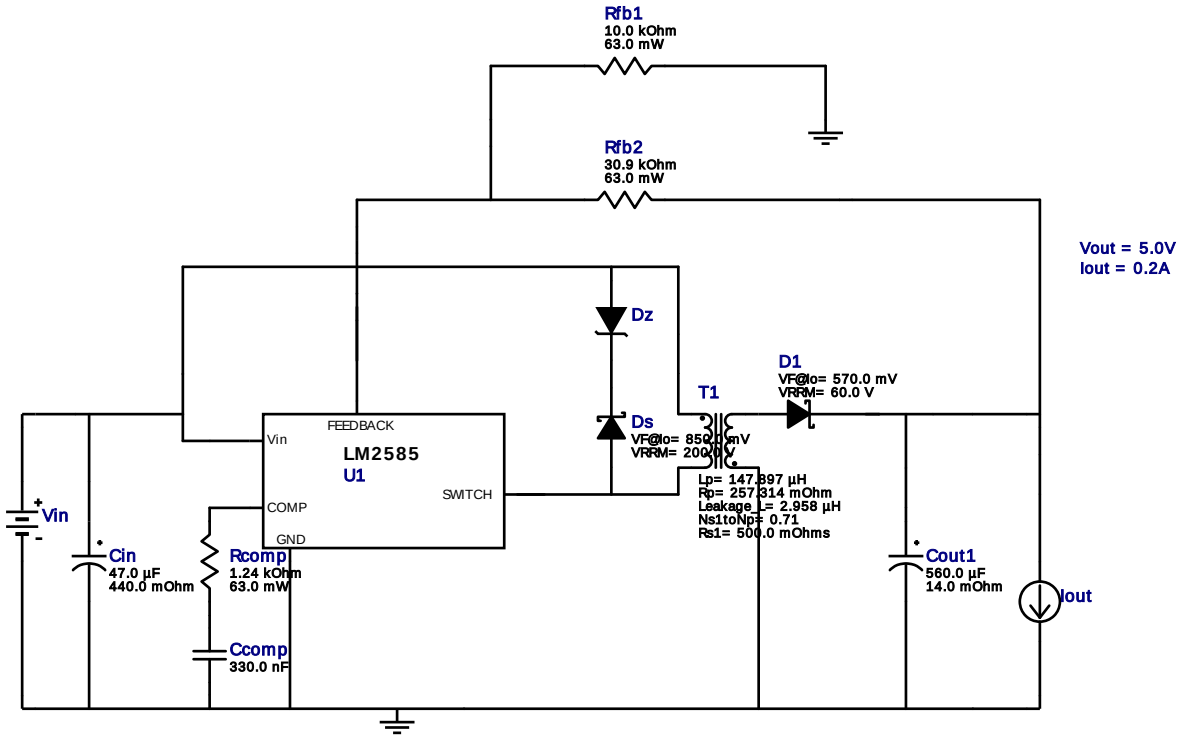
WEBENCH® Design Report

VinMin = 5.0V
VinMax = 15.0V
Vout = 5.0V
Iout = 0.2A

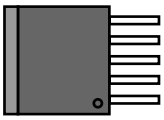
Device = LM2585T-ADJ/NOPB
Topology = Flyback
Created = 9/25/16 12:50:24 AM
BOM Cost = $0.00
BOM Count = 11
Total Pd = 0.34W

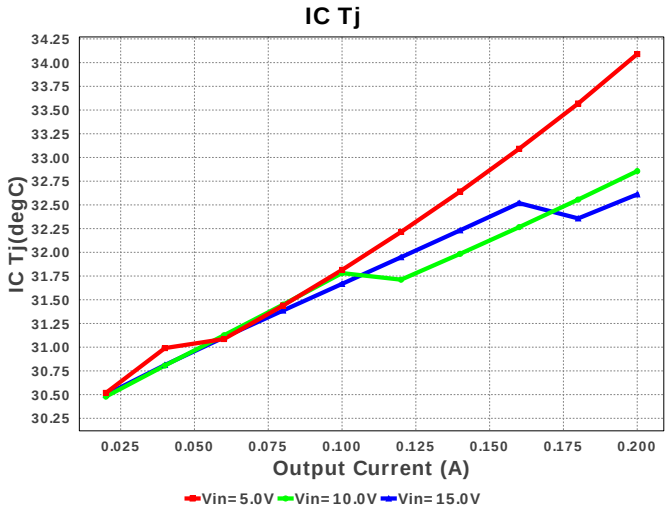
Design : 2425056/70 LM2585T-ADJ/NOPB
LM2585T-ADJ/NOPB 5.0V-15.0V to 5.00V @ 0.2A

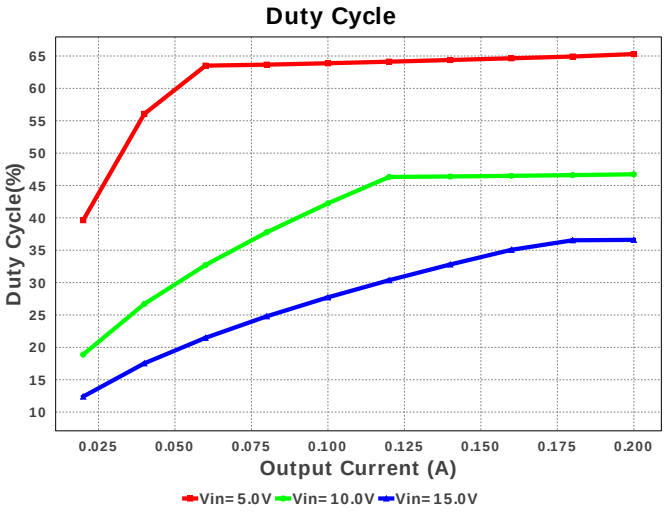


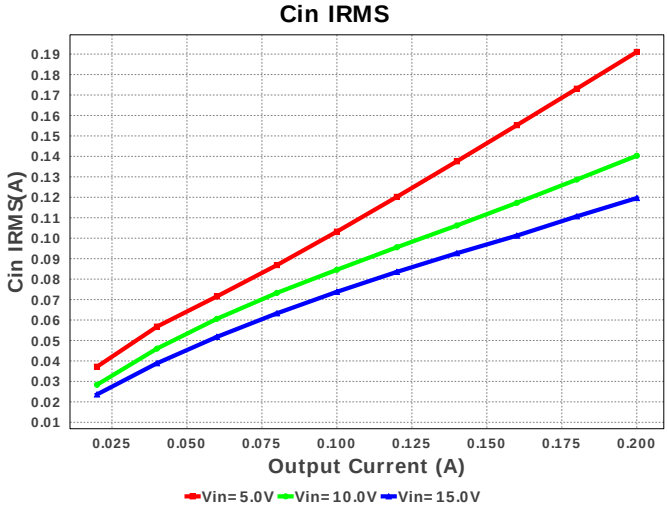
Electrical BOM

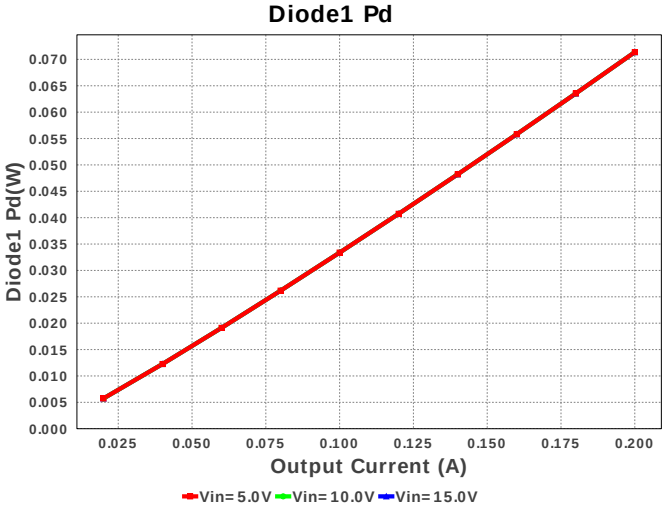
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Ccomp	MuRata	GRM155R60J334KE01D Series= X5R	Cap= 330.0 nF VDC= 6.3 V IRMS= 0.0 A	1	$0.01	0402 3 mm²
2.	Cin	Nichicon	UUD1E470MCL1GS Series= uD	Cap= 47.0 uF ESR= 440.0 mOhm VDC= 25.0 V IRMS= 230.0 mA	1	$0.11	SM_RADIAL_6.3AMM 80 mm²
3.	Cout1	Panasonic	16SVPF560M Series= ?	Cap= 560.0 uF ESR= 14.0 mOhm VDC= 16.0 V IRMS= 4.95 A	1	$0.61	CAPSMT_62_E12 106 mm²
4.	D1	NXP Semiconductor	PMEG6010CEH,115	VF@Io= 570.0 mV VRRM= 60.0 V	1	$0.04	SOD-123F 12 mm²
5.	Ds	Diodes Inc.	DFLS1200-7	VF@Io= 850.0 mV VRRM= 200.0 V	1	$0.21	PowerDI123 13 mm²
6.	Dz	ON Semiconductor	BZX84C30LT1G	Zener	1	$0.02	SOT-23 14 mm²
7.	Rcomp	Vishay-Dale	CRCW04021K24FKED Series= CRCW..e3	Res= 1.24 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²

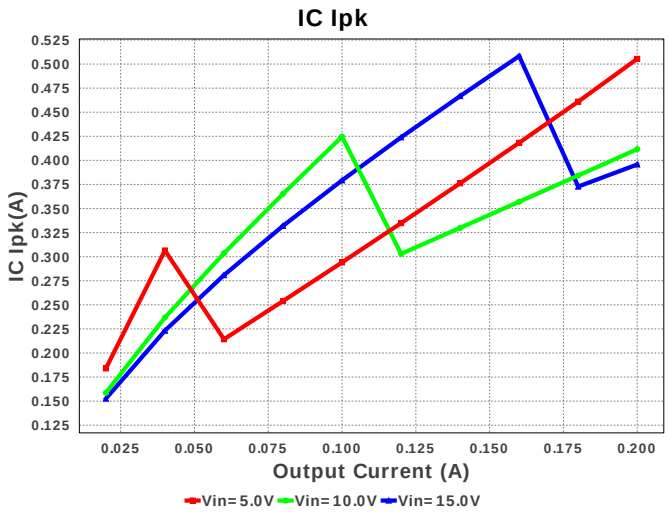
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
8.	Rfb1	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
9.	Rfb2	Vishay-Dale	CRCW040230K9FKED Series= CRCW..e3	Res= 30.9 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm^2
10.	T1	CUSTOM	CUSTOM	Lp= 147.897 µH Rp= 257.314 mOhm Leakage_L= 2.958 µH Ns1toNp= 0.71 Rs1= 500.0 mOhms	1	NA	CUSTOM 0 mm^2
11.	U1	Texas Instruments	LM2585T-ADJ/NOPB	Switcher	1	$3.00	 TS5B 199 mm^2

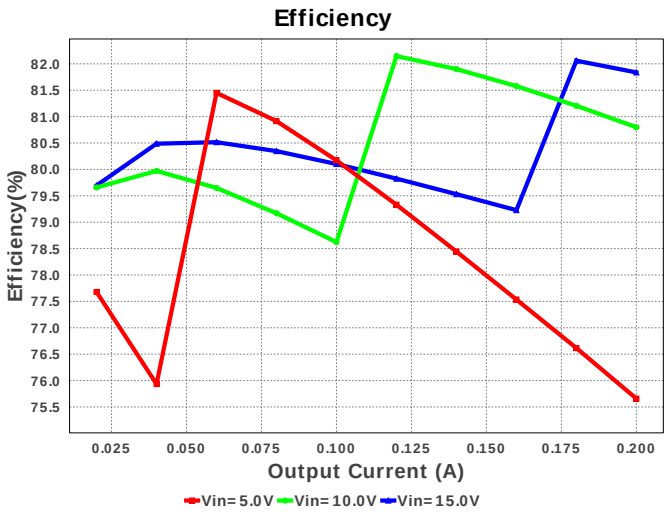


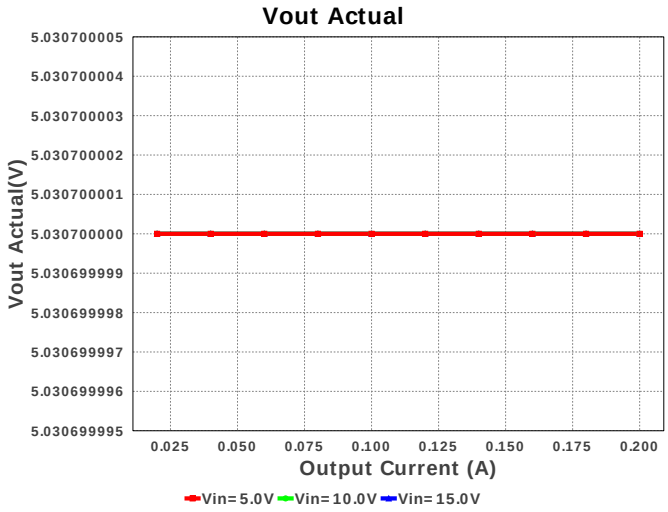


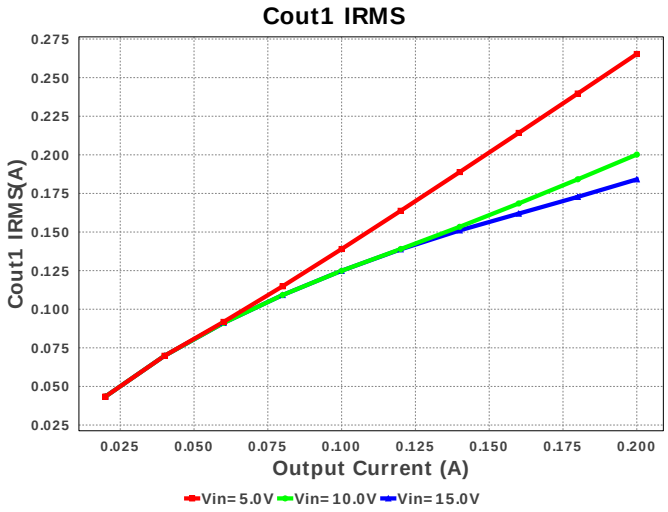


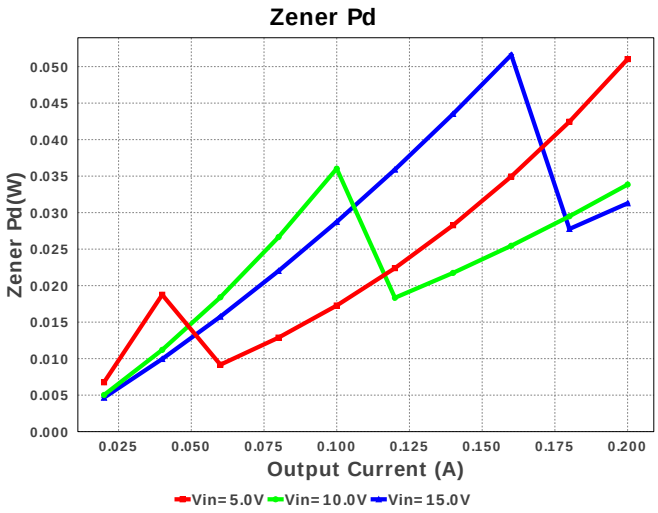


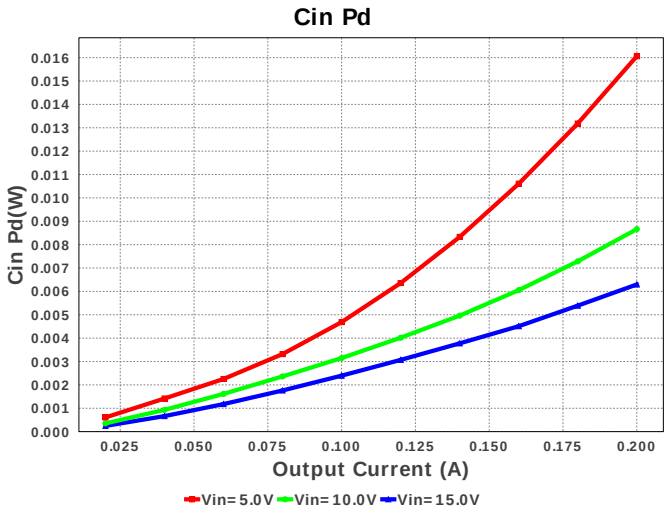


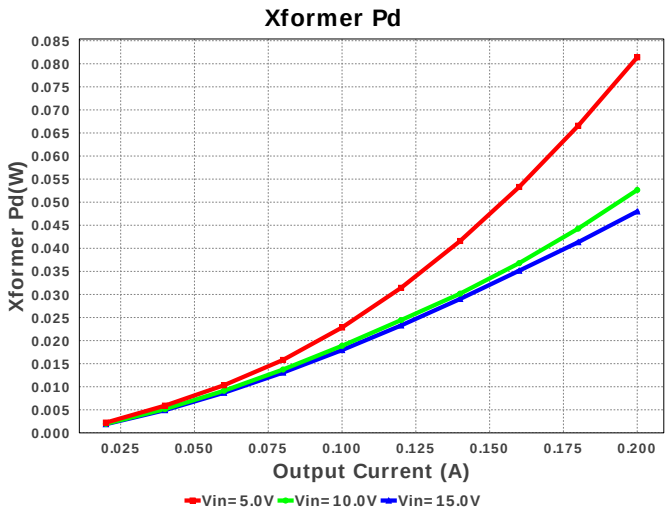


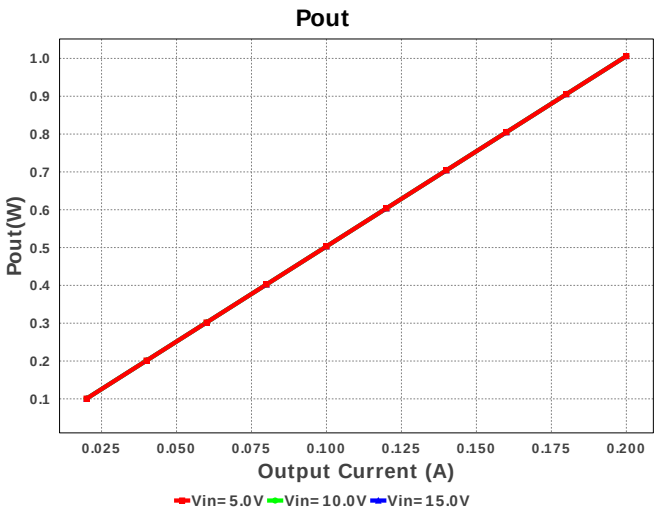


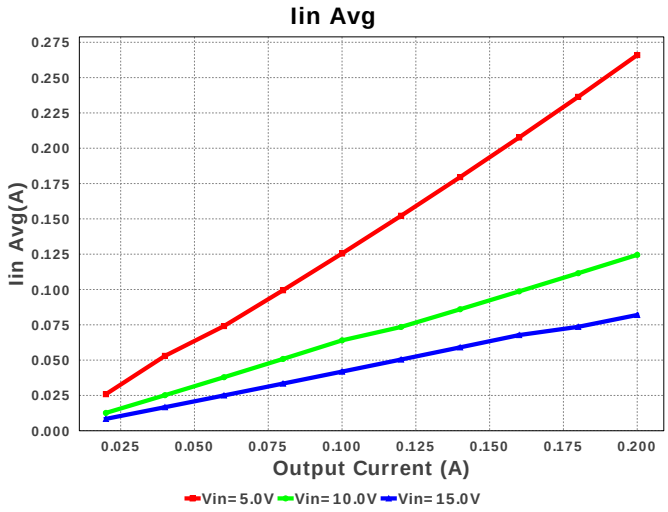


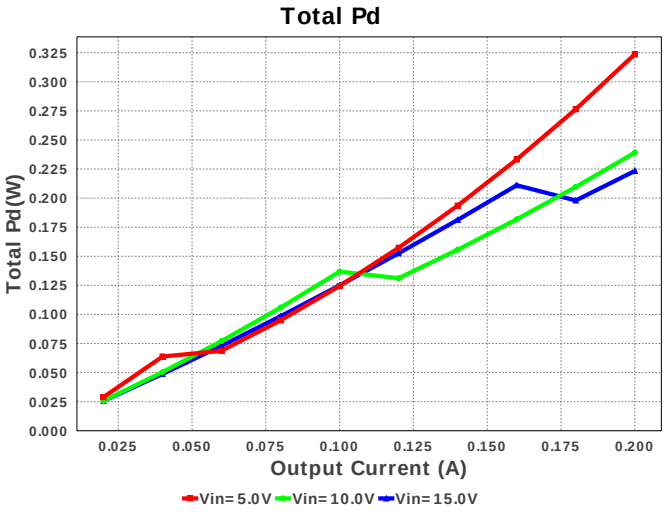


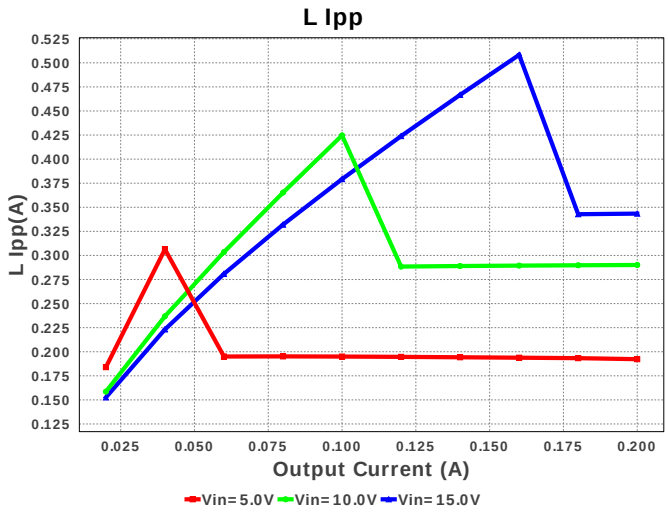


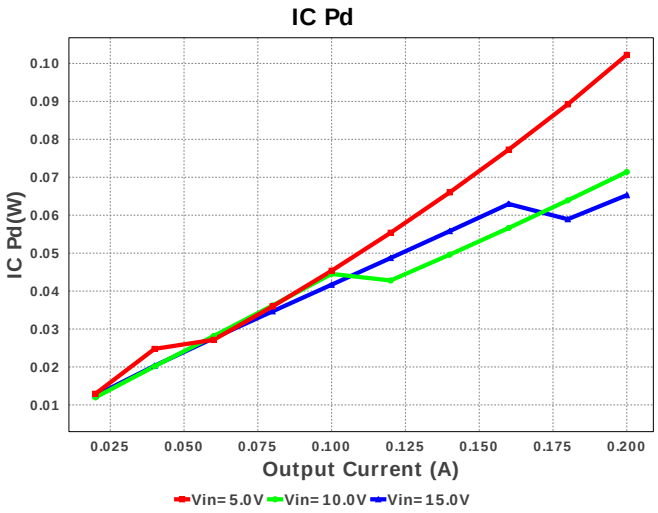


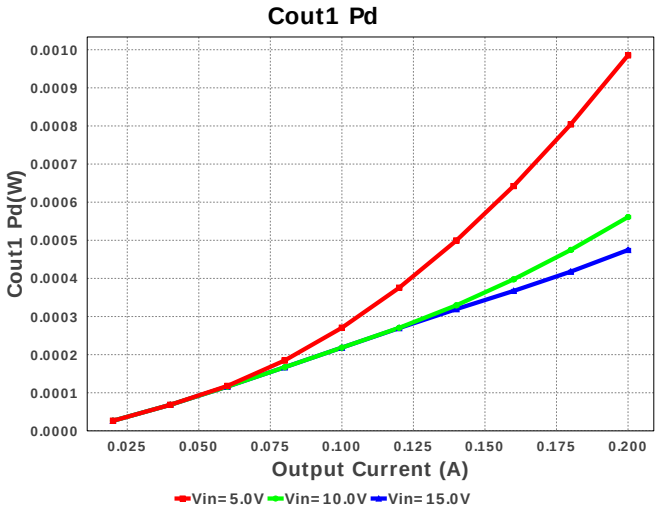


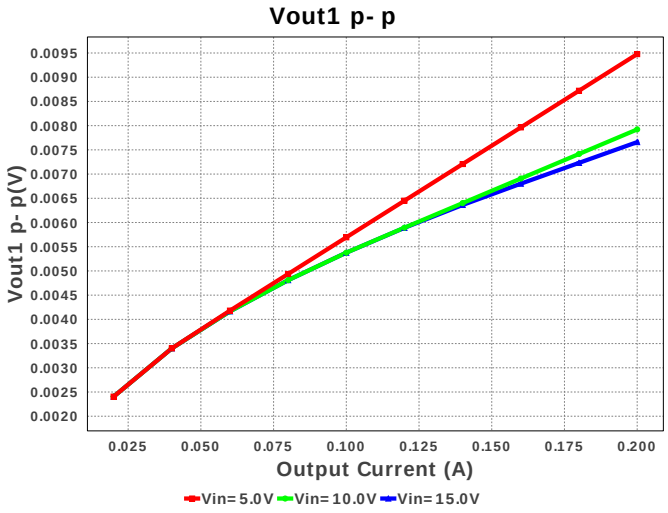












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	199.577 mA	Current	Input capacitor RMS ripple current
2.	Cout1 IRMS	276.765 mA	Current	Output capacitor1 RMS ripple current
3.	IC Ipk	515.8 mA	Current	Peak switch current
4.	Iin Avg	269.05 mA	Current	Average input current
5.	L Ipp	207.42 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	11	General	Total Design BOM count
7.	FootPrint	441.0 mm^2	General	Total Foot Print Area of BOM components
8.	Frequency	100.0 kHz	General	Switching frequency
9.	IC Tolerance	22.0 mV	General	IC Feedback Tolerance
10.	Mode	CCM	General	Conduction Mode
11.	Pout	1.006 W	General	Total output power
12.	Total BOM	$0.0	General	Total BOM Cost
13.	Vout Actual	5.031 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
14.	Duty Cycle	65.539 %	Op_point	Duty cycle
15.	Efficiency	74.792 %	Op_point	Steady state efficiency
16.	IC Tj	34.212 degC	Op_point	IC junction temperature
17.	ICThetaJA	40.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
18.	IOUT_OP	200.0 mA	Op_point	Iout operating point
19.	VIN_OP	5.0 V	Op_point	Vin operating point
20.	Vout1 OP	5.031 V	Op_point	Operational Voltage 1
21.	Vout1 p-p	9.971 mV	Op_point	Peak-to-peak output1 ripple voltage
22.	Cin Pd	17.526 mW	Power	Input capacitor power dissipation
23.	Cout1 Pd	1.072 mW	Power	Output capacitor1 power dissipation
24.	Cout1 Pd	1.072 mW	Power	Output capacitor1 power dissipation
25.	Diode1 Pd	71.376 mW	Power	Diode1 power dissipation
26.	IC Pd	105.31 mW	Power	IC power dissipation
27.	Total Pd	339.111 mW	Power	Total Power Dissipation
28.	Xformer Pd	88.336 mW	Power	Transformer power dissipation
29.	Zener Pd	54.887 mW	Power	Zener power dissipation
30.	Vout Tolerance	3.342 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	200.0 m	Maximum Output Current
2.	VinMax	15.0	Maximum input voltage
3.	VinMin	5.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	LM2585	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **LM2585** Product Folder : http://www.ti.com/product/LM2585 : contains the data sheet and other resources.