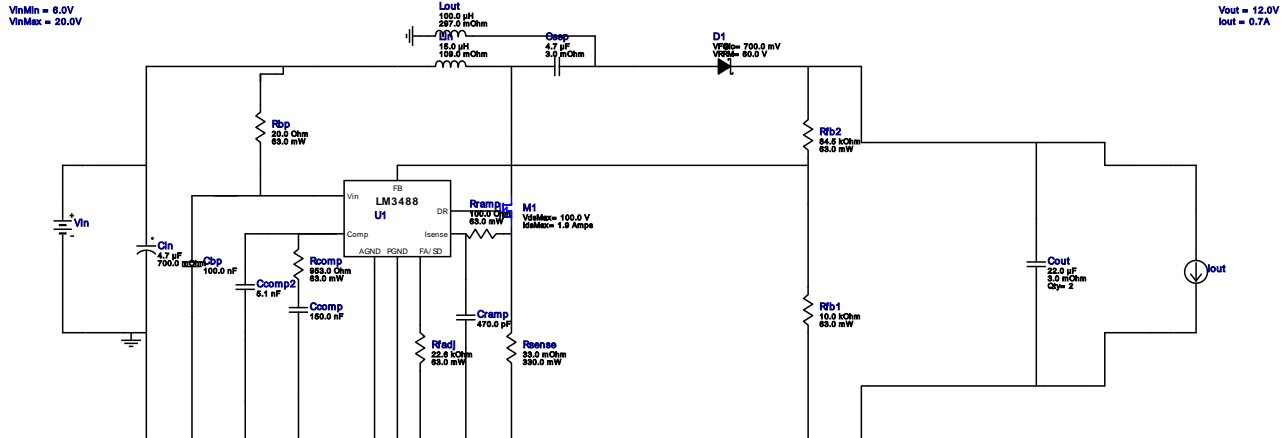


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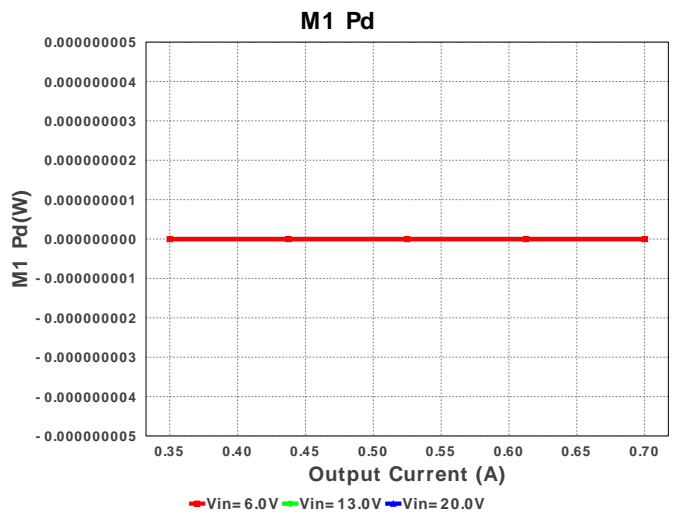
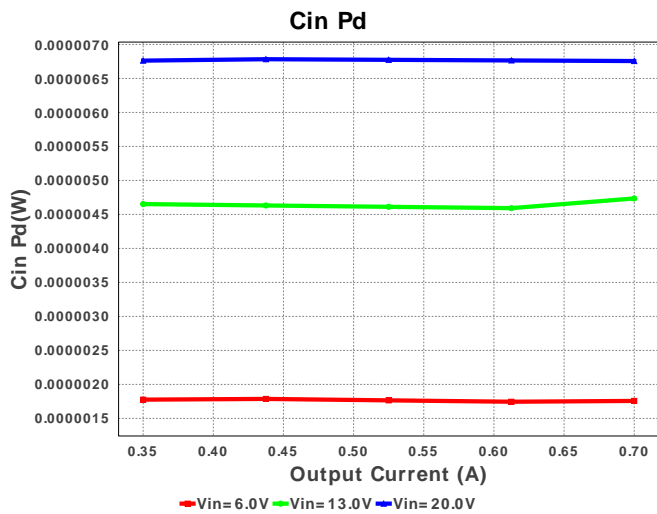
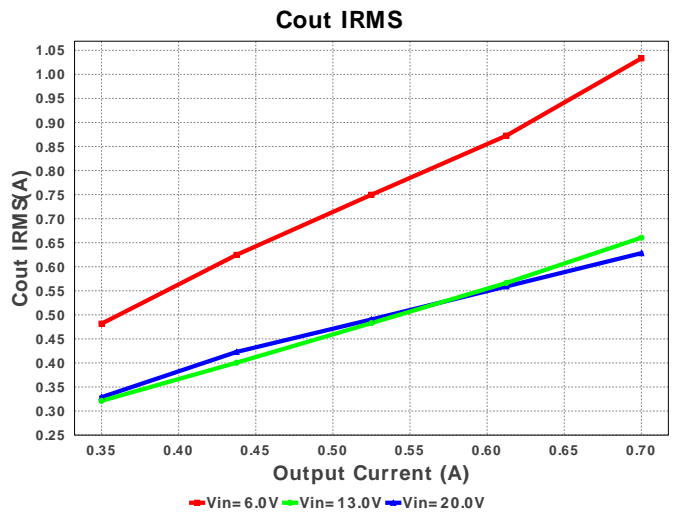
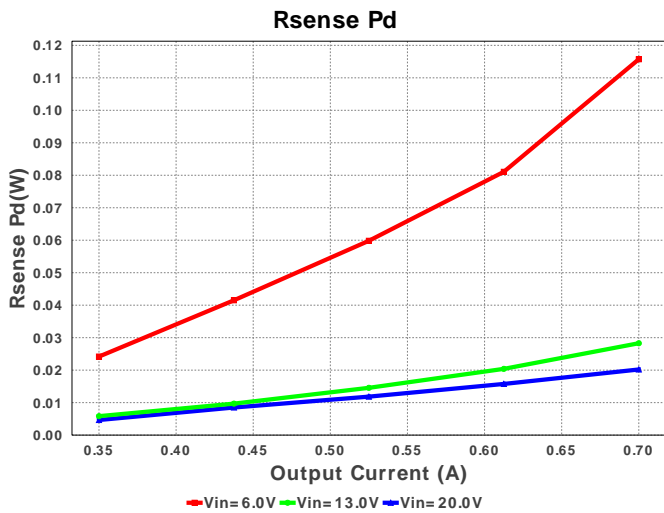
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 LM3488MM/NOPB 6.0V-20.0V to 12.0V @ 0.7A

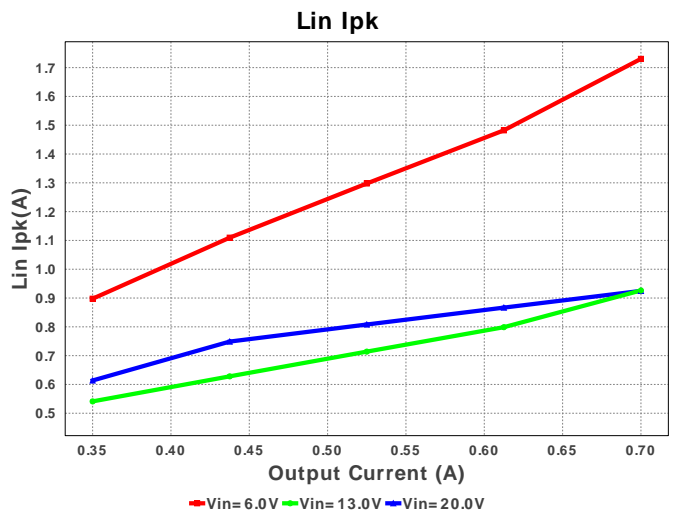
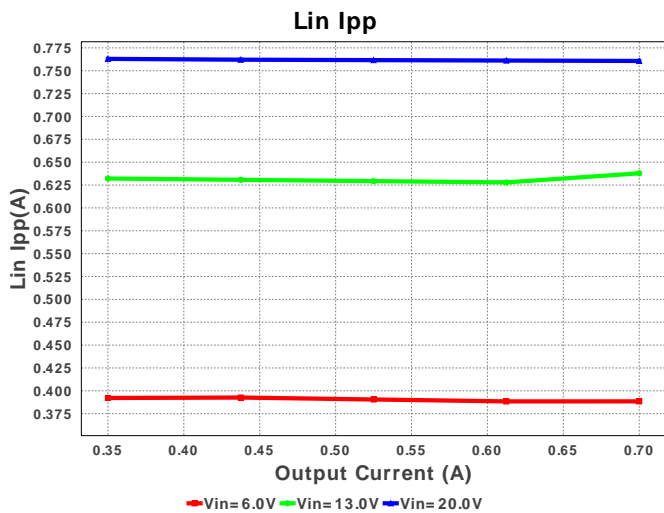
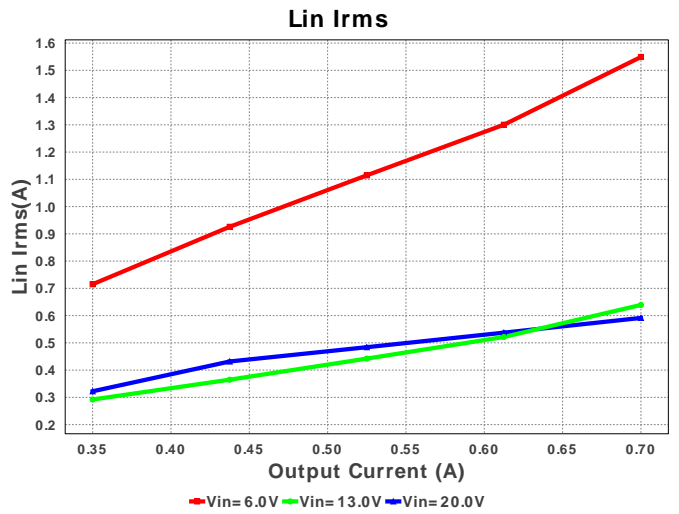
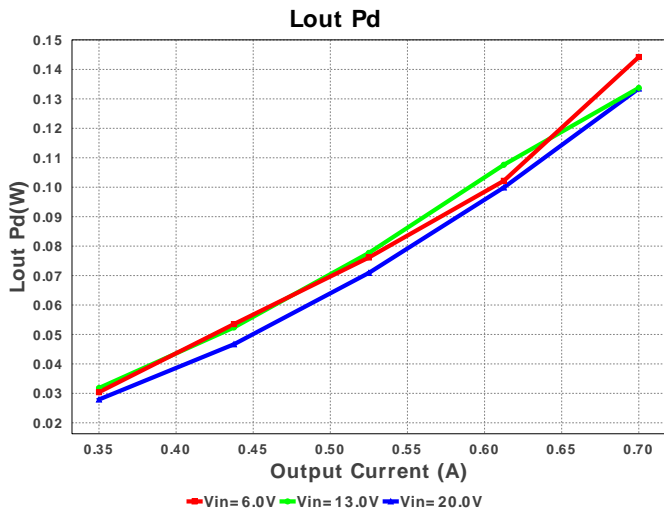
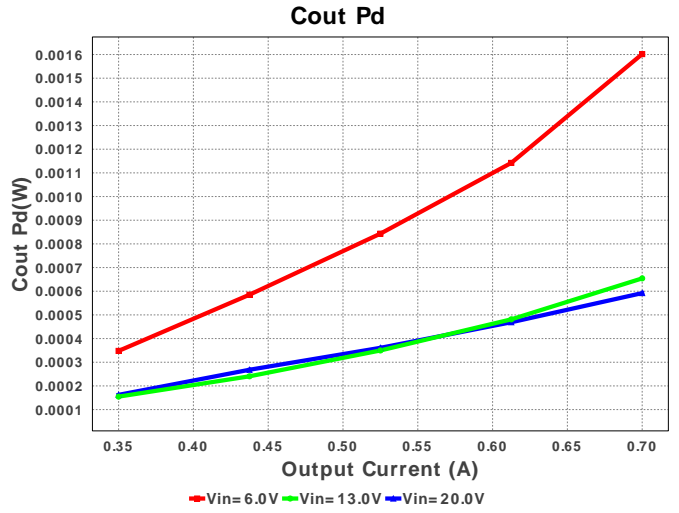
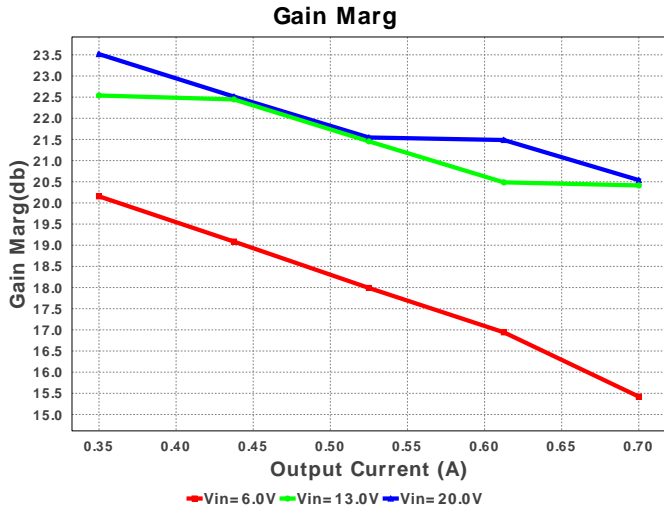


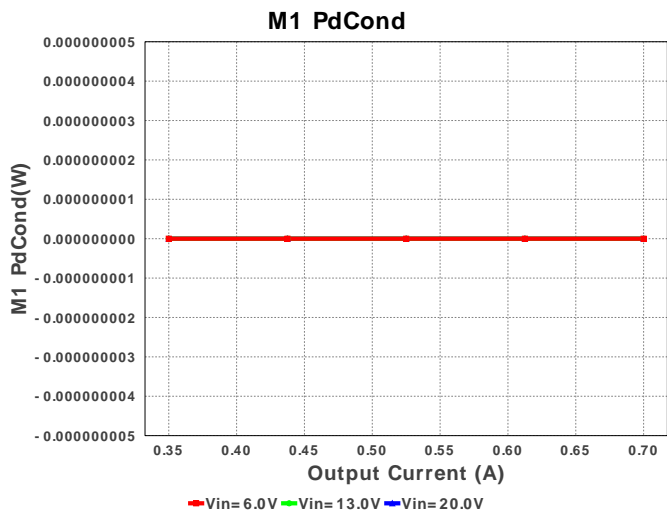
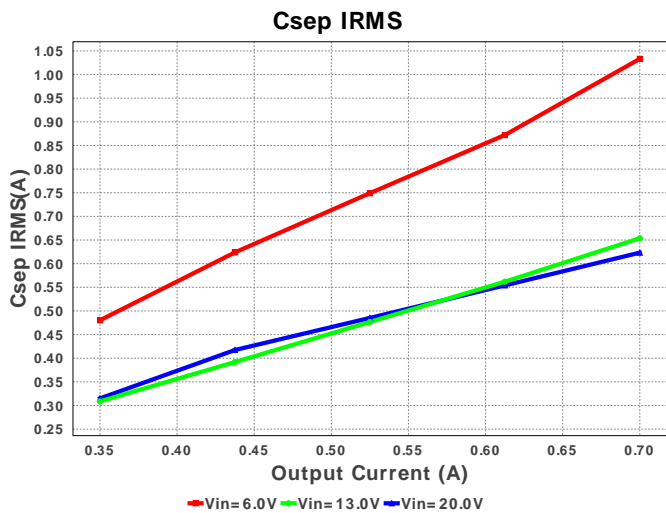
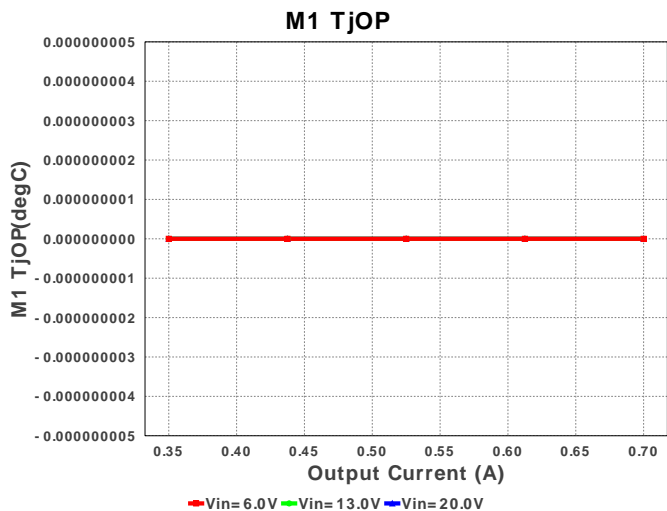
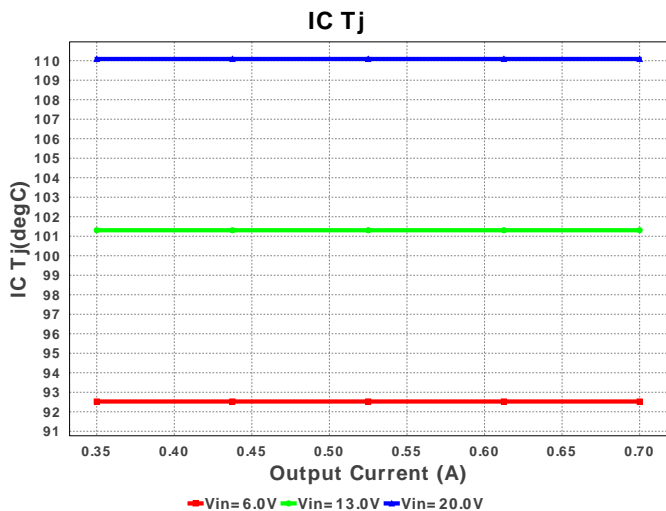
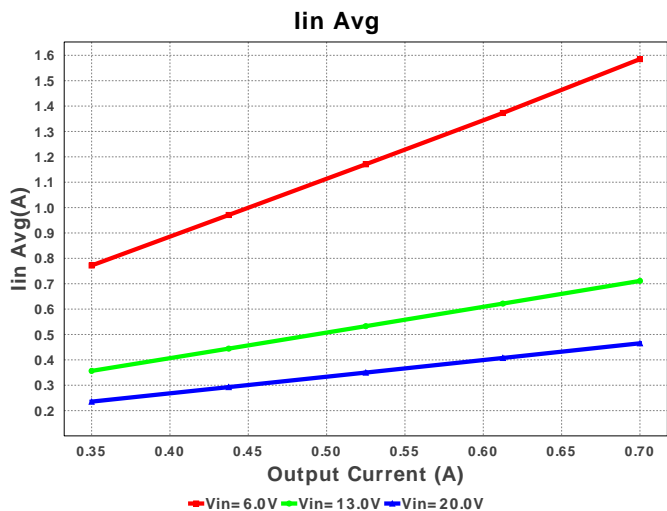
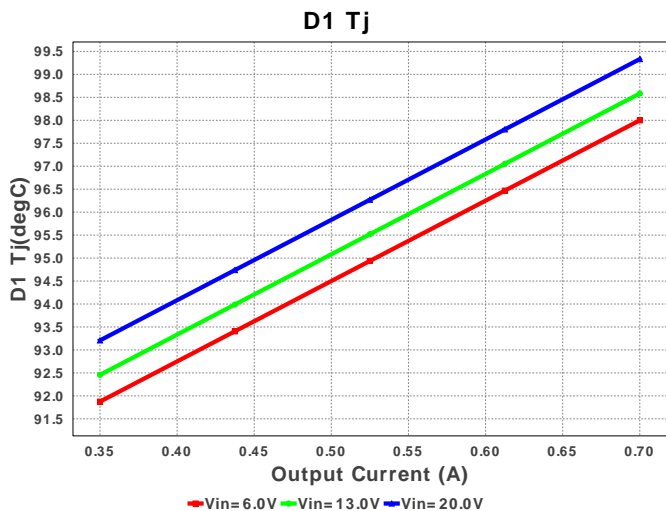
Electrical BOM

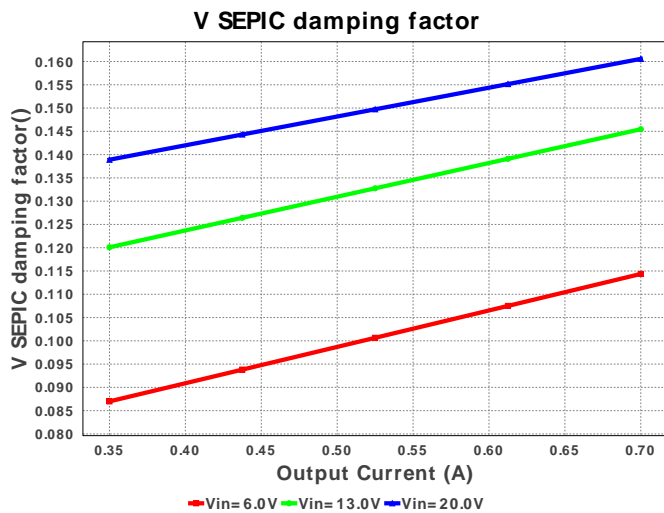
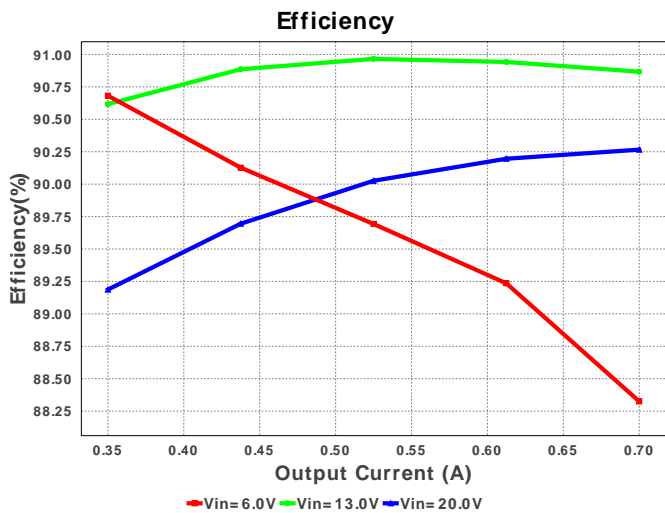
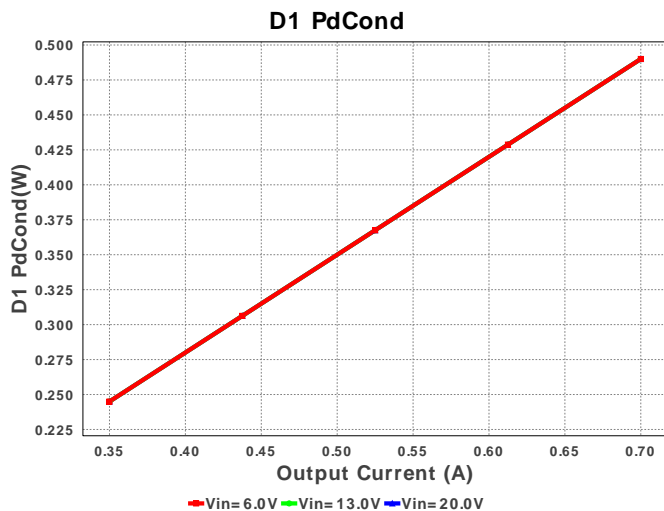
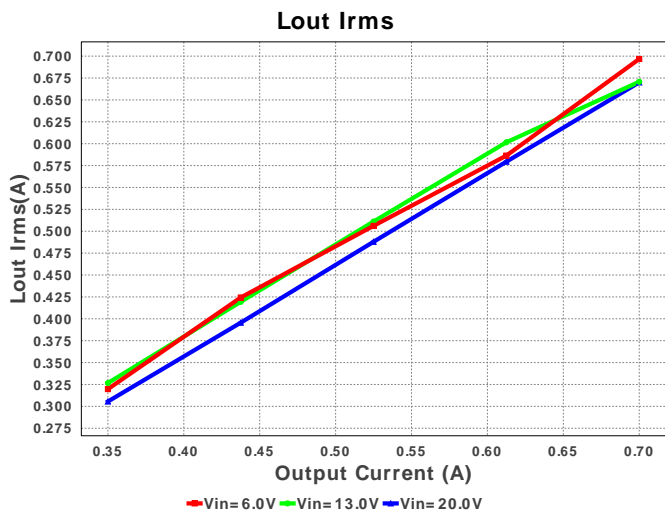
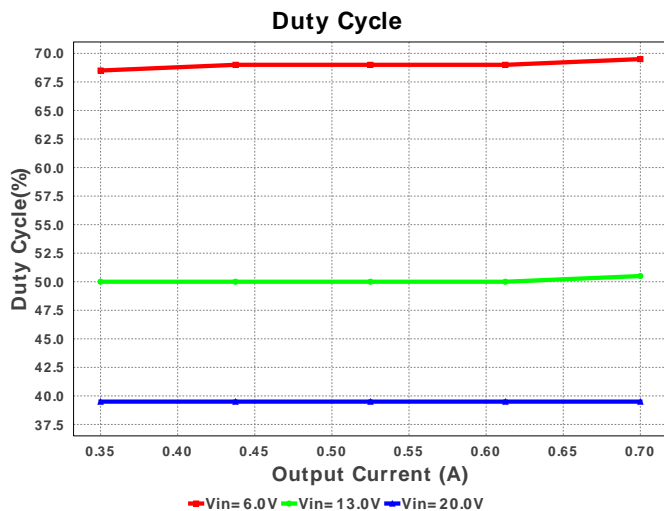
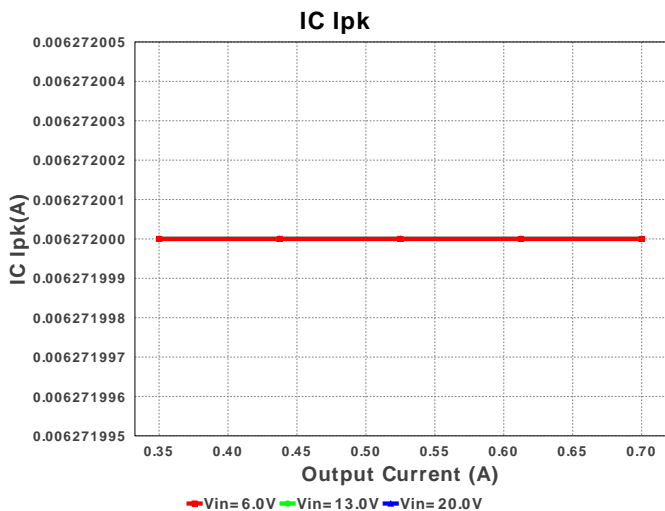
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbp	Kemet	C0603C104K5RACTU Series= X7R	Cap= 100.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0603 5 mm ²
2.	Ccomp	MuRata	GRM155R61A154KE19D Series= X5R	Cap= 150.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
3.	Ccomp2	MuRata	GRM2195C1H512JA01D Series= C0G/NP0	Cap= 5.1 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.05	0805 7 mm ²
4.	Cin	AVX	TPSB475K035R0700 Series= TPS	Cap= 4.7 uF ESR= 700.0 mOhm VDC= 35.0 V IRMS= 314.0 mA	1	\$0.33	3528-21 17 mm ²
5.	Cout	MuRata	GRM32ER71C226ME18L Series= X7R	Cap= 22.0 uF ESR= 3.0 mOhm VDC= 16.0 V IRMS= 3.2 A	2	\$0.81	1210 15 mm ²
6.	Cramp	MuRata	GRM033R71E471KA01D Series= X7R	Cap= 470.0 pF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
7.	Csep	MuRata	GRM31CR71H475KA12L Series= X7R	Cap= 4.7 uF ESR= 3.0 mOhm VDC= 50.0 V IRMS= 4.98 A	1	\$0.10	1206 11 mm ²
8.	D1	Diodes Inc.	B260A-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	\$0.11	SMA 37 mm ²
9.	Lin	Coilcraft	XAL4040-153MEB	L= 15.0 uH DCR= 109.0 mOhm	1	\$0.69	XAL4040 25 mm ²
10.	Lout	Coilcraft	LPS8045B-104MRB	L= 100.0 uH DCR= 297.0 mOhm	1	\$0.70	LPS8045B 102 mm ²
11.	M1	Diodes Inc.	ZXMN10A11G	VdsMax= 100.0 V IdsMax= 1.9 Amps	1	\$0.30	SOT-223 76 mm ²

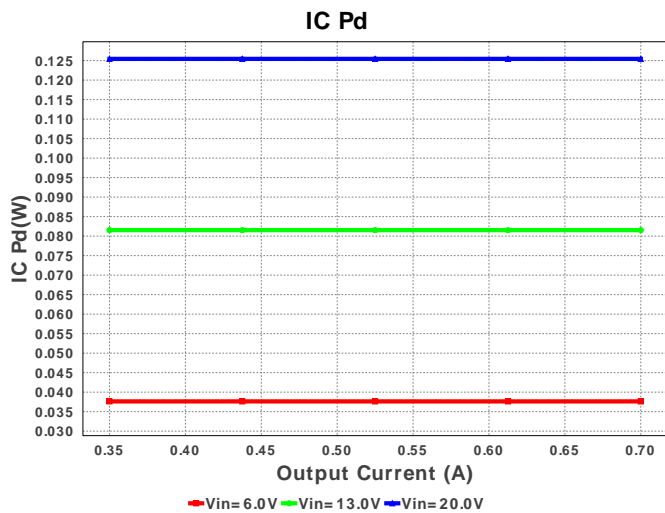
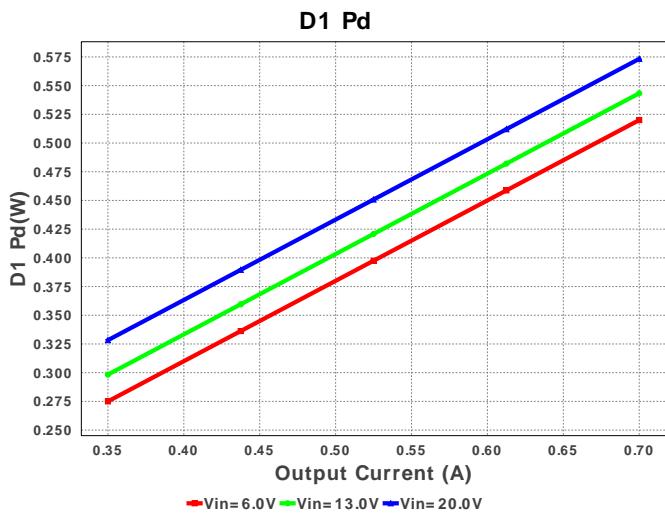
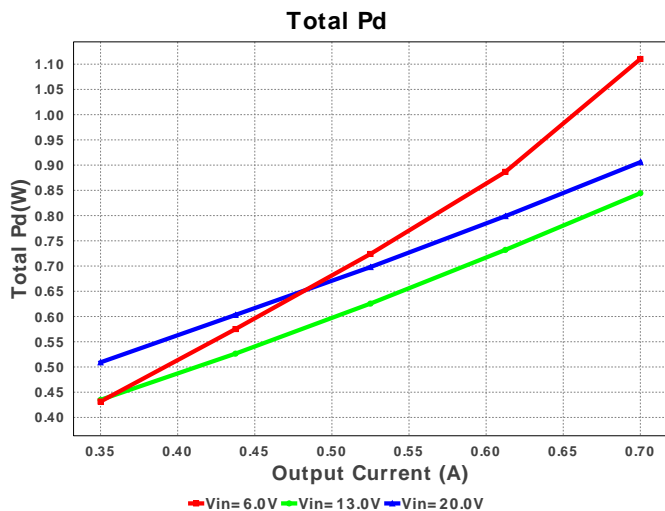
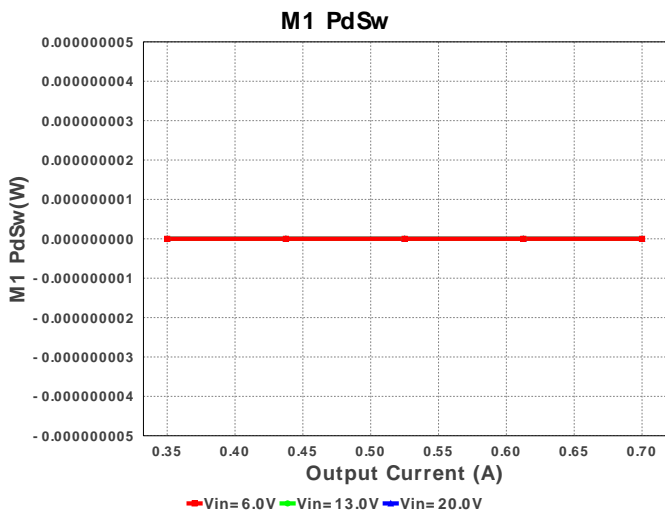
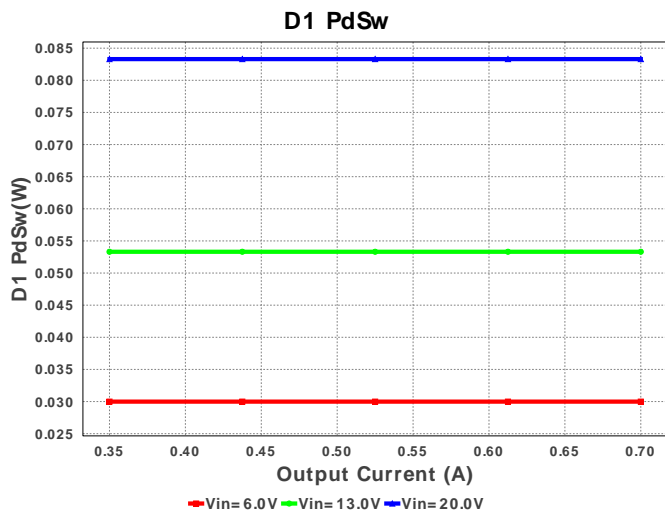
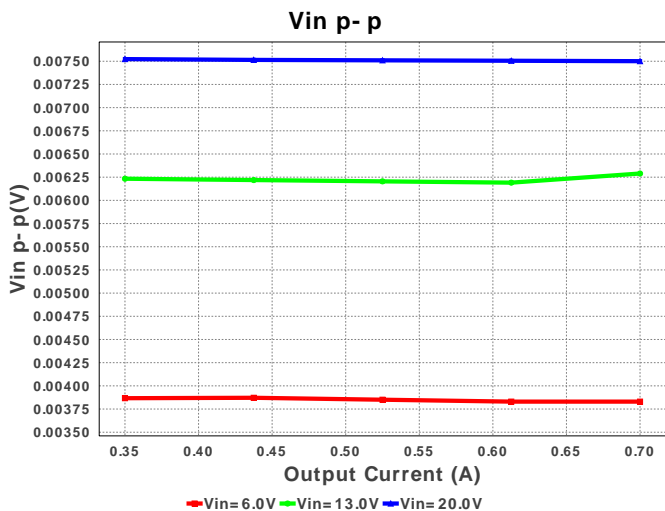
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	Rbp	Vishay-Dale	CRCW040220R0FKED Series= CRCW..e3	Res= 20.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
13.	Rcomp	Vishay-Dale	CRCW0402953RFKED Series= CRCW..e3	Res= 953.0 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
14.	Rfadj	Vishay-Dale	CRCW040222K6FKED Series= CRCW..e3	Res= 22.6 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
15.	Rfb1	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
16.	Rfb2	Vishay-Dale	CRCW040284K5FKED Series= CRCW..e3	Res= 84.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
17.	Rramp	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	Panasonic	ERJ-L14KF33MU Series= 232	Res= 33.0 mOhm Power= 330.0 mW Tolerance= 1.0%	1	\$0.11	1210 15 mm ²
19.	U1	Texas Instruments	LM3488MM/NOPB	Switcher	1	\$0.80	MUA08A 24 mm ²

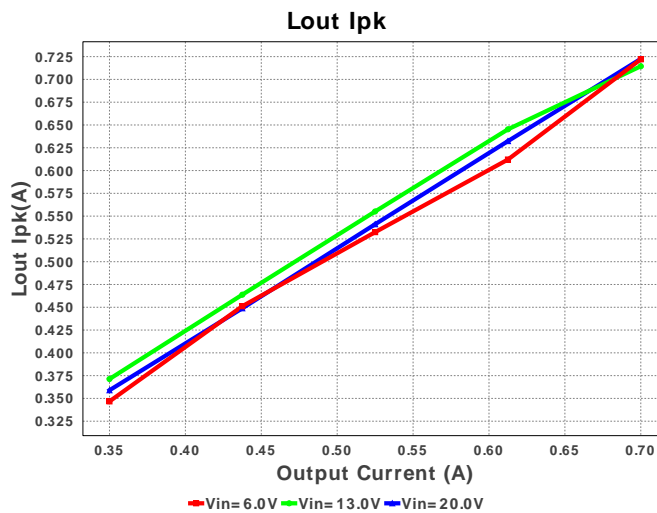
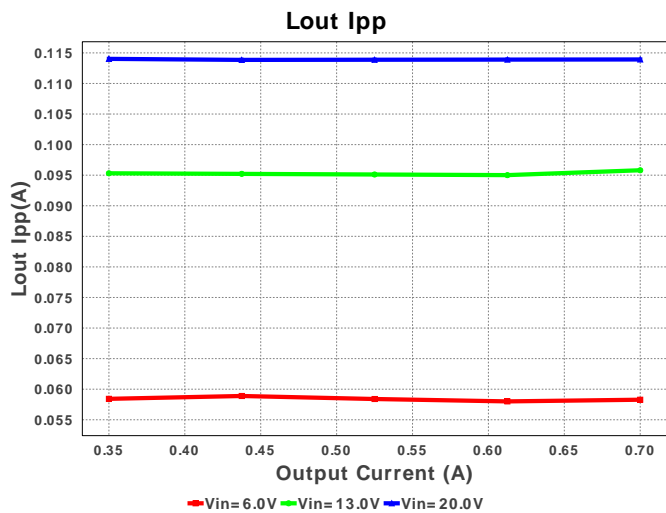
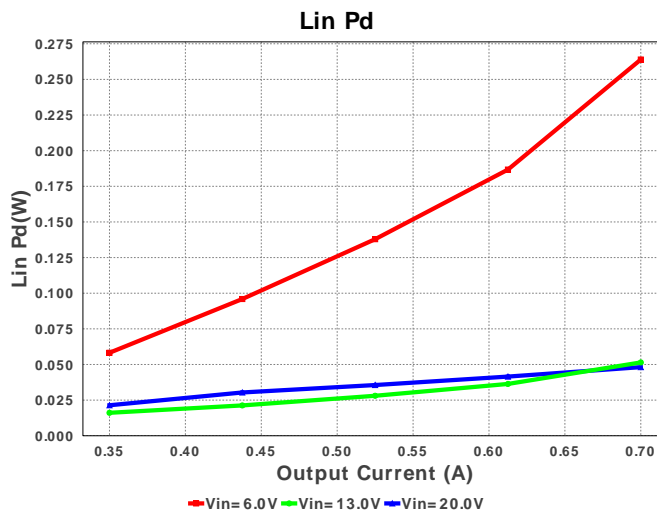
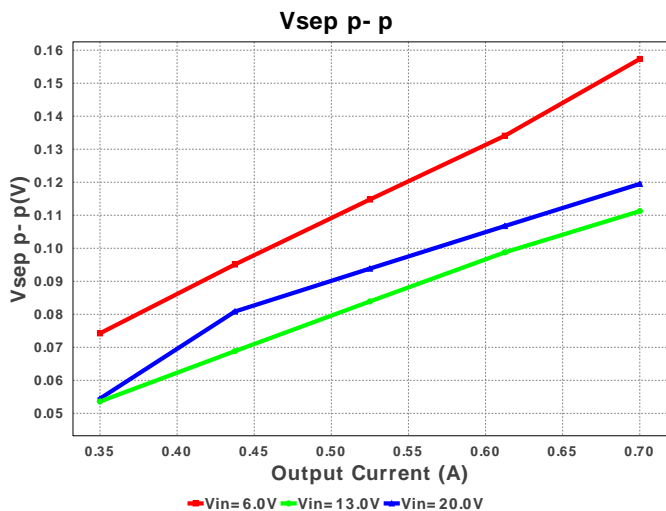
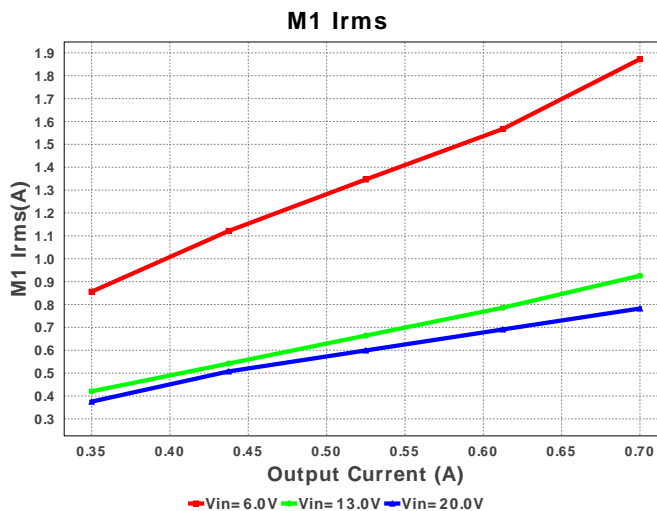
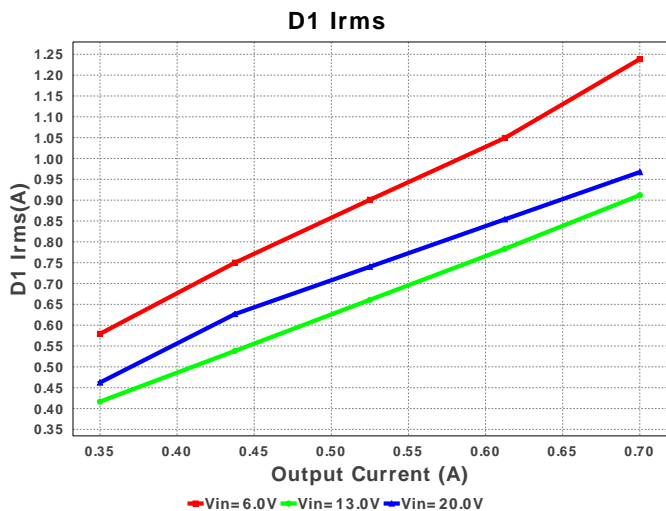


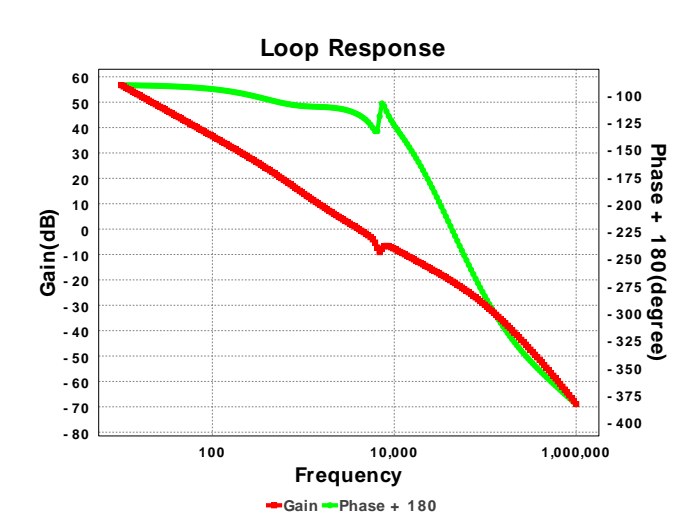
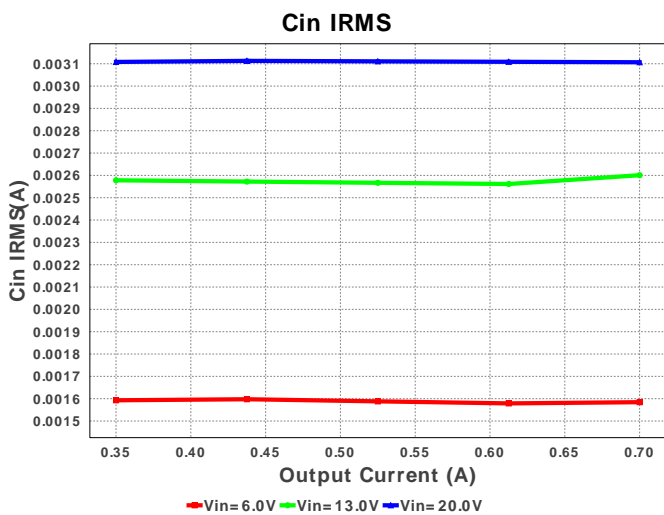
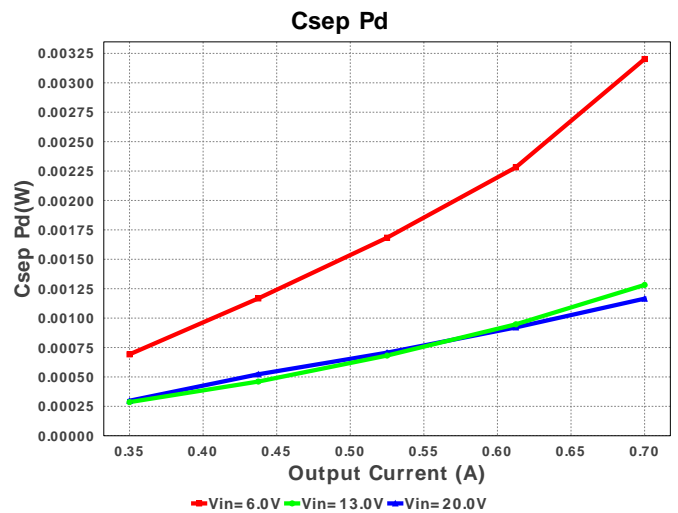
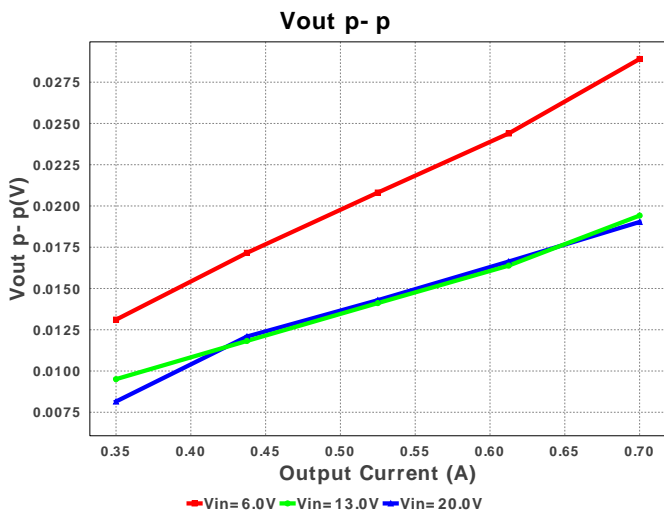
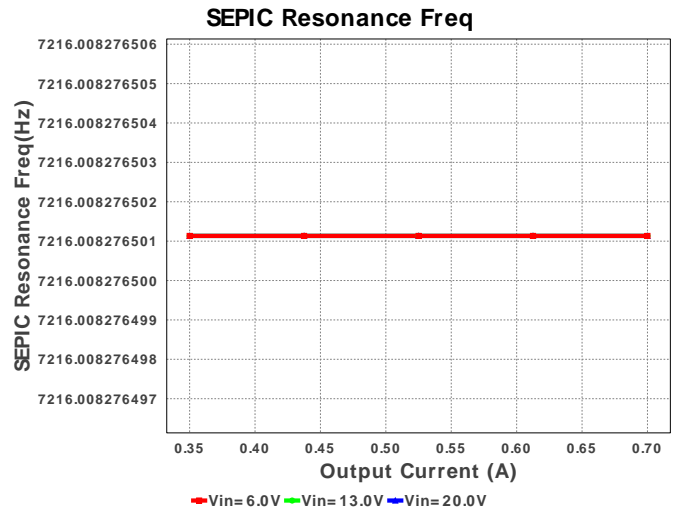
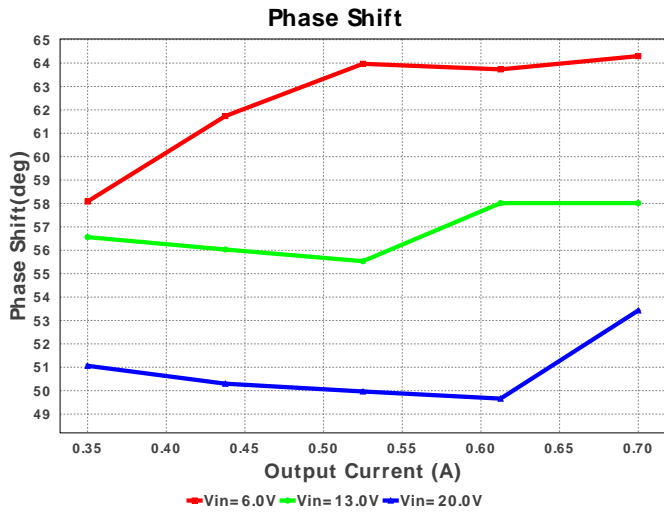












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.584 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.033 A	Current	Output capacitor RMS ripple current
3.	Csep IRMS	1.033 A	Current	SEPIC capacitor RMS ripple current
4.	D1 Irms	1.238 A	Current	D1 Irms
5.	IC Ipk	6.272 mA	Current	Peak switch current in IC
6.	Iin Avg	1.585 A	Current	Average input current
7.	Iin Ipk	1.73 A	Current	Iin peak current
8.	Iin Ipp	388.448 mA	Current	Peak-to-peak input inductor ripple current
9.	Iin Irms	1.549 A	Current	Iin ripple current
10.	Iout Ipk	722.061 mA	Current	Iout peak current
11.	Iout Ipp	58.278 mA	Current	Peak-to-peak output inductor ripple current

#	Name	Value	Category	Description
12.	Lout Irms	696.749 mA	Current	Lout ripple current
13.	M1 Irms	1.873 A	Current	M1 MOSFET Irms
14.	BOM Count	20	General	Total Design BOM count
15.	FootPrint	371.0 mm ²	General	Total Foot Print Area of BOM components
16.	Frequency	680.0 kHz	General	Switching frequency
17.	IC Tolerance	15.3 mV	General	IC Feedback Tolerance
18.	Total BOM	\$4.9	General	Total BOM Cost
19.	D1 Tj	98.0 degC	Op_Point	D1 junction temperature
20.	SEPIC Resonance Freq	7.216 kHz	Op_Point	SEPIC Resonance Frequency
21.	V SEPIC damping factor	114.367 m	Op_Point	V SEPIC damping factor
22.	Vin p-p	3.83 mV	Op_Point	Peak-to-peak input voltage
23.	Vsep p-p	157.336 mV	Op_Point	Peak-to-peak sepic voltage
24.	Cross Freq	3.872 kHz	Op_point	Bode plot crossover frequency
25.	Duty Cycle	69.5 %	Op_point	Duty cycle
26.	Efficiency	88.325 %	Op_point	Steady state efficiency
27.	Gain Marg	15.422 db	Op_point	Bode Plot Gain Margin
28.	IC Tj	110.088 degC	Op_point	IC junction temperature
29.	IOUT_OP	700.0 mA	Op_point	lout operating point
30.	M1 TjOP	0.0 degC	Op_point	M1 MOSFET junction temperature
31.	Phase Marg	63.344 deg	Op_point	Bode Plot Phase Margin
32.	Phase Shift	64.299 deg	Op_point	Bode Plot Phase Shift
33.	VIN_OP	6.0 V	Op_point	Vin operating point
34.	Vout p-p	28.906 mV	Op_point	Peak-to-peak output ripple voltage
35.	Cin Pd	1.757 μW	Power	Input capacitor power dissipation
36.	Cout Pd	1.602 mW	Power	Output capacitor power dissipation
37.	Csep Pd	3.202 mW	Power	SEPIC capacitor power dissipation
38.	D1 Pd	519.988 mW	Power	Diode power dissipation
39.	D1 PdCond	490.0 mW	Power	Diode conduction losses
40.	D1 PdSw	29.988 mW	Power	Diode switching losses
41.	IC Pd	125.44 mW	Power	IC power dissipation
42.	Lin Pd	263.946 mW	Power	Lin power dissipation
43.	Lout Pd	144.227 mW	Power	Lout power dissipation
44.	M1 Pd	0.0 W	Power	M1 MOSFET total power dissipation
45.	M1 PdCond	0.0 W	Power	M1 MOSFET conduction losses
46.	M1 PdSw	0.0 W	Power	M1 MOSFET switching losses
47.	Rsense Pd	115.722 mW	Power	LED Current Rsns Power Dissipation
48.	Total Pd	1.11 W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	lout	700.0 mA	Maximum Output Current
2.	lout1	700.0 mAmps	Output Current #1
3.	VinMax	20.0 V	Maximum input voltage
4.	VinMin	6.0 V	Minimum input voltage
5.	Vout	12.0 V	Output Voltage
6.	Vout1	12.0 Volt	Output Voltage #1
7.	base_pn	LM3488	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	85.0 degC	Ambient temperature

Design Assistance

1. **LM3488** Product Folder : <http://www.ti.com/product/lm3488> : contains the data sheet and other resources.

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