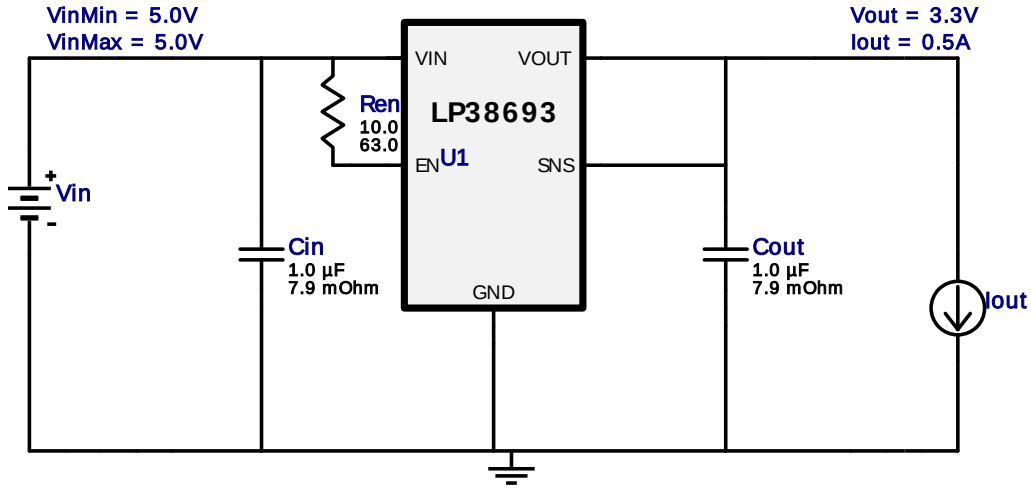
WEBENCH® Design Report

VinMin = 5.0V
VinMax = 5.0V
Vout = 3.3V
Iout = 0.5A

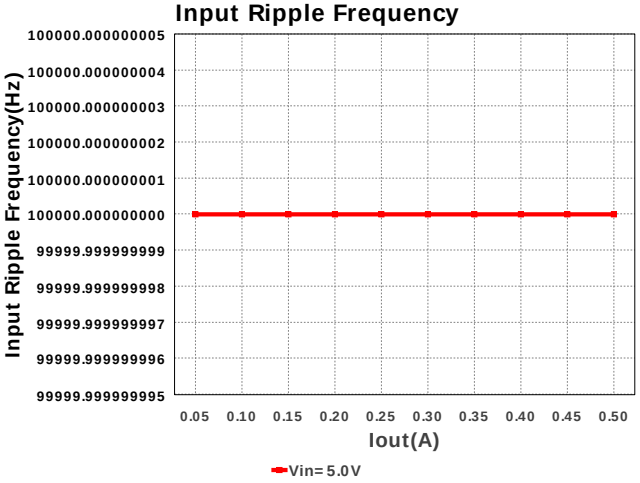
Device = LP38693SD-3.3/NOPB
Topology = LDO
Created = 5/30/13 9:10:22 PM
BOM Cost = $0.53
Total Pd = 0.85W
Footprint = 48.0mm2
BOM Count = 4

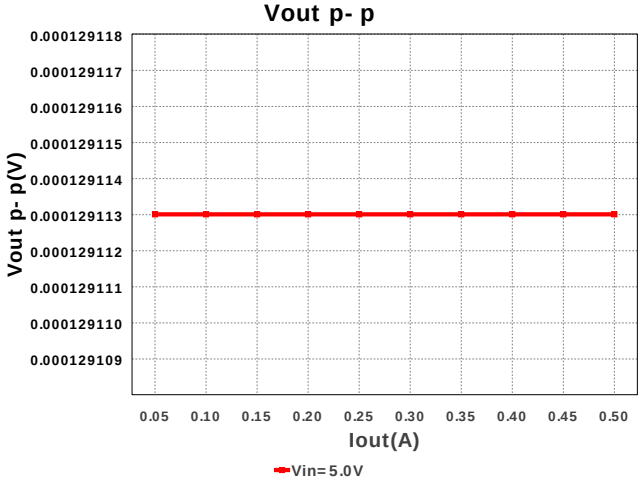
Design : 3601799/14 LP38693SD-3.3/NOPB
LP38693SD-3.3/NOPB 5.0V-5.0V to 3.3V @ 0.5A



Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	TDK	C1005X5R0J105M Series= X5R	Cap= 1.0 µF ESR= 7.9 mOhm VDC= 6.3 V IRMS= 0.0 A	1	$0.01	0402 8mm2
2.	Cout	TDK	C1005X5R0J105M Series= X5R	Cap= 1.0 µF ESR= 7.9 mOhm VDC= 6.3 V IRMS= 0.0 A	1	$0.01	0402 8mm2
3.	Renable	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 8mm2
4.	U1	Texas Instruments	LP38693SD-3.3/NOPB	Switcher	1	$0.50	SDE06A 25mm2





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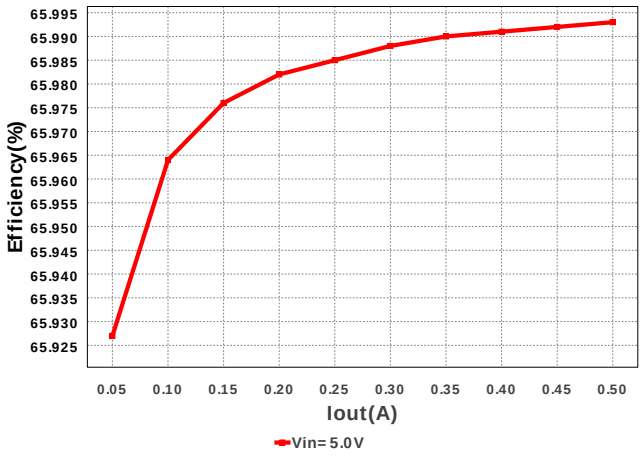
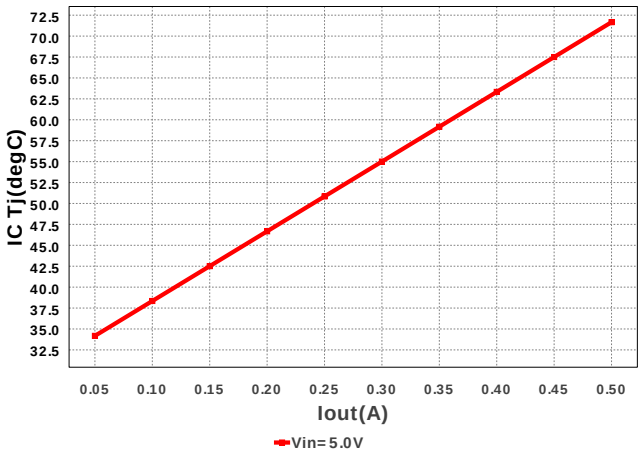
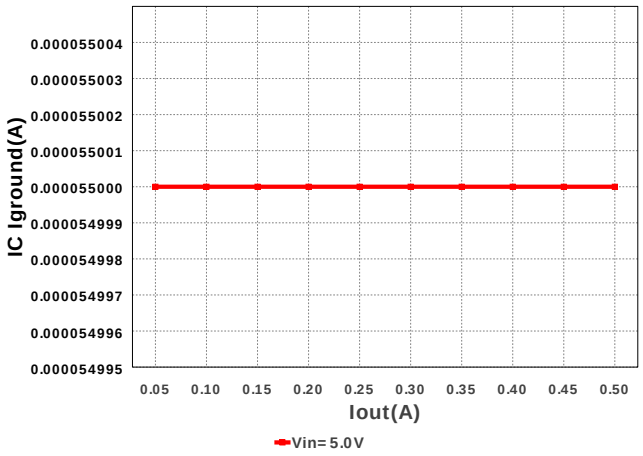
Efficiency



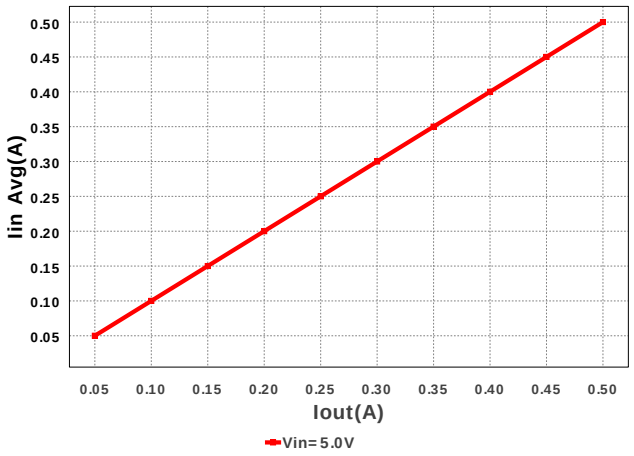
IC Tj



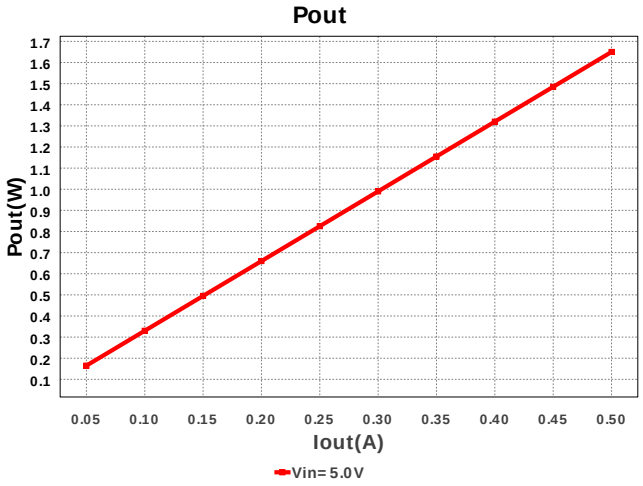
IC Iground



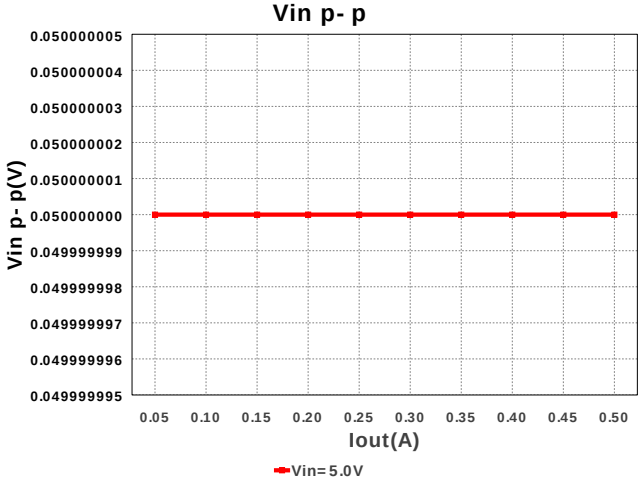
Iin Avg



Pout



Vin p- p



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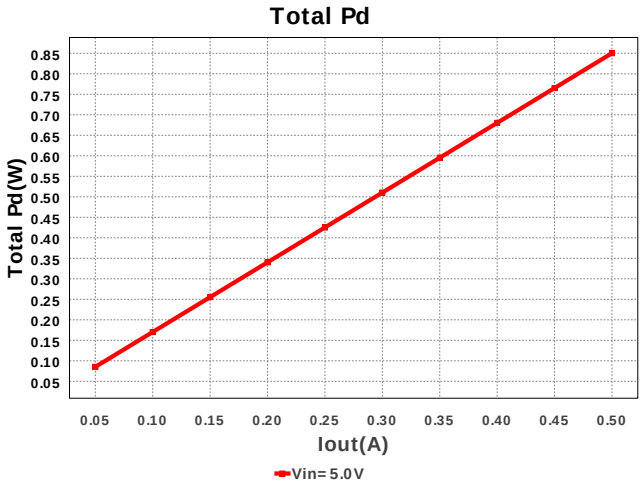

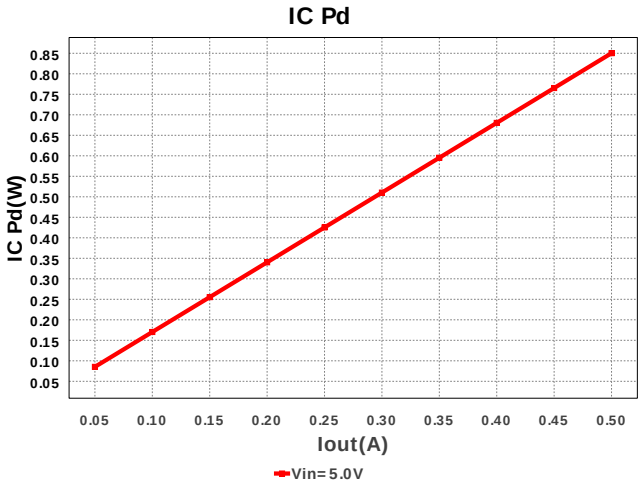

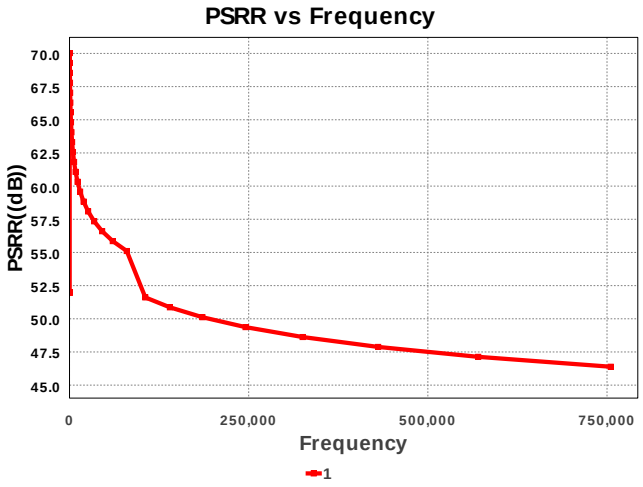

Operating Values

#	Name	Value	Category	Description
1.	IC Iground	55.0 µA	Current	IC ground current
2.	Iin Avg	500.06 mA	Current	Average input current
3.	BOM Count	4	General	Total Design BOM count
4.	FootPrint	48.0 mm2	General	Total Foot Print Area of BOM components
5.	IC Tolerance	132.0 mV	General	IC Feedback Tolerance
6.	Pout	1.65 W	General	Total output power
7.	Total BOM	$0.53	General	Total BOM Cost
8.	Vin p-p	50.0 mV	Op_Point	Input Source ripple voltage
9.	Efficiency	65.993 %	Op_point	Steady state efficiency
10.	IC Tj	71.663 degC	Op_point	IC junction temperature
11.	ICThetaJA	49.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
12.	IOUT_OP	500.0 mA	Op_point	Iout operating point
13.	Input Ripple Frequency	100.0 kHz	Op_point	Input Source Ripple Frequency for PSRR Calculation
14.	PSRR est.	-51.76 dB	Op_point	Power Supply Rejection Ratio estimated
15.	VIN_OP	5.0 V	Op_point	Vin operating point
16.	Vout p-p	129.113 µV	Op_point	Peak-to-peak output ripple voltage
17.	IC Pd	850.275 mW	Power	IC power dissipation
18.	Total Pd	850.275 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 mA	Maximum Output Current
2.	Iout1	500.0 mAmps	Output Current #1
3.	VinMax	5.0 V	Maximum input voltage
4.	VinMin	5.0 V	Minimum input voltage
5.	Vout	3.3 V	Output Voltage
6.	Vout1	3.3 Volt	Output Voltage #1
7.	base_pn	LP38693	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

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Design Assistance

1. **LP38693** Product Folder : http://www.ti.com/product/lp38693 : contains the data sheet and other resources.

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