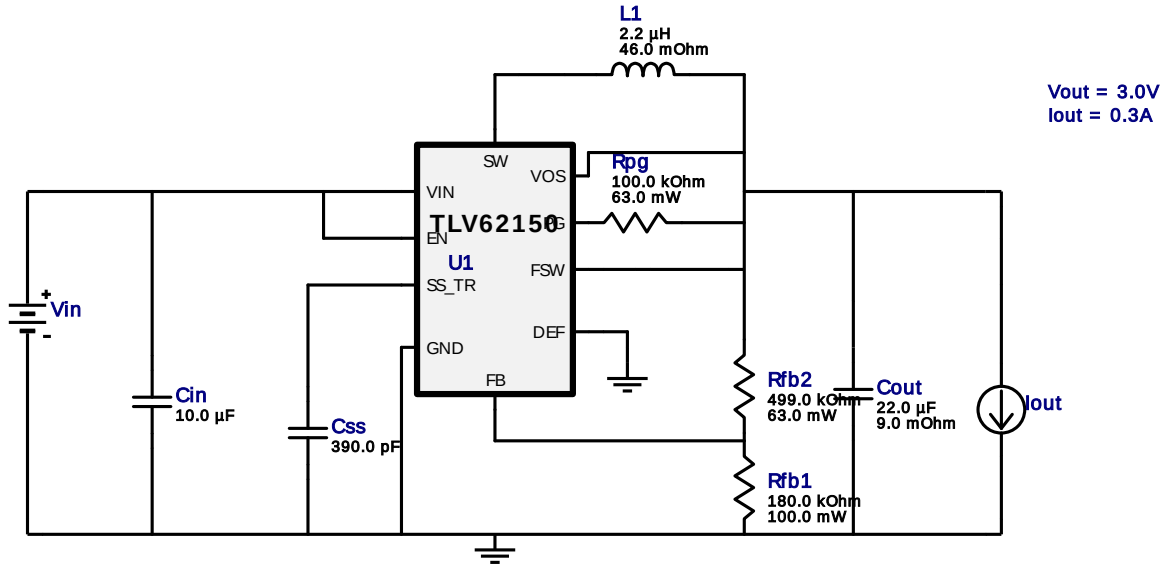
WEBENCH® Design Report

VinMin = 8.0V
VinMax = 12.0V
Vout = 3.0V
Iout = 0.3A

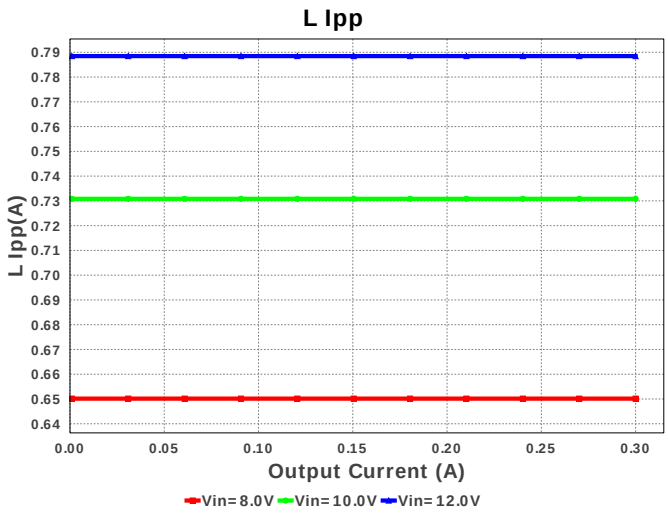
Device = TLV62150RGTR
Topology = Buck
Created = 8/4/16 2:22:20 AM
BOM Cost = $1.30
BOM Count = 8
Total Pd = 0.15W

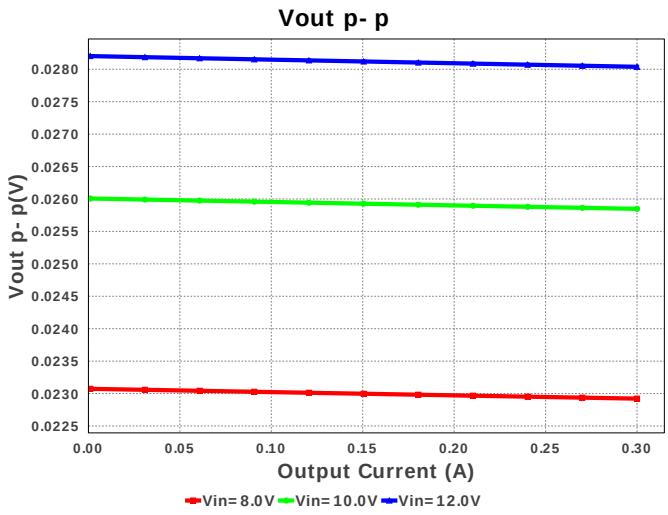
Design : 4743623/3 TLV62150RGTR
TLV62150RGTR 8.0V-12.0V to 3.00V @ 0.3A

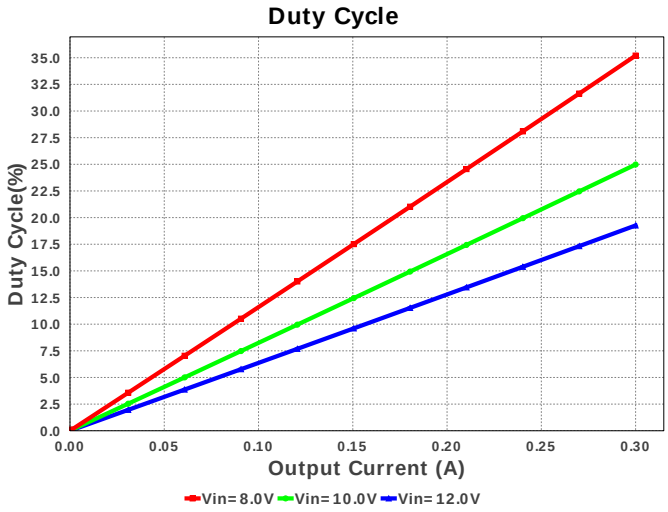


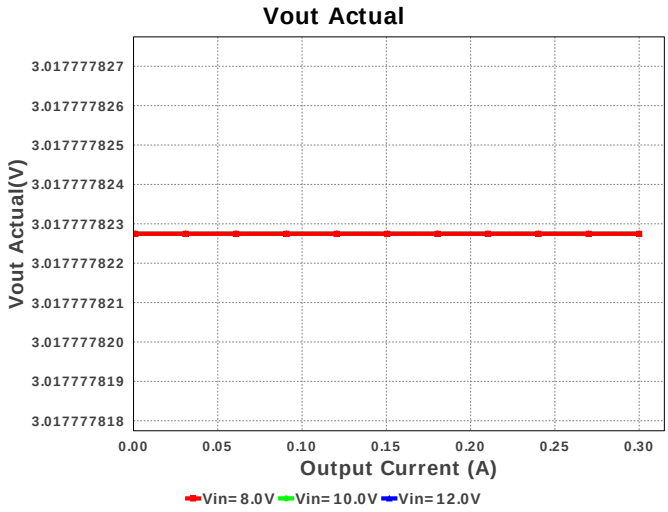
Electrical BOM

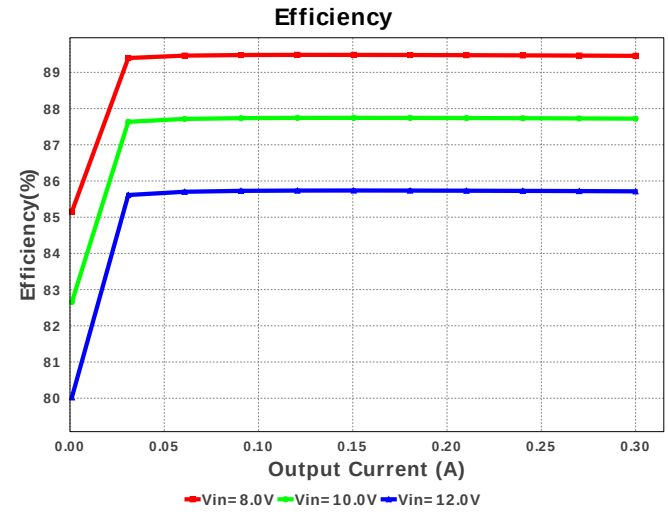
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Taiyo Yuden	TMK316BJ106KL-T Series= X5R	Cap= 10.0 uF VDC= 25.0 V IRMS= 0.0 A	1	$0.05	1206 11 mm²
2.	Cout	MuRata	GRM21BR60J226ME39L Series= X5R	Cap= 22.0 uF ESR= 9.0 mOhm VDC= 6.3 V IRMS= 3.5 A	1	$0.04	0805 7 mm²
3.	Css	Yageo America	CC0805KRX7R9BB391 Series= X7R	Cap= 390.0 pF VDC= 50.0 V IRMS= 0.0 A	1	$0.01	0805 7 mm²
4.	L1	Vishay-Dale	IHLP1212BZER2R2M11	L= 2.2 µH DCR= 46.0 mOhm	1	$0.56	IHLP-1212BZ 19 mm²
5.	Rfb1	Yageo America	RC0603FR-07180KL Series= ?	Res= 180.0 kOhm Power= 100.0 mW Tolerance= 1.0%	1	$0.01	0603 5 mm²
6.	Rfb2	Vishay-Dale	CRCW0402499KFKED Series= CRCW..e3	Res= 499.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
7.	Rpg	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
8.	U1	Texas Instruments	TLV62150RGTR	Switcher	1	$0.61	S-PVQFN-N16 17 mm²

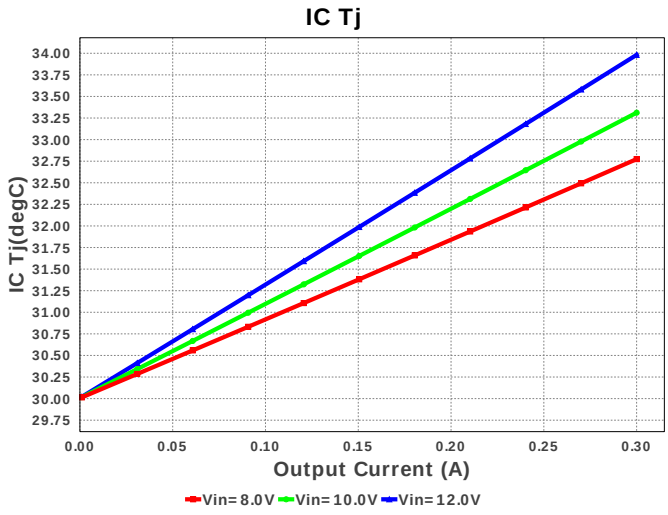


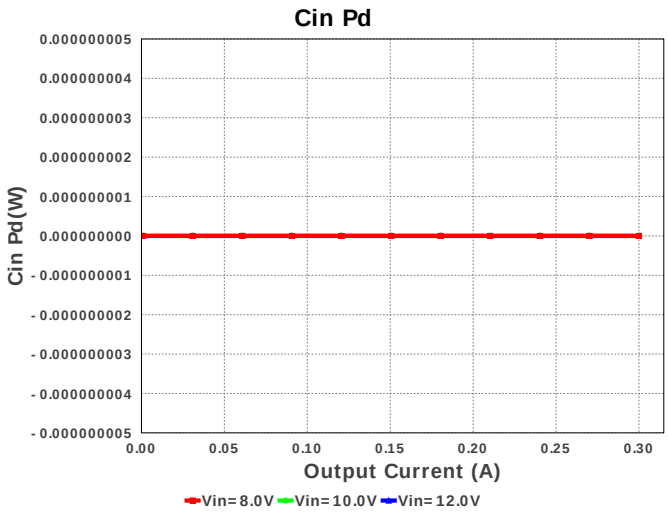


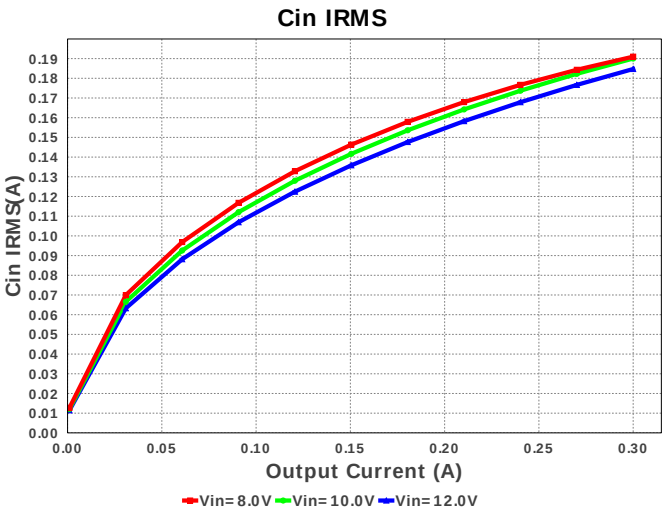


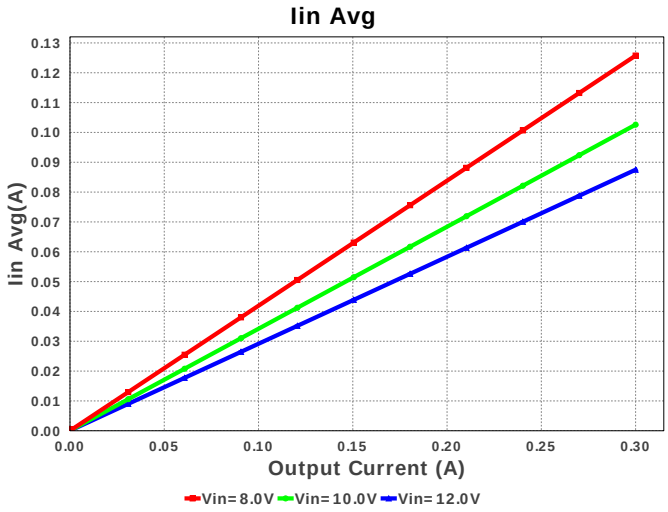


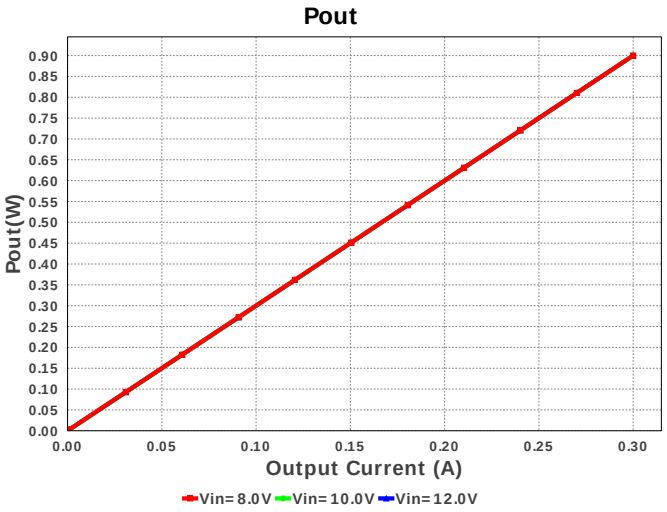


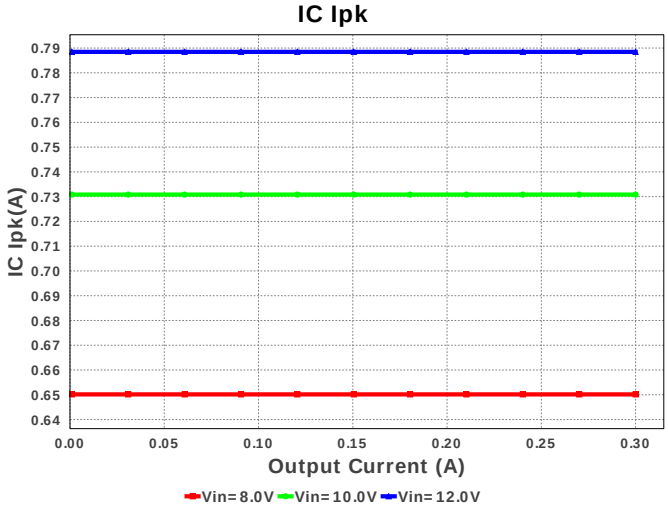


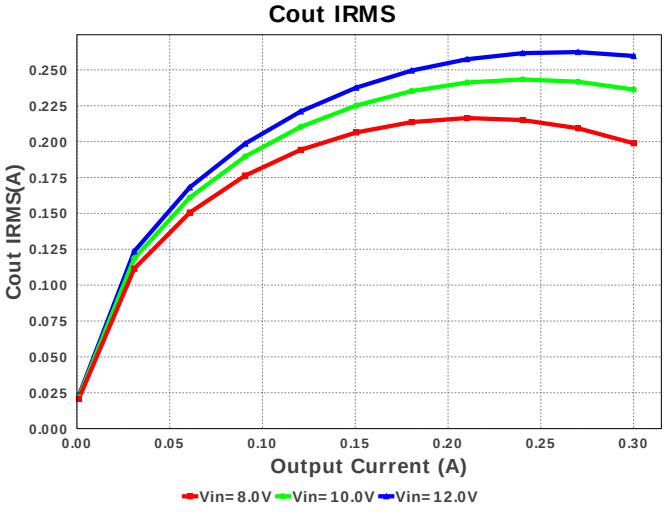


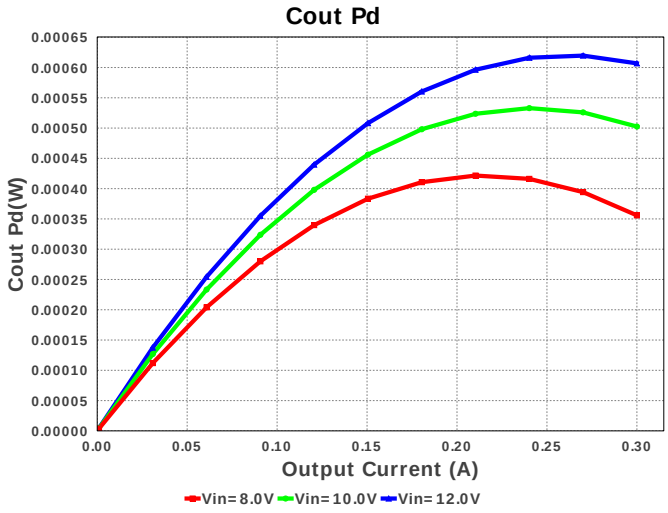


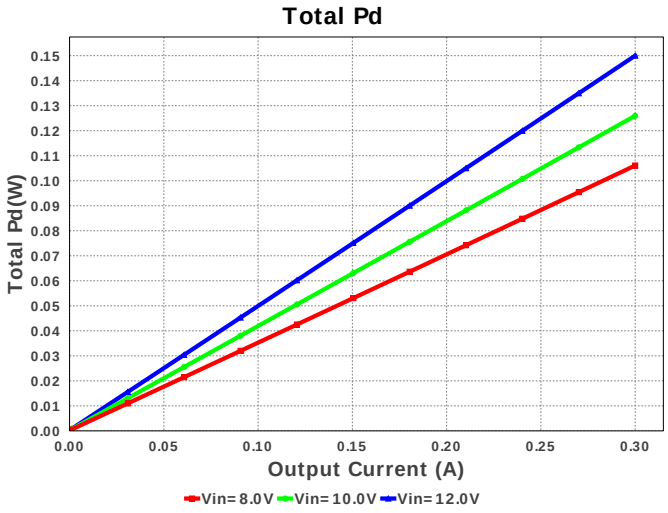


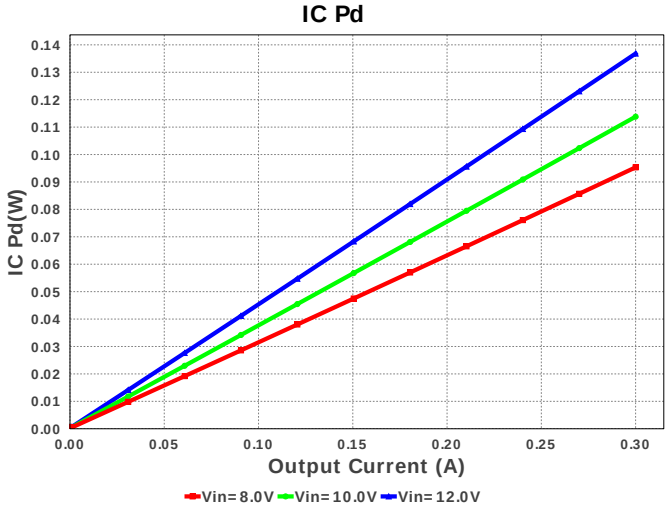


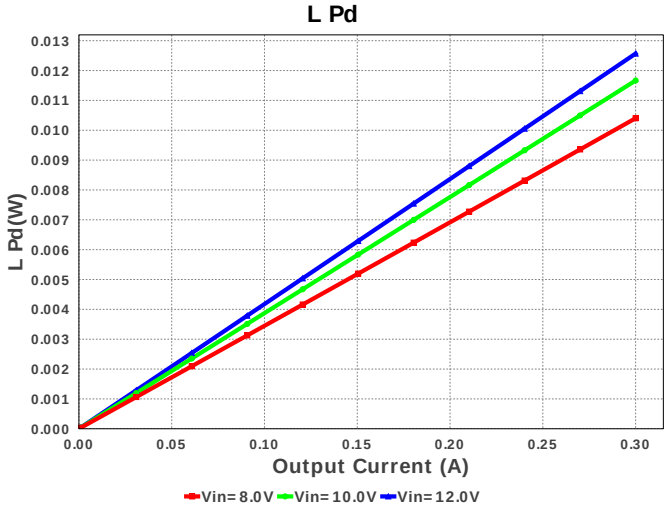


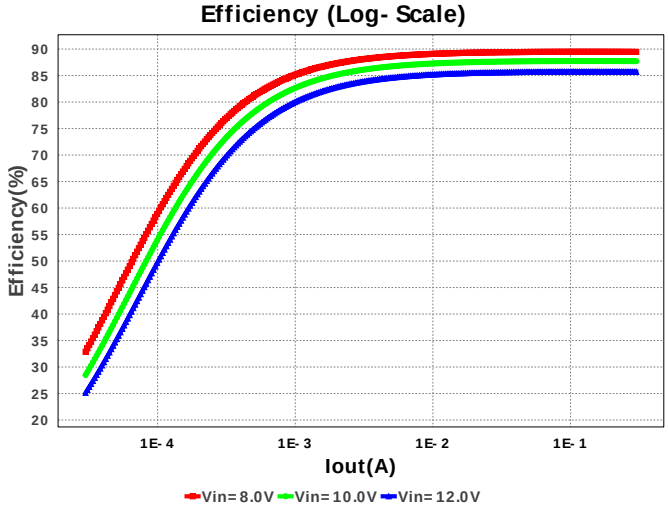












Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	184.716 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	259.674 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	788.462 mA	Current	Peak switch current in IC
4.	Iin Avg	87.5 mA	Current	Average input current
5.	L Ipp	788.46 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	8	General	Total Design BOM count
7.	FootPrint	71.0 mm^2	General	Total Foot Print Area of BOM components
8.	Frequency	999.417 kHz	General	Switching frequency
9.	Pout	900.0 mW	General	Total output power
10.	Total BOM	$1.3	General	Total BOM Cost
11.	Vout Actual	3.018 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors

#	Name	Value	Category	Description
12.	Vout OP	3.0 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	19.262 %	Op_point	Duty cycle
14.	Efficiency	85.714 %	Op_point	Steady state efficiency
15.	IC Tj	33.982 degC	Op_point	IC junction temperature
16.	ICThetaJA	29.1 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	300.0 mA	Op_point	Iout operating point
18.	VIN_OP	12.0 V	Op_point	Vin operating point
19.	Vout p-p	28.038 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
21.	Cout Pd	606.875 µW	Power	Output capacitor power dissipation
22.	IC Pd	136.823 mW	Power	IC power dissipation
23.	L Pd	12.569 mW	Power	Inductor power dissipation
24.	Total Pd	150.003 mW	Power	Total Power Dissipation
25.	Vout Tolerance	4.022 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	300.0 m	Maximum Output Current
2.	VinMax	12.0	Maximum input voltage
3.	VinMin	8.0	Minimum input voltage
4.	Vout	3.0	Output Voltage
5.	base_pn	TLV62150	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. Feature Highlights: DCS-Control(TM) Architecture with upto 1A output current, 4V to 17V Input Voltage Range, Adjustable output voltage from 0.9V to 6VSelectable operating frequency, Optional Softstart Capacitor for slow startup, Tracking,Pin selectable output voltage (nominal, +5%) Seamless Power Save Mode for Light Load Efficiency, Power Good Output, 100% Duty Cycle mode, Short Circuit Protection, Thermal Shutdown

2. **TLV62150** Product Folder : http://www.ti.com/product/TLV62150 : contains the data sheet and other resources.