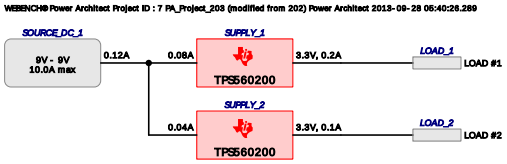
WEBENCH® Power Architect



项目报告

项目 : 3710063/7 : PA_Project_203 (modified from 202)
创建 : 2013-09-28 05:40:26.289
Optimize project optFactor=2

项目概览

1.	整体系统效率	89.295 %
2.	总系统 BOM 数量	14.0
3.	整体系统大小	226.0 mm2
4.	总系统 BOM 成本	$1.71
5.	Total System Power Dissipation	118.7 mW

--> 发布 WEBENCH Power Architect.

电源供应

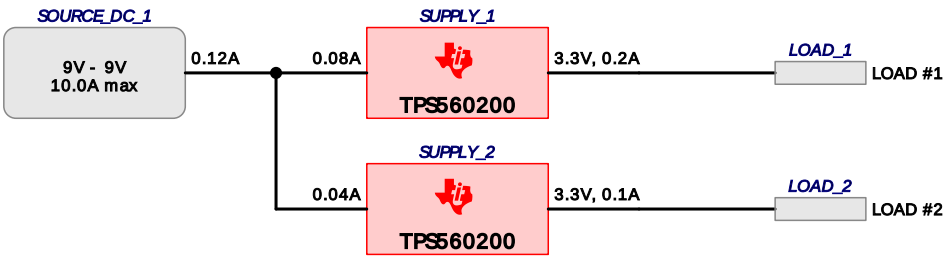
#	名称	NSID	说明	Vout	Iout	效率	Foot-print	Cost	Design	页面
1.	SUPPLY_1	TPS560200	Switcher : 17V, 500mA,5-pin, Low Iq Synchronous buck converter with Advanced Eco-mode	3.3 V	0.2 A	89.3%	131	$0.85	78	4
2.	SUPPLY_2	TPS560200	Switcher : 17V, 500mA,5-pin, Low Iq Synchronous buck converter with Advanced Eco-mode	3.3 V	0.1 A	89.2%	95	$0.86	79	9

电源负载

#	名称	VLoad	ILoad	说明
1.	LOAD #1	3.3 V	0.2 A	VoutRipple=10%, Requires a separate supply
2.	LOAD #2	3.3 V	0.1 A	VoutRipple=10%, Requires a separate supply

Project Diagram

WEBENCH® Power Architect Project ID : 7 PA_Project_203 (modified from 202) Power Architect 2013- 09- 28 05:40:26.289



电气采购BOM

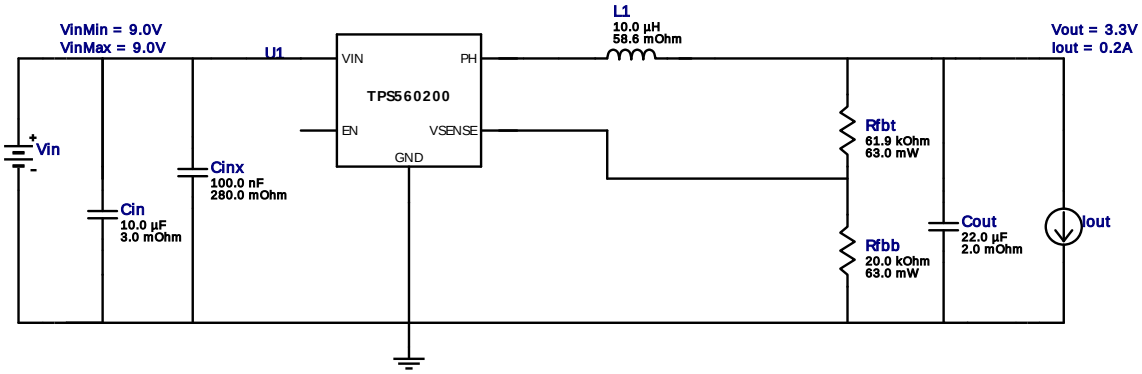
制造商	零件编号	说明	数量	Budgetary Price	大小 (mm^2)
AVX	08053C104KAT2A	0805	2	$0.01	14
Kemet	C0805C106K8PACTU	0805	2	$0.05	14
TDK	C3216X5R0J226K	1206	2	$0.11	22
Vishay-Dale	CRCW040220K0FKED	0402	2	$0.01	6
Vishay-Dale	CRCW040261K9FKED	0402	2	$0.01	6
Bourns	SDR0403-100ML	SDR0403	1	$0.17	28
Bourns	SRN6045-100M	SRN6045	1	$0.16	64
Texas Instruments	TPS560200DBVR	R-PDSO-G5	2	$0.50	33
Total			14	$1.71	185

WEBENCH® 设计报告

VinMin = 9.0V
VinMax = 9.0V
Vout = 3.3V
Iout = 0.2A

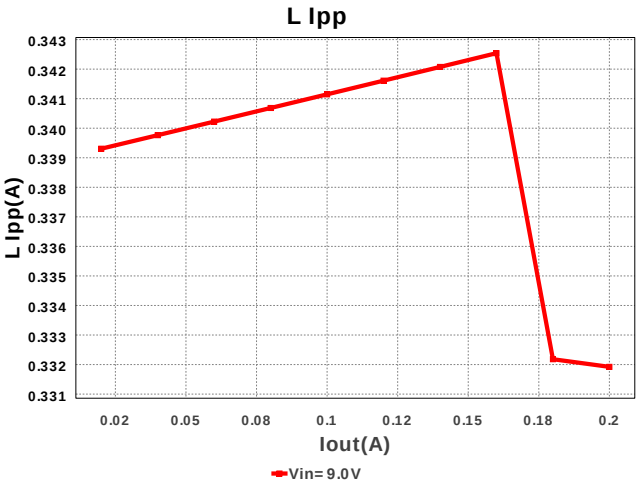
Device = TPS560200DBVR
Topology = Buck
创建 = 9/28/13 5:40:20 AM
BOM成本 = $0.85
Total Pd = 0.08W
大小 = 131.0mm2
BOM 数量 = 7

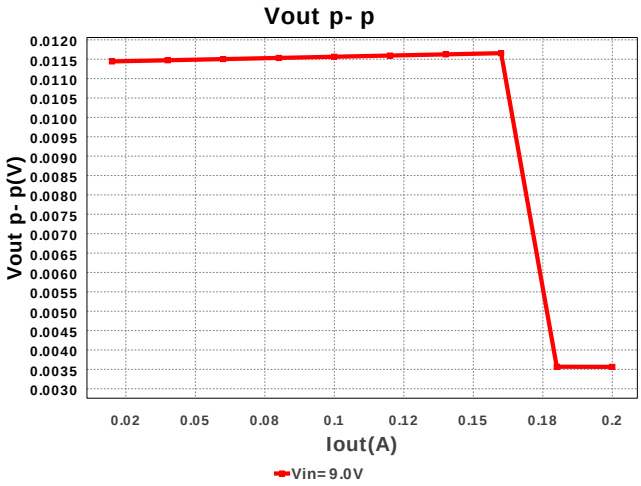
Design : 3710063/78 TPS560200DBVR
TPS560200DBVR 9.0V-9.0V to 3.3V @ 0.2A

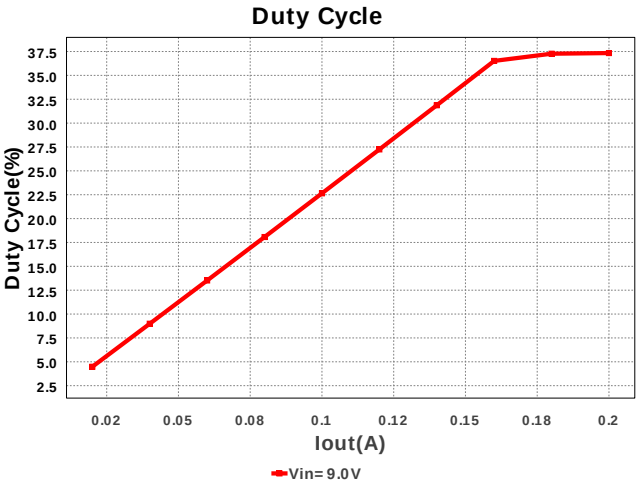


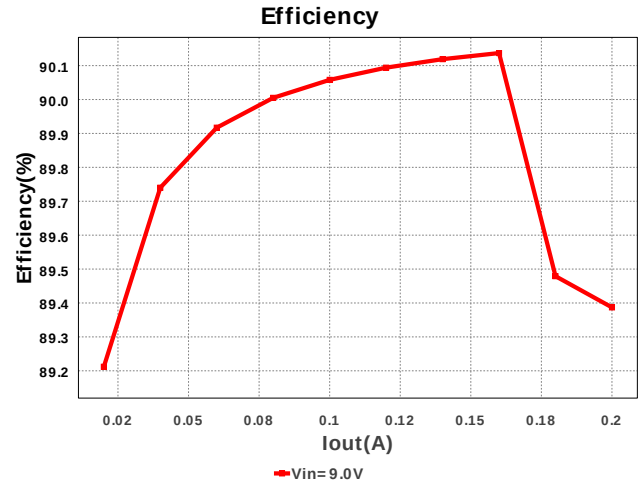
电气材料清单

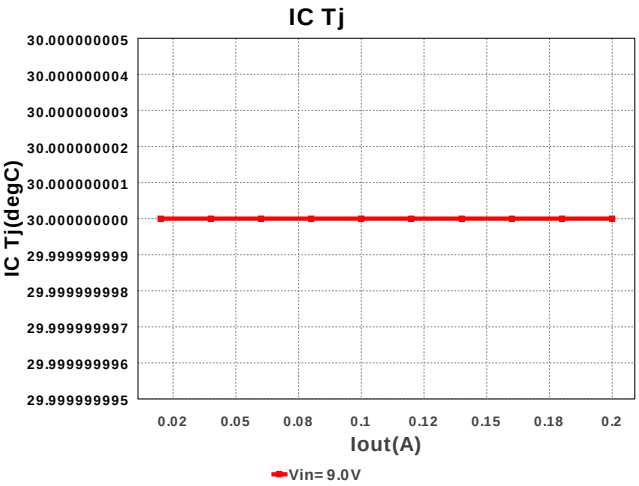
#	名称	制造商	零件编号	属性	Qty	Price	大小
1.	Cin	Kemet	C0805C106K8PACTU Series= X5R	Cap= 10.0 µF ESR= 3.0 mOhm VDC= 10.0 V IRMS= 11.43 A	1	$0.05	0805 7mm2
2.	Cinx	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	$0.01	0805 7mm2
3.	Cout	TDK	C3216X5R0J226K Series= X5R	Cap= 22.0 µF ESR= 2.0 mOhm VDC= 6.3 V IRMS= 3.62 A	1	$0.11	1206 11mm2
4.	L1	Bourns	SRN6045-100M	L= 10.0 µH DCR= 58.6 mOhm	1	$0.16	SRN6045 64mm2
5.	Rfbb	Vishay-Dale	CRCW040220K0FKED Series= CRCW..e3	Res= 20.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
6.	Rfbt	Vishay-Dale	CRCW040261K9FKED Series= CRCW..e3	Res= 61.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
7.	U1	Texas Instruments	TPS560200DBVR	Switcher	1	$0.50	R-PDSO-G5 16mm2

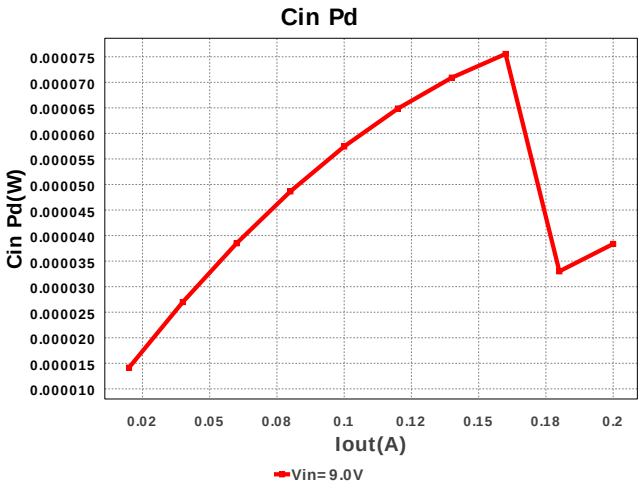




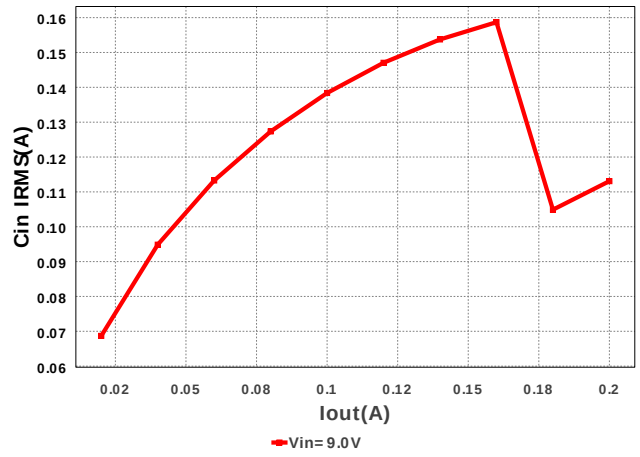




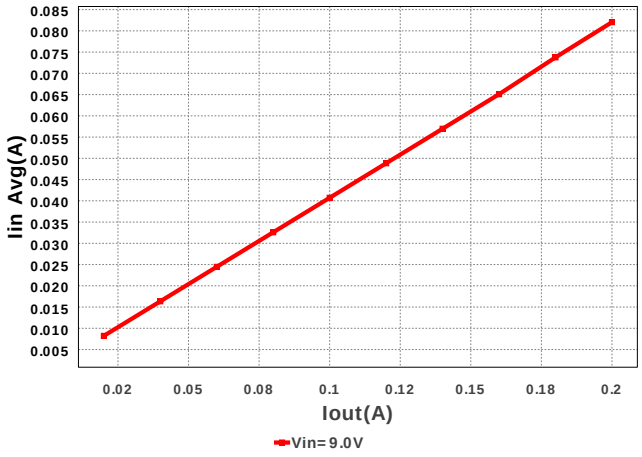




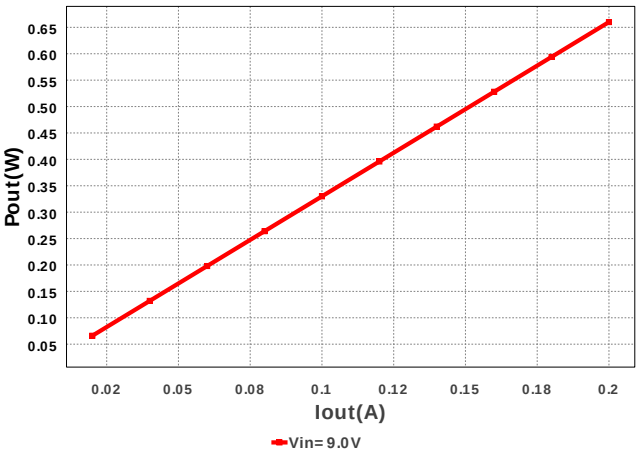
Cin IRMS



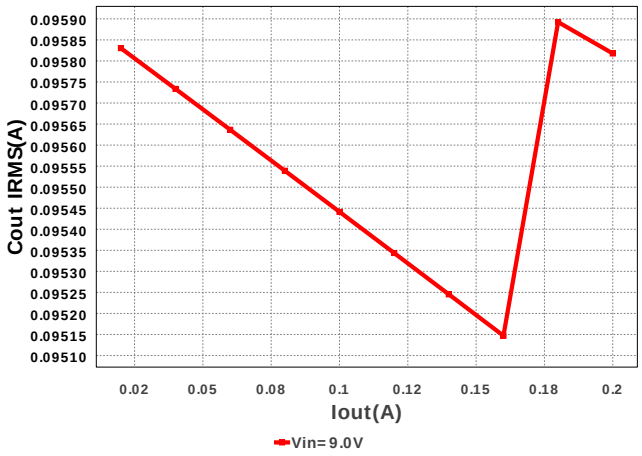
Iin Avg



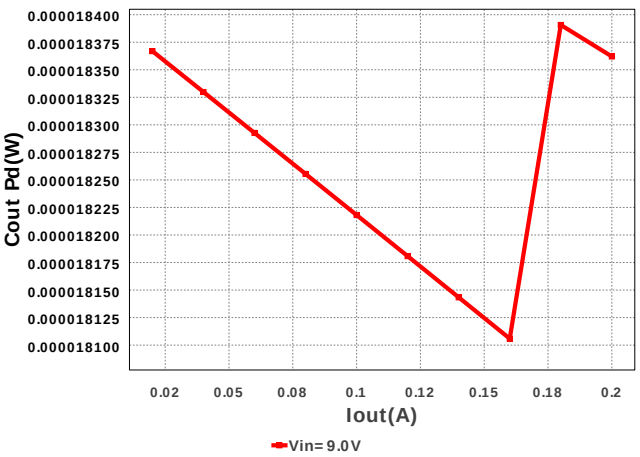
Pout



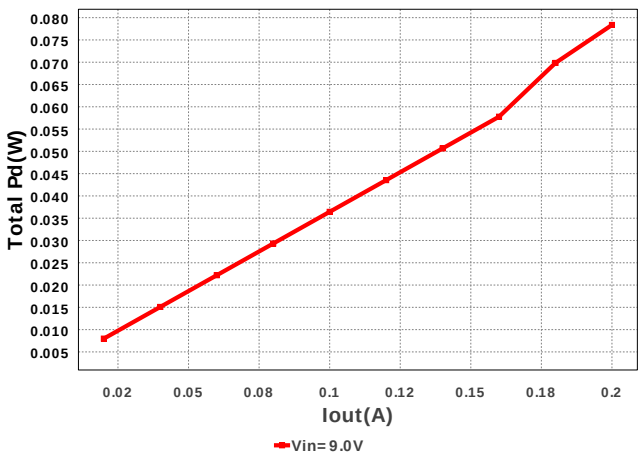
Cout IRMS

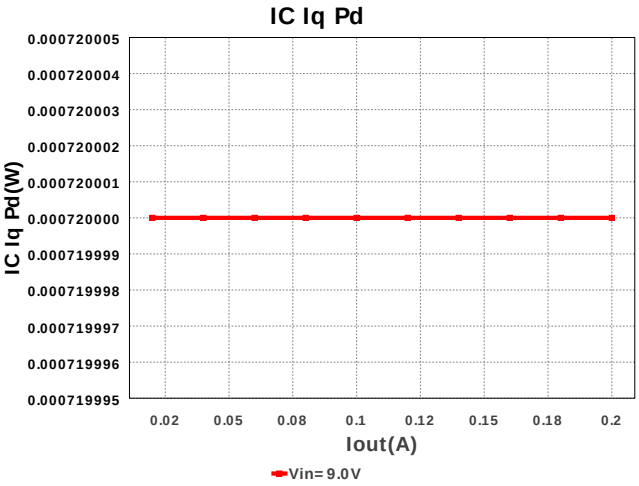


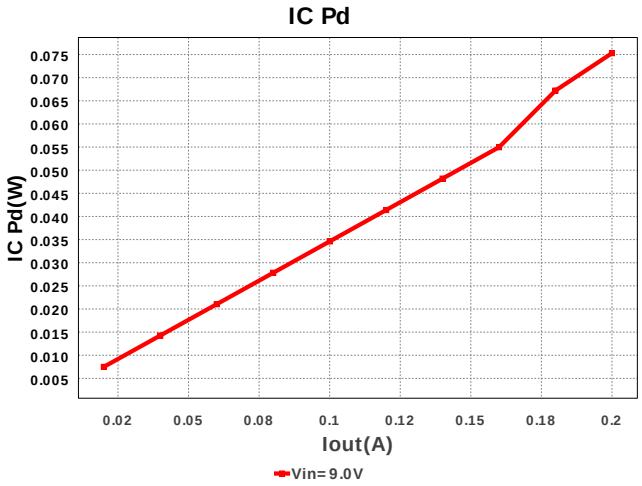
Cout Pd

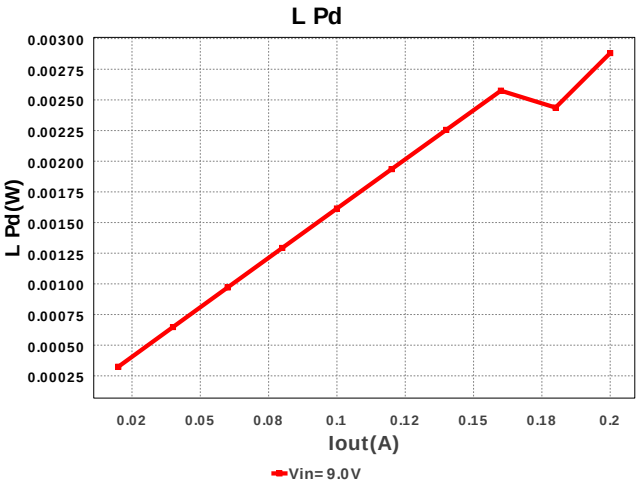


Total Pd









工作数值

#	名称	数值	类别	说明
1.	Cin IRMS	113.102 mA	Current	输入电容器均方根纹波电流
2.	Cout IRMS	95.848 mA	Current	输出电容器均方根纹波电流
3.	Iin Avg	82.083 mA	Current	平均输入电流
4.	L Ipp	332.029 mA	Current	峰值到峰值电感器纹波电流
5.	BOM 数量	7	General	Total Design BOM count
6.	大小	131.0 mm2	General	BOM组件的总所占面积
7.	频率	626.21 kHz	General	开关频率
8.	Pout	660.0 mW	General	总输出功率
9.	总 BOM	$0.85	General	Total BOM Cost
10.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
11.	占空比	37.354 %	Op_point	占空比
12.	效率	89.341 %	Op_point	稳态效率
13.	IC Tj	37.567 degC	Op_point	电路接点温度
14.	ICThetaJA	100.0 degC/W	Op_point	电路接点到环境热敏电阻
15.	IOUT_OP	200.0 mA	Op_point	Iout 操作点
16.	VIN_OP	9.0 V	Op_point	Vin操作点
17.	Vout p-p	3.566 mV	Op_point	峰值到峰值输出纹波电压
18.	Cin Pd	38.376 µW	Power	输入电容器功率耗散
19.	Cout Pd	18.374 µW	Power	输出电容器功率耗散
20.	电路静态电流功率耗散	720.0 µW	Power	电路静态电流功率耗散
21.	IC Pd	75.673 mW	Power	电路功率耗散
22.	L Pd	2.882 mW	Power	电感器功率耗散
23.	整体 Pd	78.743 mW	Power	总功率耗散

设计输入

#	名称	数值	说明
1.	输出电流	200.0 mA	最大输出电流
2.	Iout1	200.0 mAmps	Output Current #1
3.	Vin 最大	9.0 V	最高输入电压
4.	Vin 最小	9.0 V	最低输入电压

#	名称	数值	说明
5.	输出电压:	3.3 V	输出电压
6.	Vout1	3.3 Volt	Output Voltage #1
7.	base_pn	TPS560200	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. TPS560200 Product Folder : http://www.ti.com/product/TPS560200 : contains the data sheet and other resources.

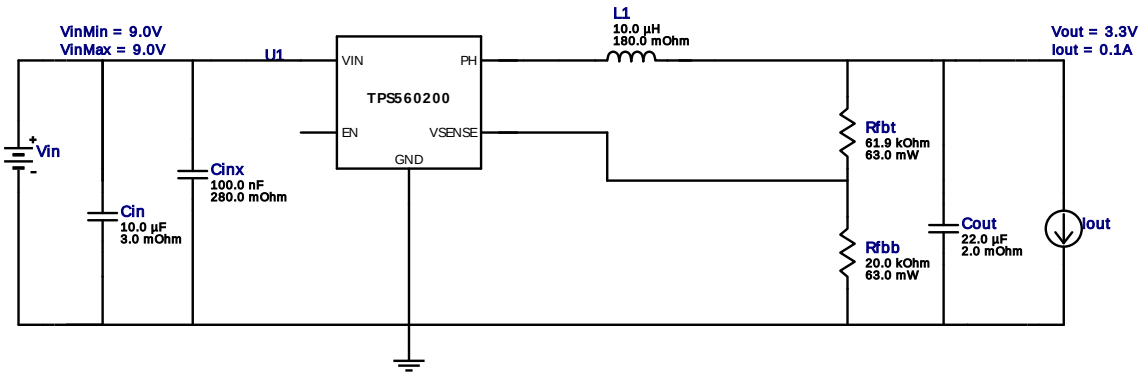
TEXAS INSTRUMENTS

WEBENCH® 设计报告

Design : 3710063/79 TPS560200DBVR
TPS560200DBVR 9.0V-9.0V to 3.3V @ 0.1A

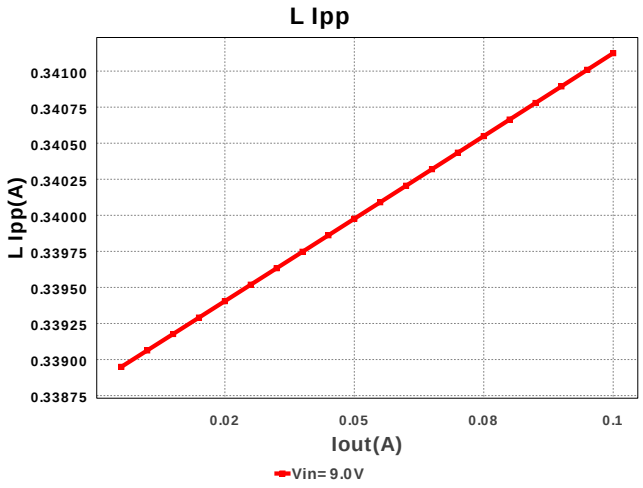
VinMin = 9.0V
VinMax = 9.0V
Vout = 3.3V
Iout = 0.1A

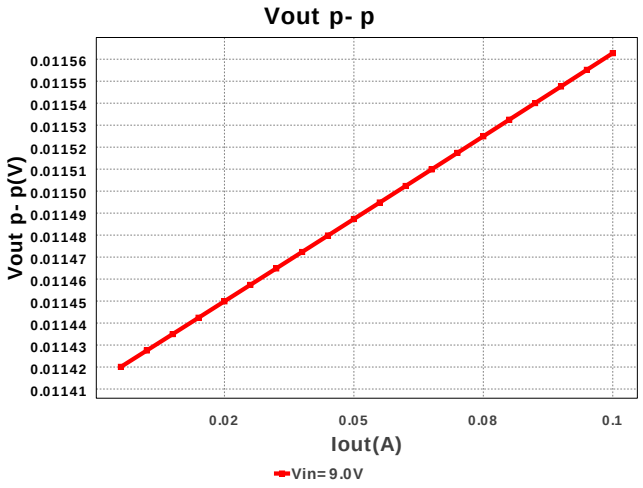
Device = TPS560200DBVR
Topology = Buck
创建 = 9/28/13 5:40:22 AM
BOM成本 = $0.86
Total Pd = 0.04W
大小 = 95.0mm2
BOM 数量 = 7

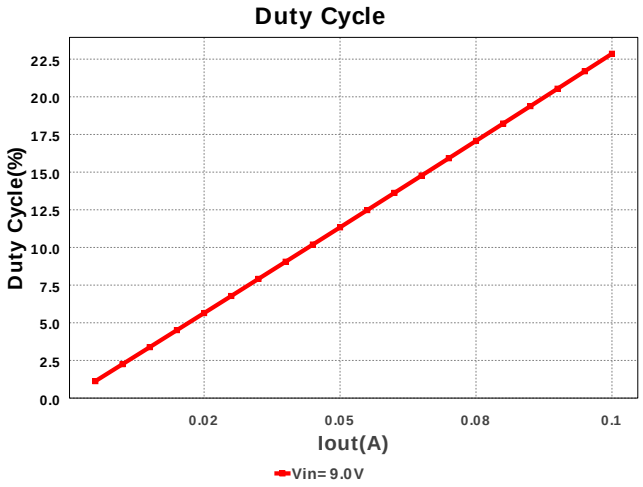


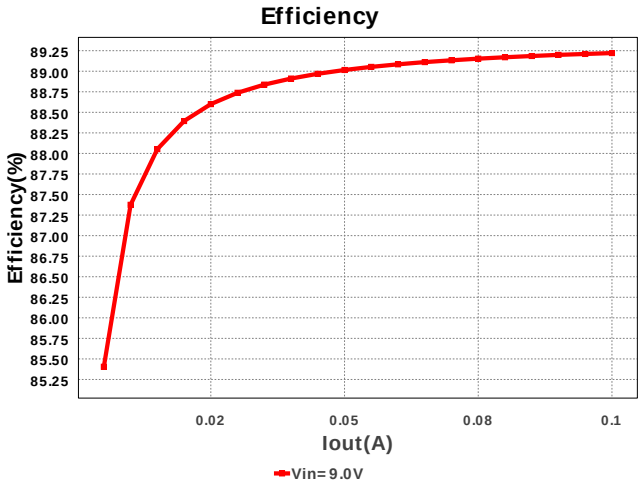
电气材料清单

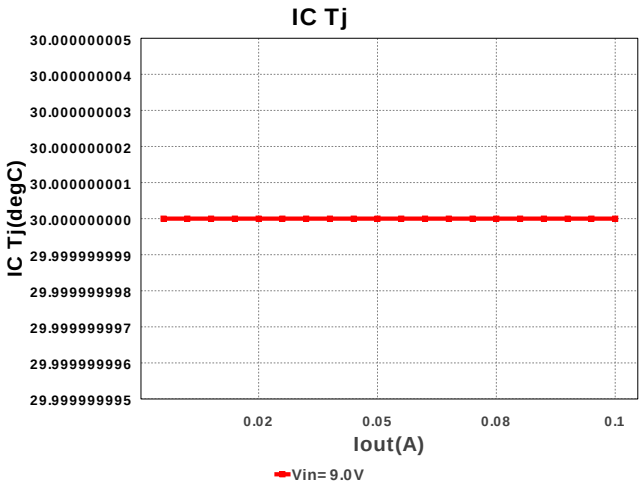
#	名称	制造商	零件编号	属性	Qty	Price	大小
1.	Cin	Kemet	C0805C106K8PACTU Series= X5R	Cap= 10.0 µF ESR= 3.0 mOhm VDC= 10.0 V IRMS= 11.43 A	1	$0.05	0805 7mm2
2.	Cinx	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	$0.01	0805 7mm2
3.	Cout	TDK	C3216X5R0J226K Series= X5R	Cap= 22.0 µF ESR= 2.0 mOhm VDC= 6.3 V IRMS= 3.62 A	1	$0.11	1206 11mm2
4.	L1	Bourns	SDR0403-100ML	L= 10.0 µH DCR= 180.0 mOhm	1	$0.17	SDR0403 28mm2
5.	Rfbb	Vishay-Dale	CRCW040220K0FKED Series= CRCW..e3	Res= 20.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
6.	Rfbt	Vishay-Dale	CRCW040261K9FKED Series= CRCW..e3	Res= 61.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
7.	U1	Texas Instruments	TPS560200DBVR	Switcher	1	$0.50	R-PDSO-G5 16mm2

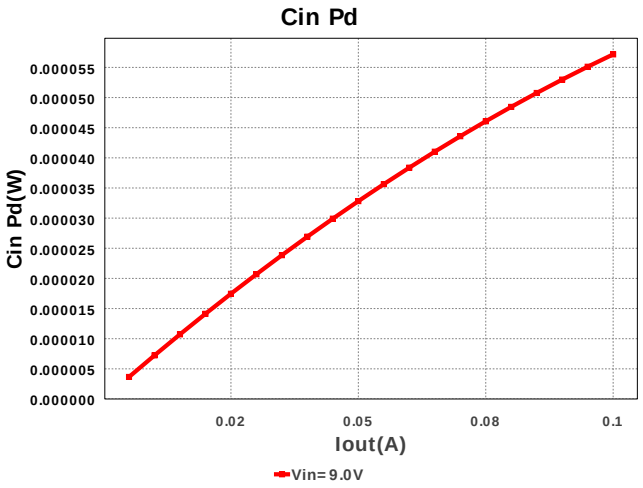




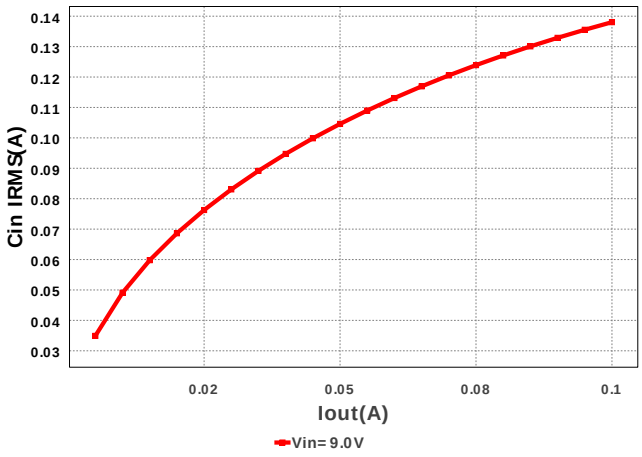




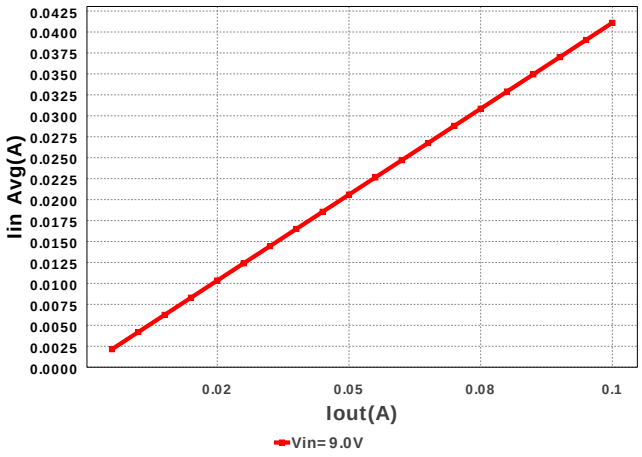




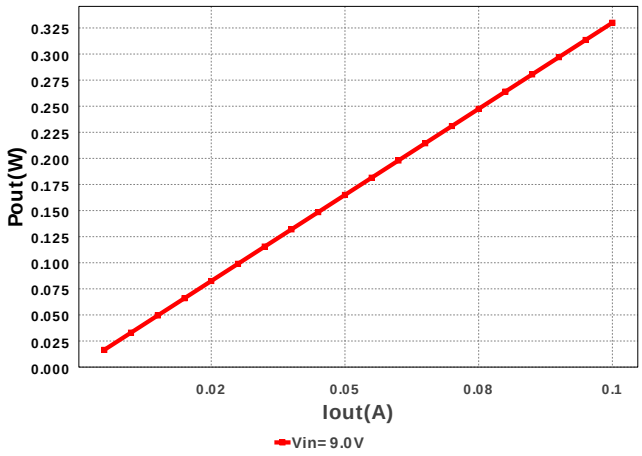
Cin IRMS



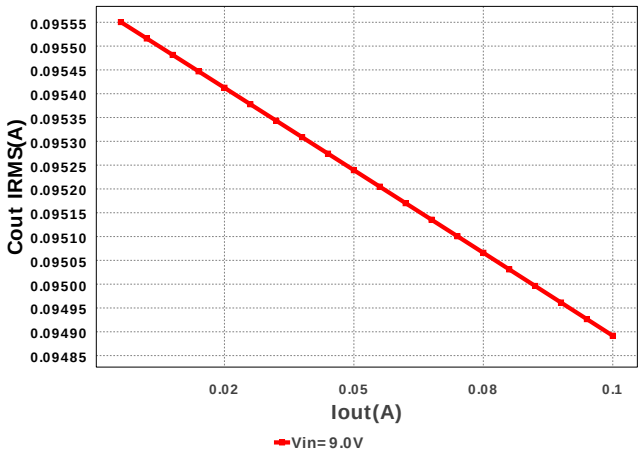
Iin Avg



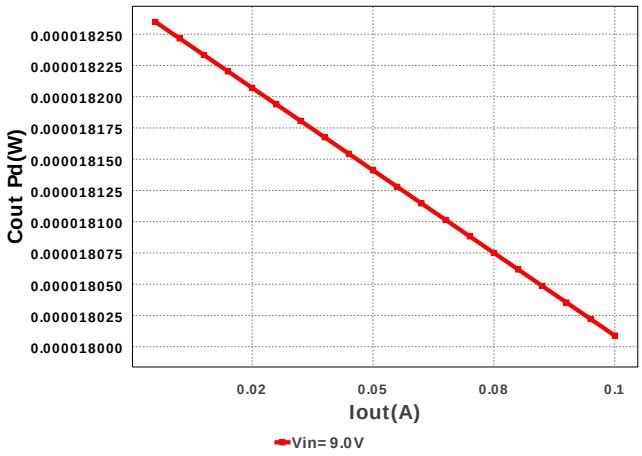
Pout



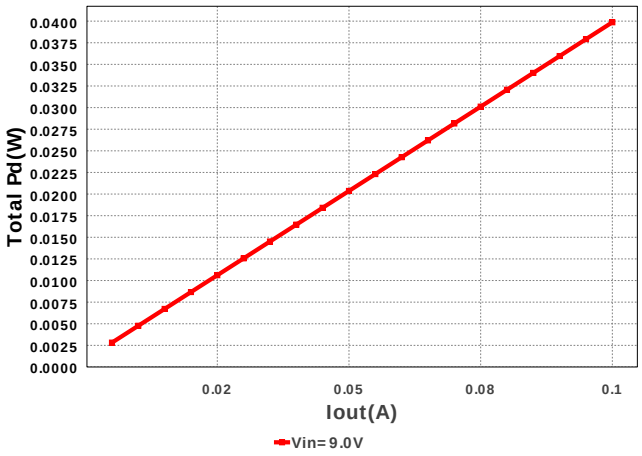
Cout IRMS

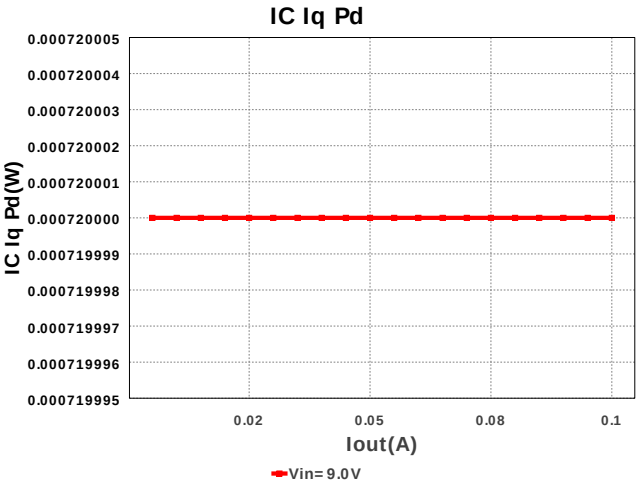


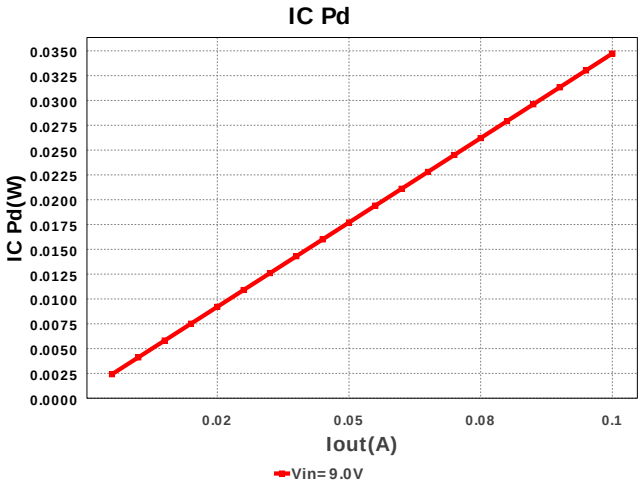
Cout Pd

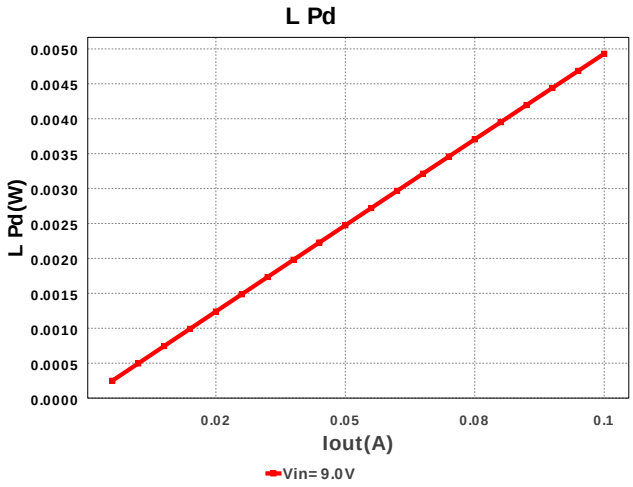


Total Pd









工作数值

#	名称	数值	类别	说明
1.	Cin IRMS	138.033 mA	Current	输入电容器均方根纹波电流
2.	Cout IRMS	94.892 mA	Current	输出电容器均方根纹波电流
3.	Iin Avg	41.105 mA	Current	平均输入电流
4.	L Ipp	341.124 mA	Current	峰值到峰值电感器纹波电流
5.	BOM 数量	7	General	Total Design BOM count
6.	大小	95.0 mm2	General	BOM组件的总所占面积
7.	频率	381.946 kHz	General	开关频率
8.	Pout	330.0 mW	General	总输出功率
9.	总 BOM	$0.86	General	Total BOM Cost
10.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
11.	占空比	22.858 %	Op_point	占空比
12.	效率	89.203 %	Op_point	稳态效率
13.	IC Tj	33.48 degC	Op_point	电路接点温度
14.	ICThetaJA	100.0 degC/W	Op_point	电路接点到环境热敏电阻
15.	IOUT_OP	100.0 mA	Op_point	Iout 操作点
16.	VIN_OP	9.0 V	Op_point	Vin操作点
17.	Vout p-p	11.563 mV	Op_point	峰值到峰值输出纹波电压
18.	Cin Pd	57.16 µW	Power	输入电容器功率耗散
19.	Cout Pd	18.009 µW	Power	输出电容器功率耗散
20.	电路静态电流功率耗散	720.0 µW	Power	电路静态电流功率耗散
21.	IC Pd	34.805 mW	Power	电路功率耗散
22.	L Pd	4.931 mW	Power	电感器功率耗散
23.	整体 Pd	39.943 mW	Power	总功率耗散

设计输入

#	名称	数值	说明
1.	输出电流	100.0 mA	最大输出电流
2.	Iout1	100.0 mAmps	Output Current #1
3.	Vin 最大	9.0 V	最高输入电压
4.	Vin 最小	9.0 V	最低输入电压

#	名称	数值	说明
5.	输出电压:	3.3 V	输出电压
6.	Vout1	3.3 Volt	Output Voltage #1
7.	base_pn	TPS560200	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. TPS560200 Product Folder : http://www.ti.com/product/TPS560200 : contains the data sheet and other resources.