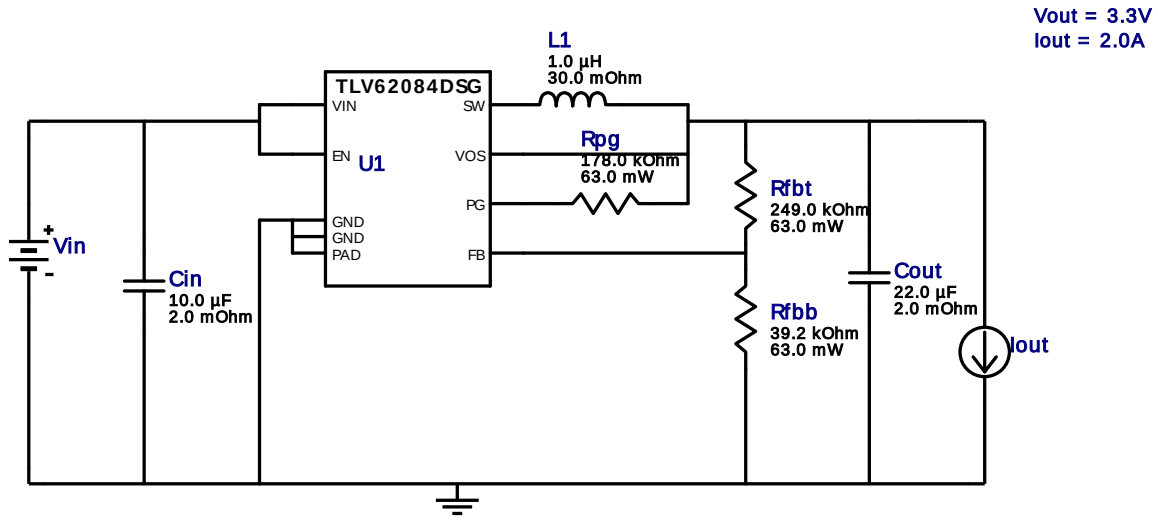
WEBENCH® Design Report

VinMin = 5.0V
VinMax = 5.0V
Vout = 3.3V
Iout = 2.0A

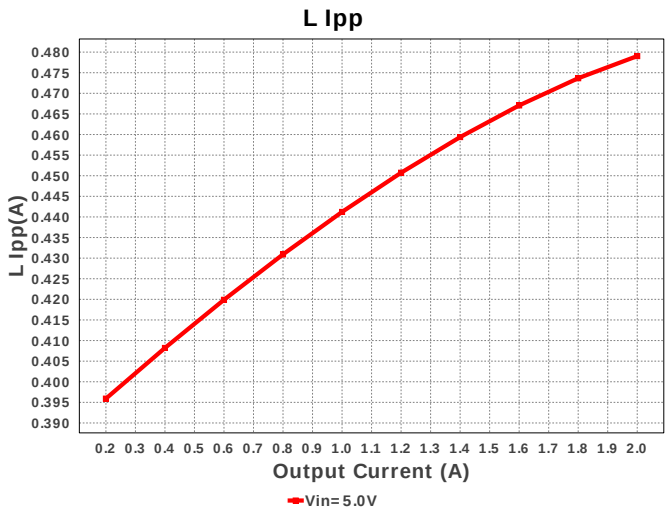
Device = TLV62084DSGR
Topology = Buck
Created = 8/11/16 8:09:16 AM
BOM Cost = $1.45
BOM Count = 7
Total Pd = 0.68W

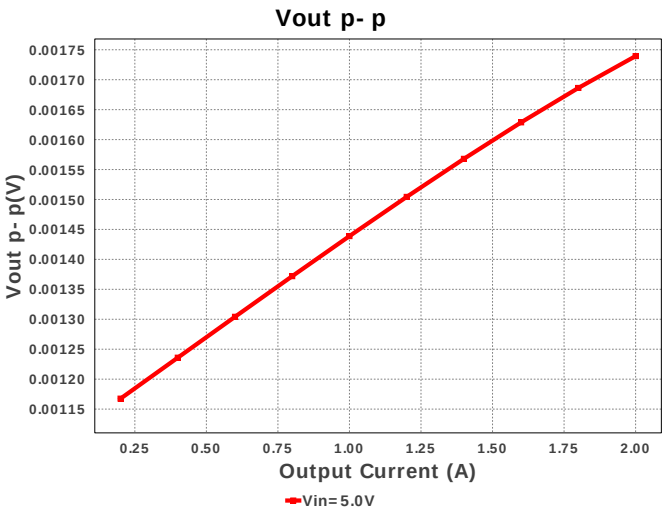
Design : 4085315/19 TLV62084DSGR
TLV62084DSGR 5.0V-5.0V to 3.30V @ 2.0A

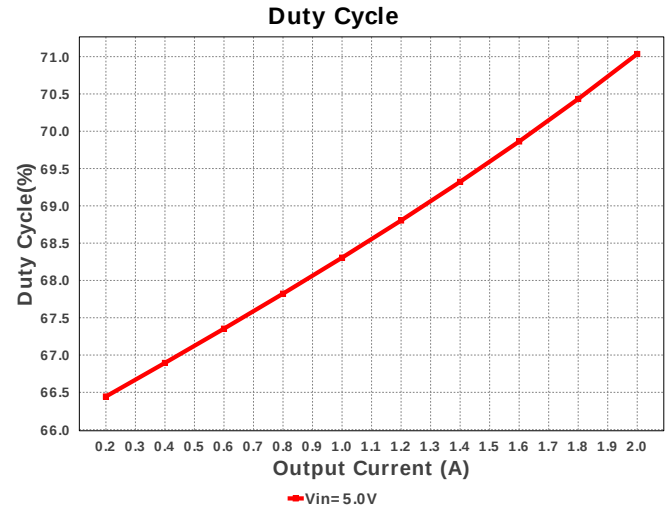


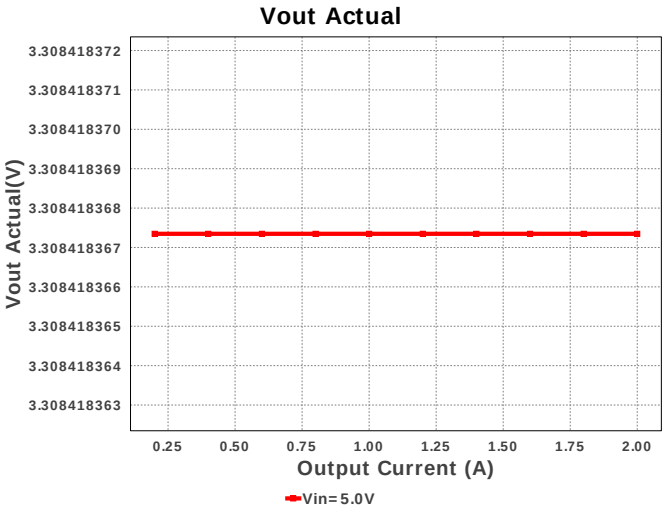
Electrical BOM

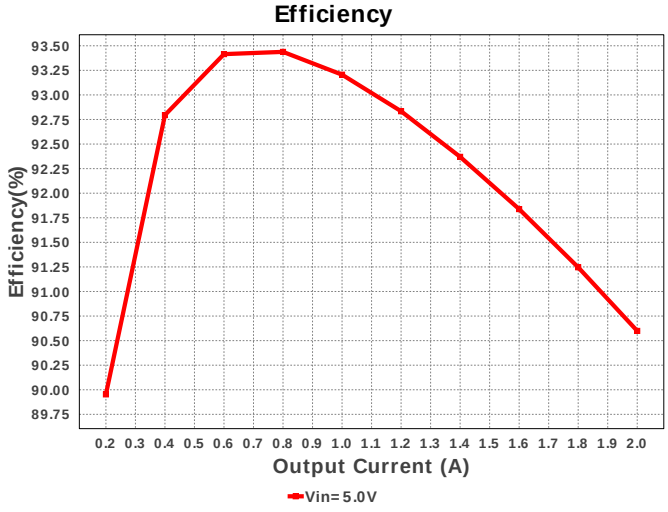
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Taiyo Yuden	JMK212BJ106KD-T Series= X5R	Cap= 10.0 uF ESR= 2.0 mOhm VDC= 6.3 V IRMS= 0.0 A	1	$0.03	0805 7 mm²
2.	Cout	Taiyo Yuden	JMK212BJ226KG-T Series= X5R	Cap= 22.0 uF ESR= 2.0 mOhm VDC= 6.3 V IRMS= 0.0 A	1	$0.13	0805 7 mm²
3.	L1	TDK	VLF403212MT-1R0N	L= 1.0 µH DCR= 30.0 mOhm	1	$0.70	VLF403212MT 23 mm²
4.	Rfbb	Vishay-Dale	CRCW040239K2FKED Series= CRCW..e3	Res= 39.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
5.	Rfbt	Vishay-Dale	CRCW0402249KFKED Series= CRCW..e3	Res= 249.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
6.	Rpg	Vishay-Dale	CRCW0402178KFKED Series= CRCW..e3	Res= 178.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	U1	Texas Instruments	TLV62084DSGR	Switcher	1	$0.56	DSG0008A 9 mm²

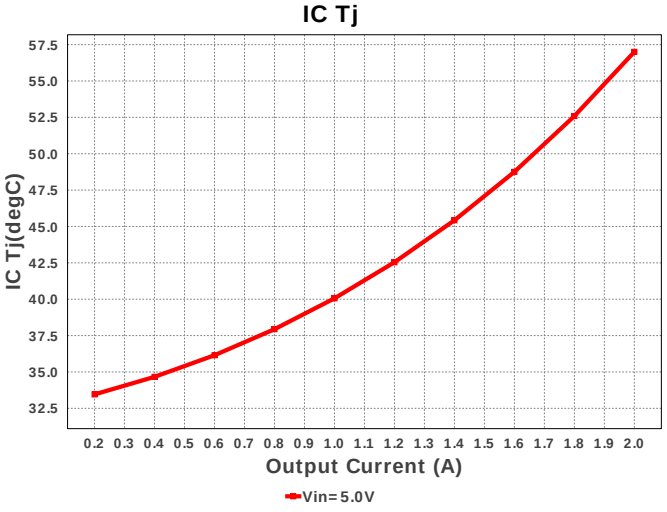


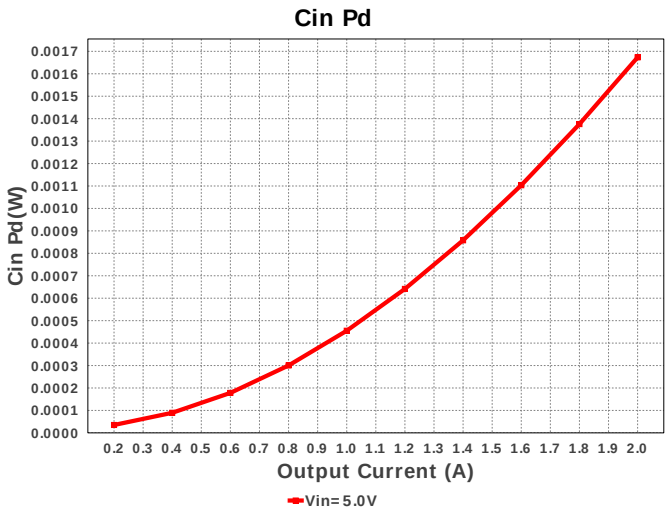


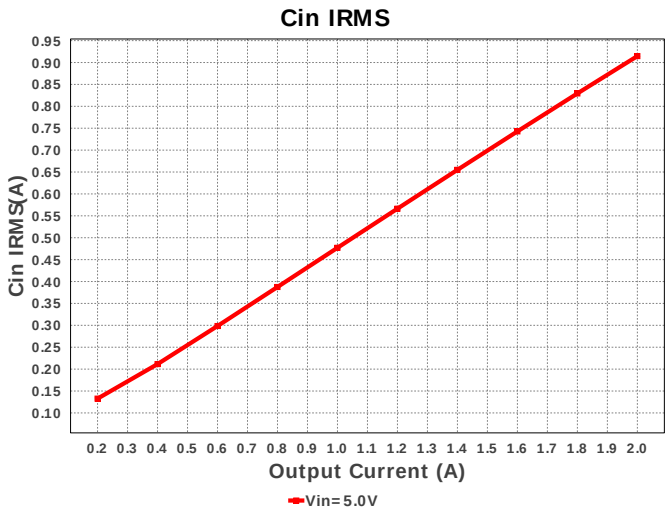


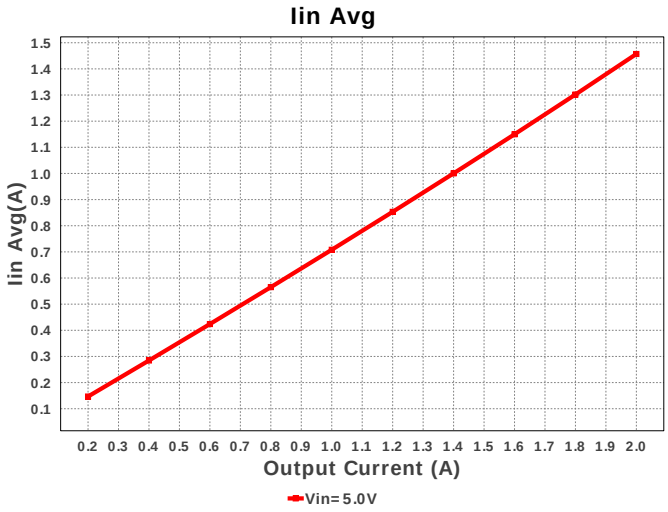


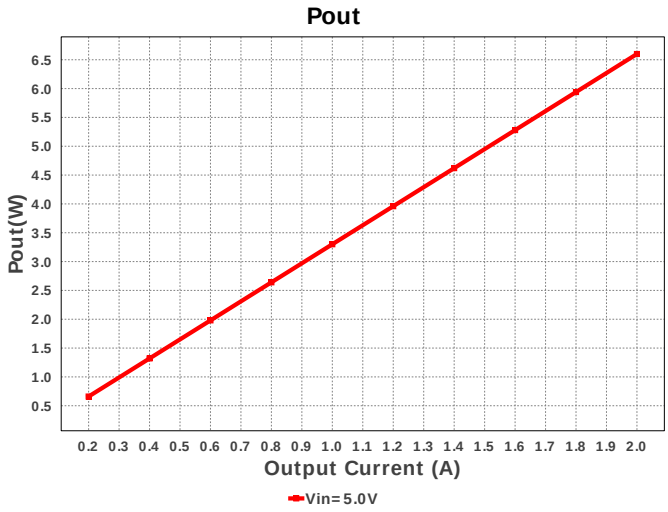


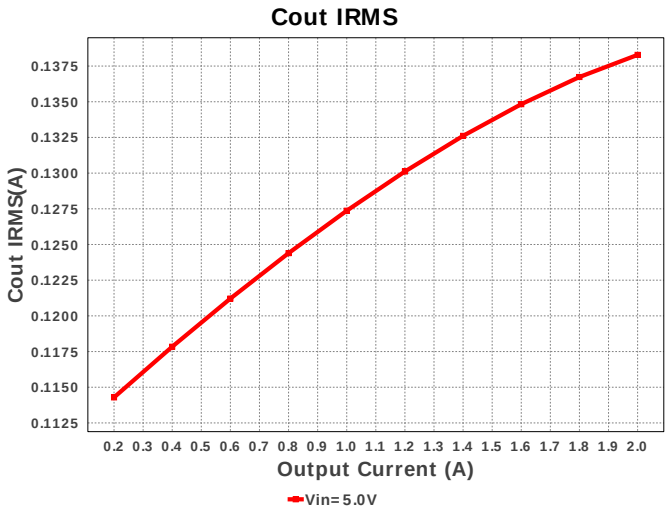


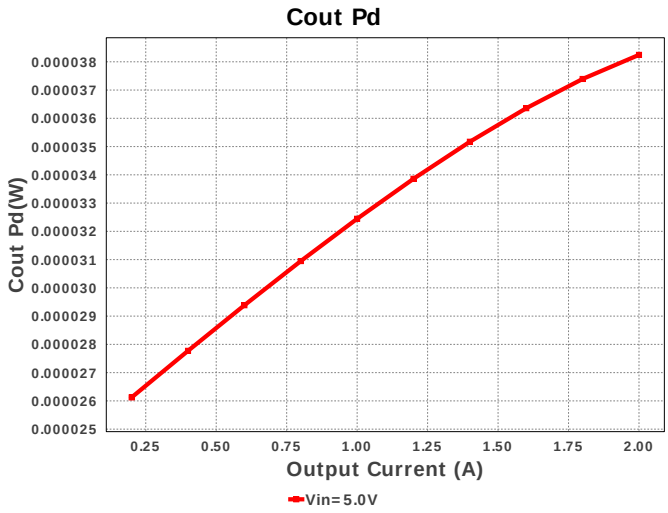


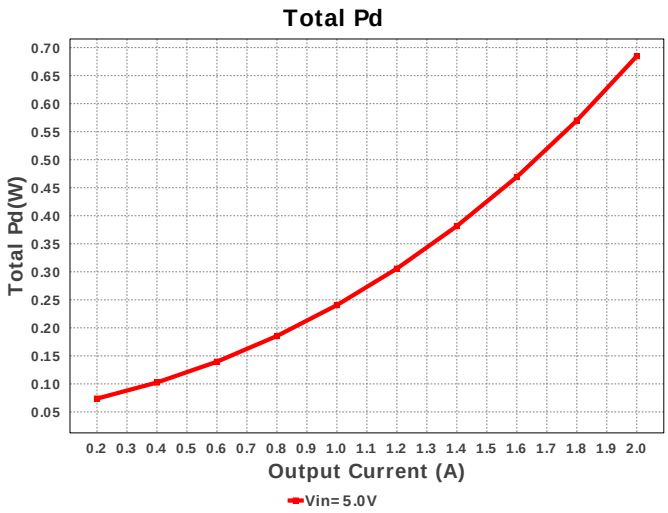


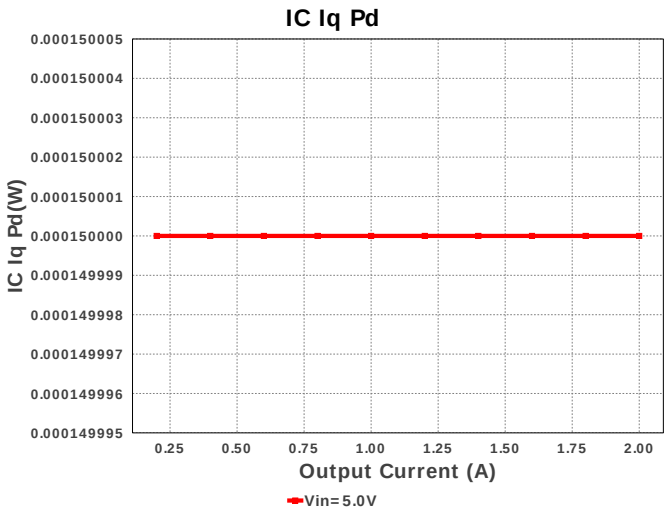


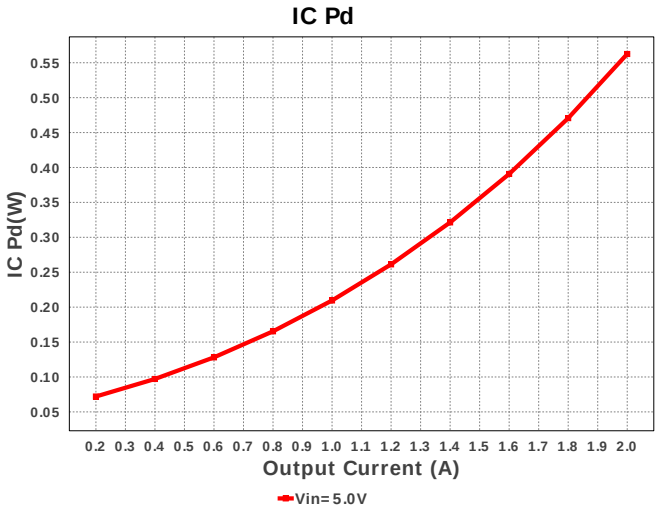


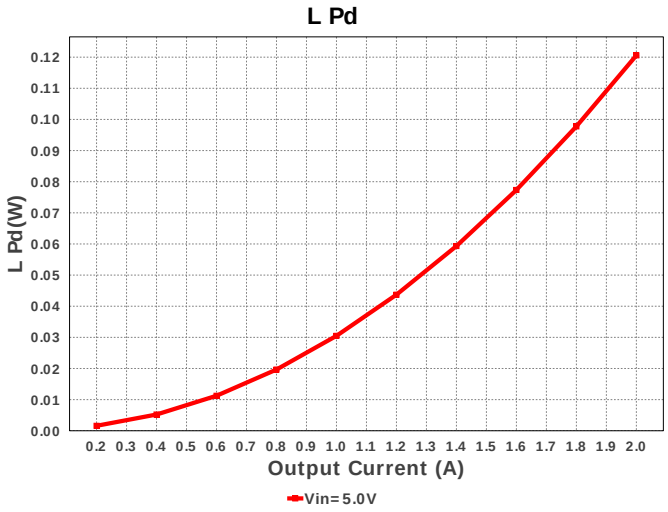


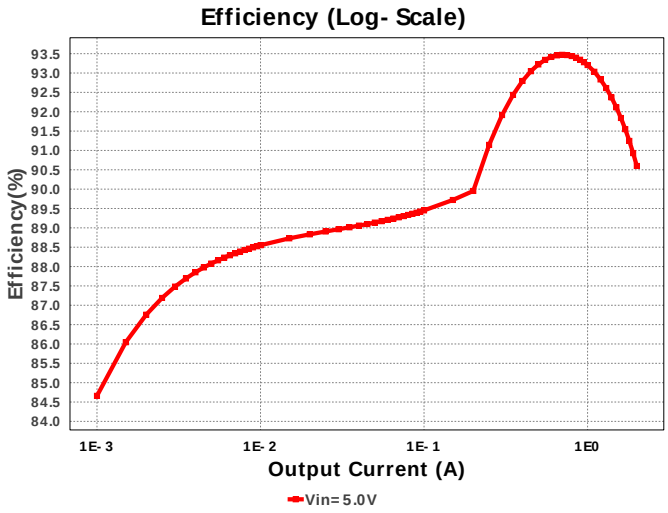












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	914.65 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	138.284 mA	Current	Output capacitor RMS ripple current
3.	Iin Avg	1.457 A	Current	Average input current
4.	L Ipp	479.03 mA	Current	Peak-to-peak inductor ripple current
5.	BOM Count	7	General	Total Design BOM count
6.	FootPrint	54.0 mm^2	General	Total Foot Print Area of BOM components
7.	Frequency	2.045 MHz	General	Switching frequency
8.	IC Tolerance	12.0 mV	General	IC Feedback Tolerance
9.	Mode	CCM	General	Conduction Mode
10.	Pout	6.6 W	General	Total output power
11.	Total BOM	$1.45	General	Total BOM Cost

#	Name	Value	Category	Description
12.	Vout Actual	3.308 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
13.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
14.	Duty Cycle	71.036 %	Op_point	Duty cycle
15.	Efficiency	90.599 %	Op_point	Steady state efficiency
16.	IC Tj	57.002 degC	Op_point	IC junction temperature
17.	ICThetaJA	48.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
18.	IOUT_OP	2.0 A	Op_point	Iout operating point
19.	VIN_OP	5.0 V	Op_point	Vin operating point
20.	Vout p-p	1.541 mV	Op_point	Peak-to-peak output ripple voltage
21.	Cin Pd	1.673 mW	Power	Input capacitor power dissipation
22.	Cout Pd	38.245 µW	Power	Output capacitor power dissipation
23.	IC Iq Pd	150.0 µW	Power	IC Iq Pd
24.	IC Pd	562.533 mW	Power	IC power dissipation
25.	L Pd	120.574 mW	Power	Inductor power dissipation
26.	Total Pd	684.863 mW	Power	Total Power Dissipation
27.	Vout Tolerance	4.459 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	VinMax	5.0	Maximum input voltage
3.	VinMin	5.0	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	TLV62084	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TLV62084** Product Folder : http://www.ti.com/product/TLV62084 : contains the data sheet and other resources.