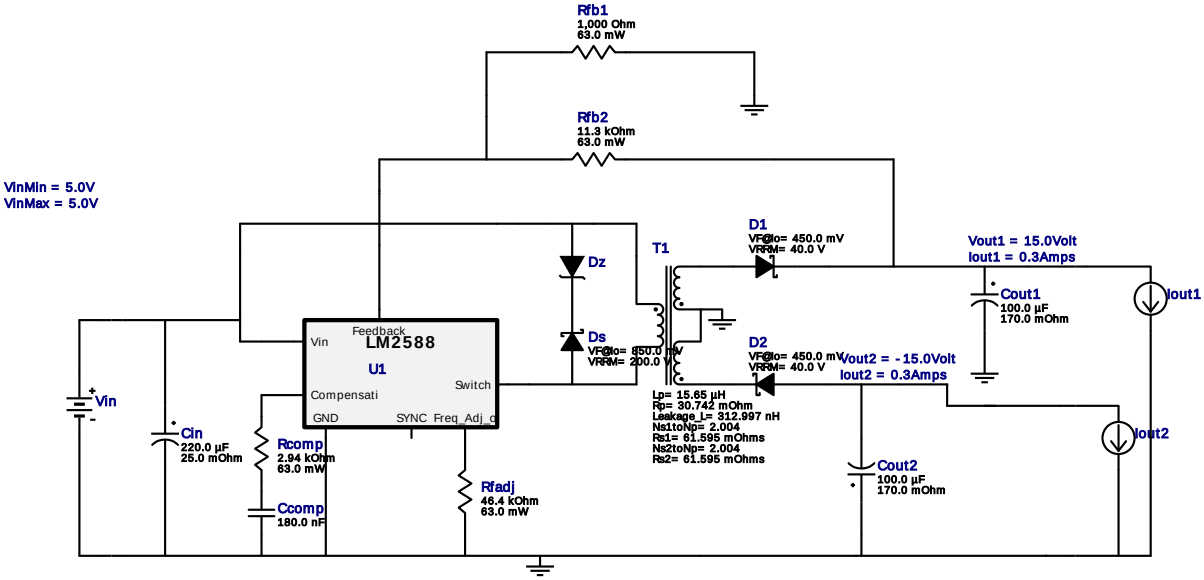
VinMin = 5.0V
VinMax = 5.0V
Vout = 15.0V
Iout = 0.3A

Device = LM2588SX-ADJ/NOPB
Topology = Flyback
Created = 7/21/14 7:50:20 PM
BOM Cost = $0.00
Footprint = 754.0mm2
BOM Count = 15
Total Pd = 3.5W

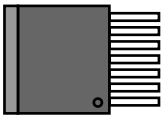
WEBENCH® Design Report

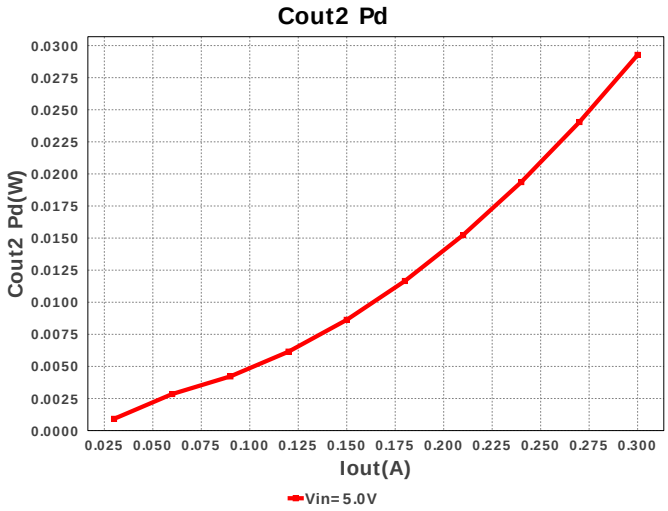
Design : 3779120/538 LM2588SX-ADJ/NOPB
LM2588SX-ADJ/NOPB 5.0V-5.0V to 15.0V @ 0.3A

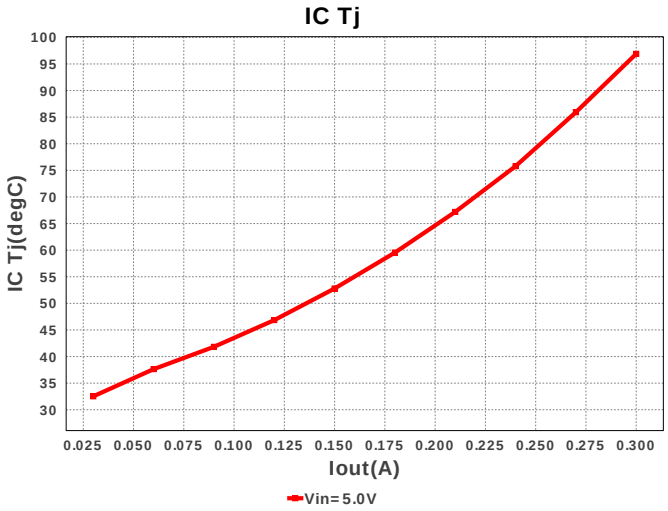


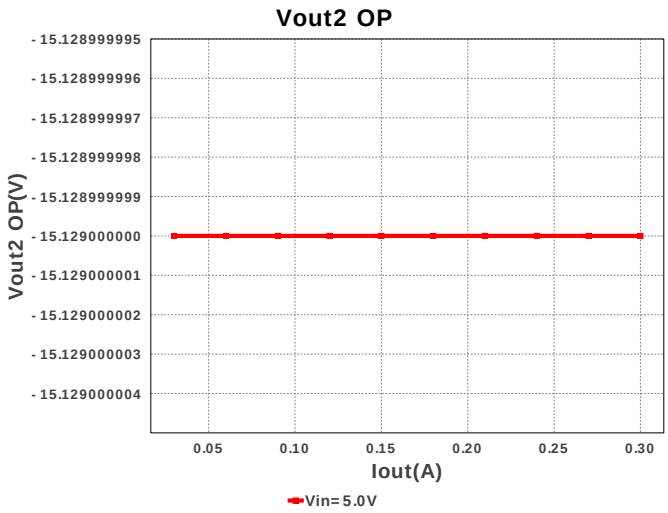
Electrical BOM

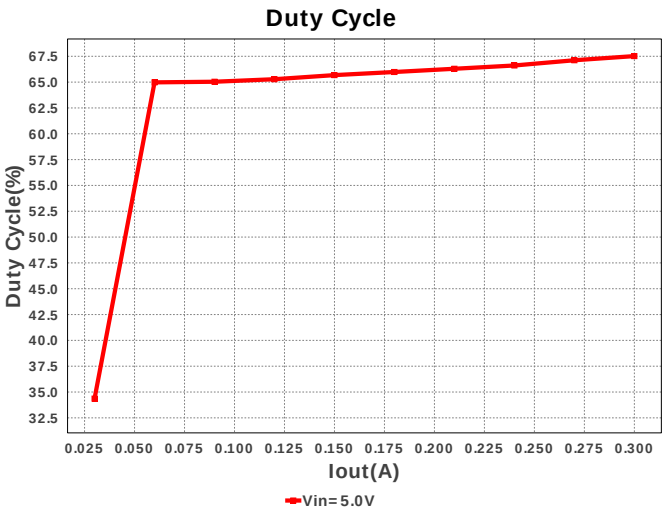
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Ccomp	MuRata	GRM155R61A184KE19D Series= X5R	Cap= 180.0 nF VDC= 10.0 V IRMS= 0.0 A	1	$0.01	0402 3mm2
2.	Cin	Panasonic	10TPE220ML Series= 1281	Cap= 220.0 µF ESR= 25.0 mOhm VDC= 10.0 V IRMS= 2.4 A	1	$0.73	CAPSMT_6_D3L 3mm2
3.	Cout1	Nichicon	UUD1V101MNL1GS Series= uD	Cap= 100.0 µF ESR= 170.0 mOhm VDC= 35.0 V IRMS= 450.0 mA	1	$0.20	SM_RADIAL_8MM 113mm2
4.	Cout2	Nichicon	UUD1V101MNL1GS Series= uD	Cap= 100.0 µF ESR= 170.0 mOhm VDC= 35.0 V IRMS= 450.0 mA	1	$0.20	SM_RADIAL_8MM 113mm2
5.	D1	Diodes Inc.	1N5819HW-7-F	VF@Io= 450.0 mV VRRM= 40.0 V	1	$0.08	SOD-123 13mm2
6.	D2	Diodes Inc.	1N5819HW-7-F	VF@Io= 450.0 mV VRRM= 40.0 V	1	$0.08	SOD-123 13mm2
7.	Ds	Diodes Inc.	DFLS1200-7	VF@Io= 850.0 mV VRRM= 200.0 V	1	$0.21	PowerDI123 13mm2
8.	Dz	Micro Commercial Components	3SMAJ5938B-TP	Zener	1	$0.12	SMA 37mm2

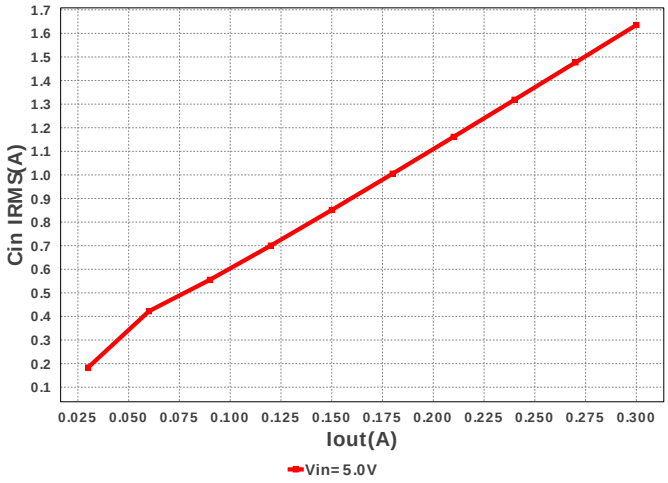
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
9.	HeatSink	Aavid	576602B00000G	Heatsink	1	$0.58	 576602 403mm2
10.	Rcomp	Vishay-Dale	CRCW04022K94FKED Series= CRCW..e3	Res= 2.94 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
11.	Rfadj	Vishay-Dale	CRCW040246K4FKED Series= CRCW..e3	Res= 46.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
12.	Rfb1	Vishay-Dale	CRCW04021K00FKED Series= CRCW..e3	Res= 1,000 Ohm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
13.	Rfb2	Vishay-Dale	CRCW040211K3FKED Series= CRCW..e3	Res= 11.3 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3mm2
14.	T1	CUSTOM	CUSTOM	Lp= 15.65 µH Rp= 30.742 mOhm Leakage_L= 312.997 nH Ns1toNp= 2.004 Rs1= 61.595 mOhms Ns2toNp= 2.004 Rs2= 61.595 mOhms	1	NA	CUSTOM 0mm2
15.	U1	Texas Instruments	LM2588SX-ADJ/NOPB	Switcher	1	$4.25	 TS7B 0mm2

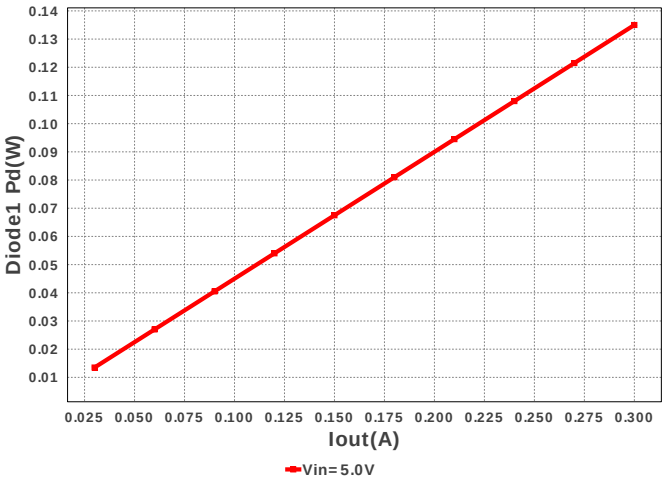


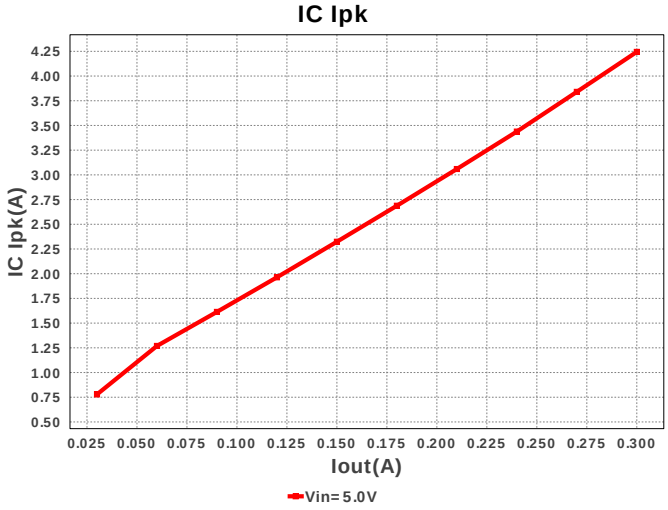


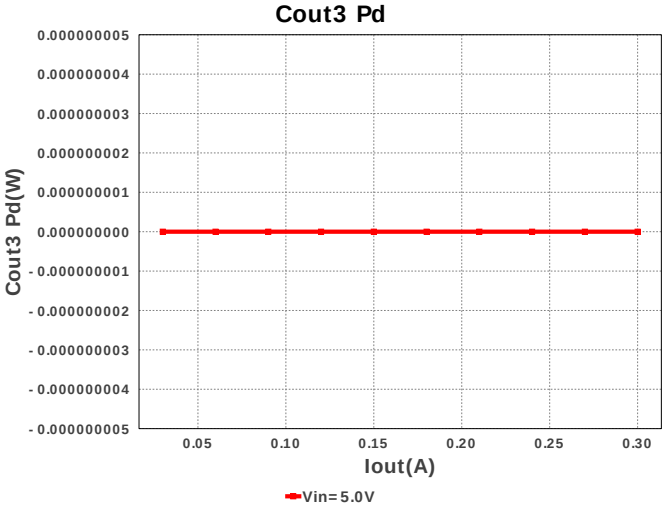


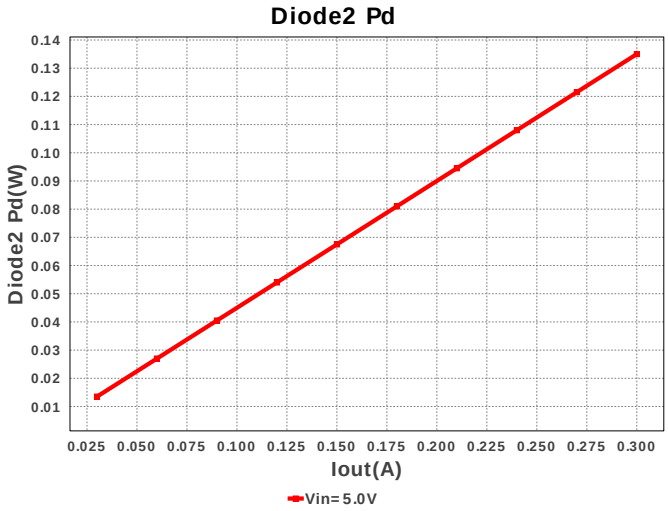


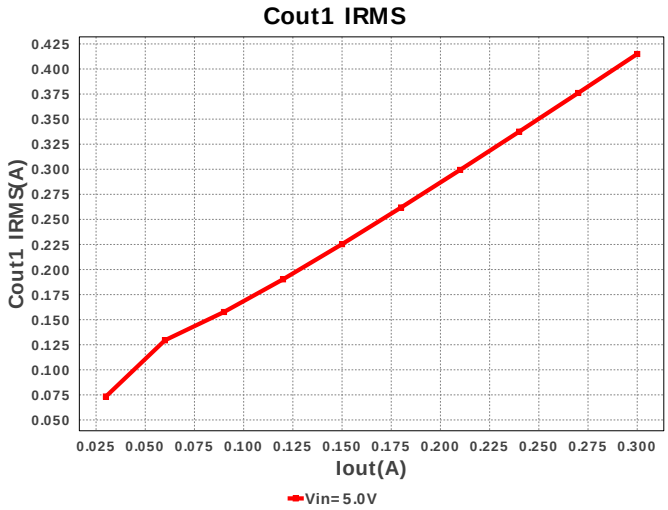


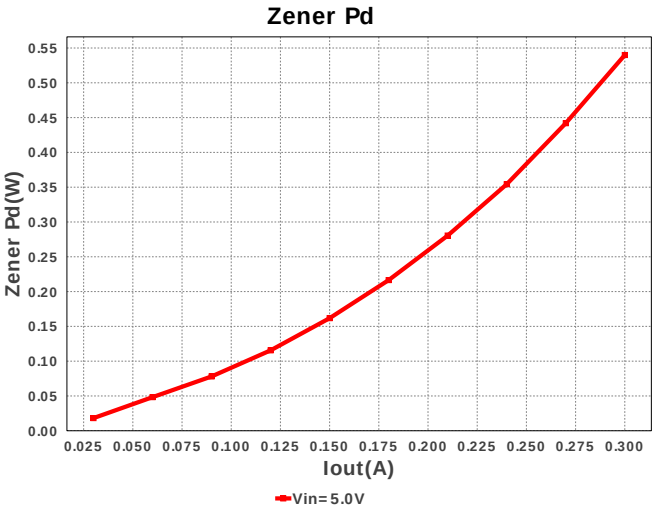


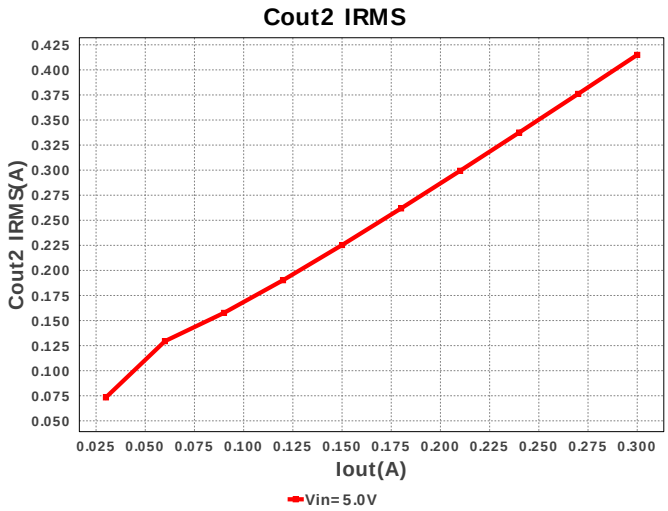


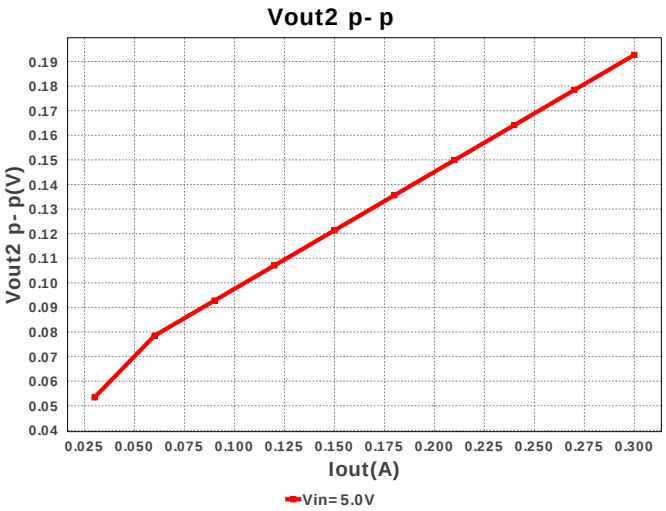


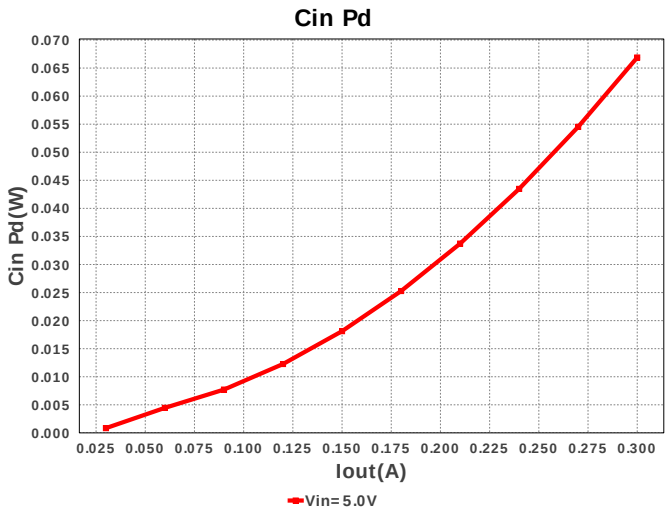


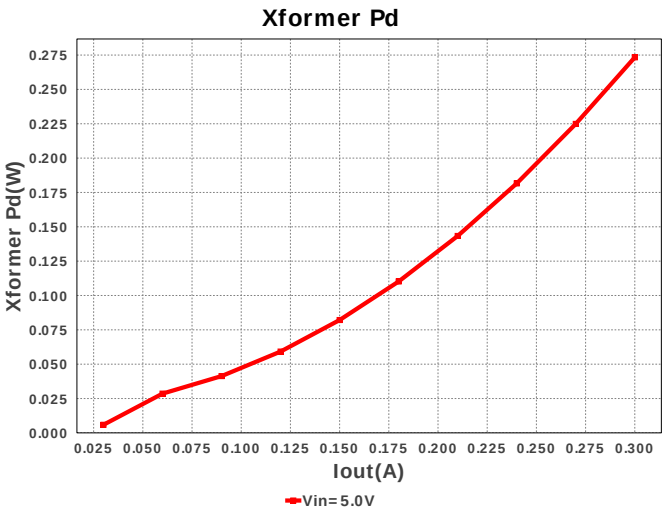


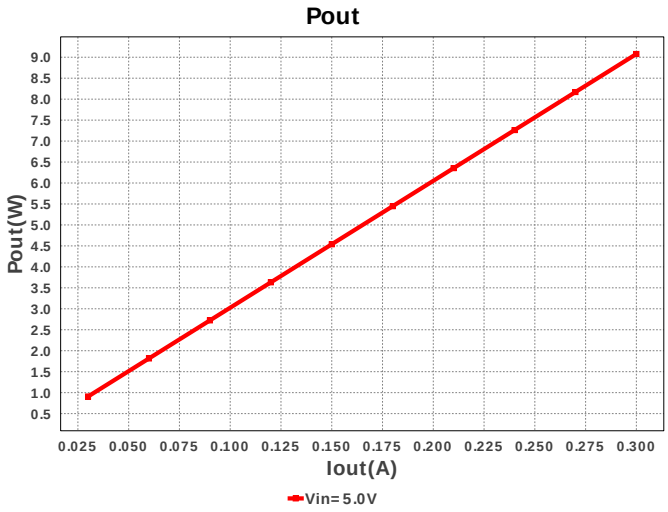


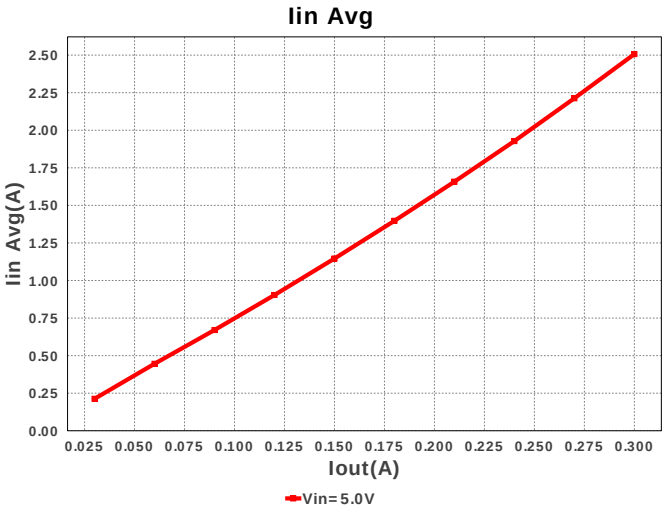


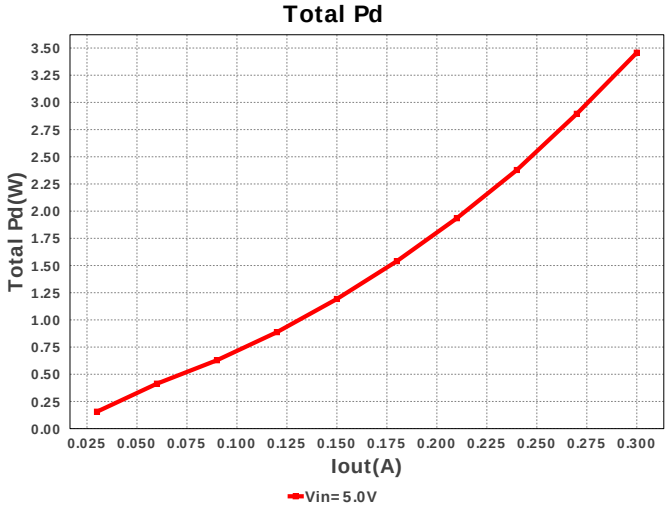


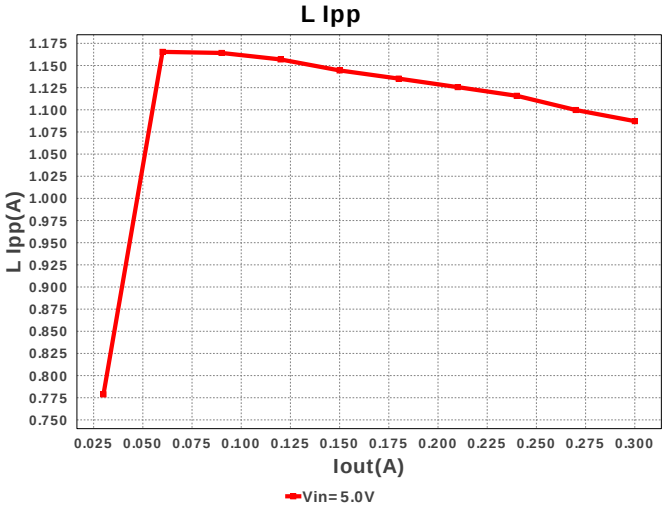


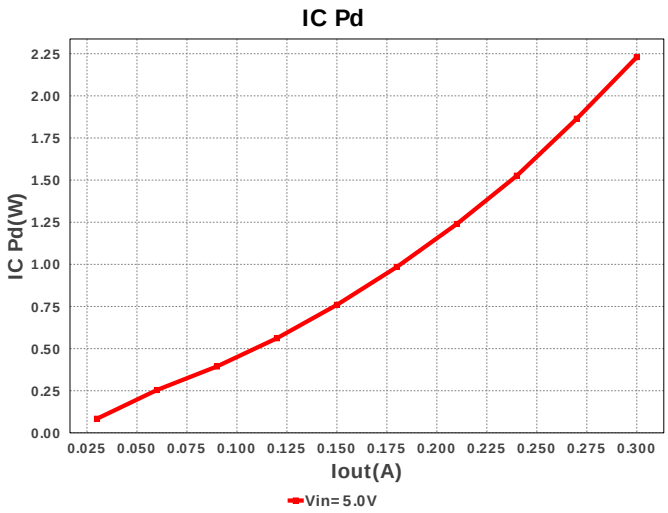


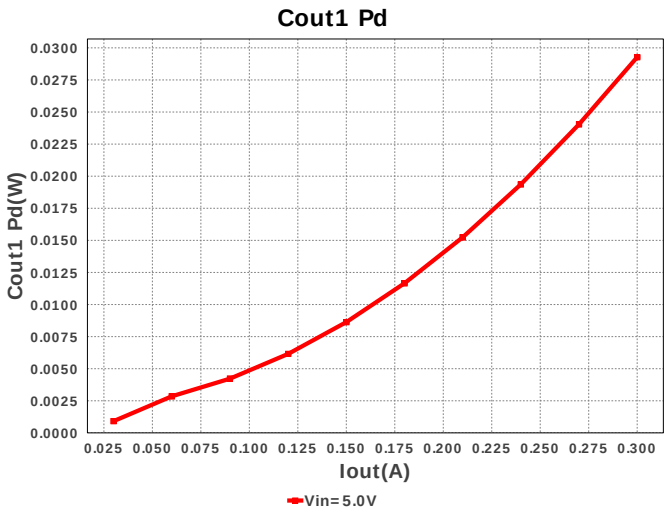


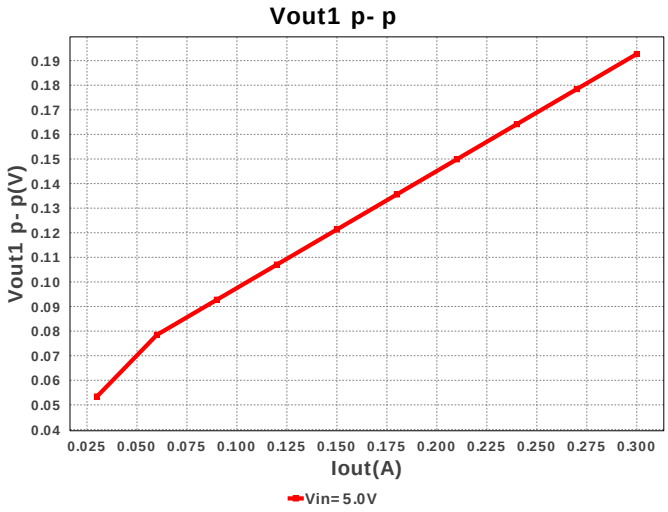












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	1.661 A	Current	Input capacitor RMS ripple current
2.	Cout1 IRMS	421.067 mA	Current	Output capacitor1 RMS ripple current
3.	Cout2 IRMS	421.067 mA	Current	Output capacitor2 RMS ripple current
4.	IC Ipk	4.267 A	Current	Peak switch current
5.	Iin Avg	2.515 A	Current	Average input current
6.	L Ipp	1.111 A	Current	Peak-to-peak inductor ripple current
7.	BOM Count	15	General	Total Design BOM count
8.	FootPrint	754.0 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	151.071 kHz	General	Switching frequency
10.	IC Tolerance	22.0 mV	General	IC Feedback Tolerance
11.	Pout	9.077 W	General	Total output power
12.	Total BOM	$0.0	General	Total BOM Cost
13.	Vout1 OP	15.129 V	Op_Point	Operational Voltage 1
14.	Vout2 OP	-15.129 V	Op_Point	Operational Voltage 2
15.	Duty Cycle	67.61 %	Op_point	Duty cycle
16.	Efficiency	72.186 %	Op_point	Steady state efficiency
17.	IC Tj	82.922 degC	Op_point	IC junction temperature
18.	ICThetaJA	23.634 degC/W	Op_point	IC junction-to-ambient thermal resistance
19.	IOUT_OP	300.0 mA	Op_point	Iout operating point
20.	VIN_OP	5.0 V	Op_point	Vin operating point
21.	Vout1 p-p	195.868 mV	Op_point	Peak-to-peak output1 ripple voltage
22.	Vout2 p-p	195.868 mV	Op_point	Peak-to-peak output2 ripple voltage
23.	Cin Pd	69.014 mW	Power	Input capacitor power dissipation
24.	Cout1 Pd	30.141 mW	Power	Output capacitor1 power dissipation
25.	Cout1 Pd	30.141 mW	Power	Output capacitor1 power dissipation
26.	Cout2 Pd	30.141 mW	Power	Output capacitor2 power dissipation
27.	Cout3 Pd	0.0 W	Power	Output capacitor3 power dissipation
28.	Diode1 Pd	135.0 mW	Power	Diode1 power dissipation
29.	Diode2 Pd	135.0 mW	Power	Diode2 power dissipation
30.	IC Pd	2.239 W	Power	IC power dissipation
31.	Total Pd	3.498 W	Power	Total Power Dissipation
32.	Xformer Pd	286.35 mW	Power	Transformer power dissipation

#	Name	Value	Category	Description
33.	Zener Pd	554.396 mW	Power	Zener power dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	300.0 mA	Maximum Output Current
2.	Iout1	300.0 mAmps	Output Current #1
3.	Iout2	300.0 mAmps	Output Current #2
4.	VinMax	5.0 V	Maximum input voltage
5.	VinMin	5.0 V	Minimum input voltage
6.	Vout	15.0 V	Output Voltage
7.	Vout1	15.0 Volt	Output Voltage #1
8.	Vout2	-15.0 Volt	Output Voltage #2
9.	base_pn	LM2588	Texas Instruments Base Part Number
10.	source	DC	Input Source Type
11.	ta	30.0 degC	Ambient temperature

Design Assistance

1. LM2588 Product Folder : http://www.ti.com/product/lm2588 : contains the data sheet and other resources.