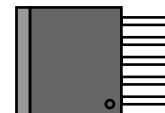


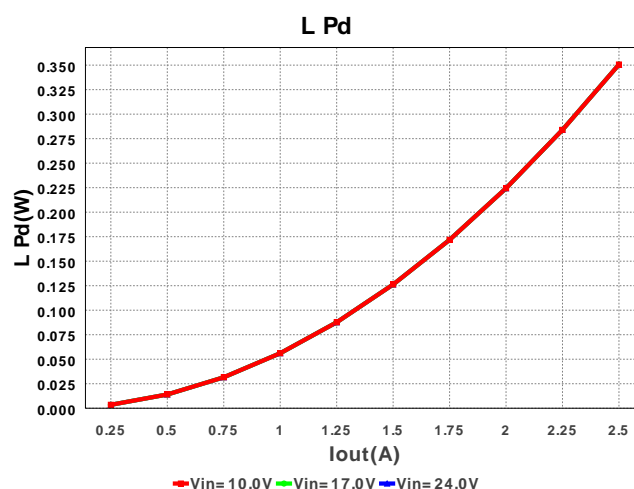
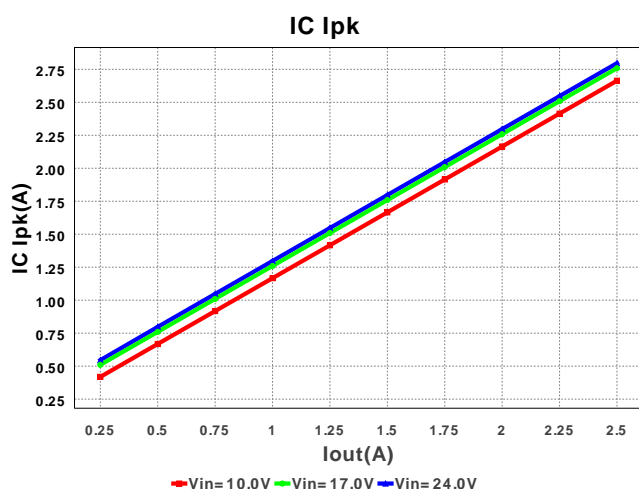
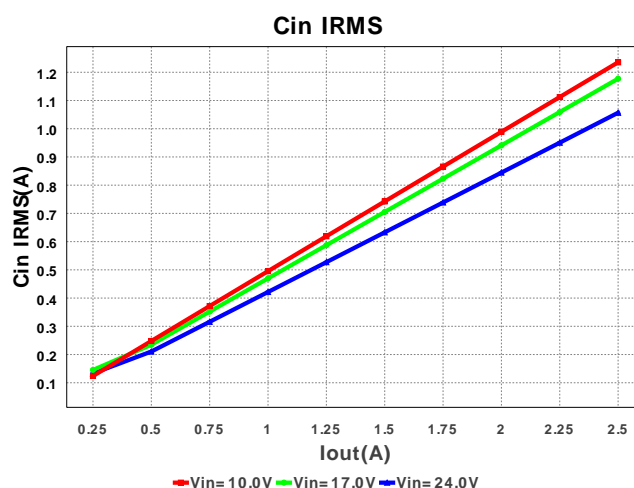
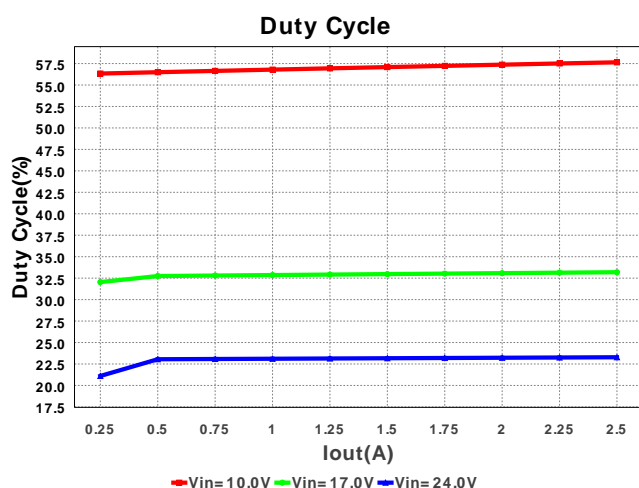
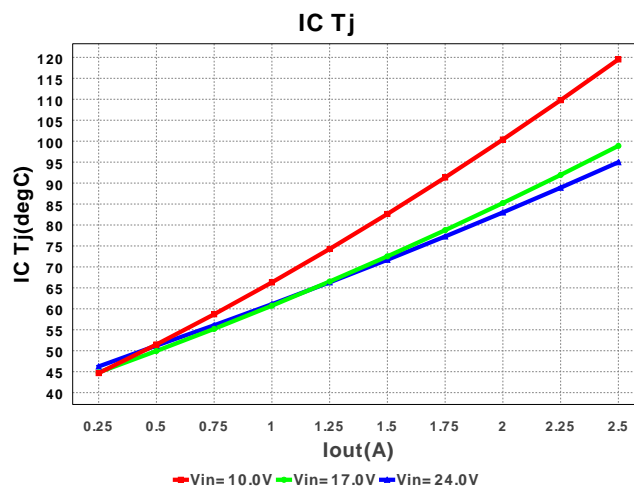
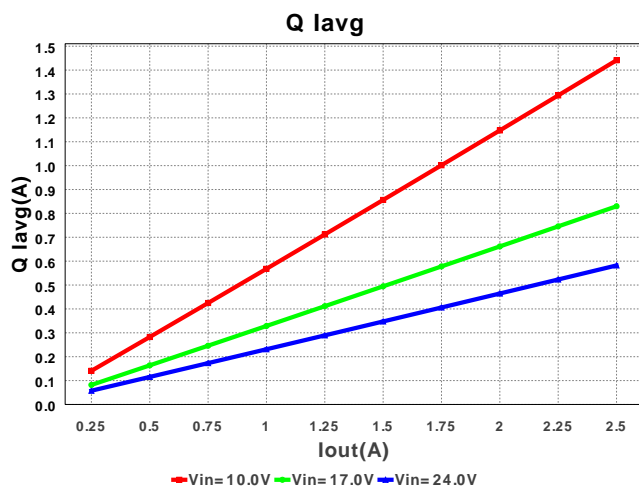
## 电气材料清单

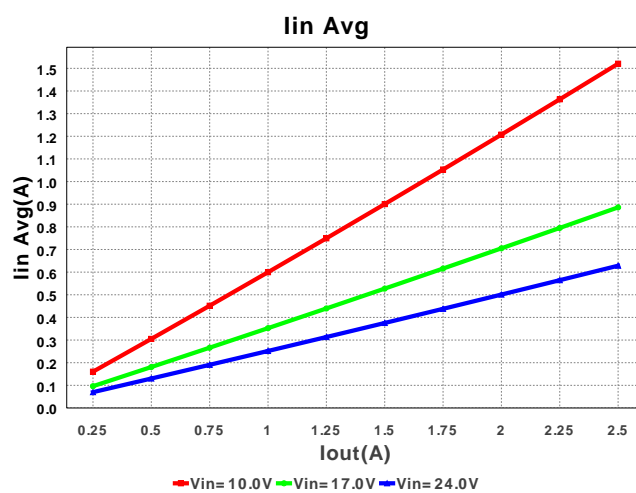
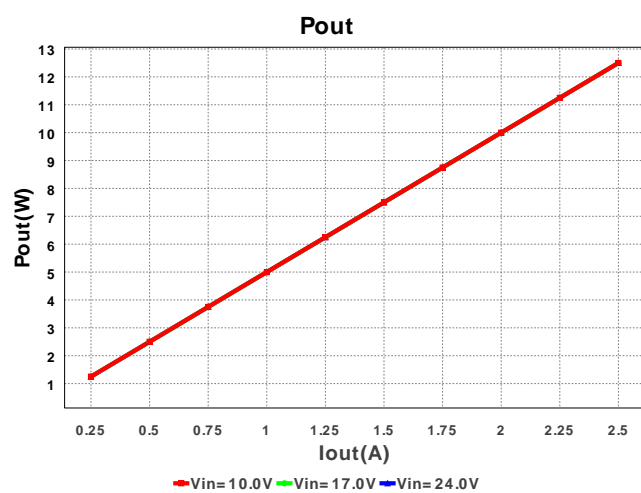
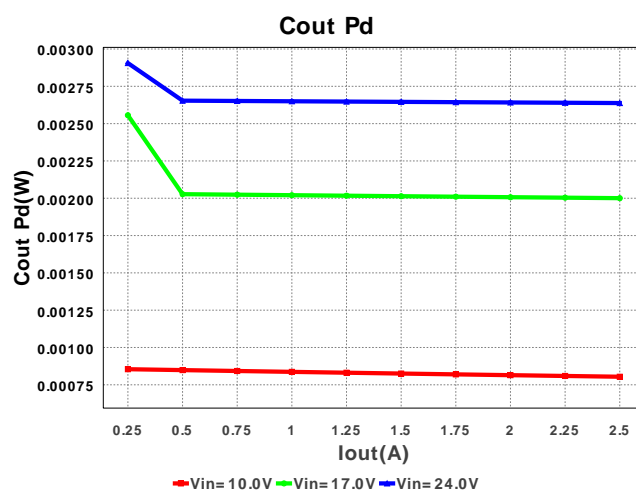
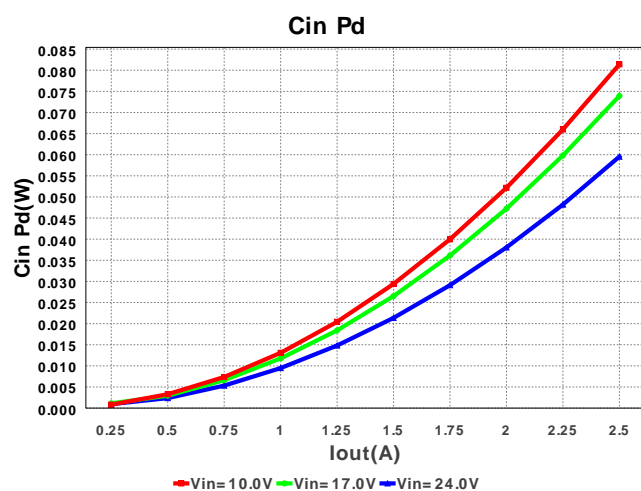
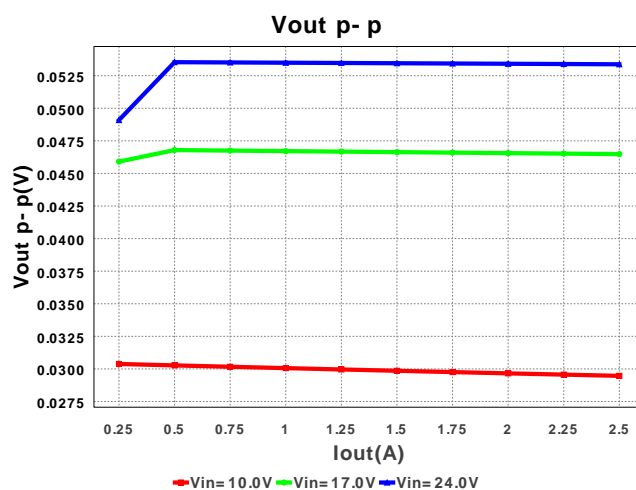
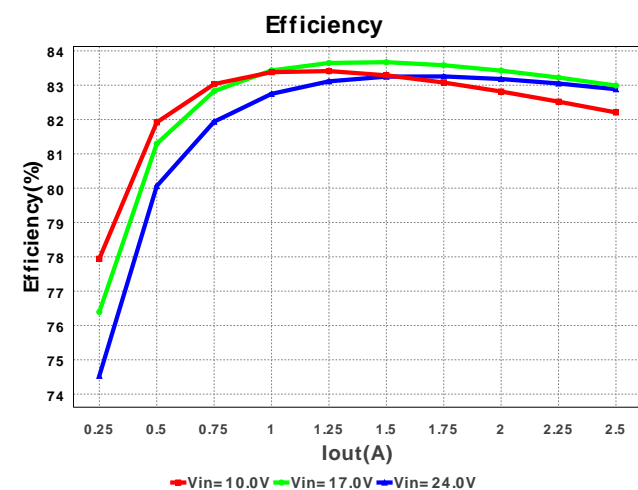
#	名称	制造商	零件编号	属性	Qty	Price	大小
1.	Cf	Yageo America	CC0805KRX7R9BB562 Series= X7R	Cap= 5.6 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7mm2
2.	Cin	Panasonic	EEE-FK1V101P Series= FK	Cap= 100.0 µF ESR= 160.0 mOhm VDC= 35.0 V IRMS= 600.0 mA	3	\$0.24	 SM_RADIAL_F 124mm2
3.	Cout	Nichicon	UUD1V331MNL1GS Series= uD	Cap= 330.0 µF ESR= 90.0 mOhm VDC= 35.0 V IRMS= 670.0 mA	1	\$0.25	 SM_RADIAL_10BMM 160mm2
4.	D1	Diodes Inc.	B340LB-13-F	VF@Io= 450.0 mV VRRM= 40.0 V	1	\$0.14	 SMB 44mm2
5.	L1	Coilcraft	MSS1210-473MEB	L= 47.0 µH DCR= 51.0 mOhm	1	\$0.81	 MSS1210 204mm2
6.	Rfb1	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1,000 Ohm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
7.	Rfb2	Vishay-Dale	CRCW04023K09FKED Series= CRCW..e3	Res= 3.09 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2

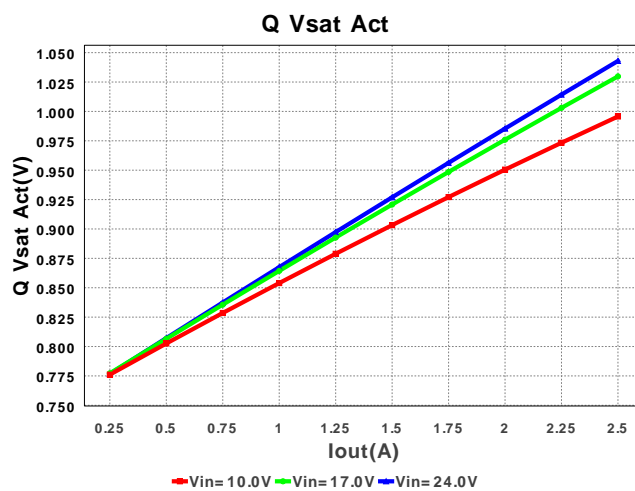
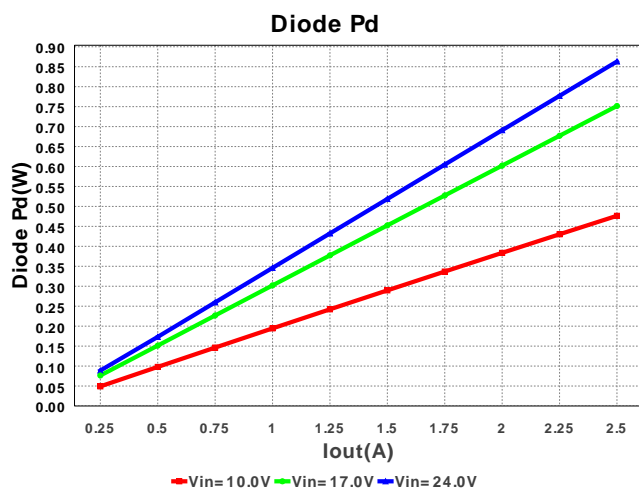
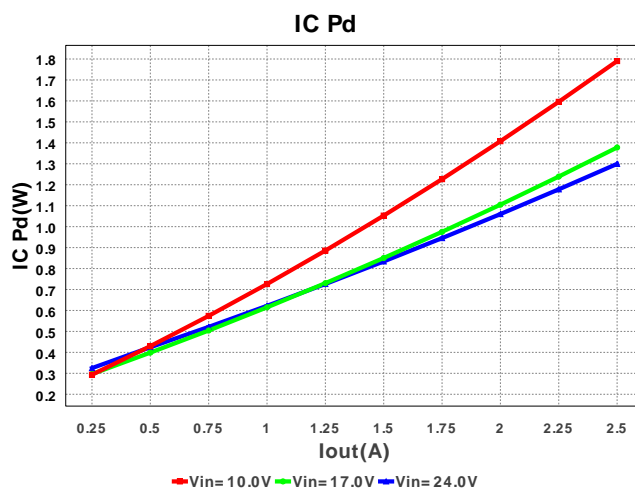
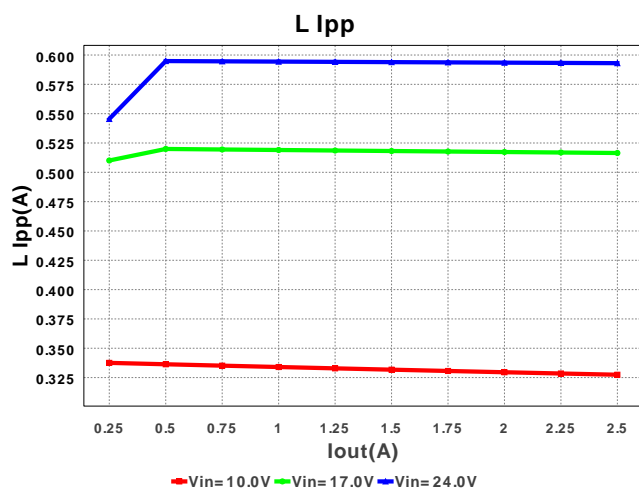
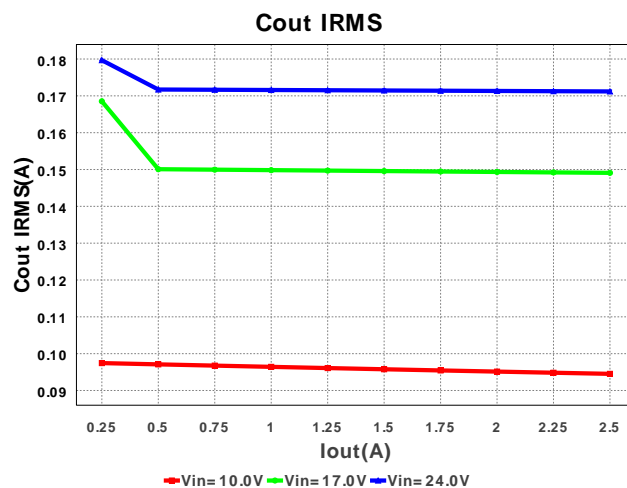
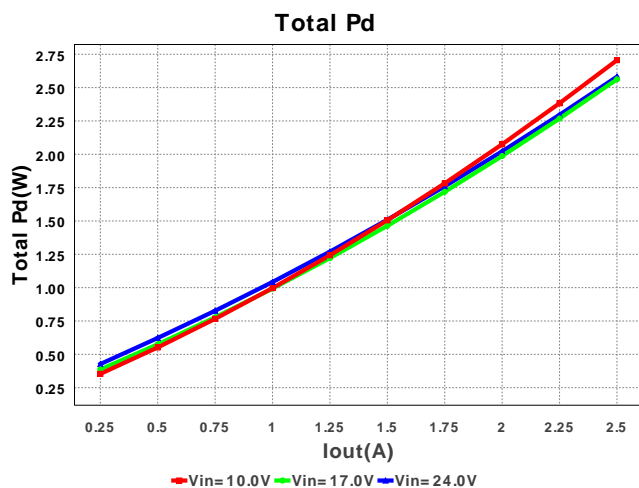
#	名称	制造商	零件编号	属性	Qty	Price	大小
8.	U1	Texas Instruments	LM2596S-ADJ/NOPB	Switcher	1	\$1.80	TS5B 199mm2



TS5B 199mm2







## 工作数值

#	名称	数值	类别	说明
1.	Cin IRMS	1.057 A	Current	输入电容器均方根纹波电流
2.	Cout IRMS	171.201 mA	Current	输出电容器均方根纹波电流
3.	IC Ipk	2.797 A	Current	电路内的峰值开关电流
4.	Iin Avg	628.4 mA	Current	平均输入电流
5.	L Ipp	593.056 mA	Current	峰值到峰值电感纹波电流
6.	Q Iavg	582.089 mA	Current	Q Iavg
7.	BOM 数量	10	General	Total Design BOM count
8.	大小	997.0 mm <sup>2</sup>	General	BOM组件的总所占面积
9.	频率	150.0 kHz	General	开关频率
10.	IC Tolerance	0.0 V	General	IC Feedback Tolerance
11.	Pout	12.5 W	General	总输出功率

#	名称	数值	类别	说明
12.	Q Vsat Act	1.043 V	General	Q Vsat
13.	总 BOM	\$3.75	General	Total BOM Cost
14.	交叉频率	63.096 kHz	Op_point	波特图交叉频率
15.	占空比	23.284 %	Op_point	占空比
16.	效率	82.883 %	Op_point	稳态效率
17.	IC Tj	94.976 degC	Op_point	电路接点温度
18.	ICThetaJA	50.0 degC/W	Op_point	电路接点到环境热敏电阻
19.	IOUT_OP	2.5 A	Op_point	Iout 操作点
20.	相位裕度	103.142 deg	Op_point	波特图相位裕度
21.	VIN_OP	24.0 V	Op_point	Vin操作点
22.	Vout p-p	53.375 mV	Op_point	峰值到峰值输出纹波电压
23.	Cin Pd	59.541 mW	Power	输入电容器功率耗散
24.	Cout Pd	2.638 mW	Power	输出电容器功率耗散
25.	二极管 Pd	863.06 mW	Power	二极管功率耗散
26.	IC Pd	1.3 W	Power	电路功率耗散
27.	L Pd	350.625 mW	Power	电感器功率耗散
28.	整体 Pd	2.582 W	Power	总功率耗散

## 设计输入

#	名称	数值	说明
1.	输出电流	2.5 A	最大输出电流
2.	Iout1	2.5 Amps	Output Current #1
3.	Vin 最大	24.0 V	最高输入电压
4.	Vin 最小	10.0 V	最低输入电压
5.	输出电压:	5.0 V	输出电压
6.	Vout1	5.0 Volt	Output Voltage #1
7.	base_pn	LM2596	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. LM2596 Product Folder : <http://www.ti.com/product/lm2596> : contains the data sheet and other resources.

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