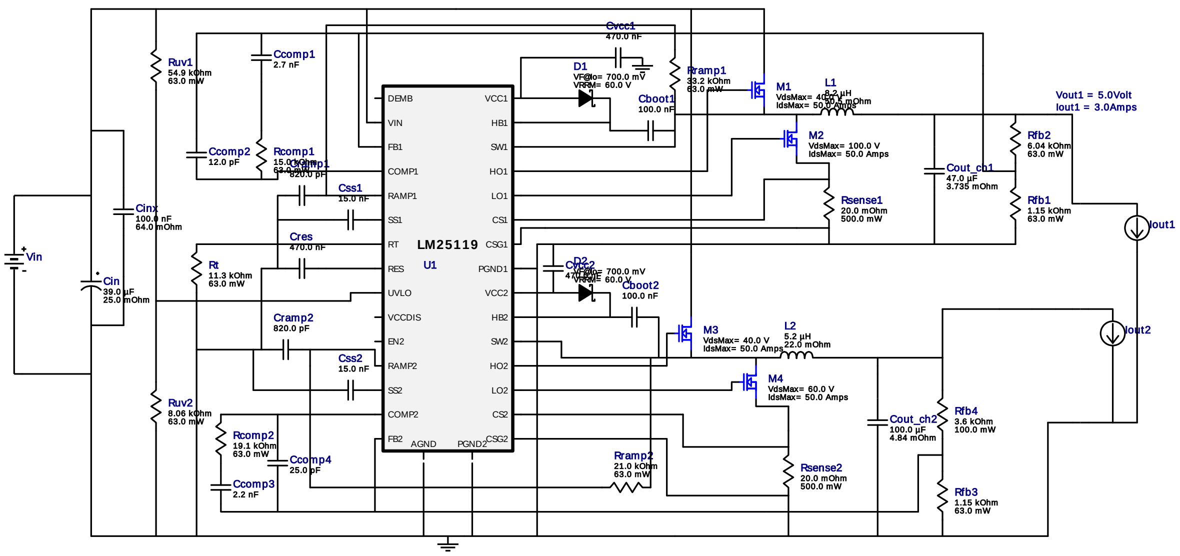
TEXAS INSTRUMENTS

WEBENCH ® Design Report

VinMin = 12.0V
VinMax = 30.0V
Vout = 5.0V
Iout = 3.0A

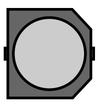
Device = LM25119PSQ/NOPB
Topology = Buck
Created = 8/5/16 4:21:49 AM
BOM Cost = $6.56
BOM Count = 39
Total Pd = 3.62W

Design : 4761085/1 LM25119PSQ/NOPB
LM25119PSQ/NOPB 12.0V-30.0V to 3.30V @ 3.0A



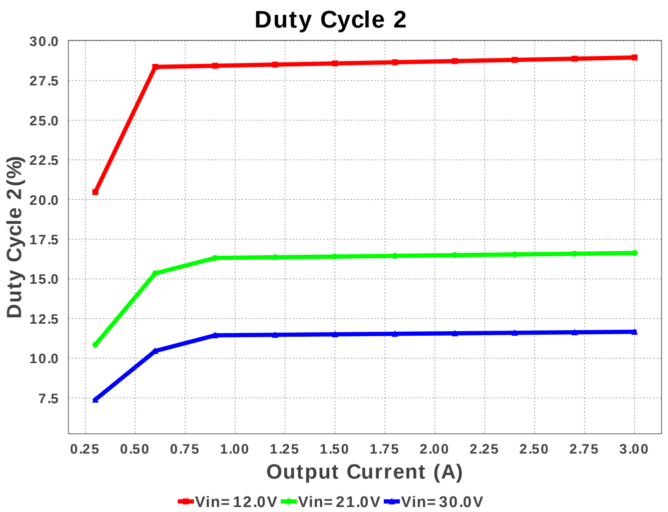
1. This regulator device is qualified for Automotive applications. All passives and other components selected in this design may not be qualified for Automotive applications. The user is required to verify that all components in the design meet the qualification and safety requirements for their specific application.View WEBENCH(R) Disclaimer.

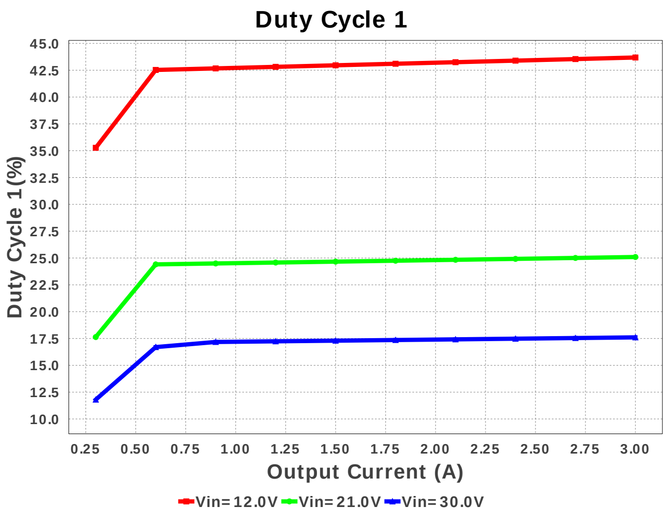
Electrical BOM

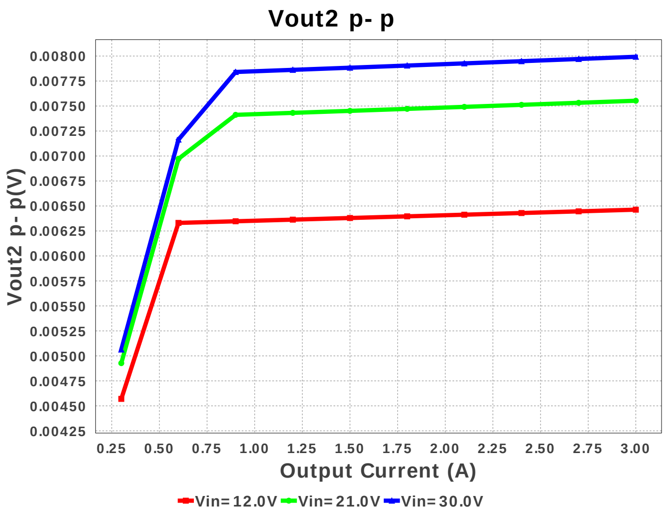
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot1	MuRata	GRM155R61A104KA01D Series= X5R	Cap= 100.0 nF VDC= 10.0 V IRMS= 0.0 A	1	$0.01	0402 3 mm^2
2.	Cboot2	MuRata	GRM155R61A104KA01D Series= X5R	Cap= 100.0 nF VDC= 10.0 V IRMS= 0.0 A	1	$0.01	0402 3 mm^2
3.	Ccomp1	Yageo America	CC0805KRX7R9BB272 Series= X7R	Cap= 2.7 nF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
4.	Ccomp2	Yageo America	CC0805JRNPO9BN120 Series= C0G/NP0	Cap= 12.0 pF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
5.	Ccomp3	Yageo America	CC0805KRX7R9BB222 Series= X7R	Cap= 2.2 nF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
6.	Ccomp4	Samsung Electro-Mechanics	CL21C250JBANNNC Series= C0G/NP0	Cap= 25.0 pF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
7.	Cin	Panasonic	50SVPF39M Series= ?	Cap= 39.0 uF ESR= 25.0 mOhm VDC= 50.0 V IRMS= 3.8 A	1	$0.72	 CAPSMT_62_E12 106 mm^2
8.	Cinx	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

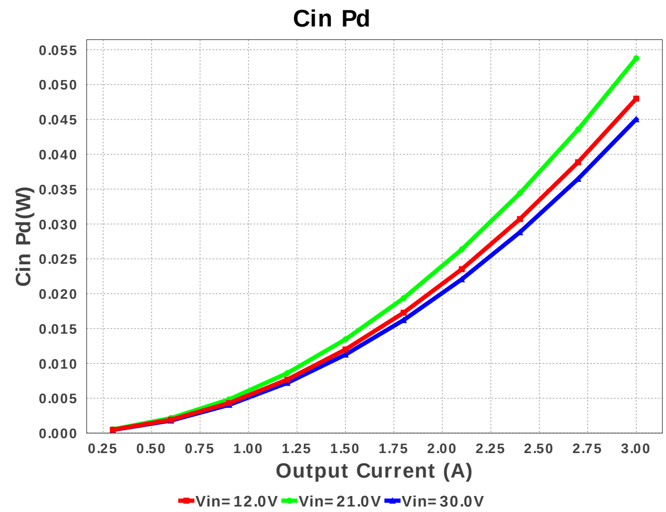
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
9.	Cout_ch1	MuRata	GRM31CC80J476KE18L Series= X6S	Cap= 47.0 uF ESR= 3.735 mOhm VDC= 6.3 V IRMS= 4.0522 A	1	$0.10	1206_190 11 mm^2
10.	Cout_ch2	MuRata	GRM31CD80G107ME39L Series= X6T	Cap= 100.0 uF ESR= 4.84 mOhm VDC= 4.0 V IRMS= 4.3381 A	1	$0.14	1206_190 11 mm^2
11.	Cramp1	Yageo America	CC0805KRX7R9BB821 Series= X7R	Cap= 820.0 pF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
12.	Cramp2	Yageo America	CC0805KRX7R9BB821 Series= X7R	Cap= 820.0 pF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
13.	Cres	MuRata	GRM155C80J474KE19D Series= X6S	Cap= 470.0 nF VDC= 6.3 V IRMS= 0.0 A	1	$0.01	0402 3 mm^2
14.	Css1	Yageo America	CC0805KRX7R9BB153 Series= X7R	Cap= 15.0 nF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
15.	Css2	Yageo America	CC0805KRX7R9BB153 Series= X7R	Cap= 15.0 nF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm^2
16.	Cvcc1	MuRata	GRM155R61A474KE15D Series= X5R	Cap= 470.0 nF VDC= 10.0 V IRMS= 0.0 A	1	$0.01	0402 3 mm^2
17.	Cvcc2	MuRata	GRM155R61A474KE15D Series= X5R	Cap= 470.0 nF VDC= 10.0 V IRMS= 0.0 A	1	$0.01	0402 3 mm^2
18.	D1	Diodes Inc.	B260A-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	$0.09	SMA 37 mm^2
19.	D2	Diodes Inc.	B260A-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	$0.09	SMA 37 mm^2
20.	L1	Bourns	SRP6540-8R2M	L= 8.2 µH DCR= 50.5 mOhm	1	$0.49	SRP6540 83 mm^2
21.	L2	Bourns	SRU1038-5R2Y	L= 5.2 µH DCR= 22.0 mOhm	1	$0.33	SRU1038 144 mm^2
22.	M1	Texas Instruments	CSD18504Q5A	VdsMax= 40.0 V IdsMax= 50.0 Amps	1	$0.37	TRANS_NexFET_Q5A 55 mm^2
23.	M2	Texas Instruments	CSD19537Q3	VdsMax= 100.0 V IdsMax= 50.0 Amps	1	$0.50	TRANS_NexFET_Q3 18 mm^2
24.	M3	Texas Instruments	CSD18504Q5A	VdsMax= 40.0 V IdsMax= 50.0 Amps	1	$0.37	TRANS_NexFET_Q5A 55 mm^2
25.	M4	Texas Instruments	CSD18537NQ5A	VdsMax= 60.0 V IdsMax= 50.0 Amps	1	$0.31	TRANS_NexFET_Q5A 55 mm^2

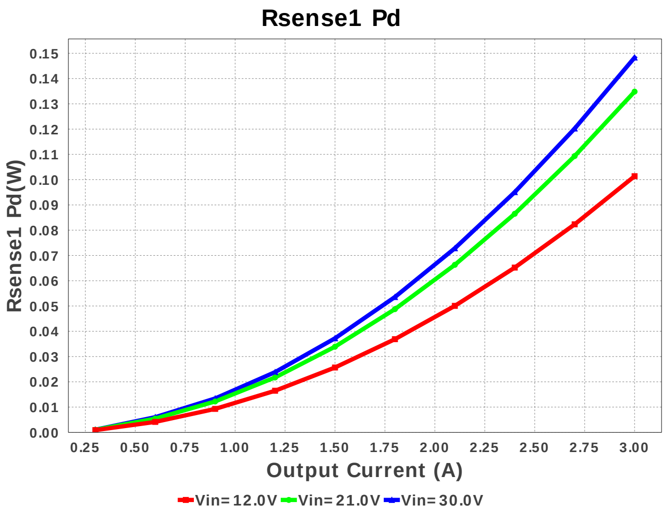
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
26.	Rcomp1	Vishay-Dale	CRCW040215K0FKED Series= CRCW..e3	Res= 15.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
27.	Rcomp2	Vishay-Dale	CRCW040219K1FKED Series= CRCW..e3	Res= 19.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
28.	Rfb1	Vishay-Dale	CRCW04021K15FKED Series= CRCW..e3	Res= 1.15 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
29.	Rfb2	Vishay-Dale	CRCW04026K04FKED Series= CRCW..e3	Res= 6.04 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
30.	Rfb3	Vishay-Dale	CRCW04021K15FKED Series= CRCW..e3	Res= 1.15 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
31.	Rfb4	Yageo America	RC0603FR-073K6L Series= ?	Res= 3.6 kOhm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm^2
32.	Rramp1	Vishay-Dale	CRCW040233K2FKED Series= CRCW..e3	Res= 33.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
33.	Rramp2	Vishay-Dale	CRCW040221K0FKED Series= CRCW..e3	Res= 21.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
34.	Rsense1	Stackpole Electronics Inc	CSR1206FK20L0 Series= ?	Res= 20.0 mOhm Power= 500.0 mW Tolerance= 1.0%	1	$0.10	1206 11 mm^2
35.	Rsense2	Stackpole Electronics Inc	CSR1206FK20L0 Series= ?	Res= 20.0 mOhm Power= 500.0 mW Tolerance= 1.0%	1	$0.10	1206 11 mm^2
36.	Rt	Vishay-Dale	CRCW040211K3FKED Series= CRCW..e3	Res= 11.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
37.	Ruv1	Vishay-Dale	CRCW040254K9FKED Series= CRCW..e3	Res= 54.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
38.	Ruv2	Vishay-Dale	CRCW04028K06FKED Series= CRCW..e3	Res= 8.06 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
39.	U1	Texas Instruments	LM25119PSQ/NOPB	Switcher	1	$2.60	SQA32A 49 mm^2

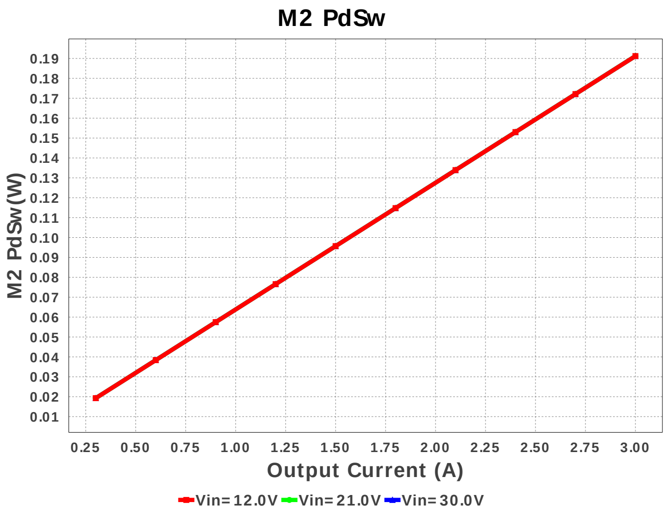

Duty Cycle 2
Duty Cycle 2(%)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

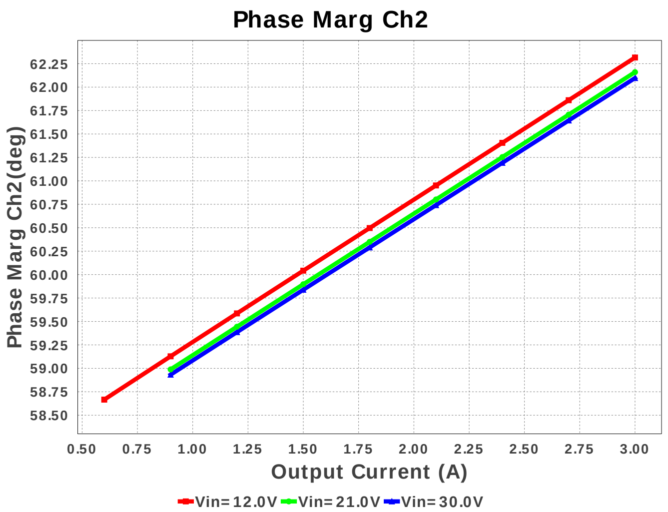

Duty Cycle 1
Duty Cycle 1(%)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

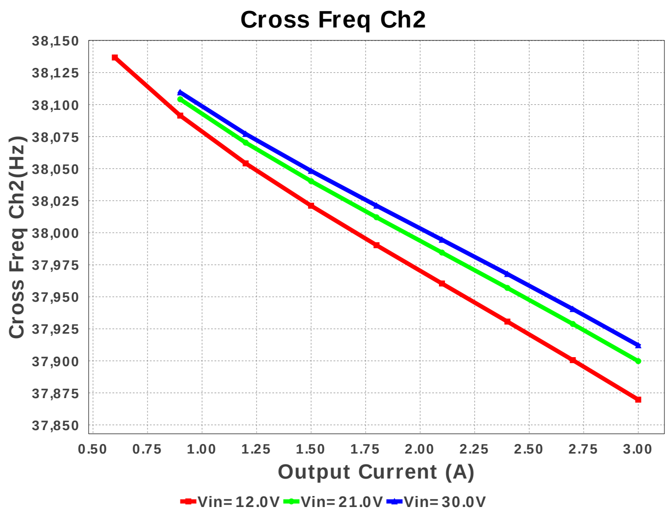

Vout2 p-p
Vout2 p-p(V)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

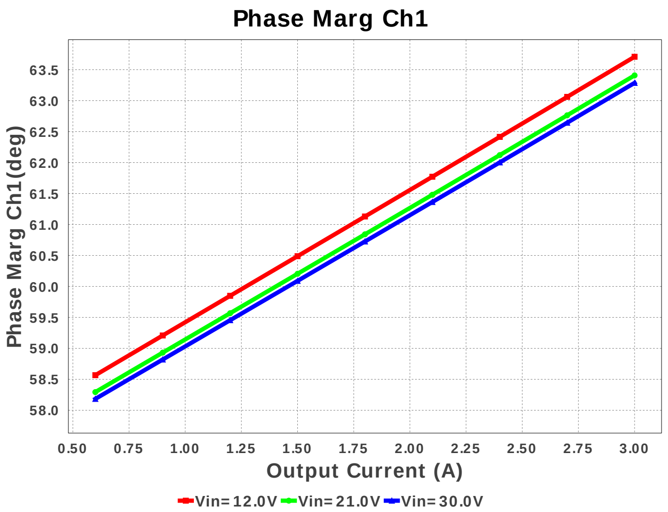

Cin Pd
Cin Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

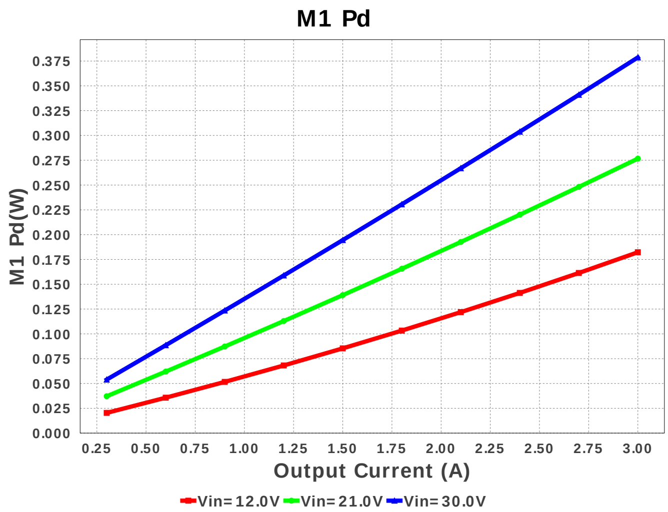

Rsense1 Pd
Rsense1 Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

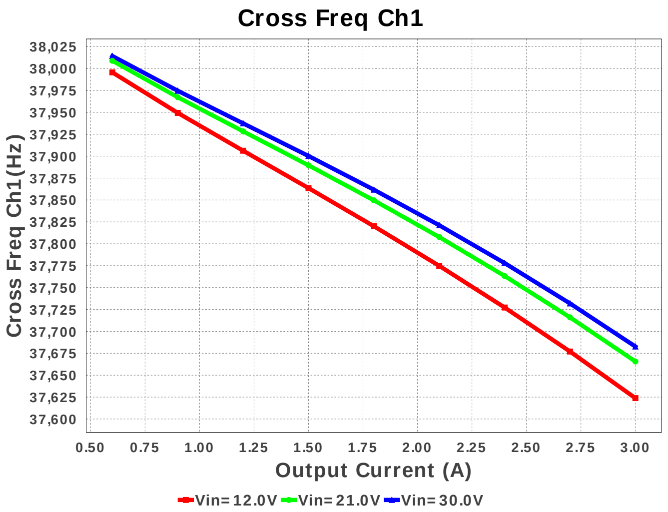

M2 PdSw
M2 PdSw(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

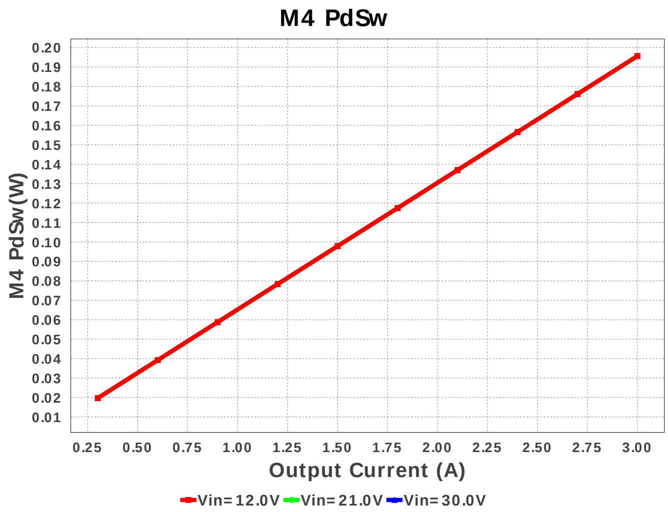

Phase Marg Ch2
Phase Marg Ch2(deg)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

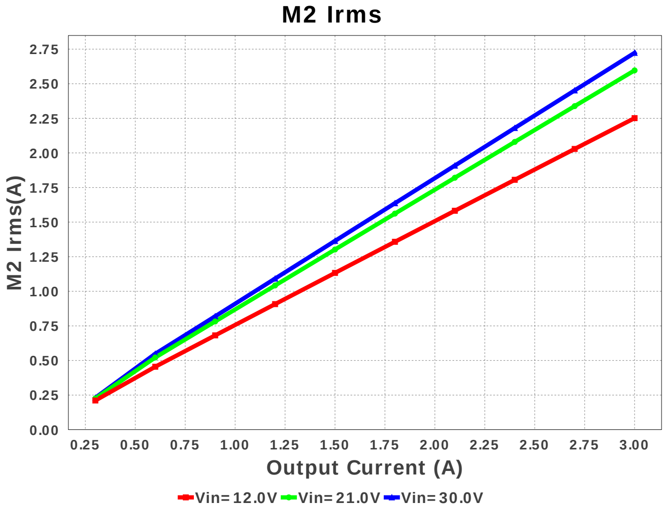

Cross Freq Ch2
Cross Freq Ch2(Hz)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

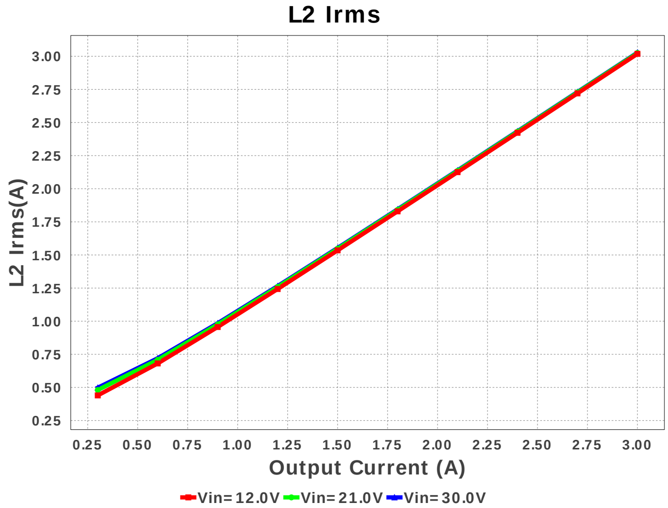

Phase Marg Ch1
Phase Marg Ch1(deg)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

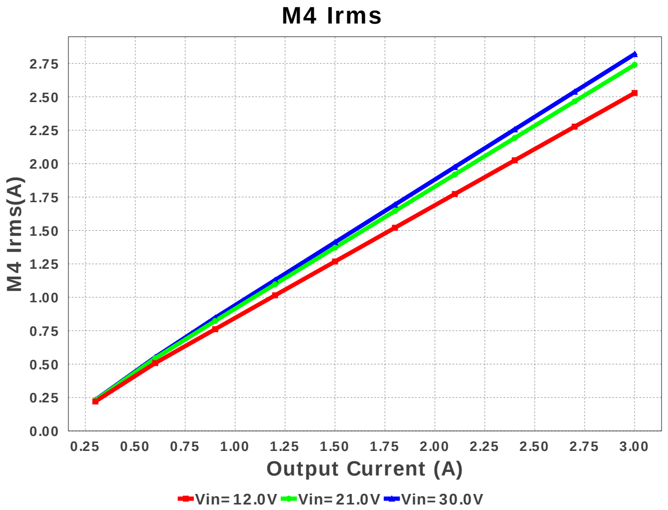

M1 Pd
M1 Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

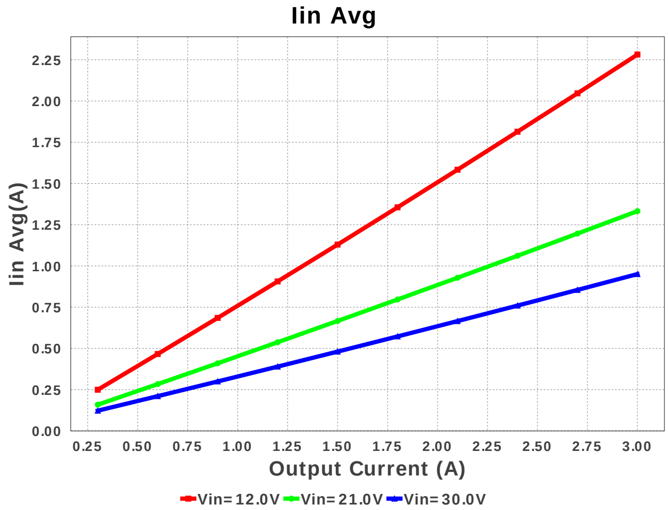

Cross Freq Ch1
Cross Freq Ch1(Hz)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

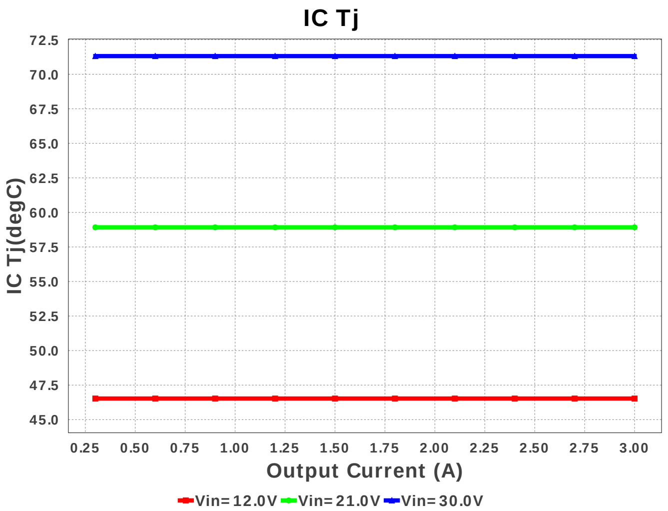

M4 PdSw
M4 PdSw(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

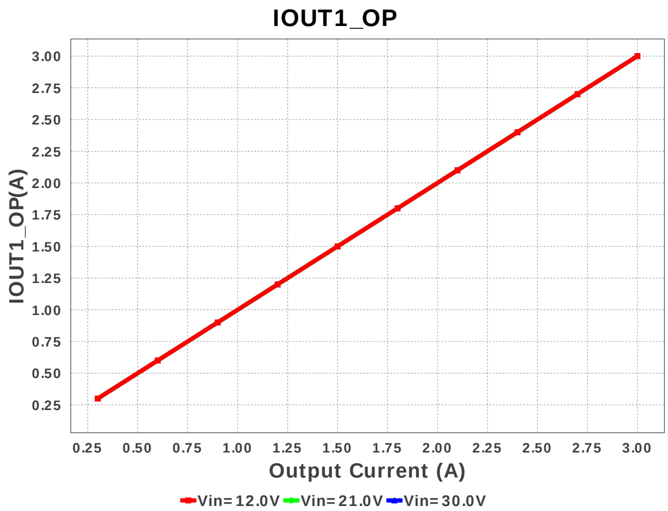

M2 Irms
M2 Irms(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V


L2 Irms
L2 Irms(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

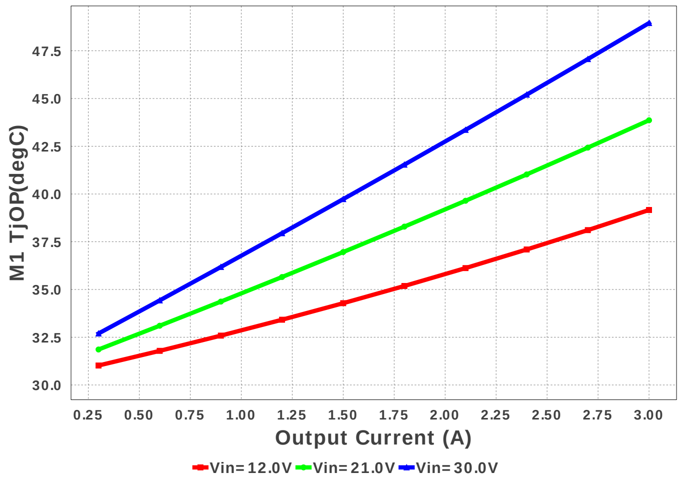

M4 Irms
M4 Irms(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V


Iin Avg
Iin Avg(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

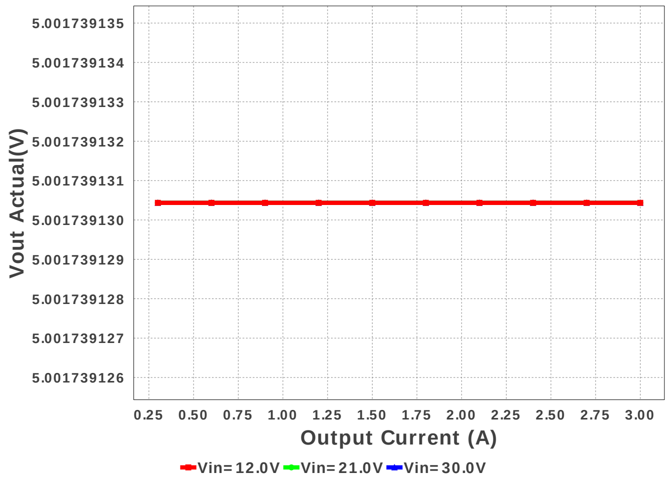

IC Tj
IC Tj(degC)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V


IOUT1_OP
IOUT1_OP(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

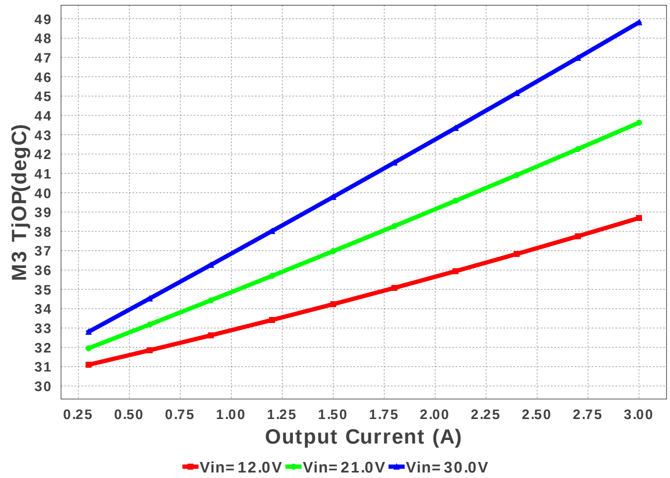
M1 TjOP



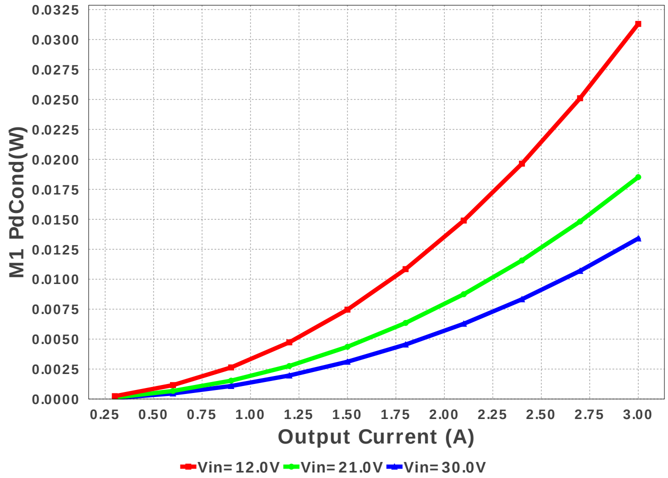
Vout Actual



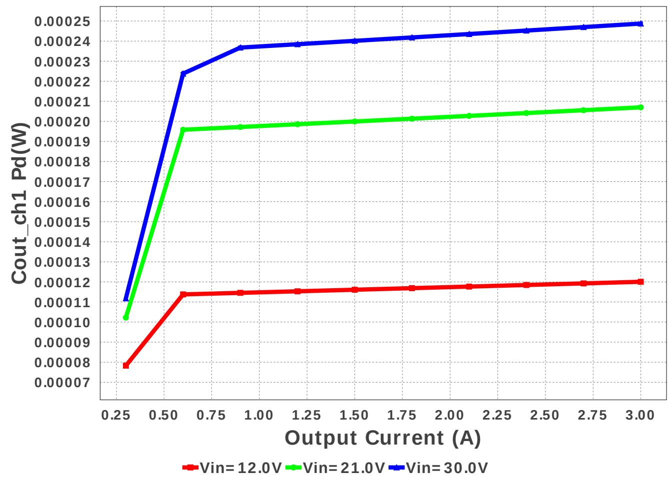
M3 TjOP



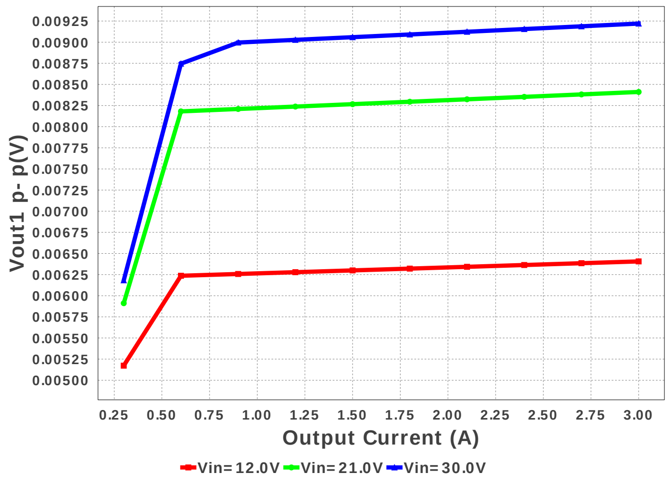
M1 PdCond

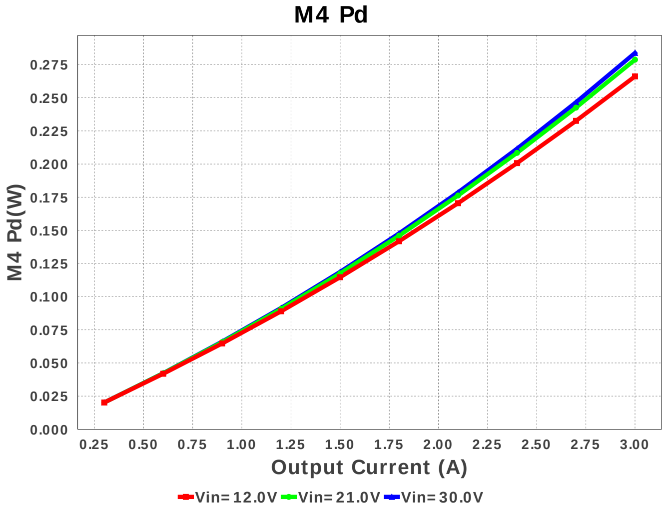


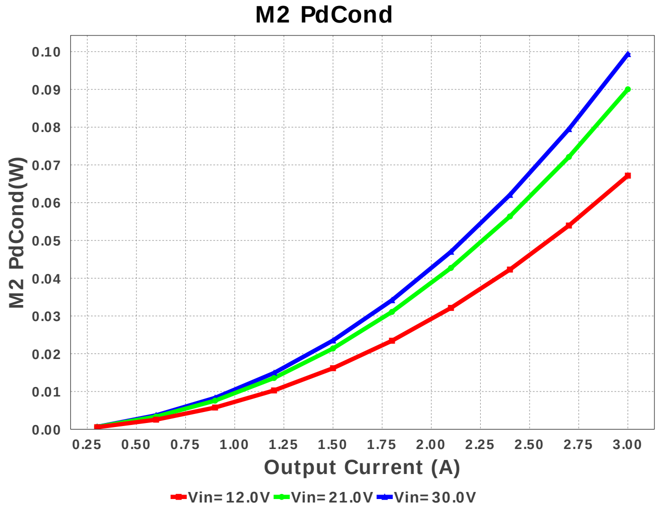
Cout_ch1 Pd

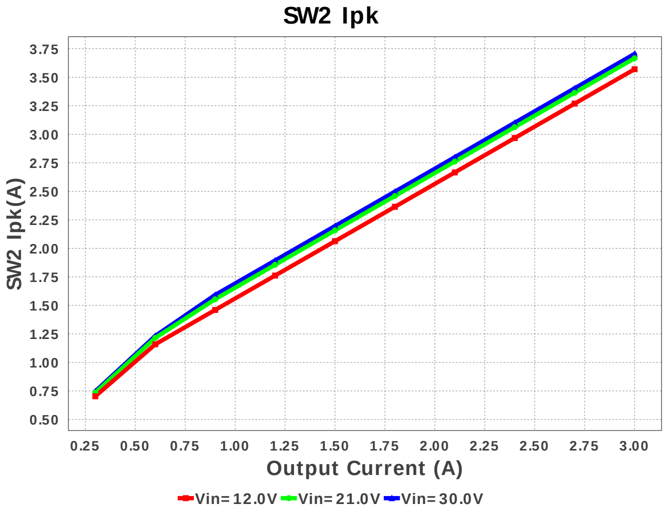


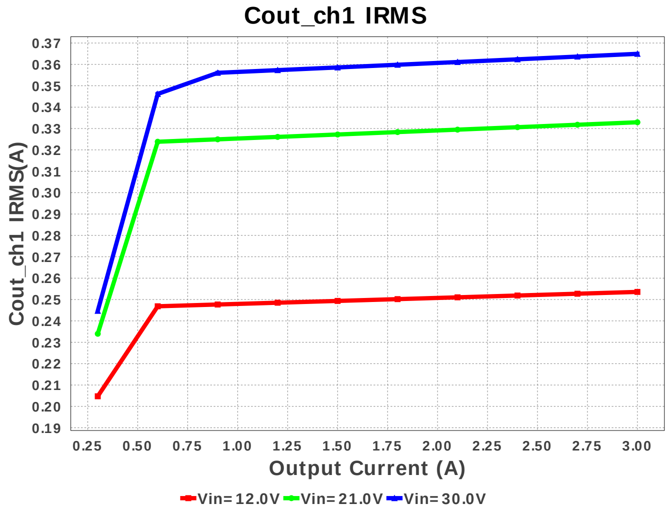
Vout1 p- p

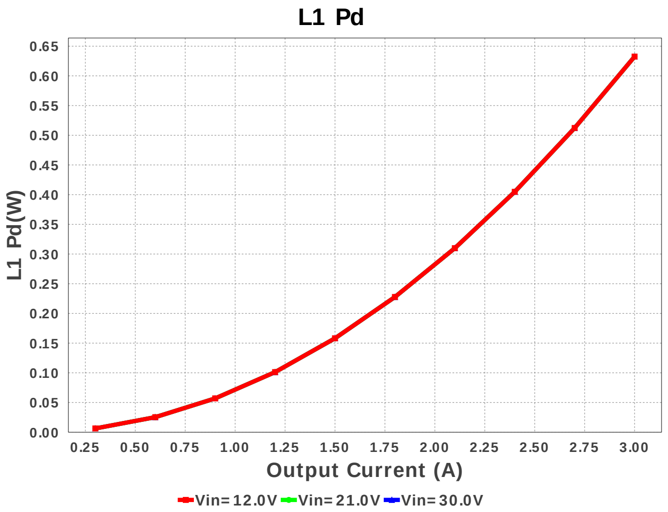


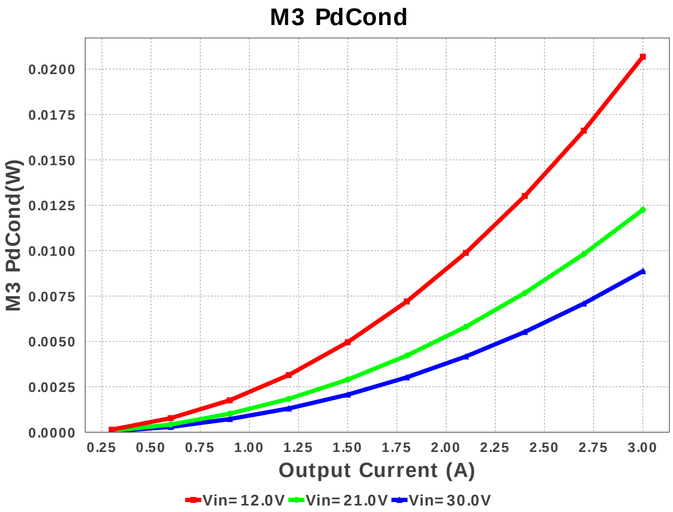

M4 Pd
M4 Pd(W)
0.000 0.025 0.050 0.075 0.100 0.125 0.150 0.175 0.200 0.225 0.250 0.275
0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

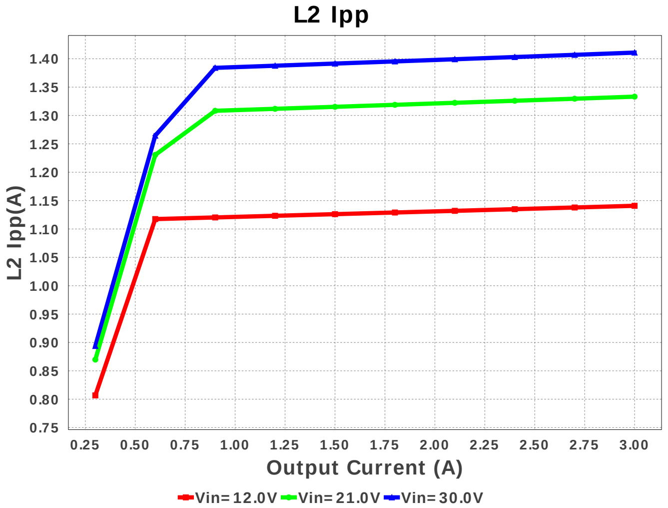

M2 PdCond
M2 PdCond(W)
0.00 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10
0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

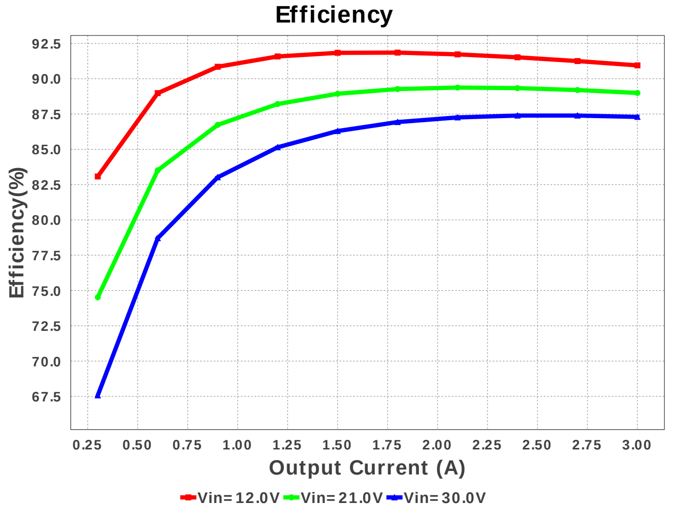

SW2 Ipk
SW2 Ipk(A)
0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00 3.25 3.50 3.75
0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

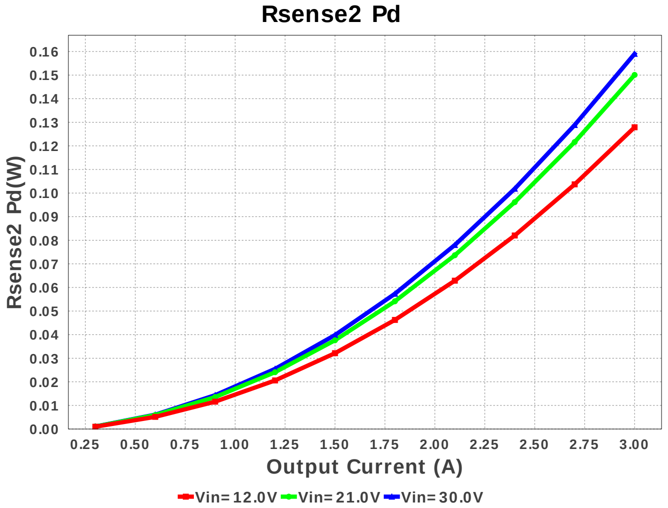

Cout_ch1 IRMS
Cout_ch1 IRMS(A)
0.19 0.20 0.21 0.22 0.23 0.24 0.25 0.26 0.27 0.28 0.29 0.30 0.31 0.32 0.33 0.34 0.35 0.36 0.37
0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

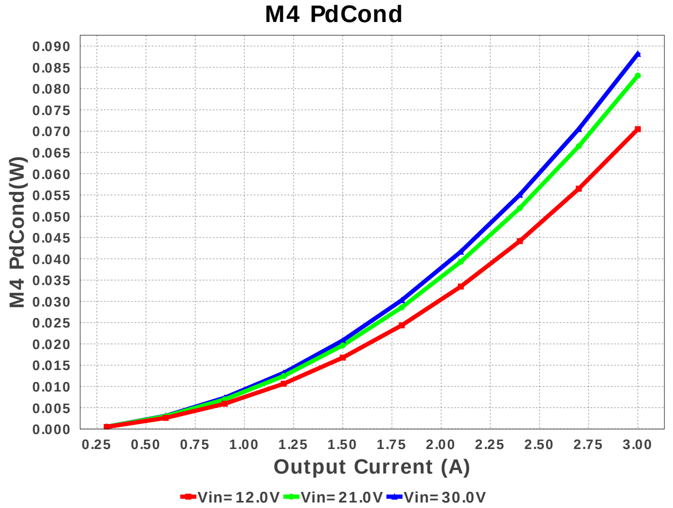

L1 Pd
L1 Pd(W)
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65
0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

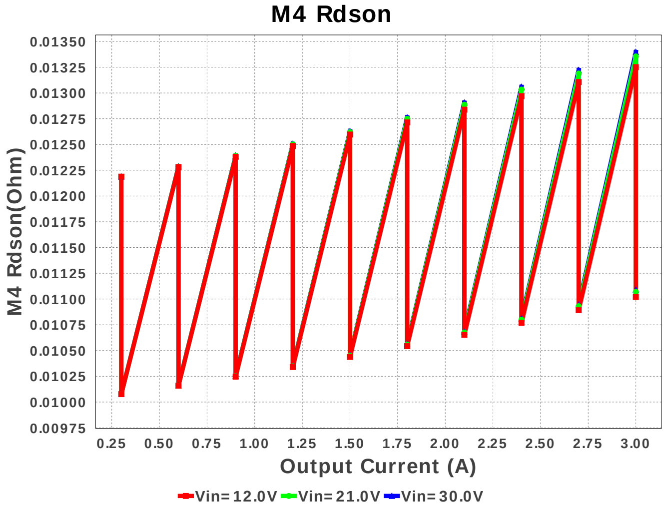

M3 PdCond
M3 PdCond(W)
0.0000 0.0025 0.0050 0.0075 0.0100 0.0125 0.0150 0.0175 0.0200
0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50 2.75 3.00
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

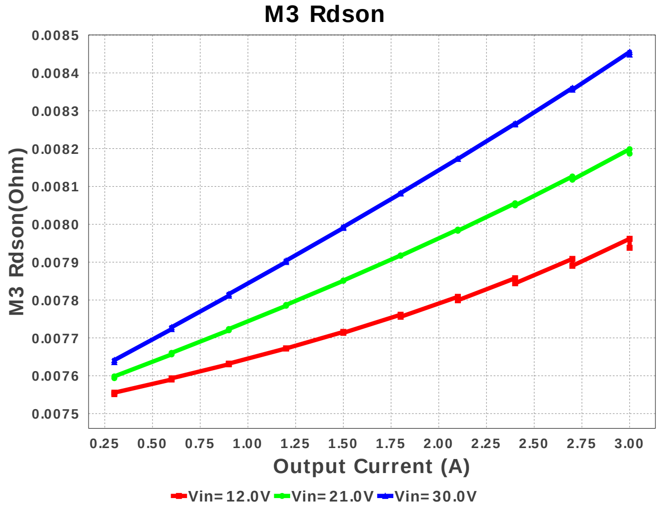

L2 Ipp
L2 Ipp(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

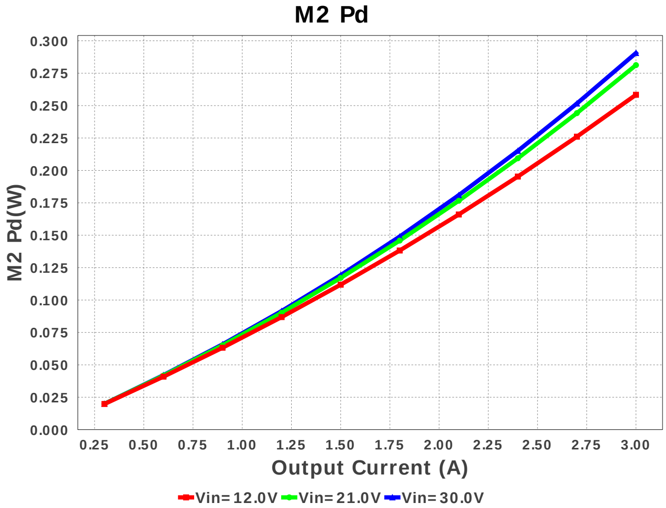

Efficiency
Efficiency(%)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

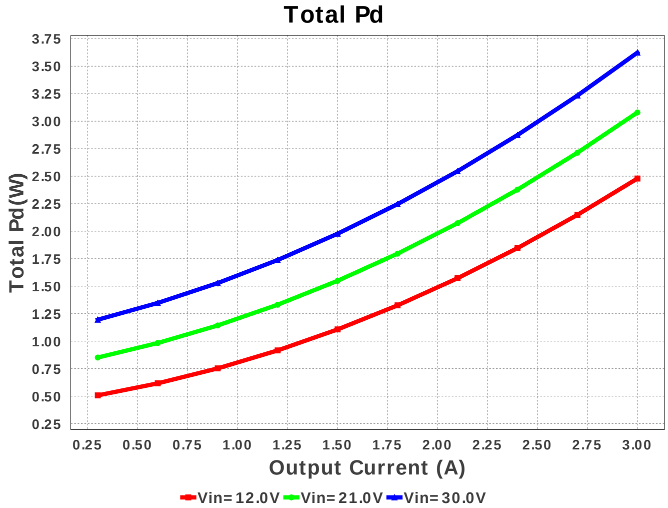

Rsense2 Pd
Rsense2 Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

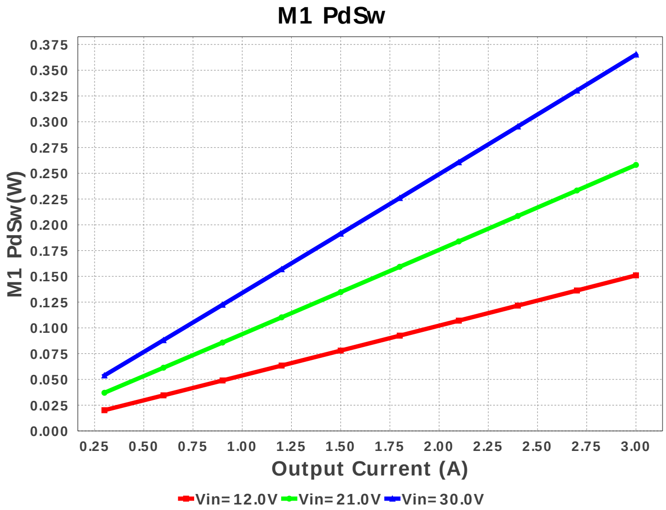

M4 PdCond
M4 PdCond(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

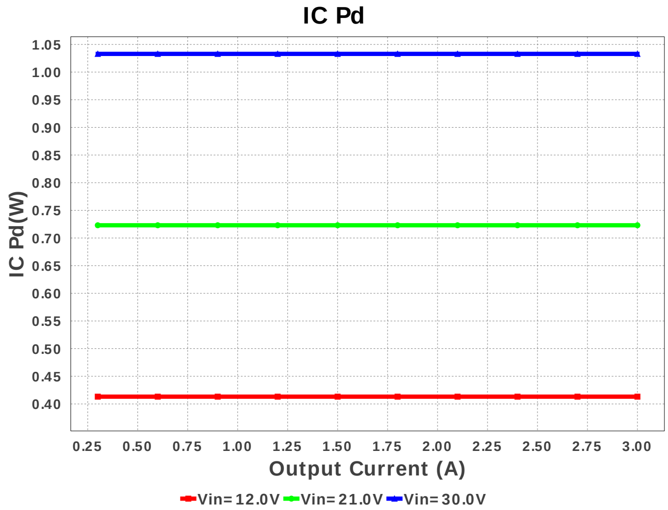

M4 Rdson
M4 Rdson(Ohm)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

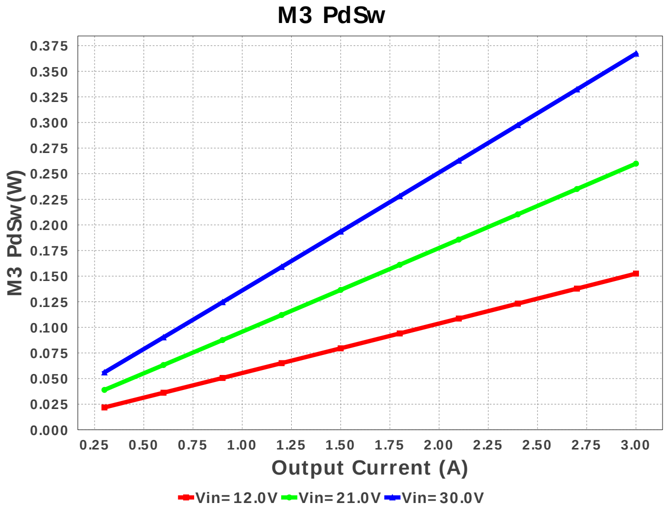

M3 Rdson
M3 Rdson(Ohm)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

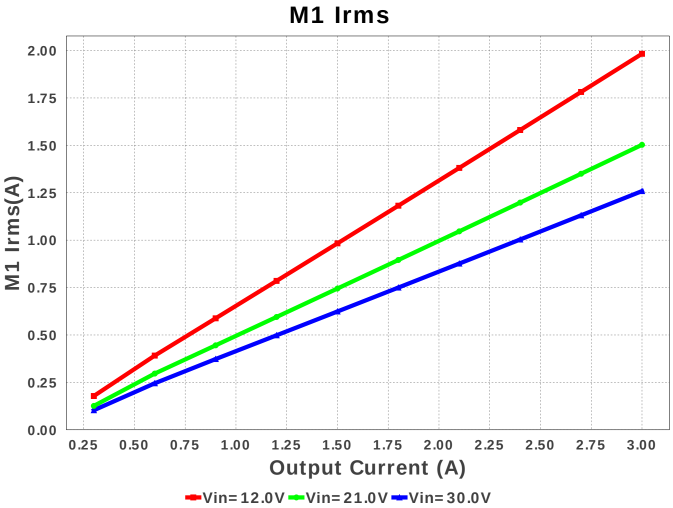

M2 Pd
M2 Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

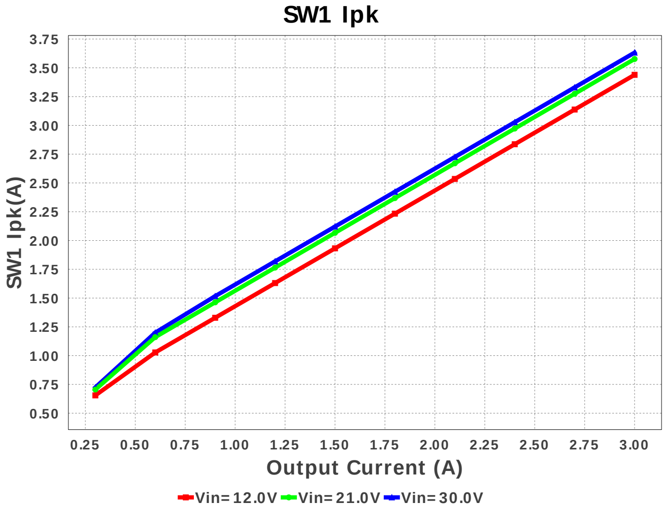

Total Pd
Total Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

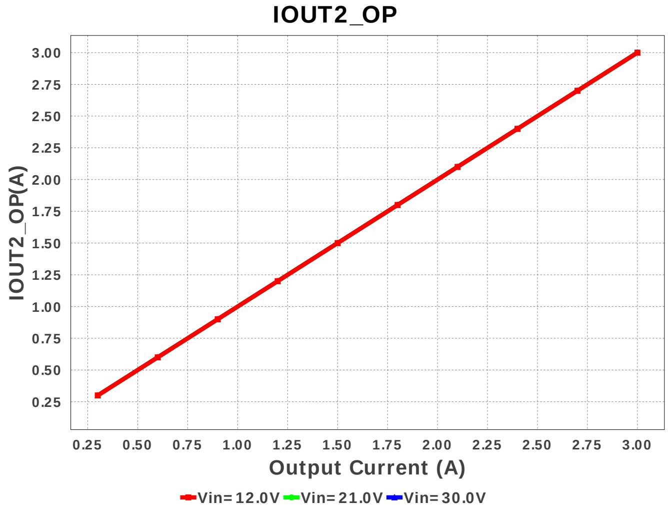

M1 PdSw
M1 PdSw(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

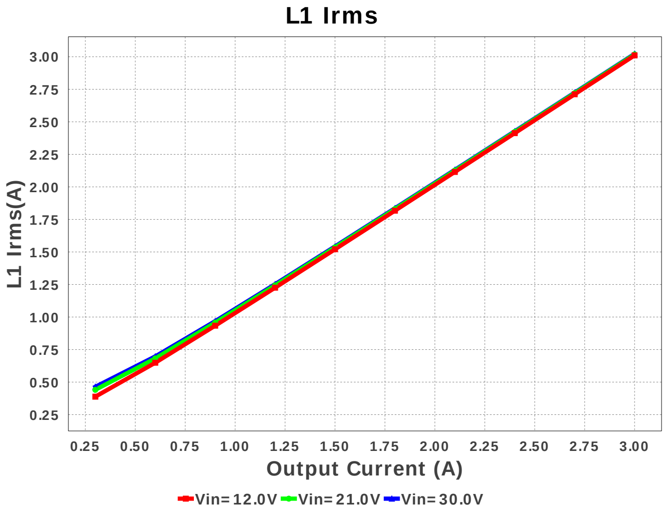

IC Pd
IC Pd(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

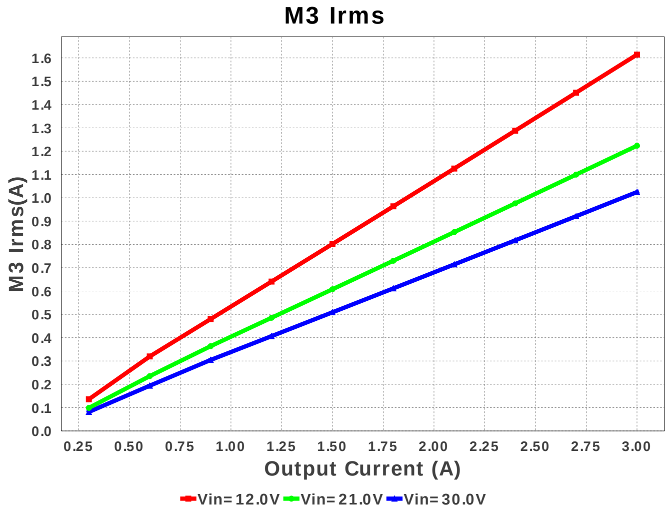

M3 PdSw
M3 PdSw(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

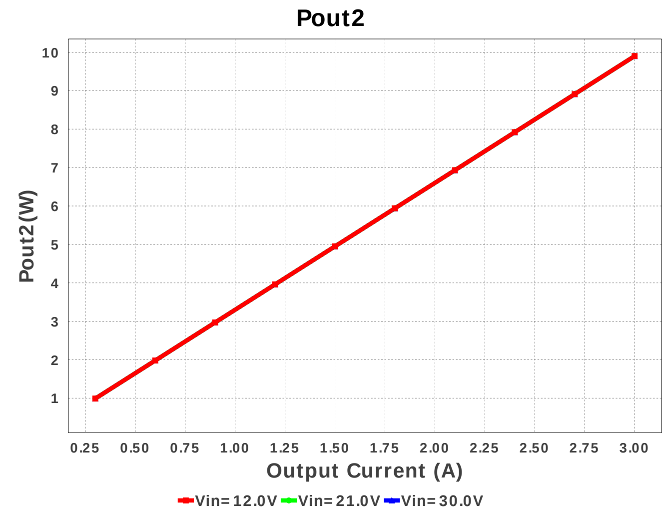

M1 Irms
M1 Irms(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

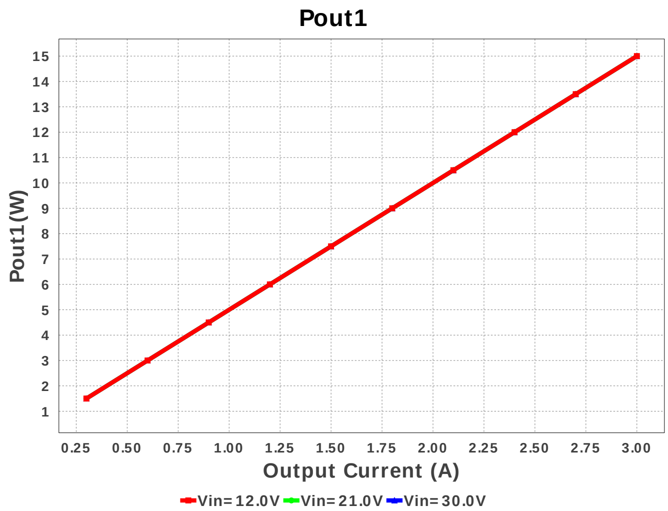

SW1 Ipk
SW1 Ipk(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V


IOUT2_OP
IOUT2_OP(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

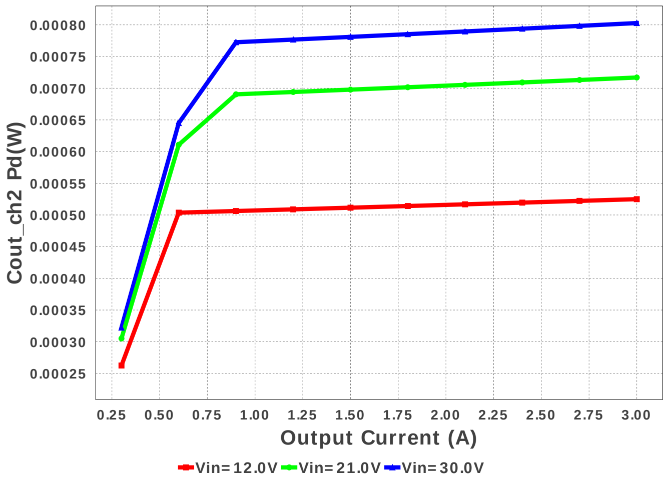

L1 Irms
L1 Irms(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V


M3 Irms
M3 Irms(A)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

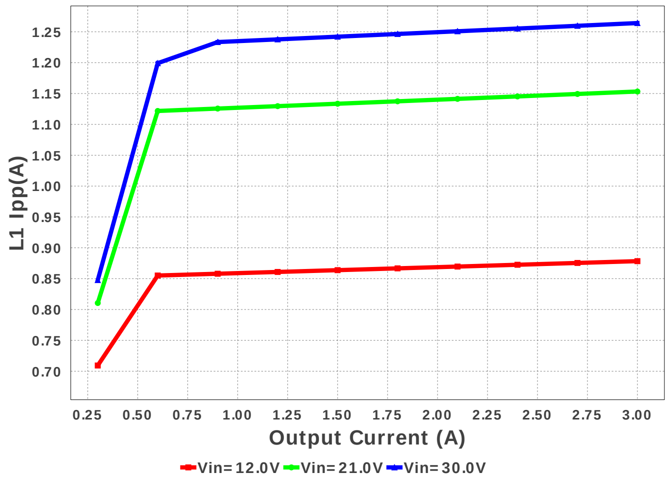

Pout2
Pout2(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V


Pout1
Pout1(W)
Output Current (A)
Vin=12.0V Vin=21.0V Vin=30.0V

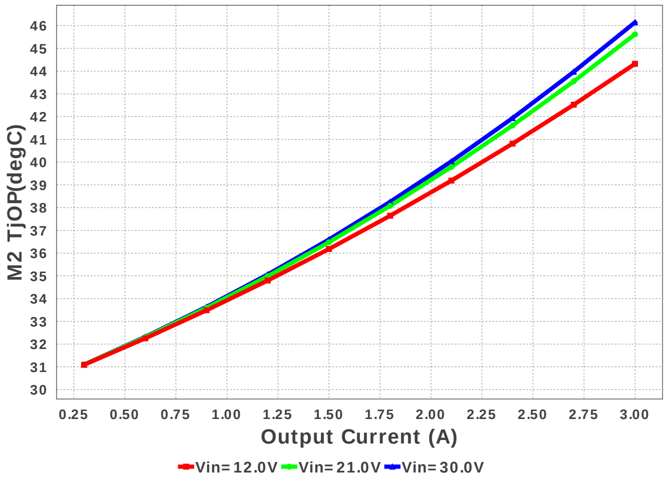
Cout_ch2 Pd



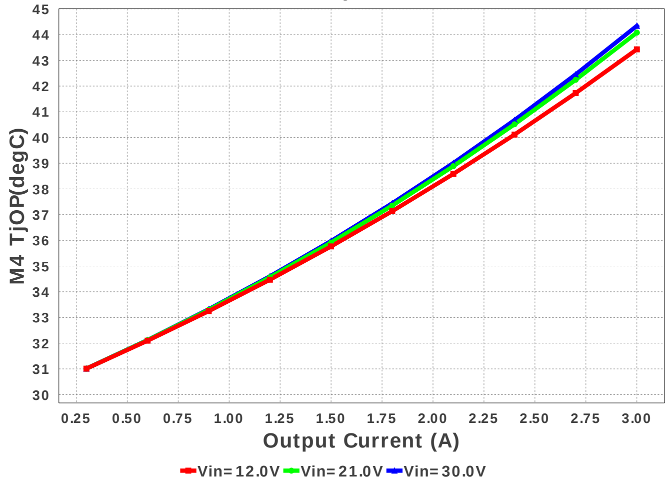
L1 Ipp



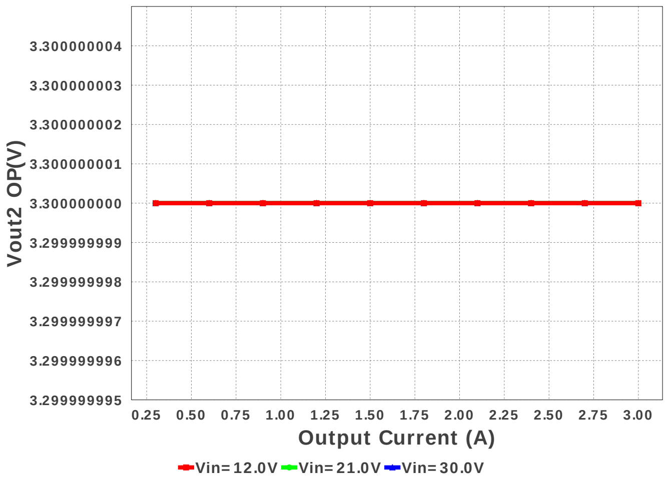
M2 TjOP



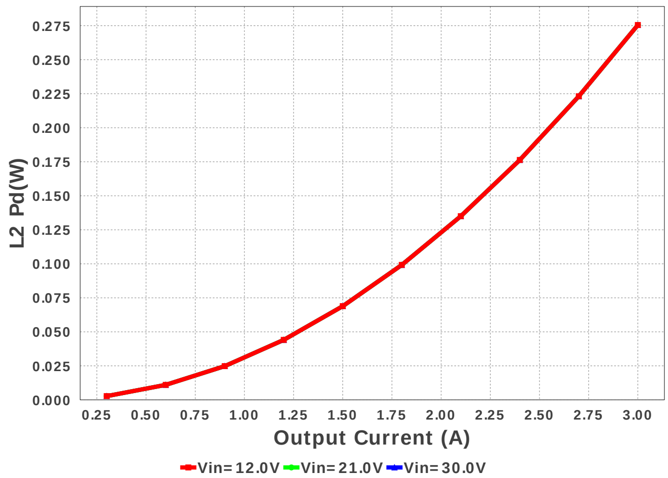
M4 TjOP

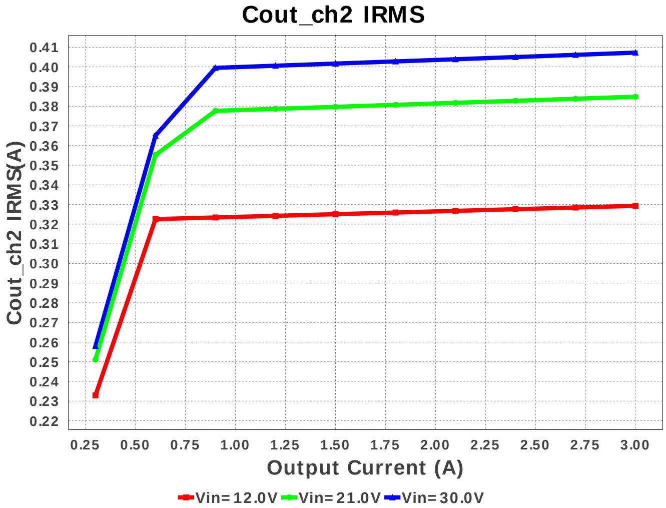


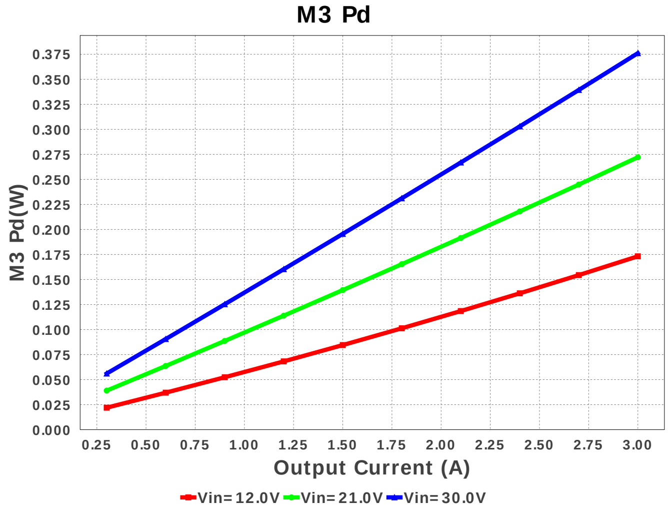
Vout2 OP

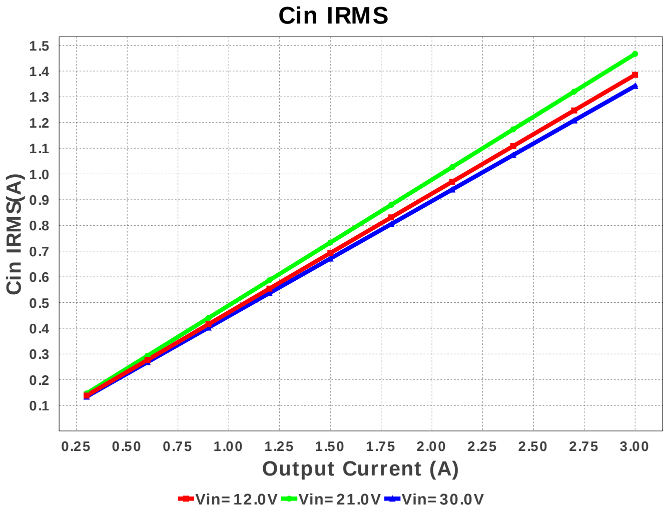


L2 Pd









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.342 A	Current	Input capacitor RMS ripple current
2.	Cout_ch1 IRMS	365.036 mA	Current	Output Channel 1 Capacitor RMS ripple current
3.	Cout_ch2 IRMS	407.706 mA	Current	Output Channel 2 Capacitor RMS ripple current
4.	Iin Avg	951.39 mA	Current	Average input current
5.	L1 Ipp	1.265 A	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	3.022 A	Current	Inductor ripple current
7.	L2Ipp	1.412 A	Current	Channel 2 Inductor Peak to peak Current
8.	L2 Irms	3.028 A	Current	Inductor ripple current
9.	M1 Irms	1.259 A	Current	MOSFET RMS ripple current
10.	M2 Irms	2.723 A	Current	MOSFET RMS ripple current
11.	M3 Irms	1.025 A	Current	MOSFET RMS ripple current
12.	M4 Irms	2.819 A	Current	MOSFET RMS ripple current
13.	SW1 Ipk	3.632 A	Current	Peak switch current
14.	SW2 Ipk	3.706 A	Current	Peak switch current
15.	BOM Count	39	General	Total Design BOM count
16.	FootPrint	795.0 mm^2	General	Total Foot Print Area of BOM components
17.	Frequency	424.559 kHz	General	Switching frequency
18.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
19.	Pout1	15.005 W	General	Channel 1 output Power
20.	Pout2	9.913 W	General	Channel 2 output Power
21.	Total BOM	$6.56	General	Total BOM Cost
22.	M3 TjOP	48.818 degC	Op_Point	M3 MOSFET junction temperature
23.	M4 TjOP	44.341 degC	Op_Point	M4 MOSFET junction temperature
24.	Vout Actual	5.002 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
25.	Duty Cycle 1	17.61 %	Op_point	Duty cycle for Channel 1
26.	Duty Cycle 2	11.68 %	Op_point	Duty cycle for Channel 2
27.	Efficiency	87.305 %	Op_point	Steady state efficiency
28.	IC Tj	71.316 degC	Op_point	IC junction temperature
29.	IOUT1_OP	3.0 A	Op_point	Iout1 operating point
30.	IOUT2_OP	3.0 A	Op_point	Iout2 operating point
31.	M1 TjOP	48.952 degC	Op_point	M1 MOSFET junction temperature

#	Name	Value	Category	Description
32.	M2 TjOP	46.145 degC	Op_point	M2 MOSFET junction temperature
33.	VIN_OP	30.0 V	Op_point	Vin operating point
34.	Vout1 OP	5.002 V	Op_point	Operational Voltage 1
35.	Vout1 p-p	9.223 mV	Op_point	Peak-to-peak output1 ripple voltage
36.	Vout2 OP	3.304 V	Op_point	Operational Voltage 2
37.	Vout2 p-p	8.001 mV	Op_point	Peak-to-peak output2 ripple voltage
38.	Cin Pd	45.048 mW	Power	Input capacitor power dissipation
39.	Cout_ch1 Pd	248.847 µW	Power	Ouput channel 1 capacitor power dissipation
40.	Cout_ch2 Pd	804.525 µW	Power	Ouput channel 2 capacitor power dissipation
41.	IC Pd	1.033 W	Power	IC power dissipation
42.	L1 Pd	632.446 mW	Power	Inductor power dissipation
43.	L2 Pd	275.521 mW	Power	Inductor power dissipation
44.	M1 Pd	378.638 mW	Power	M1 MOSFET total power dissipation
45.	M1 PdCond	13.401 mW	Power	M1 MOSFET conduction losses
46.	M1 PdSw	365.237 mW	Power	M1 MOSFET switching losses
47.	M2 Pd	290.558 mW	Power	M2 MOSFET total power dissipation
48.	M2 PdCond	99.341 mW	Power	M2 MOSFET conduction losses
49.	M2 PdSw	191.218 mW	Power	M2 MOSFET switching losses
50.	M3 Pd	376.085 mW	Power	M3 MOSFET total power dissipation
51.	M3 PdCond	8.881 mW	Power	M3 MOSFET conduction losses
52.	M3 PdSw	367.204 mW	Power	M3 MOSFET switching losses
53.	M1 Rdson	8.455 mOhm	Power	Drain-Source On-resistance
54.	M3 Rdson	8.448 mOhm	Power	Drain-Source On-resistance
55.	M4 Pd	283.796 mW	Power	M4 MOSFET total power dissipation
56.	M4 PdCond	88.152 mW	Power	M4 MOSFET conduction losses
57.	M4 PdSw	195.644 mW	Power	M4 MOSFET switching losses
58.	M2 Rdson	13.397 mOhm	Power	Drain-Source On-resistance
59.	M4 Rdson	11.09 mOhm	Power	Drain-Source On-resistance
60.	Rsense1 Pd	148.301 mW	Power	Current Limit Sense Resistor Power Dissipation
61.	Rsense2 Pd	158.976 mW	Power	Current Limit Sense Resistor Power Dissipation
62.	Total Pd	3.623 W	Power	Total Power Dissipation
63.	Cross Freq Ch1	37.684 kHz		Bode plot crossover frequency
64.	Cross Freq Ch2	37.914 kHz		Bode plot crossover frequency
65.	Phase Marg Ch1	63.278 deg		Bode Plot Phase Margin
66.	Phase Marg Ch2	62.085 deg		Bode Plot Phase Margin
67.	Vout Tolerance	3.222 %		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.	Iout1	3.0	Output Current #1
3.	Iout2	3.0	Output Current #2
4.	VinMax	30.0	Maximum input voltage
5.	VinMin	12.0	Minimum input voltage
6.	Vout	5.0	Output Voltage
7.	Vout1	5.0	Output Voltage #1
8.	Vout2	3.3	Output Voltage #2
9.	base_pn	LM25119	Base Product Number
10.	source	DC	Input Source Type
11.	Ta	30.0	Ambient temperature

Design Assistance

1. Outline The LM5119 is a dual synchronous buck controller intended for step-down regulator applications from a high voltage or widely varying input supply. The control method is based upon current mode control utilizing an emulated current ramp. Current mode control provides inherent line feed-forward, cycle-by-cycle current limiting and ease of loop compensation. The use of an emulated control ramp reduces noise sensitivity of the pulse-width modulation circuit, allowing reliable control of very small duty cycles necessary in high input voltage applications. Sequencing the 2 outputs The LM(2)5119 contains an enable function allowing shutdown control of channel2, independent of channel1. If the EN2 pin is pulled below 2.0V, channel2 enters shutdown mode. If the EN2 input is greater than 2.5V, channel2 returns to normal operation. Diode Emulation A fully synchronous buck regulator implemented with a freewheel MOSFET rather than a diode has the capability to sink current from the output in certain conditions such as light load, over-voltage or pre-bias startup. The LM(2)5119 provides a diode emulation feature that can be enabled to prevent reverse (drain to source) current flow in the low side free-wheel MOSFET.

2. **LM25119** Product Folder : http://www.ti.com/product/LM25119 : contains the data sheet and other resources.

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