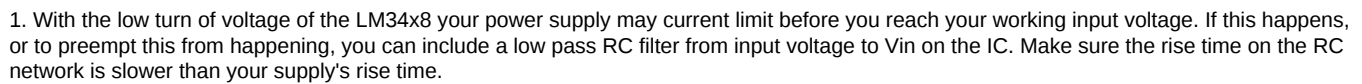


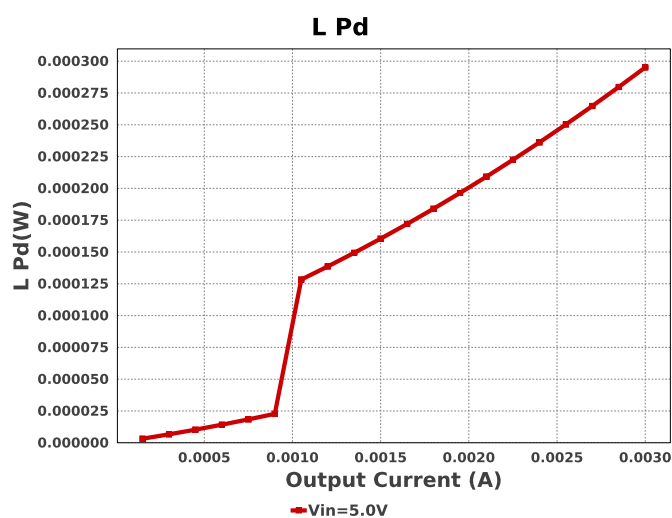
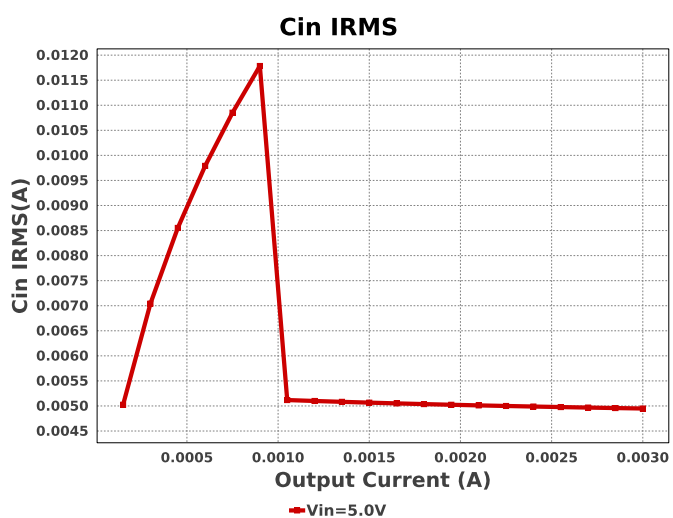
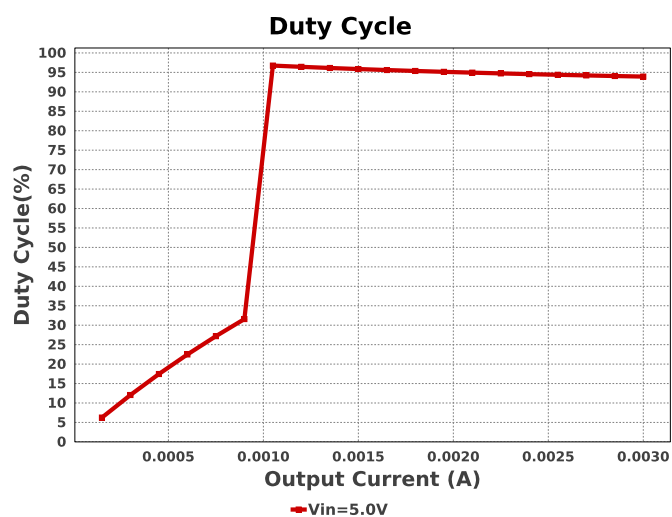
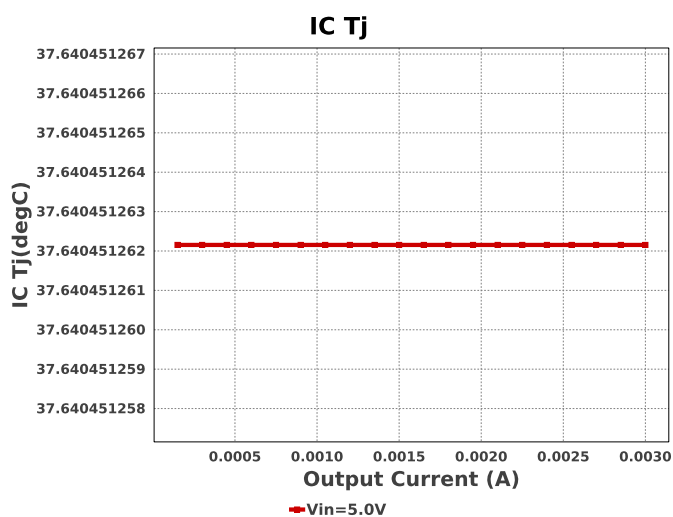
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Topology = Boost
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BOM Cost = NA
BOM Count = 16
Total Pd = 0.04W

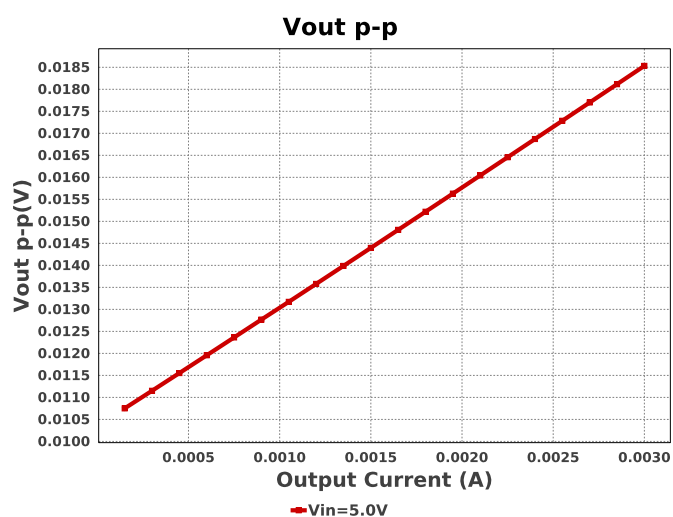
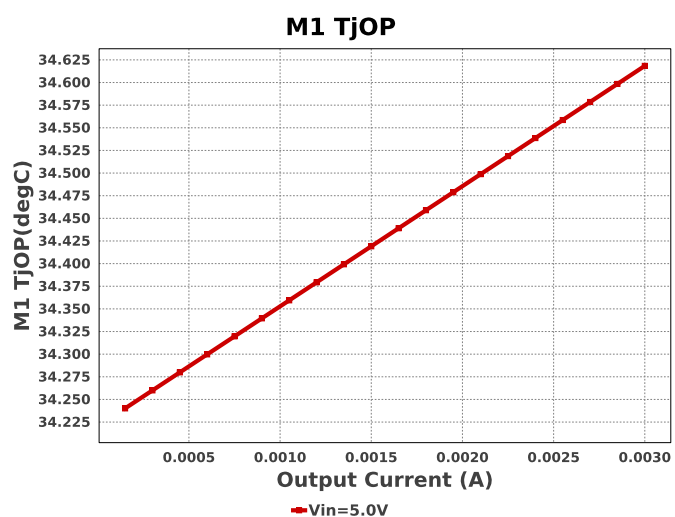
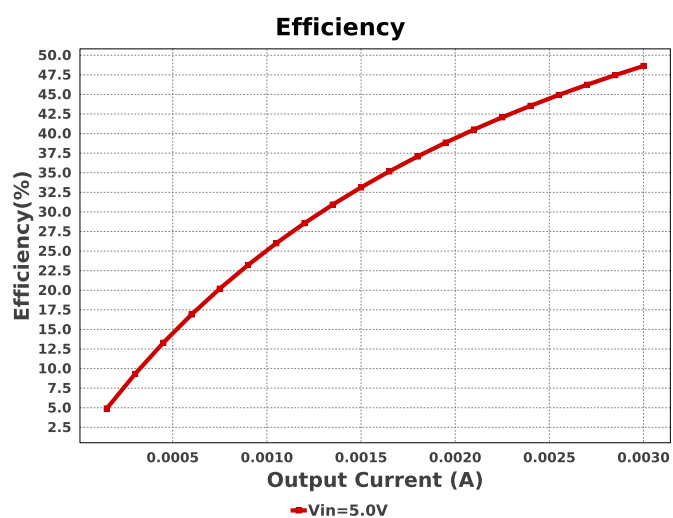
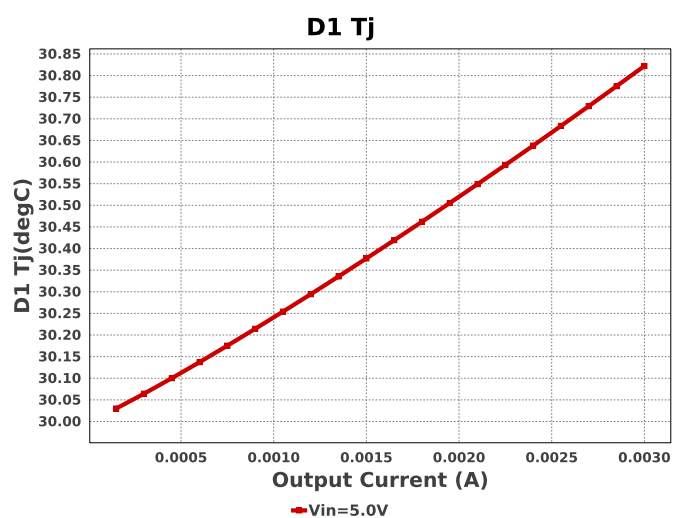
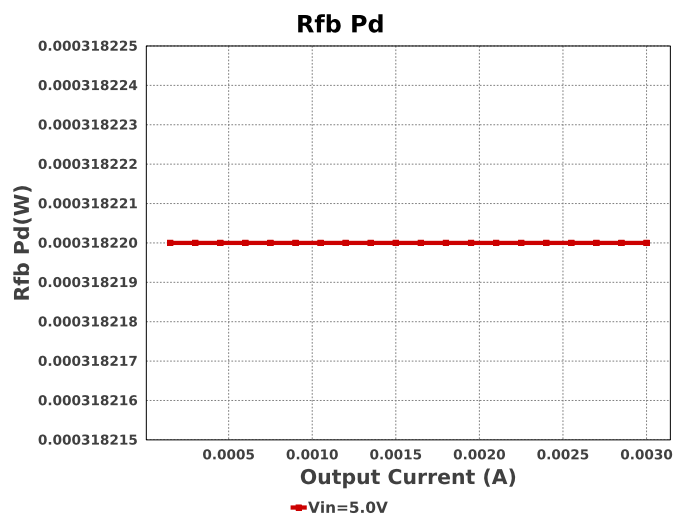
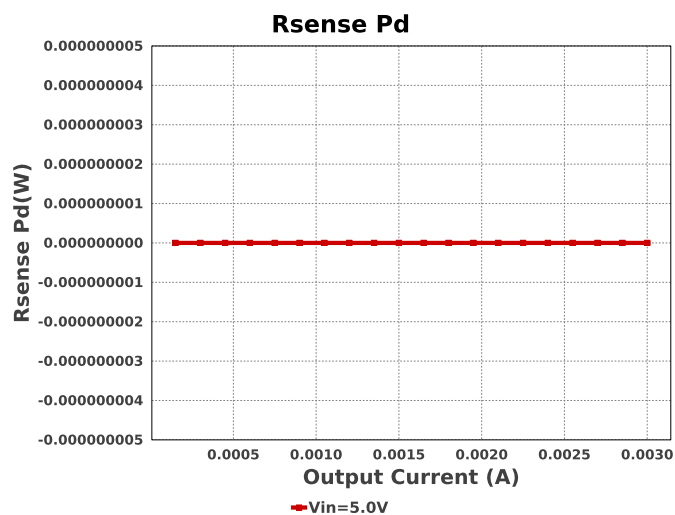
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LM3478MM/NOPB 5V-5V to 40.00V @ 0.003A

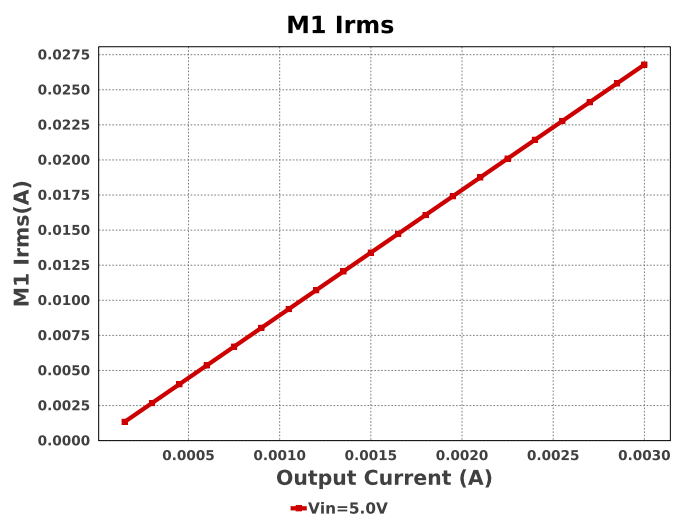
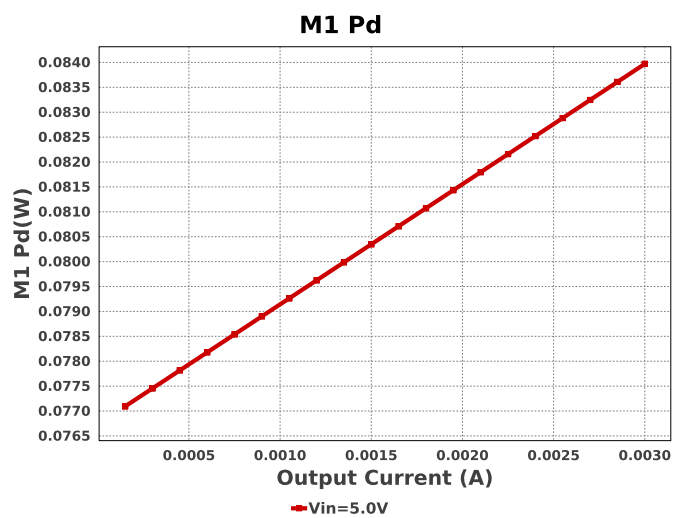
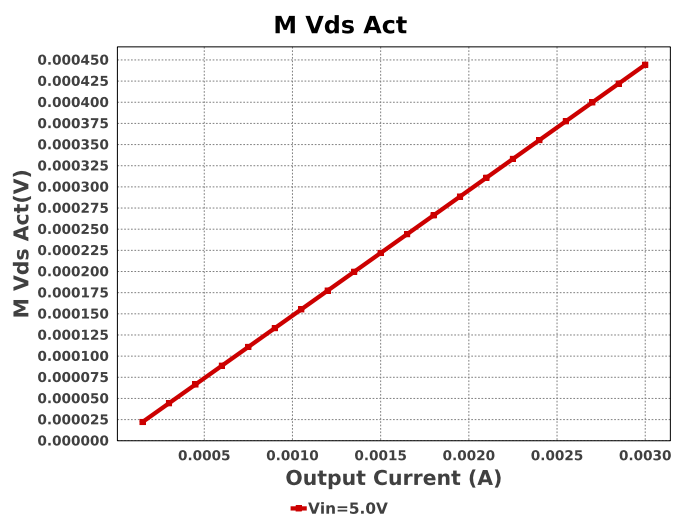
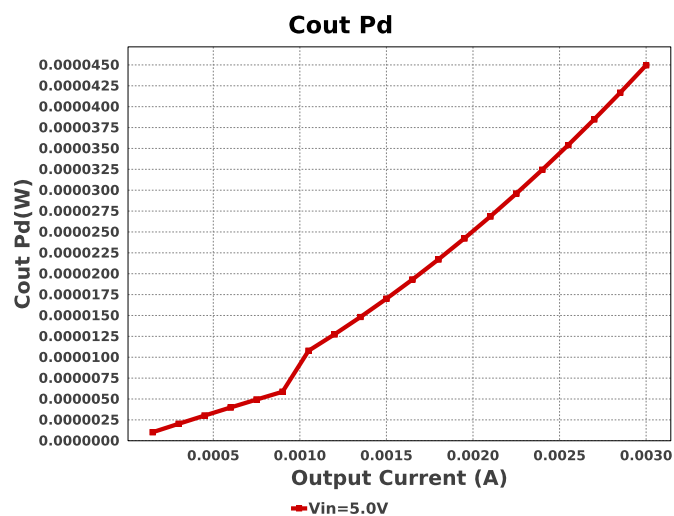
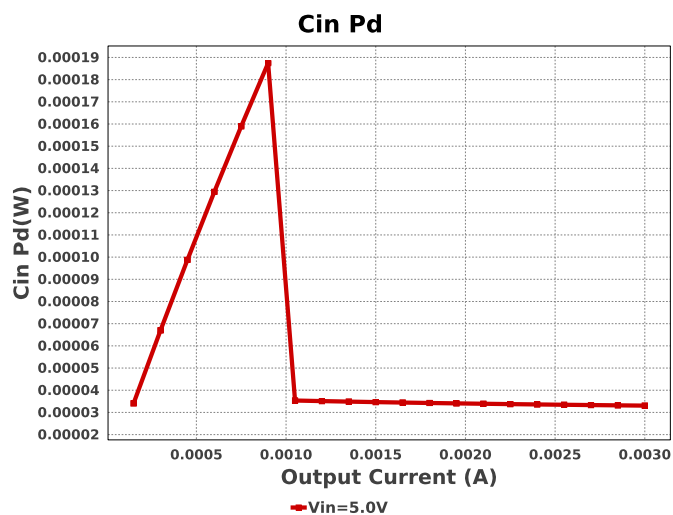
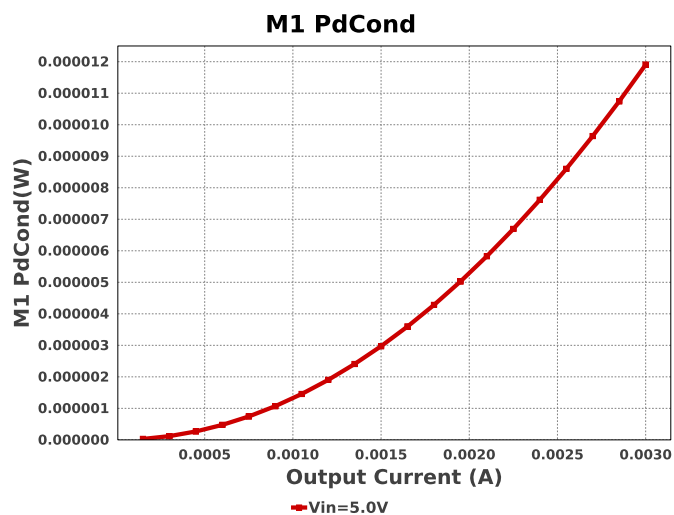


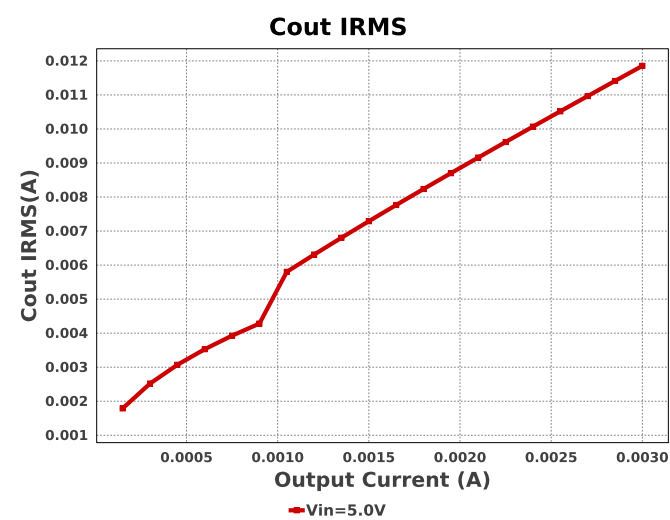
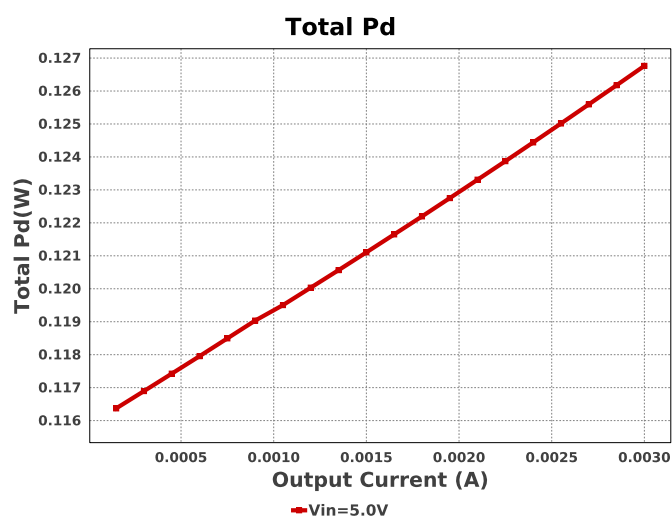
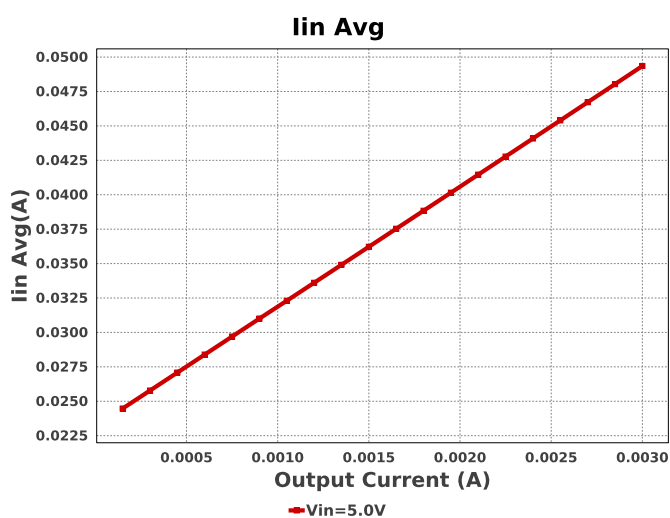
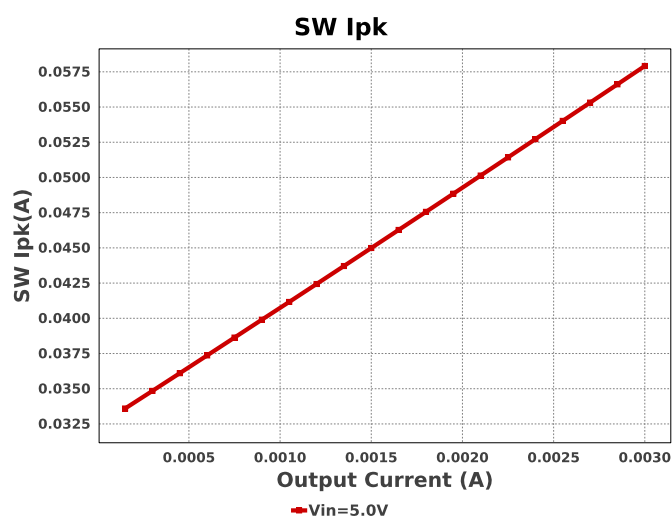
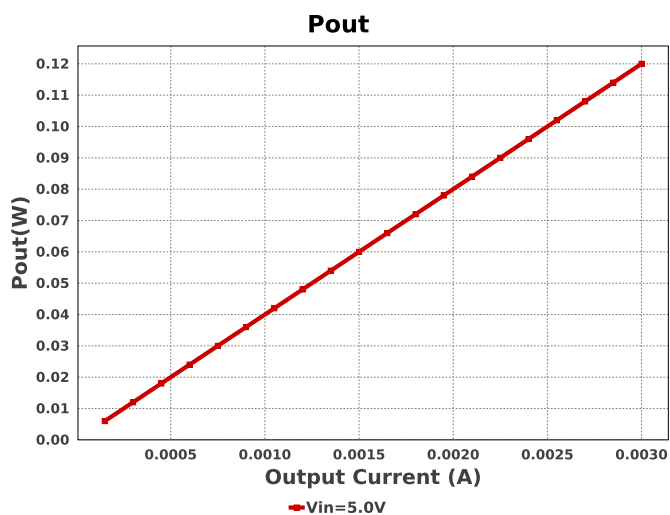
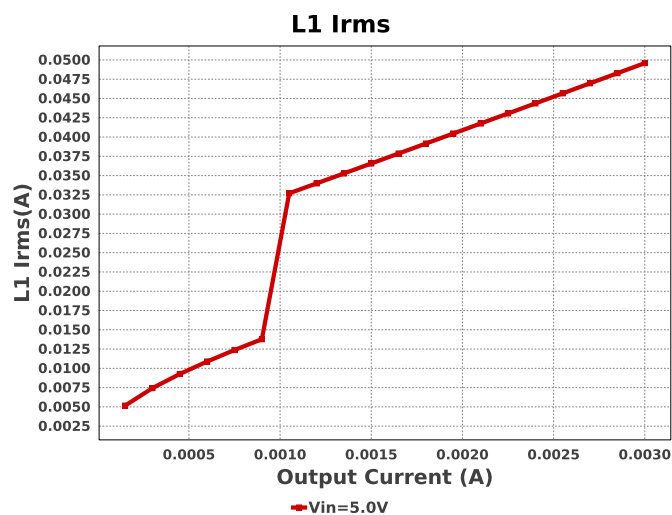
Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
Cbyp	MuRata	GRM155R70J104KA01D Series= X7R	Cap= 100.0 nF ESR= 1.0 mOhm VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm²
Ccomp	Kemet	C0805C100M4GACTU Series= COG/NP0	Cap= 10.0 pF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm²
Ccomp2	Samsung Electro-Mechanics	CL21C100JBANNNC Series= COG/NP0	Cap= 10.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm²
Cfilt	Samsung Electro-Mechanics	CL21C100JBANNNC Series= COG/NP0	Cap= 10.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm²
Cin	Panasonic	EEE-FK1C220UR Series= FK	Cap= 22.0 uF ESR= 1.35 Ohm VDC= 16.0 V IRMS= 90.0 mA	1	\$0.08	 SM_RADIAL_B 47 mm²
Cout	Panasonic	EEV-FK1K151Q Series= FK	Cap= 150.0 uF ESR= 320.0 mOhm VDC= 80.0 V IRMS= 500.0 mA	1	\$0.45	 SM_RADIAL_H13 264 mm²
D1	Comchip Technology	CDBW46-G	VF@Io= 1.0 V VRRM= 100.0 V	1	\$0.03	 SOD-123 13 mm²
L1	CUSTOM	CUSTOM	L= 500.0 µH 100.0 mOhm	1	NA	CUSTOM 0 mm²

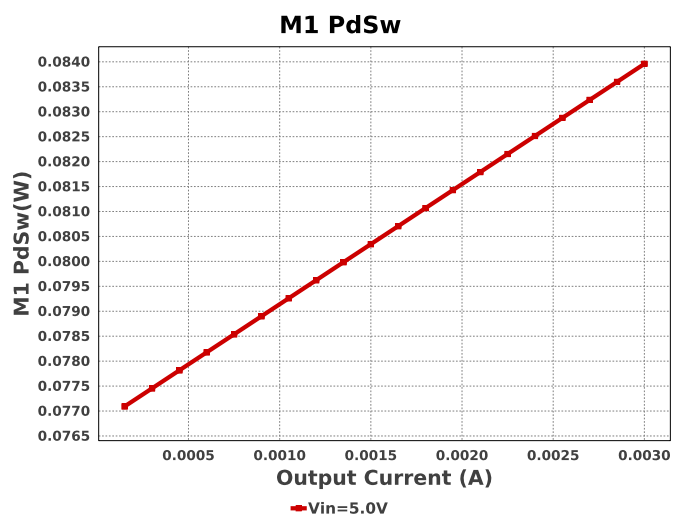
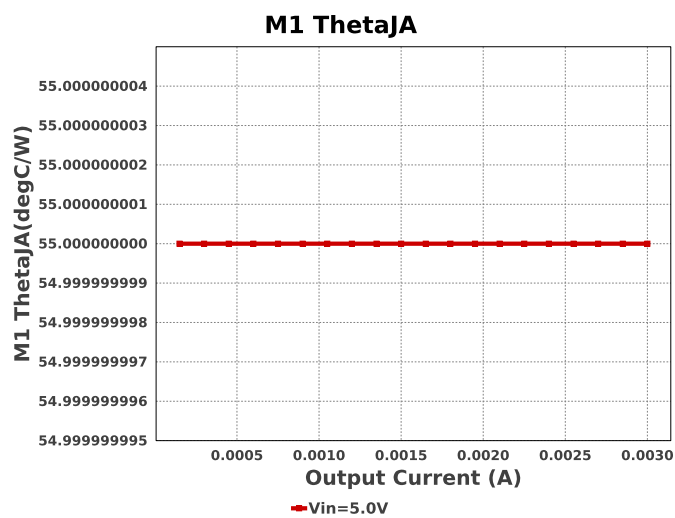
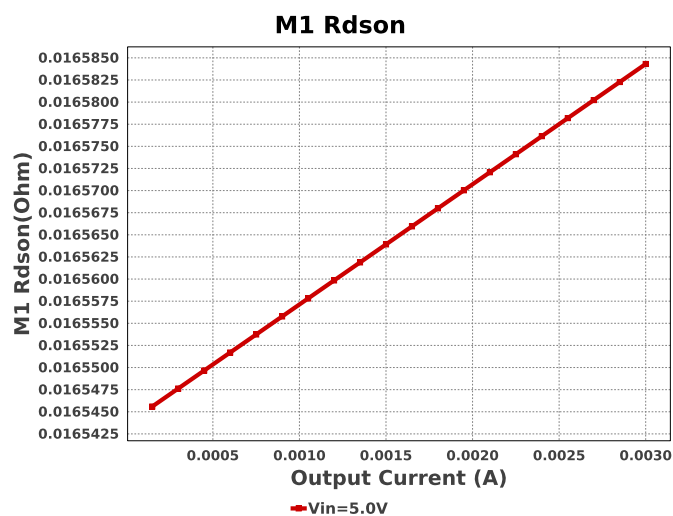
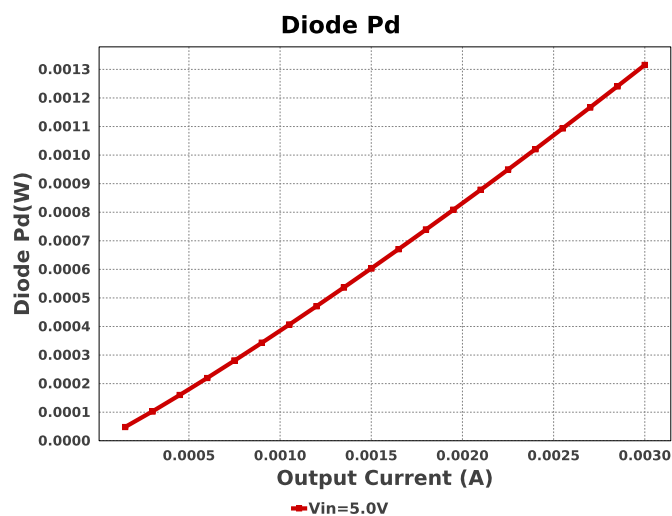
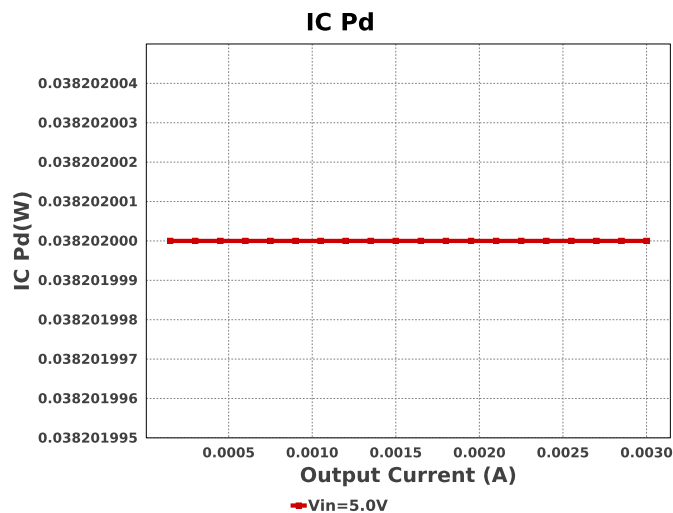
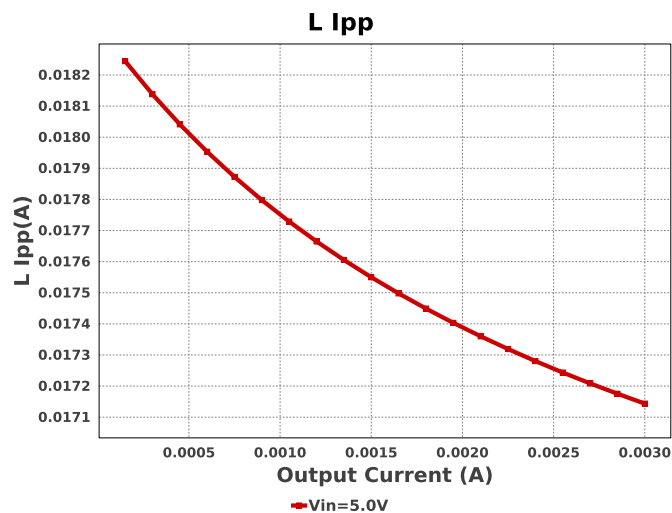
Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
M1	Texas Instruments	CSD18543Q3A	VdsMax= 60.0 V IdsMax= 35.0 Amps	1	\$0.26	 DNH0008A 18 mm ²
Rcomp	Vishay-Dale	CRCW04025M62FKED Series= CRCW..e3	Res= 5.62 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
Rfadj	Vishay-Dale	CRCW040226K7FKED Series= CRCW..e3	Res= 26.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
Rfb1	Vishay-Dale	CRCW0402158KFKED Series= CRCW..e3	Res= 158.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
Rfb2	Vishay-Dale	CRCW04024M87FKED Series= CRCW..e3	Res= 4.87 MOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
Rfilt	Vishay-Dale	CRCW0402100RFKED Series= CRCW..e3	Res= 100.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
Rsense	Vishay-Dale	CRCW04021R13FKED Series= CRCW..e3	Res= 1.13 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
U1	Texas Instruments	LM3478MM/NOPB	Switcher	1	\$1.05	 MUA08A 24 mm ²

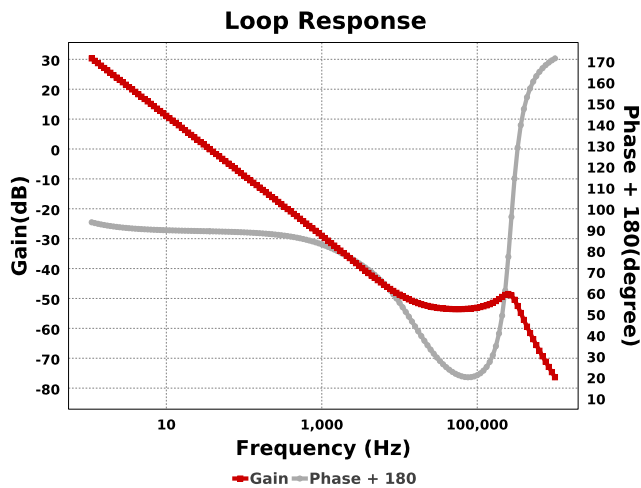












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	4.801 mA	Capacitor	Input capacitor RMS ripple current
2.	Cin Pd	31.123 μ W	Capacitor	Input capacitor power dissipation
3.	Cout IRMS	9.522 mA	Capacitor	Output capacitor RMS ripple current
4.	Cout Pd	29.013 μ W	Capacitor	Output capacitor power dissipation
5.	D1 Tj	31.875 degC	Diode	D1 junction temperature
6.	Diode Pd	3.0 mW	Diode	Diode power dissipation
7.	IC Pd	38.48 mW	IC	IC power dissipation
8.	IC Tj	37.696 degC	IC	IC junction temperature
9.	IC Tolerance	24.3 mV	IC	IC Feedback Tolerance
10.	ICThetaJA	200.0 degC/W	IC	IC junction-to-ambient thermal resistance
11.	Iin Avg	32.614 mA	IC	Average input current
12.	L Ipp	16.633 mA	Inductor	Peak-to-peak inductor ripple current
13.	L Pd	129.62 μ W	Inductor	Inductor power dissipation
14.	L1 Irms	32.866 mA	Inductor	Inductor ripple current
15.	M Vds Act	444.538 μ V	Mosfet	M Vds
16.	M1 Irms	26.793 mA	Mosfet	M1 MOSFET Irms
17.	M1 Pd	85.252 mW	Mosfet	M1 MOSFET total power dissipation
18.	M1 PdCond	11.911 μ W	Mosfet	M1 MOSFET conduction losses
19.	M1 PdSw	85.24 mW	Mosfet	M1 MOSFET switching losses
20.	M1 Rdson	16.592 mOhm	Mosfet	Drain-Source On-resistance
21.	M1 ThetaJA	55.0 degC/W	Mosfet	MOSFET junction-to-ambient thermal resistance
22.	M1 TjOP	34.689 degC	Mosfet	M1 MOSFET junction temperature
23.	Cin Pd	31.123 μ W	Power	Input capacitor power dissipation
24.	Cout Pd	29.013 μ W	Power	Output capacitor power dissipation
25.	Diode Pd	3.0 mW	Power	Diode power dissipation
26.	IC Pd	38.48 mW	Power	IC power dissipation
27.	L Pd	129.62 μ W	Power	Inductor power dissipation
28.	M1 Pd	85.252 mW	Power	M1 MOSFET total power dissipation
29.	M1 PdCond	11.911 μ W	Power	M1 MOSFET conduction losses
30.	M1 PdSw	85.24 mW	Power	M1 MOSFET switching losses
31.	Rfb Pd	318.22 μ W	Power	Rfb Power Dissipation
32.	Rsense Pd	650.88 μ W	Power	LED Current Rsns Power Dissipation
33.	Total Pd	43.072 mW	Power	Total Power Dissipation
34.	Rfb Pd	318.22 μ W	Resistor	Rfb Power Dissipation
35.	Rsense Pd	650.88 μ W	Resistor	LED Current Rsns Power Dissipation
36.	BOM Count	16	System	Total Design BOM count
37.	Cross Freq	54.637 Hz	System	Bode plot crossover frequency
38.	Duty Cycle	90.773 %	System	Duty cycle
39.	Efficiency	73.587 %	System	Steady state efficiency
40.	FootPrint	471.0 mm ²	System	Total Foot Print Area of BOM components
41.	Frequency	541.734 kHz	System	Switching frequency
42.	Gain Marg	-157.603 dB	System	Bode Plot Gain Margin
43.	Iout	3.0 mA	System	Iout operating point

#	Name	Value	Category	Description
44.	Low Freq Gain	33.918 dB	System Information	Gain at 1Hz
45.	Mode	CCM	System Information	Conduction Mode
46.	Phase Marg	89.826 deg	System Information	Bode Plot Phase Margin
47.	Pout	120.0 mW	System Information	Total output power
48.	SW Ipk	40.829 mA	System Information	Peak switch current
49.	Total BOM	NA	System Information	Total BOM Cost
50.	Vin	5.0 V	System Information	Vin operating point
51.	Vout	40.0 V	System Information	Operational Output Voltage
52.	Vout Actual	40.097 V	System Information	Vout Actual calculated based on selected voltage divider resistors
53.	Vout Tolerance	3.923 %	System Information	Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable
54.	Vout p-p	13.065 mV	System Information	Peak-to-peak output ripple voltage

Design Inputs

Name	Value	Description
Iout	3.0 m	Maximum Output Current
VinMax	5.0	Maximum input voltage
VinMin	5.0	Minimum input voltage
Vout	40.0	Output Voltage
base_pn	LM3478	Base Product Number
source	DC	Input Source Type
Ta	30.0	Ambient temperature

WEBENCH® Assembly

Design Assistance

1. Master key : AE3011FD2EE8F4EB[v1]
2. **LM3478** Product Folder : <http://www.ti.com/product/LM3478> : contains the data sheet and other resources.

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