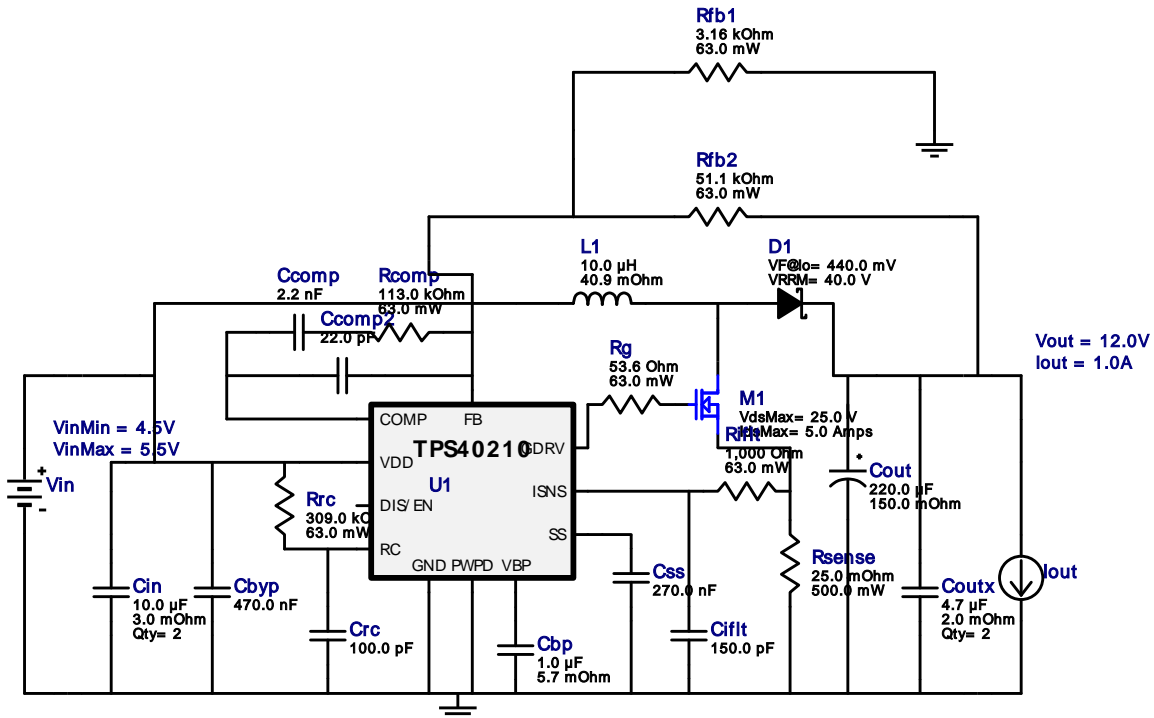
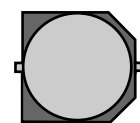


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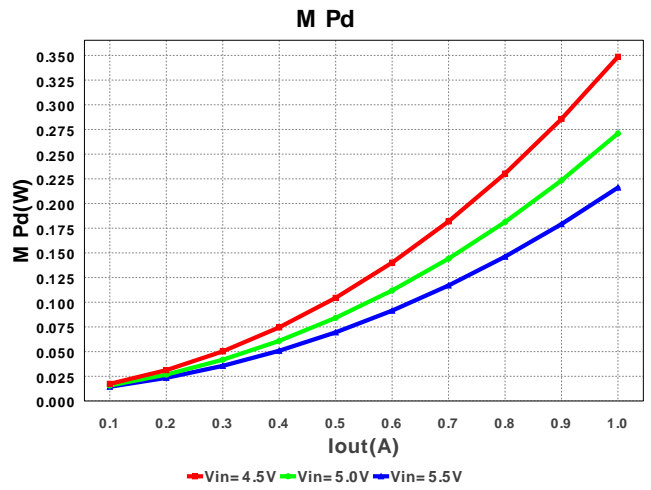
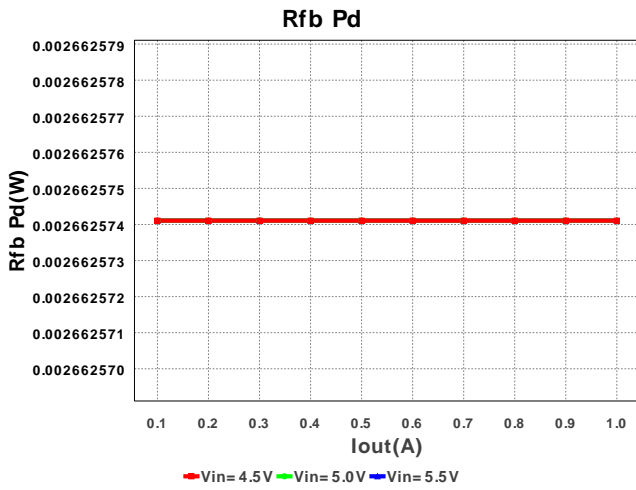
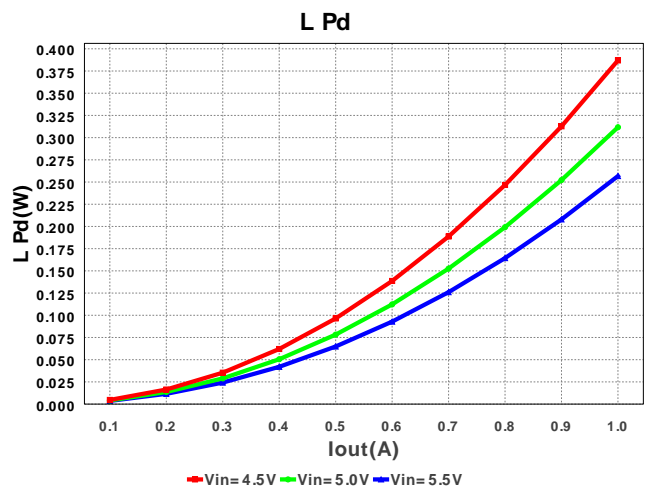
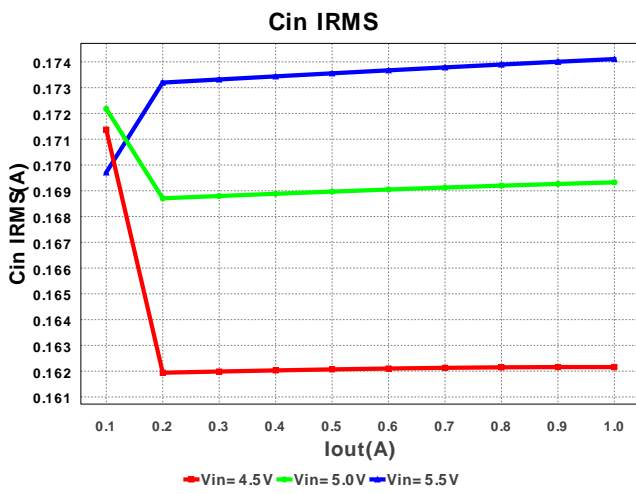
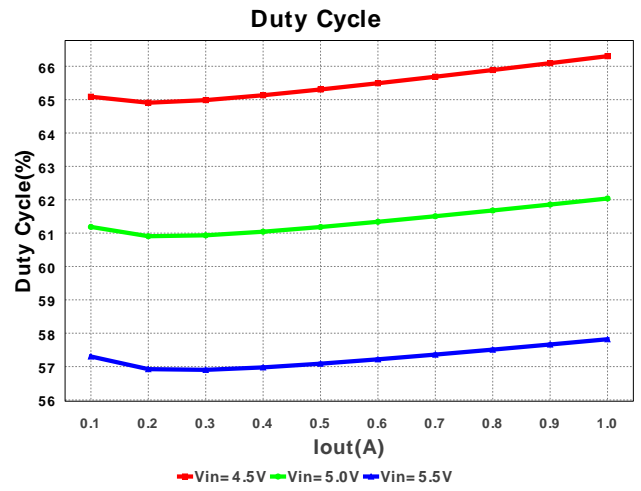
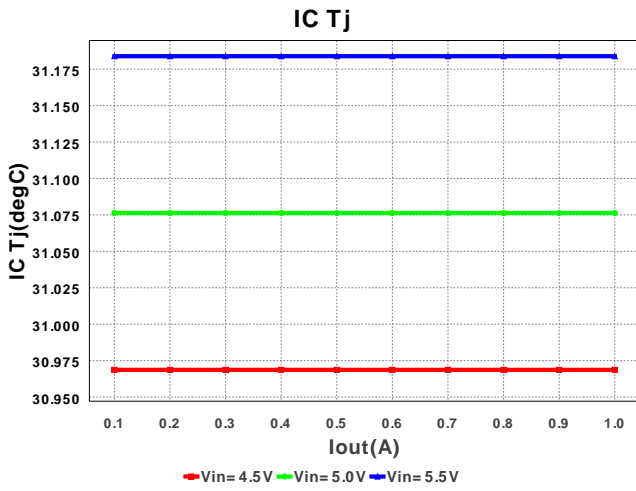
 Design : 3686430/68 TPS40210DGQR
 TPS40210DGQR 4.5V-5.5V to 12.019620253164556V @ 1.0A

电气材料清单

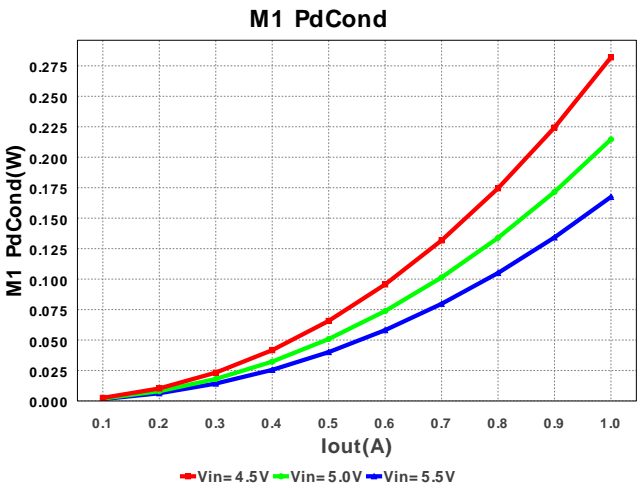
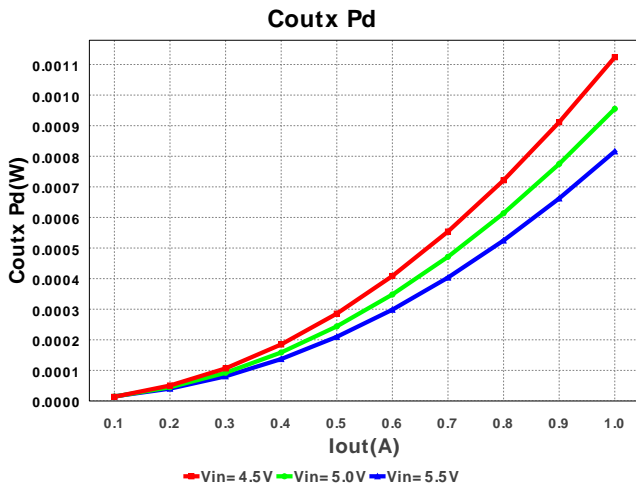
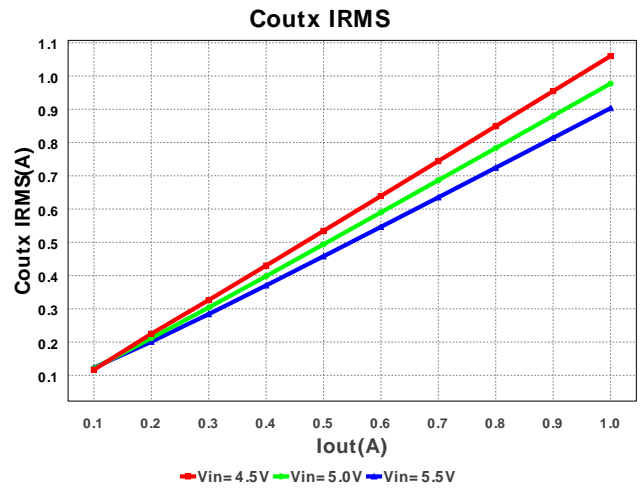
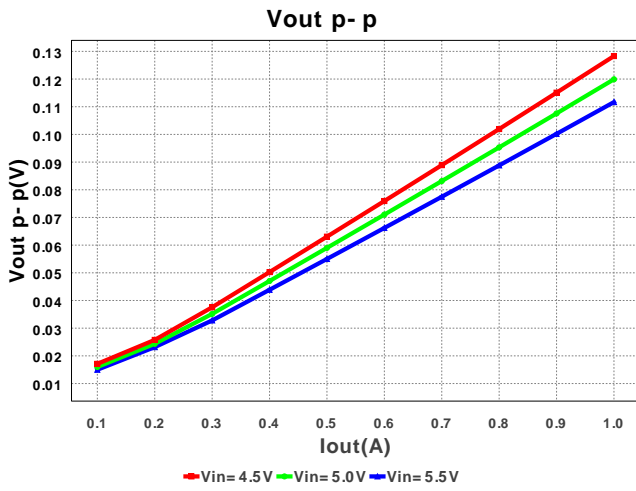
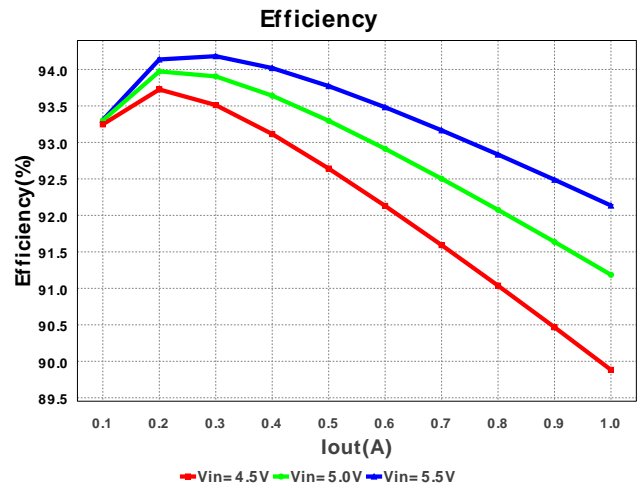
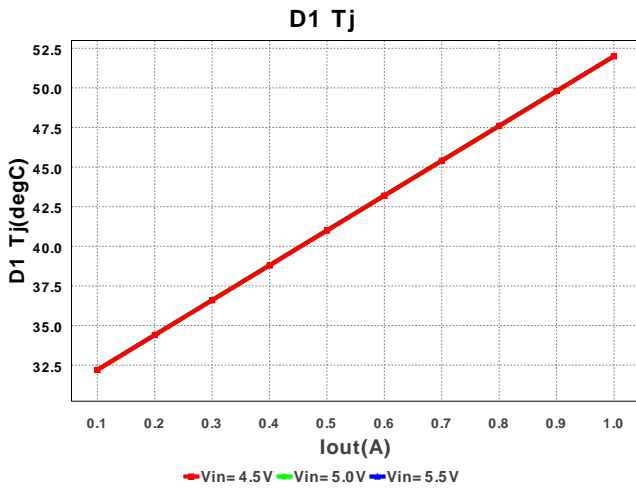
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1.	Cbp	TDK	C1608X5R1C105K Series= X5R	Cap= 1.0 µF ESR= 5.7 mOhm VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	0603 10mm2
2.	Cbyp	MuRata	GRM155C80J474KE19D Series= 379	Cap= 470.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	0402 8mm2
3.	Ccomp	Yageo America	CC0805KRX7R9BB222 Series= X7R	Cap= 2.2 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 13mm2
4.	Ccomp2	Yageo America	CC0805JRNP09BN220 Series= C0G/NP0	Cap= 22.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 13mm2
5.	Ciflt	Yageo America	CC0805JRNP09BN151 Series= C0G/NP0	Cap= 150.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 13mm2
6.	Cin	Kemet	C0805C106K8PACTU Series= X5R	Cap= 10.0 µF ESR= 3.0 mOhm VDC= 10.0 V IRMS= 11.43 A	2	\$0.05	0805 13mm2
7.	Cout	Panasonic	EEE-FC1E221P Series= FC	Cap= 220.0 µF ESR= 150.0 mOhm VDC= 25.0 V IRMS= 670.0 mA	1	\$0.24	SM_RADIAL_G 172mm2

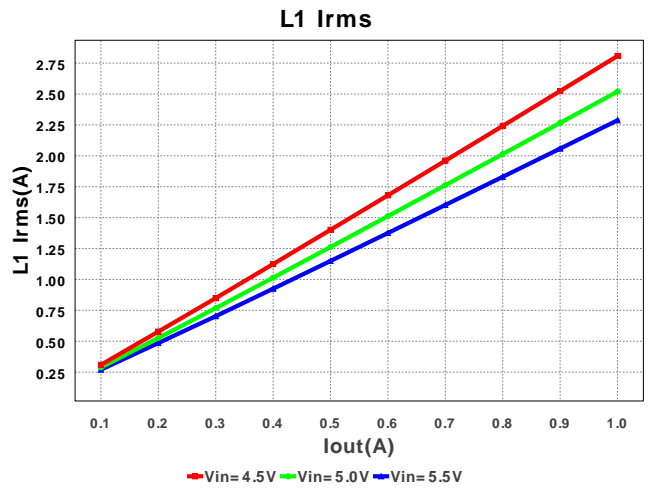
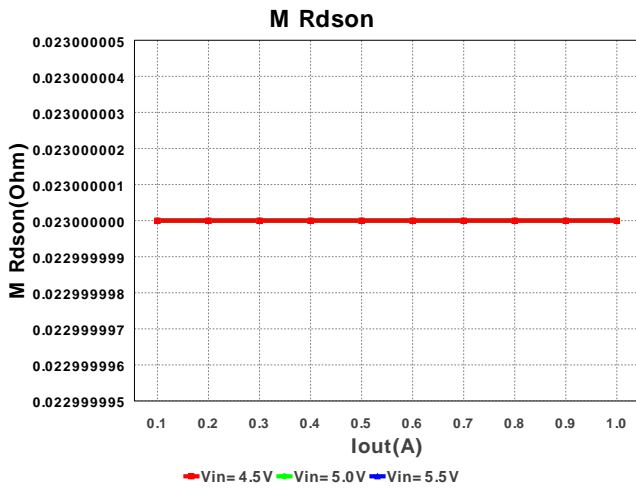
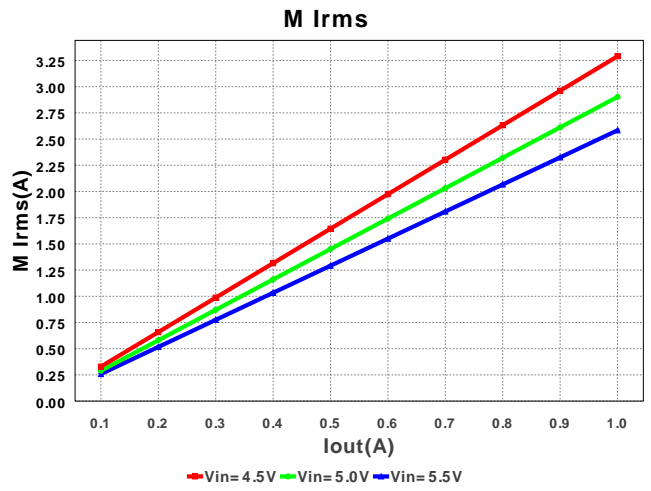
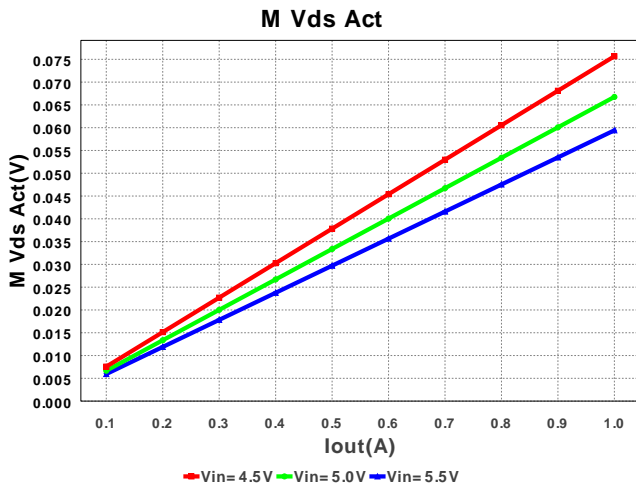
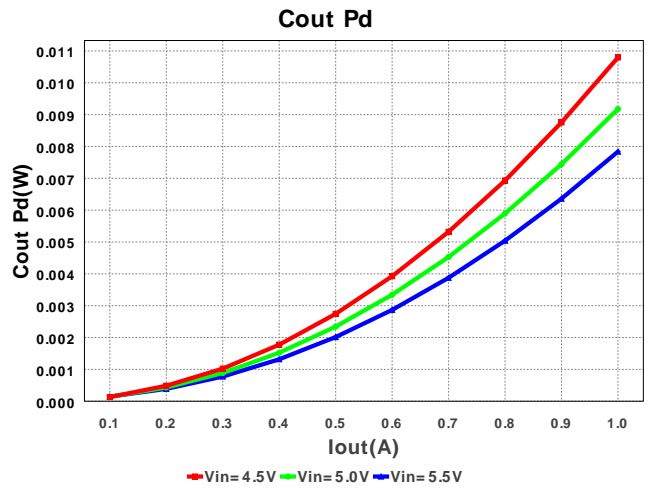
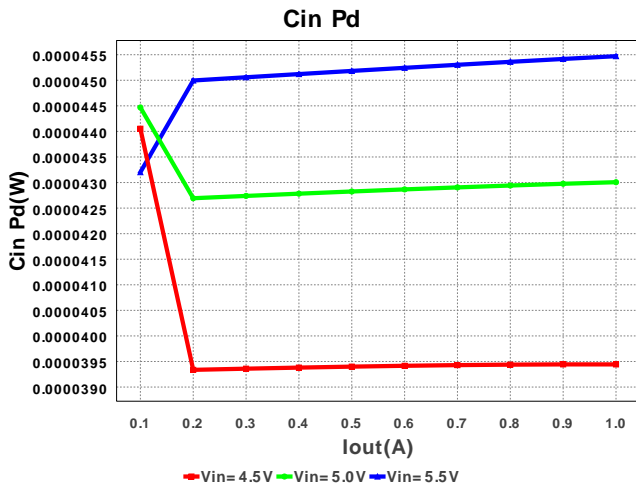


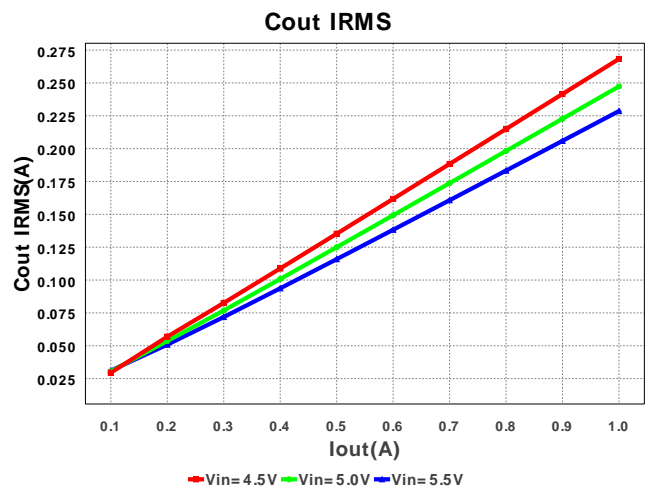
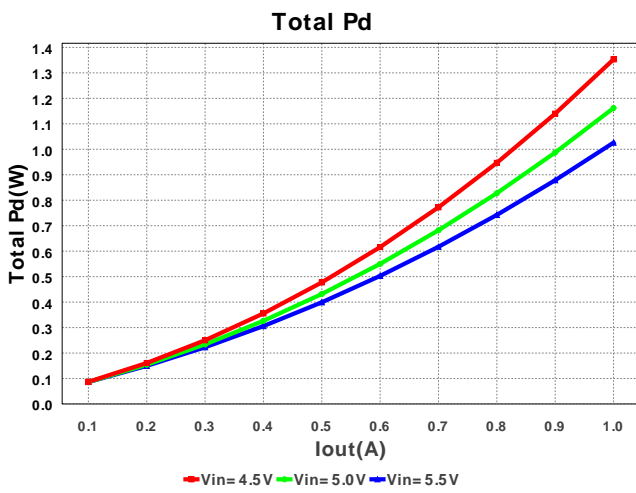
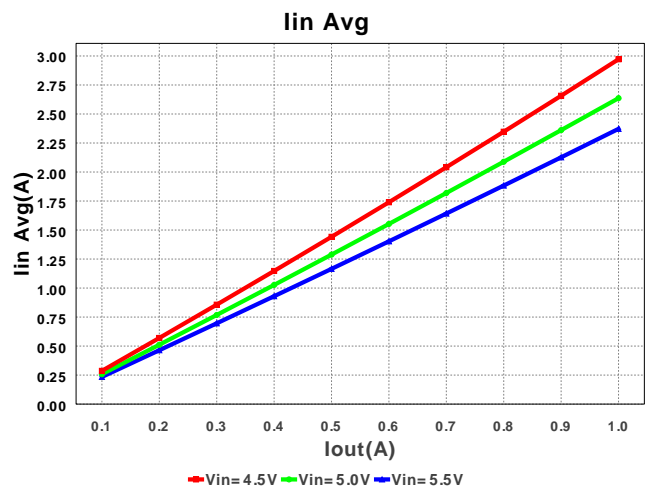
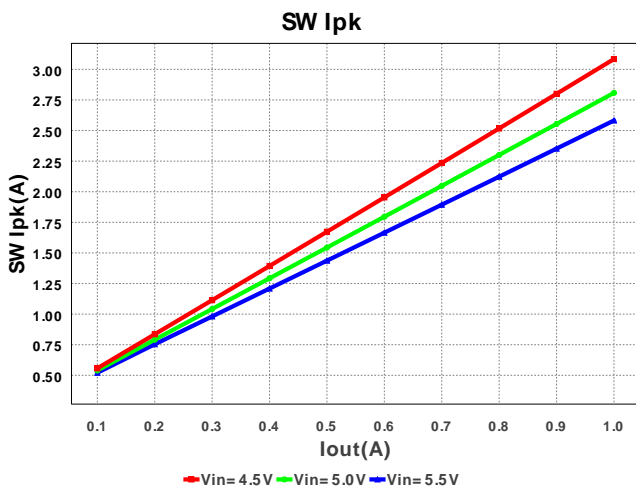
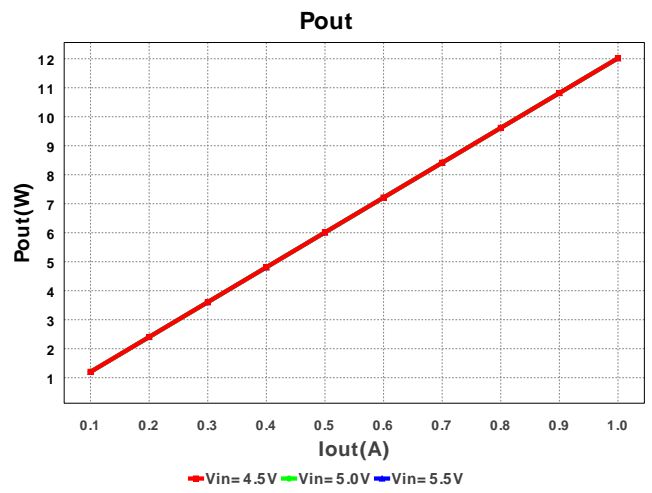
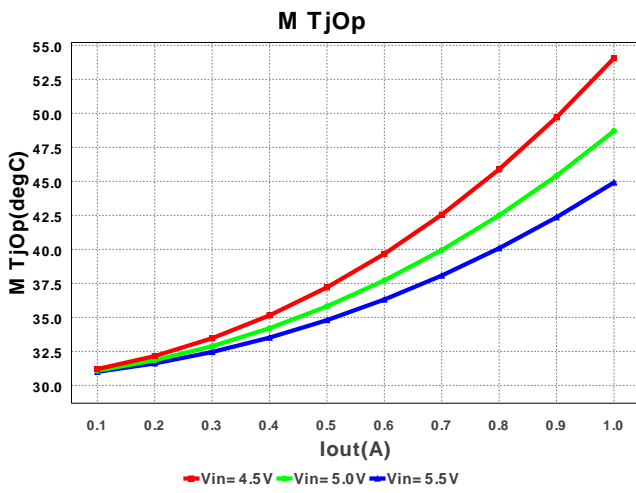
SM_RADIAL_G 172mm2

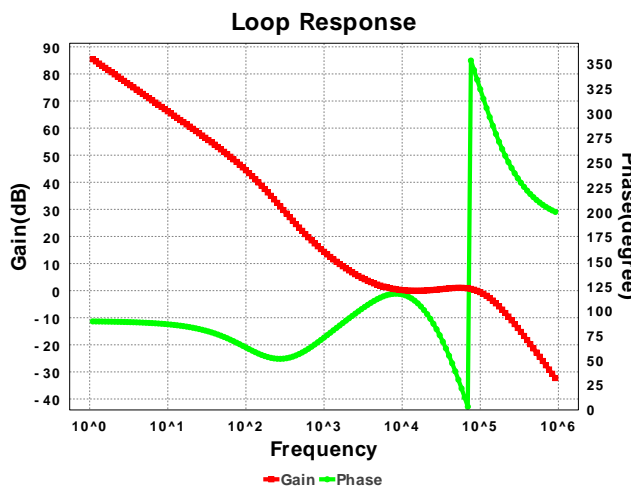
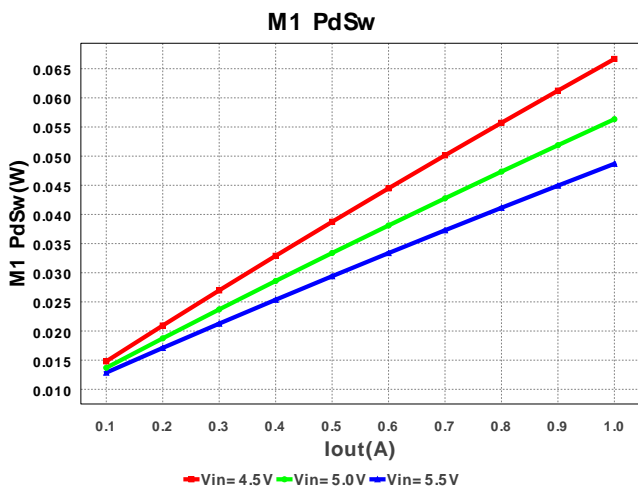
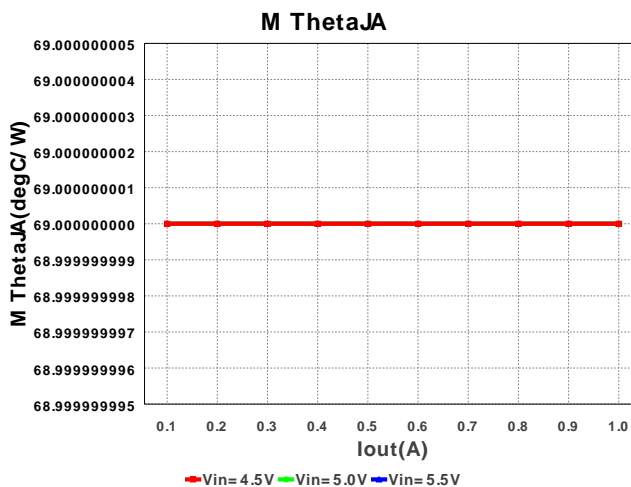
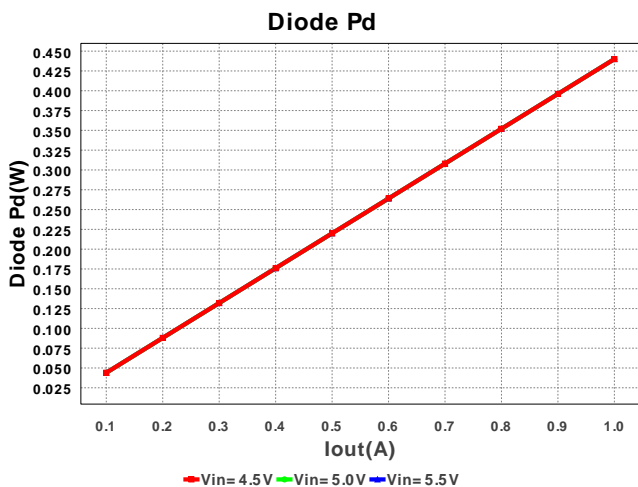
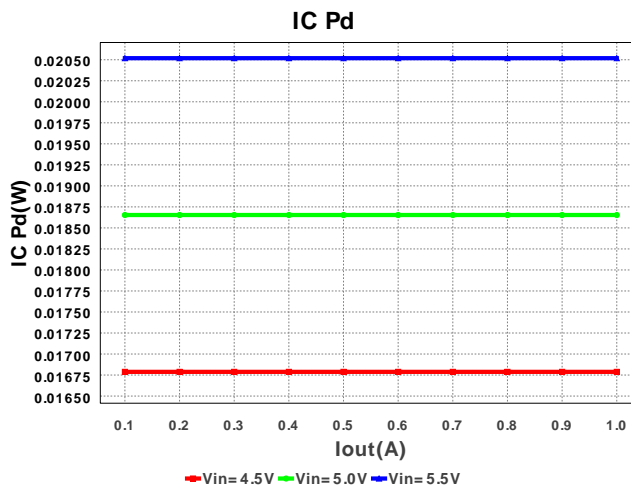
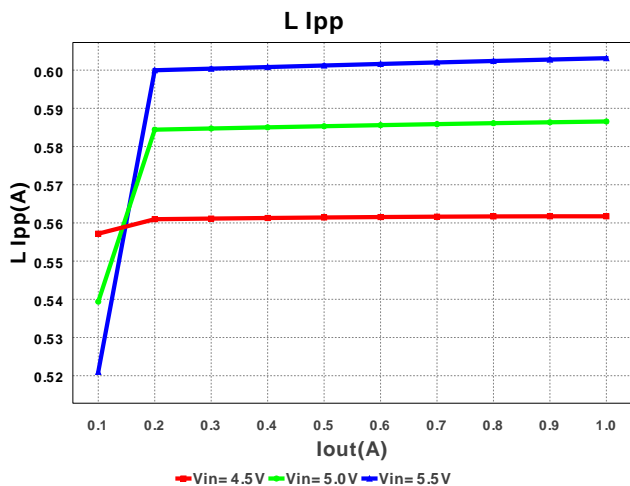
#	名称	制造商	零件编号	属性	Qty	Price	大小
8.	Coutx	MuRata	GRM21BR61E475MA12L Series= X5R	Cap= 4.7 μ F ESR= 2.0 mOhm VDC= 25.0 V IRMS= 7.29 A	2	\$0.06	 0805 13mm2
9.	Crc	Yageo America	CC0805JRNP09BN101 Series= C0G/NP0	Cap= 100.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 13mm2
10.	Css	MuRata	GRM155R61A274KE15D Series= X5R	Cap= 270.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.02	 0402 8mm2
11.	D1	Vishay-Semiconductor	SL44-E3/57T	VF@Io= 440.0 mV VRRM= 40.0 V	1	\$0.32	 SMC 83mm2
12.	L1	Coilcraft	XAL5050-103MEB	L= 10.0 μ H DCR= 40.9 mOhm	1	\$0.60	 XAL5050 54mm2
13.	M1	Texas Instruments	CSD16301Q2	VdsMax= 25.0 V IdsMax= 5.0 Amps	1	\$0.17	 TRANS_NexFET_Q2 16mm2
14.	Rcomp	Vishay-Dale	CRCW0402113KFKED Series= CRCW..e3	Res= 113.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
15.	Rfb1	Vishay-Dale	CRCW04023K16FKED Series= CRCW..e3	Res= 3.16 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
16.	Rfb2	Vishay-Dale	CRCW040251K1FKED Series= CRCW..e3	Res= 51.1 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
17.	Rg	Vishay-Dale	CRCW040253R6FKED Series= CRCW..e3	Res= 53.6 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
18.	Rift	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1,000 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
19.	Rrc	Vishay-Dale	CRCW0402309KFKED Series= CRCW..e3	Res= 309.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 8mm2
20.	Rsense	Stackpole Electronics Inc	CSR1206FK25L0 Series= ?	Res= 25.0 mOhm Power= 500.0 mW Tolerance= 1.0%	1	\$0.10	 1206 19mm2
21.	U1	Texas Instruments	TPS40210DGQR	Switcher	1	\$0.80	 S-PDSO-G10 36mm2











工作数值

#	名称	数值	类别	说明
1.	Cin IRMS	163.996 mA	Current	输入电容器均方根纹波电流
2.	Cout IRMS	266.366 mA	Current	输出电容器均方根纹波电流
3.	Coutx IRMS	1.053 A	Current	Output capacitor_x RMS ripple current
4.	Iin Avg	2.885 A	Current	平均输入电流
5.	L Ipp	568.1 mA	Current	峰值到峰值电感器纹波电流
6.	L1 Irms	2.769 A	Current	电感器纹波电流
7.	M Irms	3.277 A	Current	MOSFET RMS 纹波电流
8.	SW Ipk	3.048 A	Current	峰值开关电流
9.	BOM 数量	23	General	Total Design BOM count
10.	大小	555.0 mm2	General	BOM组件的总所占面积
11.	频率	512.777 kHz	General	开关频率

#	名称	数值	类别	说明
12.	IC Tolerance	10.0 mV	General	IC Feedback Tolerance
13.	M RdsOn	23.0 mOhm	General	漏源导电电阻
14.	M Vds Act	75.371 mV	General	M Vds
15.	模式	CCM	General	传导模式
16.	Pout	12.0 W	General	总输出功率
17.	总 BOM	\$2.59	General	Total BOM Cost
18.	D1 Tj	52.0 degC	Op_Point	D1接点温度
19.	Vout OP	12.02 V	Op_Point	Operational Output Voltage
20.	交叉频率	5.725 kHz	Op_point	波特图交叉频率
21.	占空比	65.317 %	Op_point	占空比
22.	效率	92.426 %	Op_point	稳态效率
23.	IC Tj	30.972 degC	Op_point	电路接点温度
24.	ICThetaJA	57.7 degC/W	Op_point	电路接点到环境热敏电阻
25.	IOUT_OP	1.0 A	Op_point	Iout 操作点
26.	M ThetaJA	69.0 degC/W	Op_point	MOSFET 接点到环境热敏电阻
27.	M TjOp	53.97 degC	Op_point	MOSFET 接点温度
28.	相位裕度	111.399 deg	Op_point	波特图相位裕度
29.	VIN_OP	4.5 V	Op_point	Vin操作点
30.	Vout p-p	126.325 mV	Op_point	峰值到峰值输出纹波电压
31.	Cin Pd	40.342 μW	Power	输入电容器功率耗散
32.	Cout Pd	10.643 mW	Power	输出电容器功率耗散
33.	Coutx Pd	1.109 mW	Power	Output capacitor_x power loss
34.	二极管 Pd	440.0 mW	Power	二极管功率耗散
35.	IC Pd	16.839 mW	Power	电路功率耗散
36.	L Pd	376.397 mW	Power	电感器功率耗散
37.	M Pd	347.397 mW	Power	MOSFET 功率耗散
38.	M1 PdCond	279.617 mW	Power	M1 MOSFET 传导损耗
39.	M1 PdSw	67.781 mW	Power	M1 MOSFET 开关损耗
40.	Rfb Pd	2.654 mW	Power	Rfb Power Dissipation
41.	整体 Pd	983.363 mW	Power	总功率耗散

设计输入

#	名称	数值	说明
1.	输出电流	1.0 A	最大输出电流
2.	Iout1	1.0 Amps	Output Current #1
3.	Vin 最大	5.5 V	最高输入电压
4.	Vin 最小	4.5 V	最低输入电压
5.	输出电压:	12.0 V	输出电压
6.	Vout1	12.0 Volt	Output Voltage #1
7.	base_pn	TPS40210	美国国家半导体的产品编号
8.	源	DC	输入源类别
9.	工作环境温度	30.0 degC	环境温度

设计协助

1. TPS40210 Product Folder : <http://www.ti.com/product/tps40210> : contains the data sheet and other resources.

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You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

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