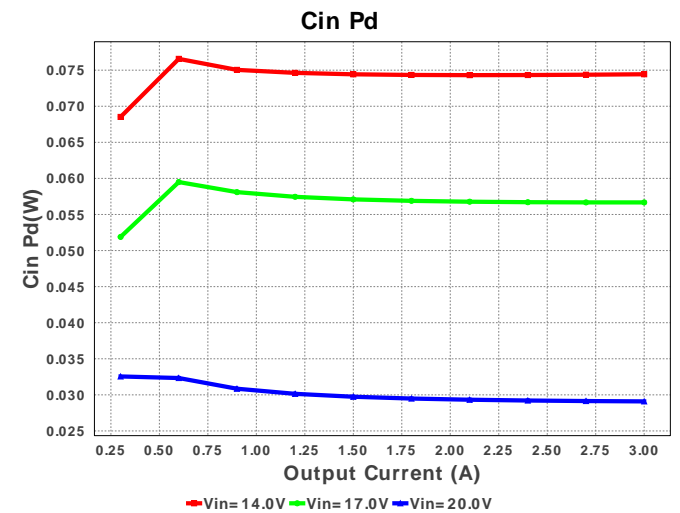
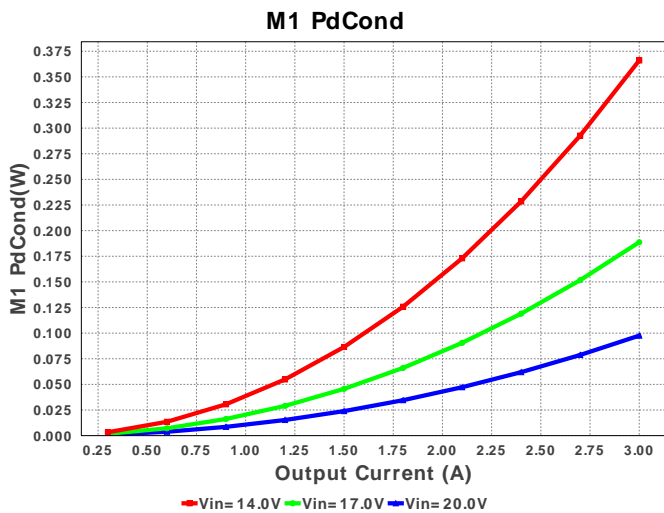
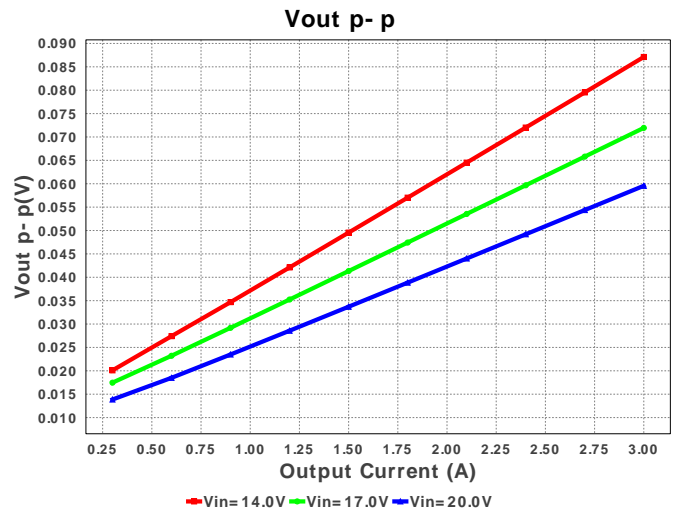
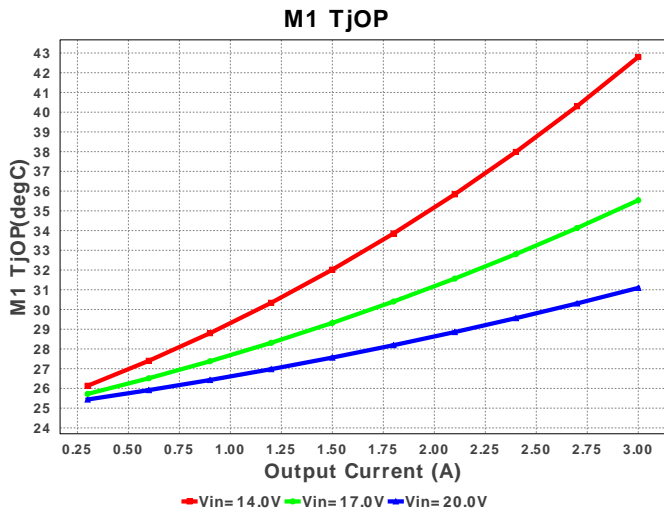
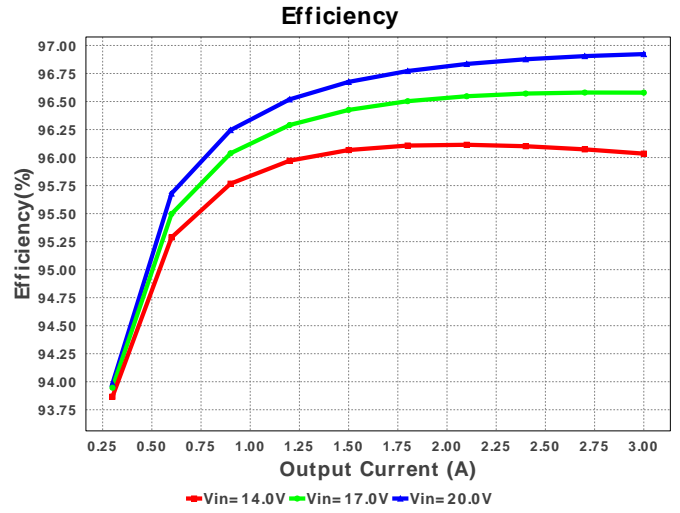
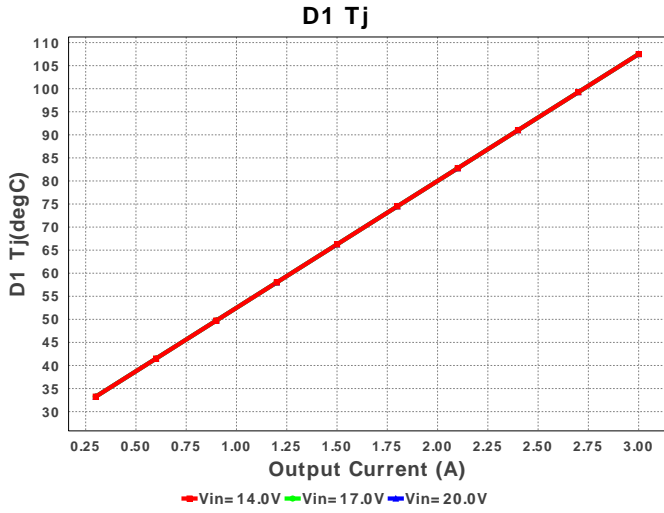
No comments

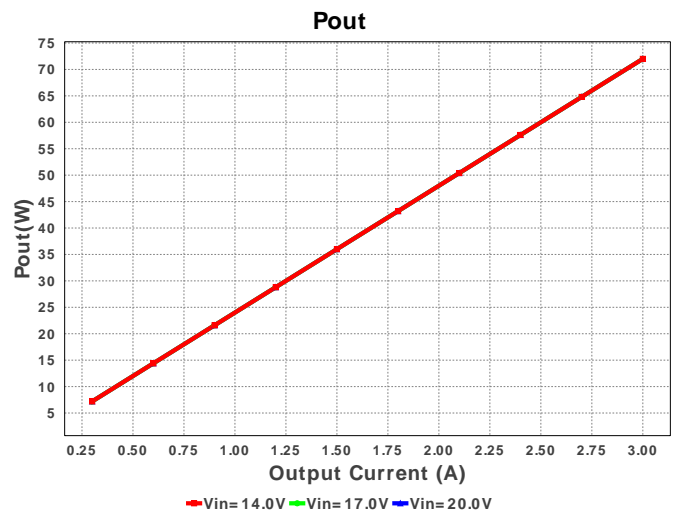
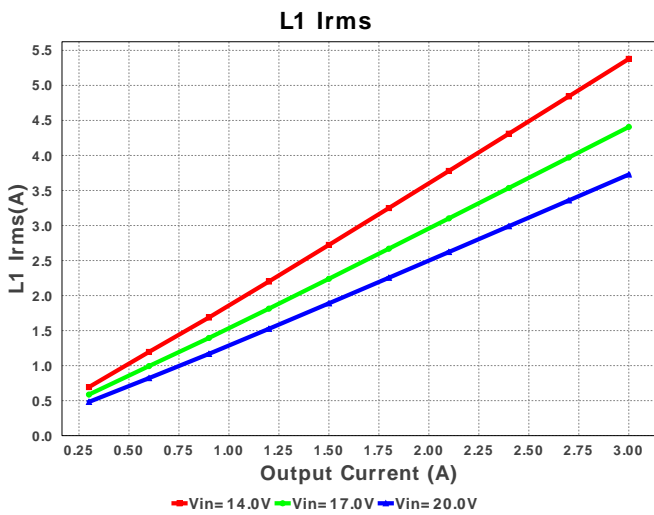
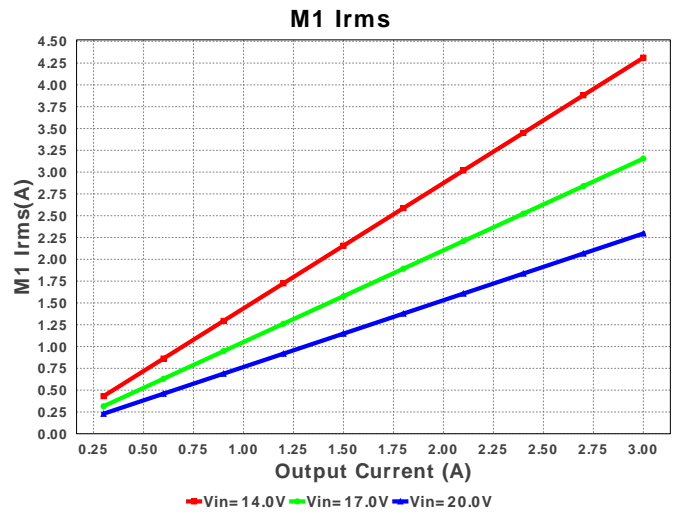
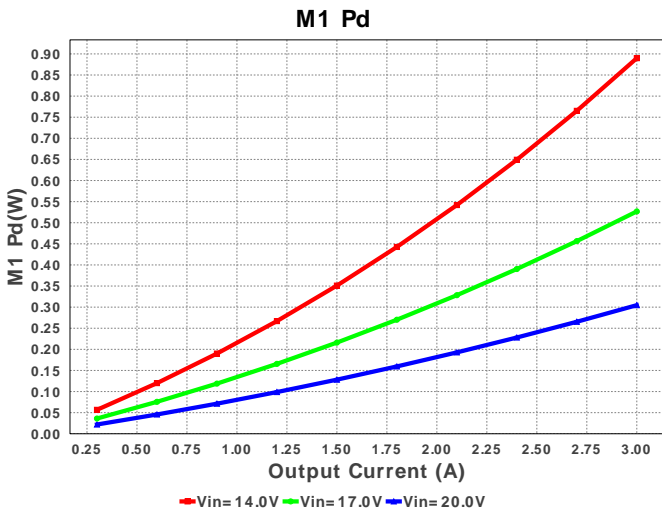
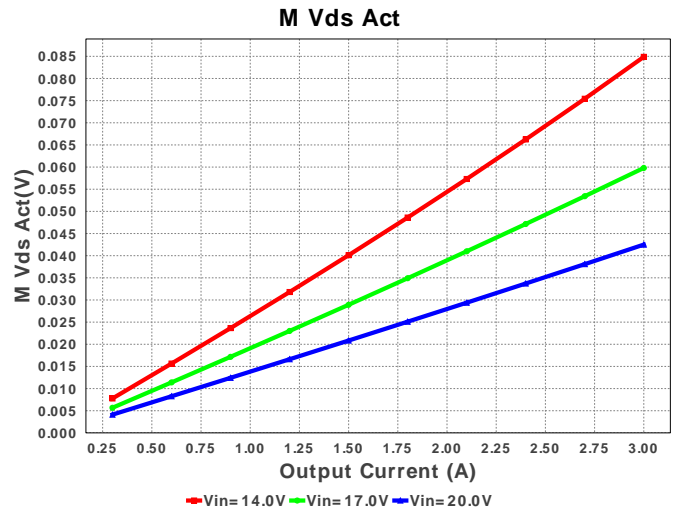
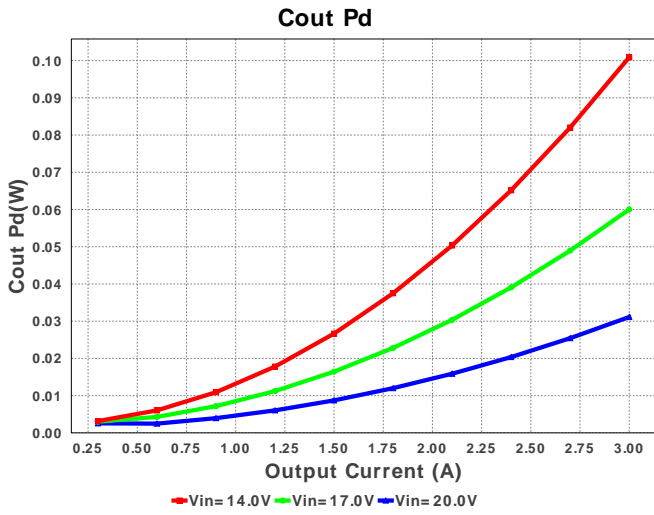
Electrical BOM

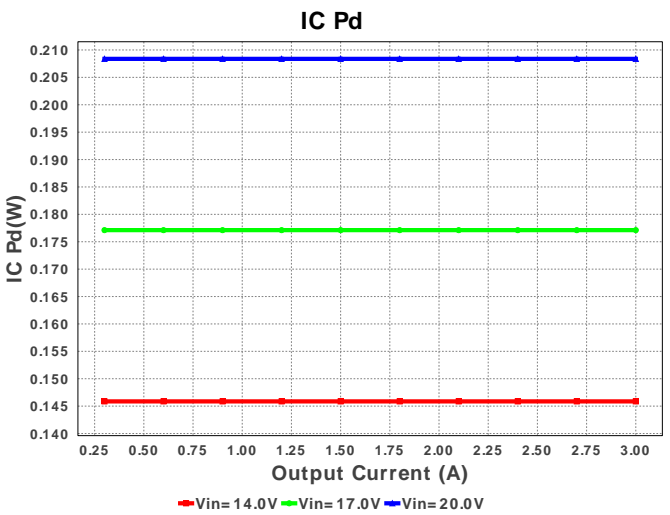
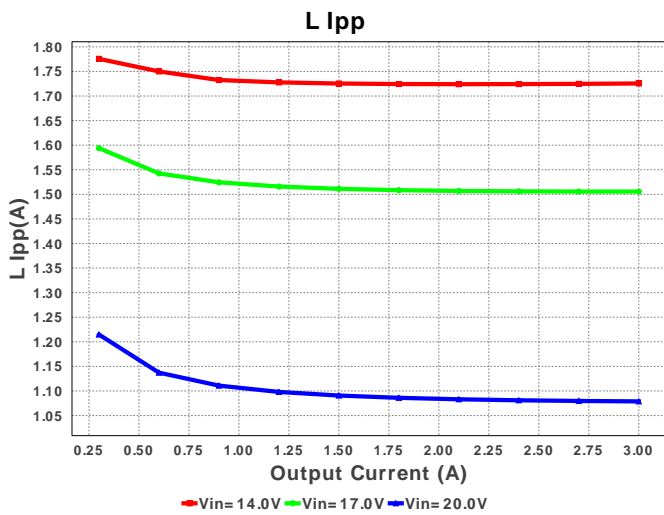
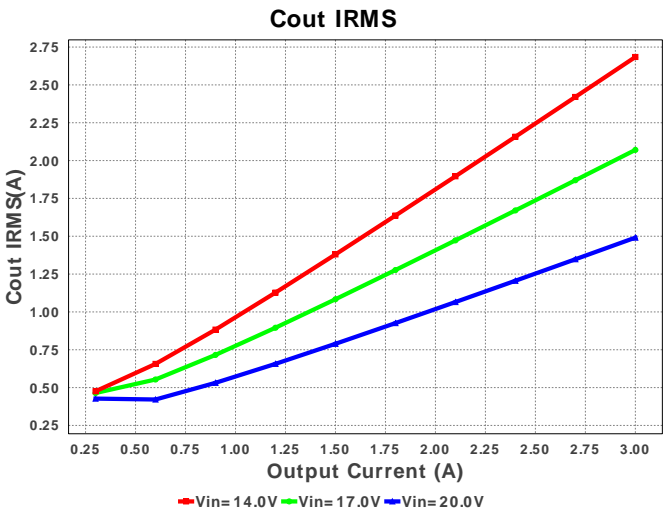
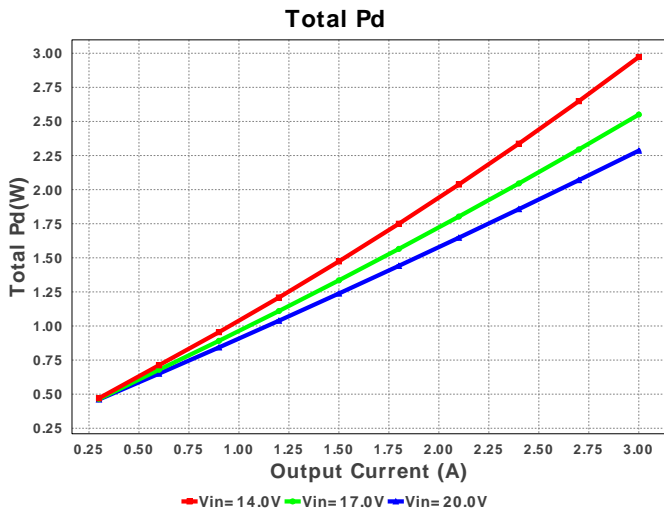
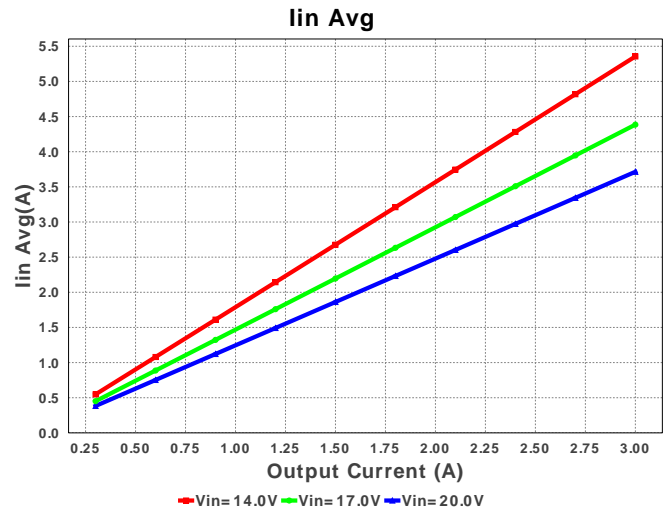
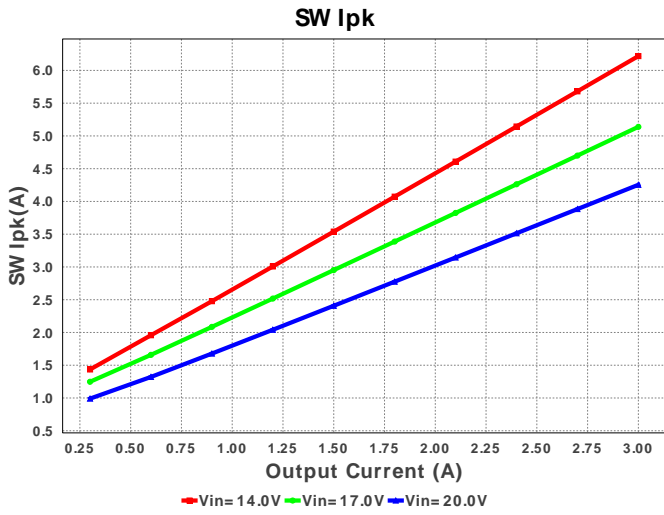
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbyp	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
2.	Ccomp	MuRata	GRM188R61E224KA88D Series= X5R	Cap= 220.0 nF VDC= 25.0 V IRMS= 0.0 A	1	\$0.03	0603 5 mm ²
3.	Ccomp2	Yageo America	CC0805KRX7R9BB152 Series= X7R	Cap= 1.5 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
4.	Cin	Panasonic	EEE-FC1H101P Series= FC	Cap= 100.0 uF ESR= 300.0 mOhm VDC= 50.0 V IRMS= 500.0 mA	1	\$0.23	 SM_RADIAL_G 172 mm ²
5.	Cout	Panasonic	EEHZC1H101P Series= ZC	Cap= 100.0 uF ESR= 28.0 mOhm VDC= 50.0 V IRMS= 1.6 A	2	NA	 SM_RADIAL_10BMM 160 mm ²

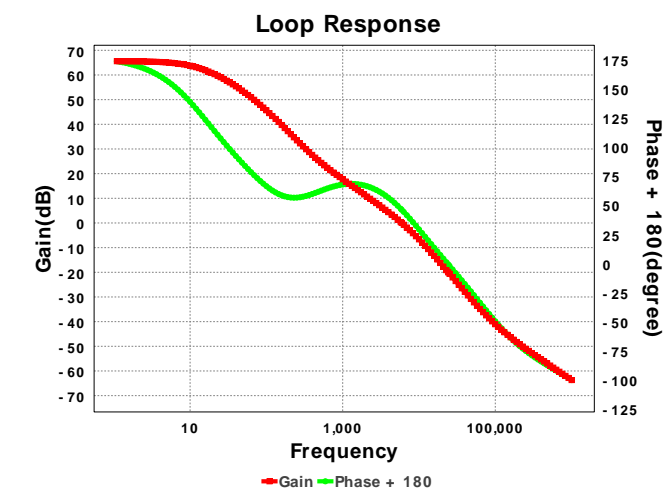
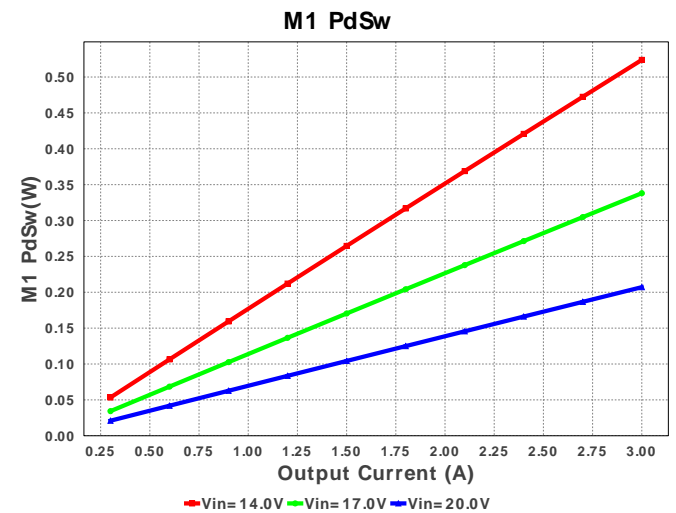
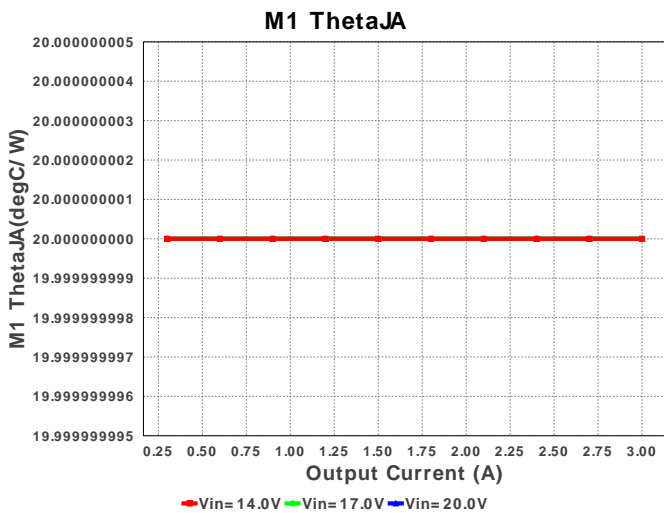
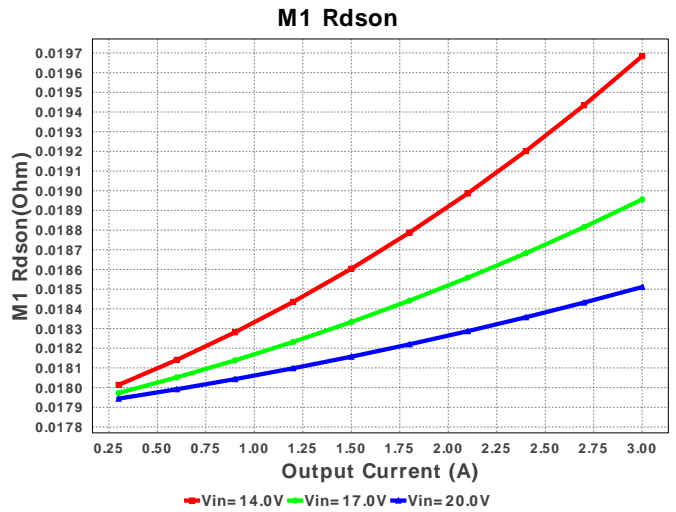
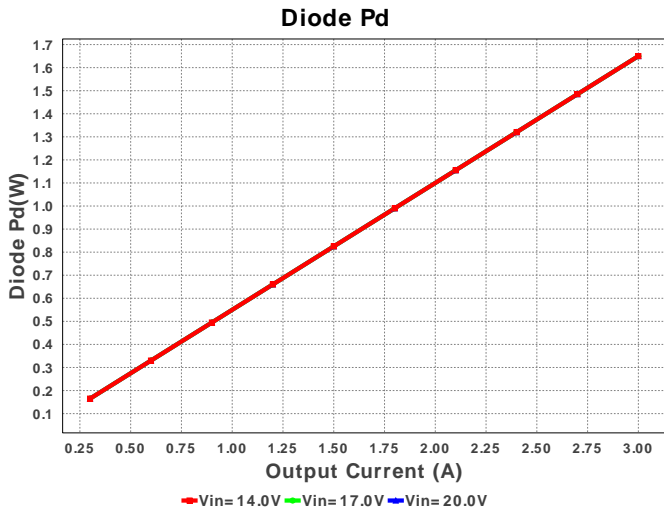
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
6.	Csense	Yageo America	CC0805KRX7R9BB103 Series= X7R	Cap= 10.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
7.	Cvcc	AVX	08055C105KAT2A Series= X7R	Cap= 1.0 uF VDC= 50.0 V IRMS= 0.0 A	1	\$0.49	 0805 7 mm ²
8.	D1	MULTICOMP	CUSTOM_DIODE_MD	VF@Io= 550.0 mV VRRM= 40.0 V	1	\$0.10	 SMC 51 mm ²
9.	L1	WURTH	CUSTOM_INDUCTOR_MD	L= 10.0 uH DCR= 1.63 mOhm	1	\$0.10	 MSS1210 151 mm ²
10.	M1	Infineon Technologies	BSZ100N06LS3 G	VdsMax= 60.0 V IdsMax= 40.0 Amps	1	\$0.35	 PG-TSDSON-8 19 mm ²
11.	Rcomp	Vishay-Dale	CRCW08052K00FKEA Series= CRCW..e3	Res= 2.0 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
12.	Rfadj	Yageo America	RC1206FR-0756KL Series= ?	Res= 56.0 kOhm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm ²
13.	Rfb1	Vishay-Dale	CRCW08051K00FKEA Series= CRCW..e3	Res= 1000.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
14.	Rfb2	Vishay-Dale	CRCW080518K2FKEA Series= CRCW..e3	Res= 18.2 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
15.	Rivp1	Yageo America	RC1206FR-075K6L Series= ?	Res= 5.6 kOhm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm ²
16.	Rivp2	Yageo America	RC1206FR-0747KL Series= ?	Res= 47.0 kOhm Power= 250.0 mW Tolerance= 1.0%	1	\$0.01	 1206 11 mm ²
17.	Rs1	Vishay-Dale	CRCW0402100RFKED Series= CRCW..e3	Res= 100.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
18.	Rsense	WELWYN	CUSTOM_RESISTOR_MD Series= CUSTOM	Res= 2.0 mOhm Power= 1.0 W Tolerance= 1.0%	1	\$0.10	 0805 5 mm ²
19.	U1	Texas Instruments	LM3481MM/NOPB	Switcher	1	\$0.80	 MUB10A 24 mm ²











Operating Values

#	Name	Value	Category	Description
1.	Total BOM	\$0.0		Total BOM Cost
2.	Cin IRMS	498.109 mA	Current	Input capacitor RMS ripple current
3.	Cout IRMS	2.684 A	Current	Output capacitor RMS ripple current
4.	Iin Avg	5.355 A	Current	Average input current
5.	L Ipp	1.726 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	5.379 A	Current	Inductor ripple current
7.	M1 Irms	4.312 A	Current	M1 MOSFET Irms
8.	SW Ipk	6.218 A	Current	Peak switch current
9.	BOM Count	1	General	Total Design BOM count
10.	FootPrint	921.0 mm ²	General	Total Foot Print Area of BOM components
11.	Frequency	356.601 kHz	General	Switching frequency

#	Name	Value	Category	Description
12.	IC Tolerance	19.0 mV	General	IC Feedback Tolerance
13.	M Vds Act	84.881 mV	General	M Vds
14.	M1 Rdson	19.684 mOhm	General	Drain-Source On-resistance
15.	M1 ThetaJA	20.0 degC/W	General	MOSFET junction-to-ambient thermal resistance
16.	Mode	CCM	General	Conduction Mode
17.	Pout	72.0 W	General	Total output power
18.	D1 Tj	107.5 degC	Op_Point	D1 junction temperature
19.	Low Freq Gain	62.406 dB	Op_Point	Gain at 10Hz
20.	Vout Actual	24.192 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
21.	Vout OP	24.0 V	Op_Point	Operational Output Voltage
22.	Cross Freq	4.524 kHz	Op_point	Bode plot crossover frequency
23.	Duty Cycle	43.985 %	Op_point	Duty cycle
24.	Efficiency	96.035 %	Op_point	Steady state efficiency
25.	Gain Marg	-17.275 dB	Op_point	Bode Plot Gain Margin
26.	IC Tj	54.173 degC	Op_point	IC junction temperature
27.	ICThetaJA	200.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
28.	IOUT_OP	3.0 A	Op_point	Iout operating point
29.	M1 TjOP	42.798 degC	Op_point	M1 MOSFET junction temperature
30.	Phase Marg	52.236 deg	Op_point	Bode Plot Phase Margin
31.	VIN_OP	14.0 V	Op_point	Vin operating point
32.	Vout p-p	87.104 mV	Op_point	Peak-to-peak output ripple voltage
33.	Cin Pd	74.434 mW	Power	Input capacitor power dissipation
34.	Cout Pd	100.884 mW	Power	Output capacitor power dissipation
35.	Diode Pd	1.65 W	Power	Diode power dissipation
36.	IC Pd	145.863 mW	Power	IC power dissipation
37.	L Pd	56.59 mW	Power	Inductor power dissipation
38.	M1 Pd	889.883 mW	Power	M1 MOSFET total power dissipation
39.	M1 PdCond	366.02 mW	Power	M1 MOSFET conduction losses
40.	M1 PdSw	523.863 mW	Power	M1 MOSFET switching losses
41.	Rfb Pd	30.0 mW	Power	Rfb Power Dissipation
42.	Rsense Pd	0.0 W	Power	LED Current Rsns Power Dissipation
43.	Total Pd	2.973 W	Power	Total Power Dissipation
44.	Vout Tolerance	3.452 %		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	20.0	Maximum input voltage
3.	VinMin	14.0	Minimum input voltage
4.	Vout	24.0	Output Voltage
5.	base_pn	LM3481	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	25.0	Ambient temperature

Design Assistance

1. **LM3481** Product Folder : <http://www.ti.com/product/LM3481> : contains the data sheet and other resources.

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