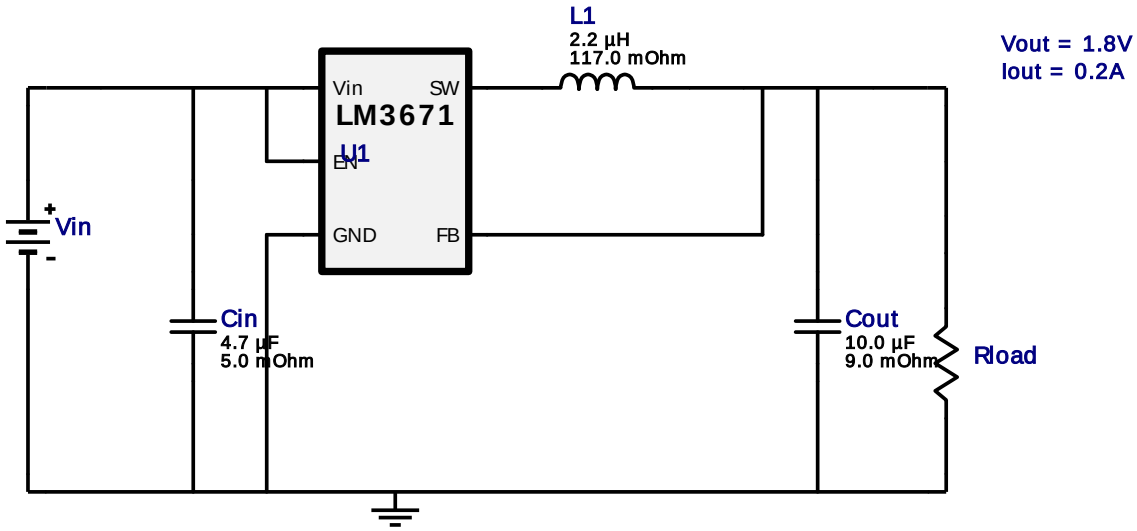
WEBENCH® Design Report

VinMin = 4.5V
VinMax = 5.5V
Vout = 1.8V
Iout = 0.2A

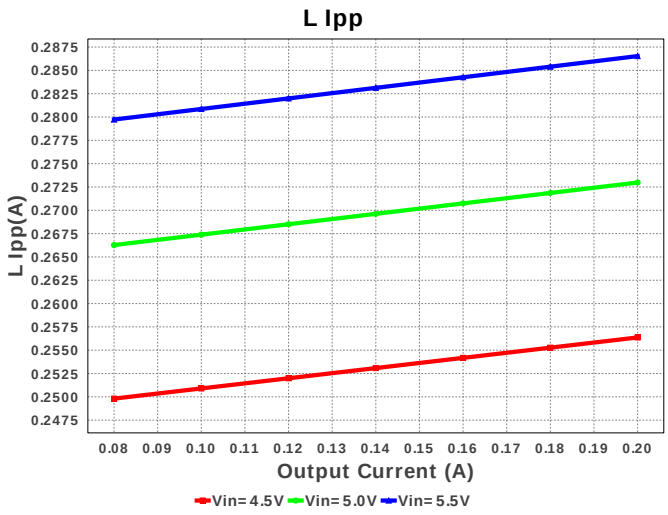
Device = LM3671TLX-1.8/NOPB
Topology = Buck
Created = 8/23/16 6:12:12 AM
BOM Cost = $0.47
BOM Count = 4
Total Pd = 0.03W

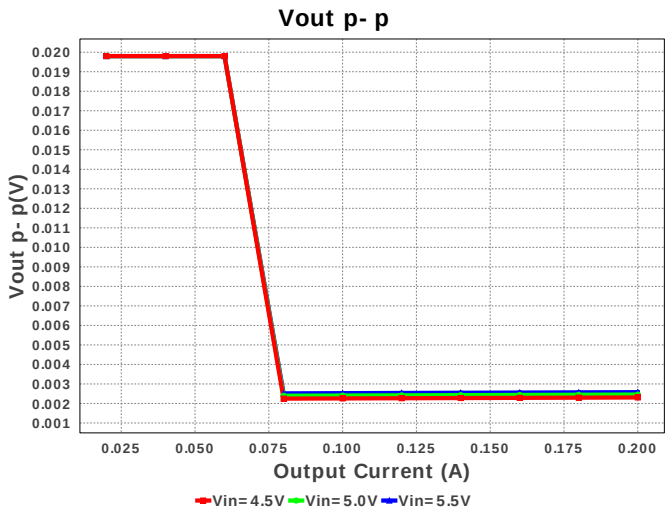
Design : 3496425/107 LM3671TLX-1.8/NOPB
LM3671TLX-1.8/NOPB 4.5V-5.5V to 1.80V @ 0.2A

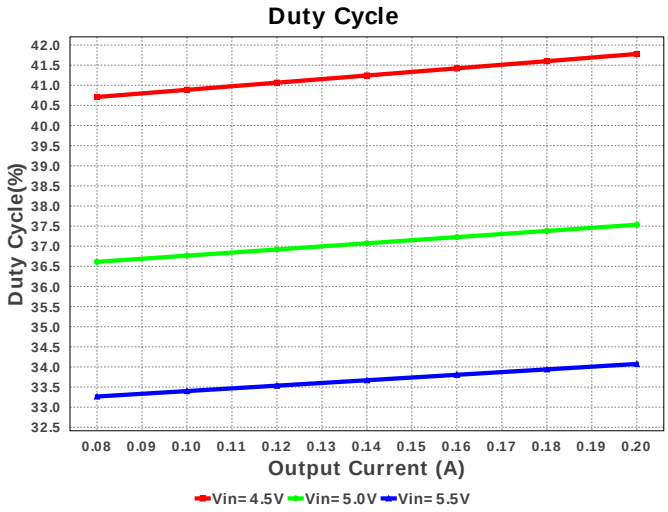


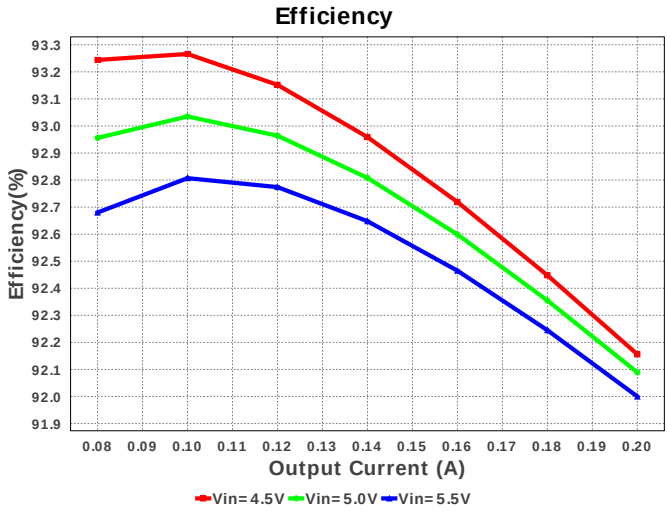
Electrical BOM

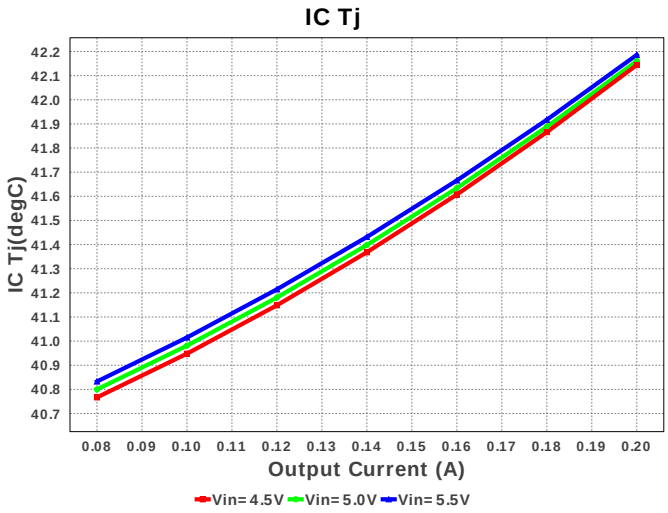
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	MuRata	GRM188R60J475KE19D Series= X5R	Cap= 4.7 uF ESR= 5.0 mOhm VDC= 6.3 V IRMS= 2.0 A	1	$0.01	0603 5 mm²
2.	Cout	MuRata	GRM188R60J106ME47D Series= X5R	Cap= 10.0 uF ESR= 9.0 mOhm VDC= 6.3 V IRMS= 2.74 A	1	$0.02	0603 5 mm²
3.	L1	TDK	MLP2520S2R2MT0S1	L= 2.2 µH DCR= 117.0 mOhm	1	$0.14	MLP2520S-M 12 mm²
4.	U1	Texas Instruments	LM3671TLX-1.8/NOPB	Switcher	1	$0.30	TLA05CBA 5 mm²

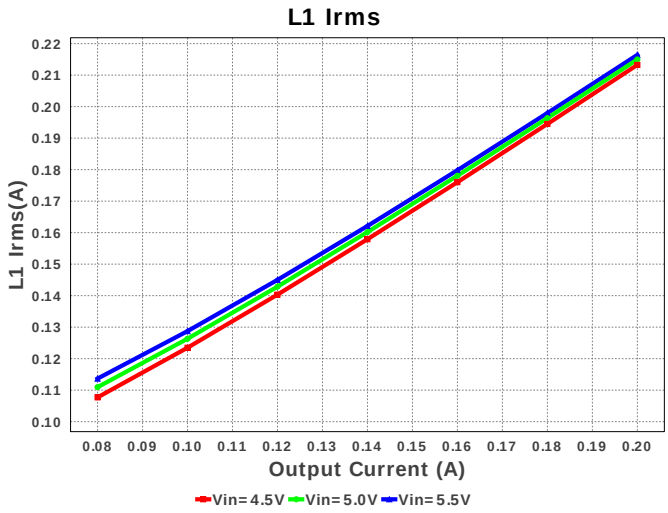




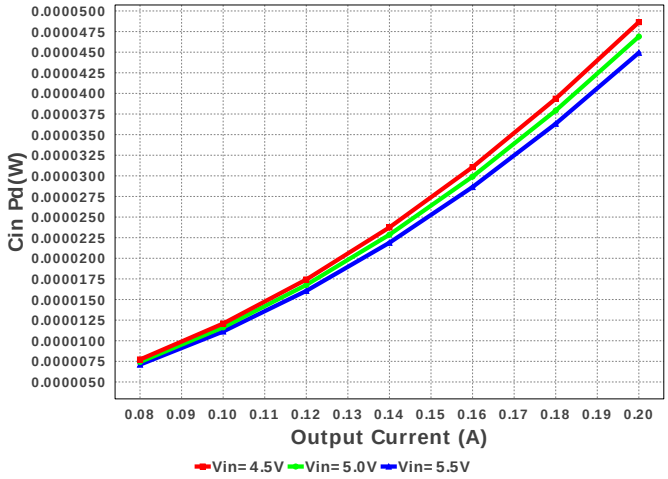




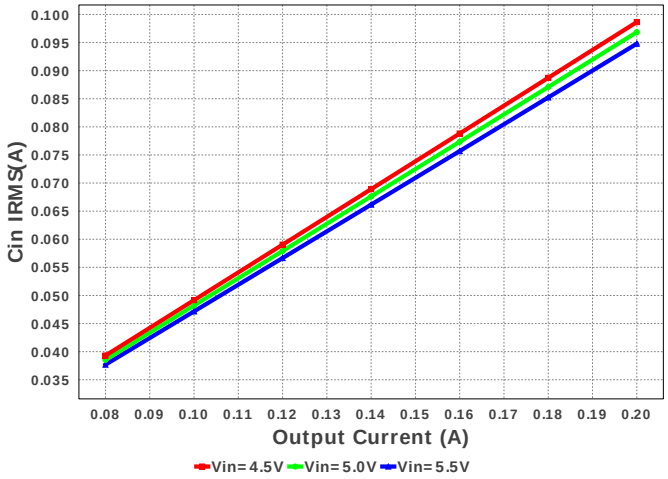




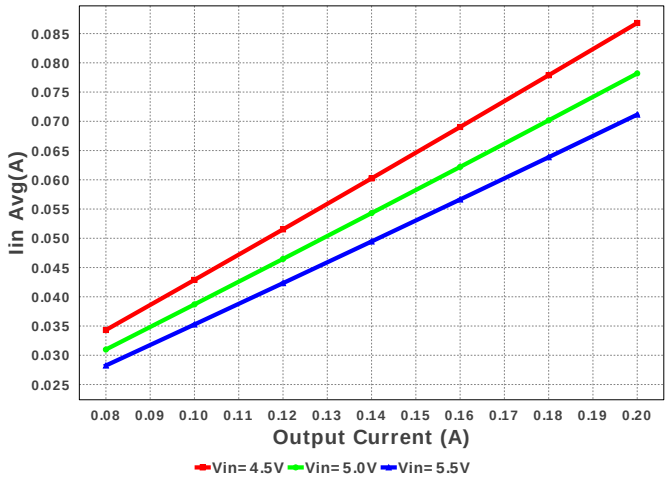
Cin Pd



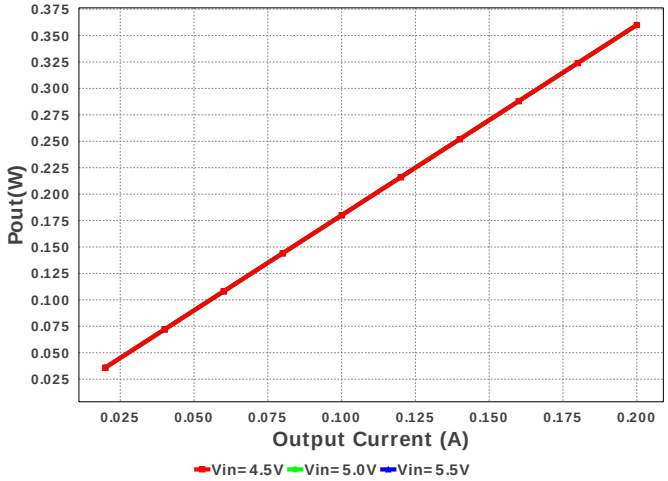
Cin IRMS



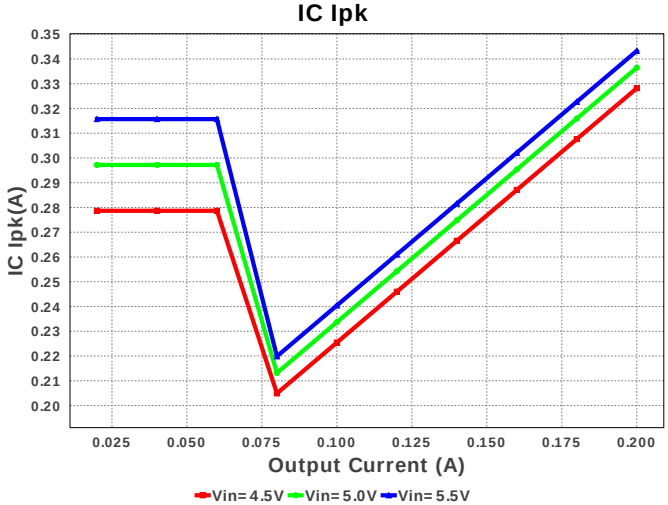
Iin Avg



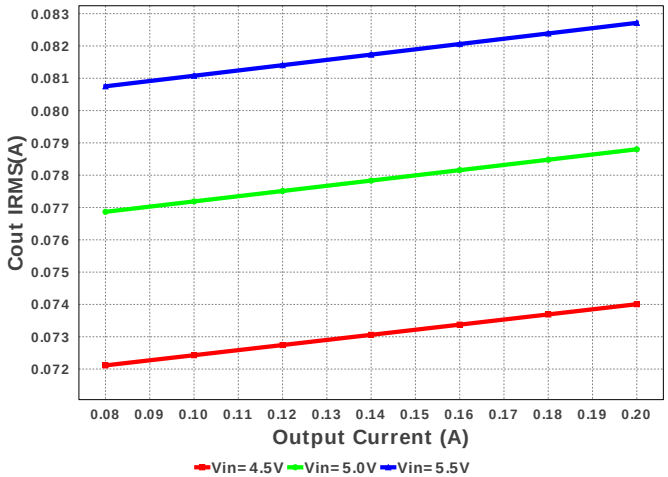
Pout

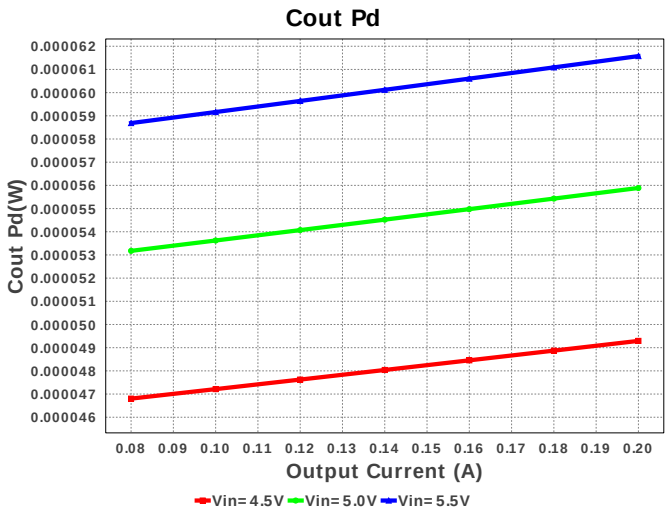


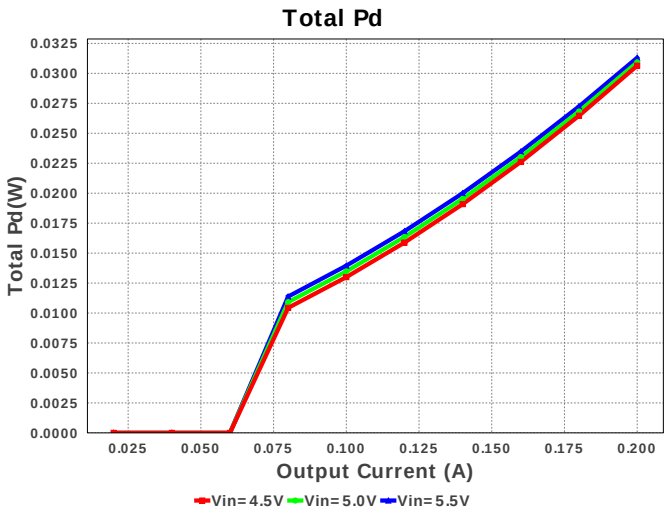
IC Ipk

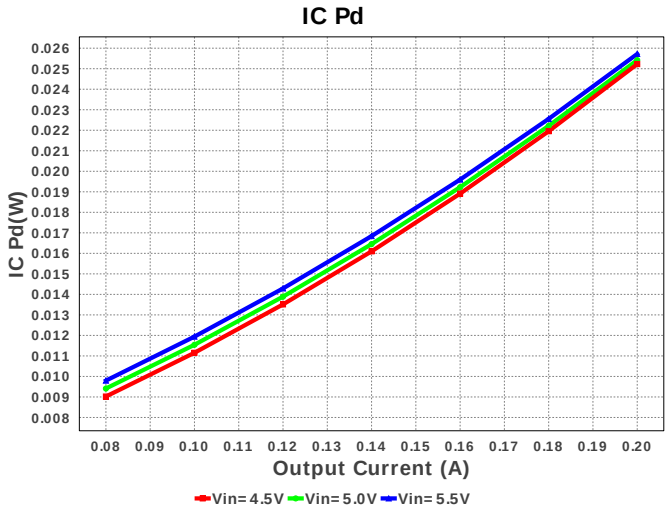


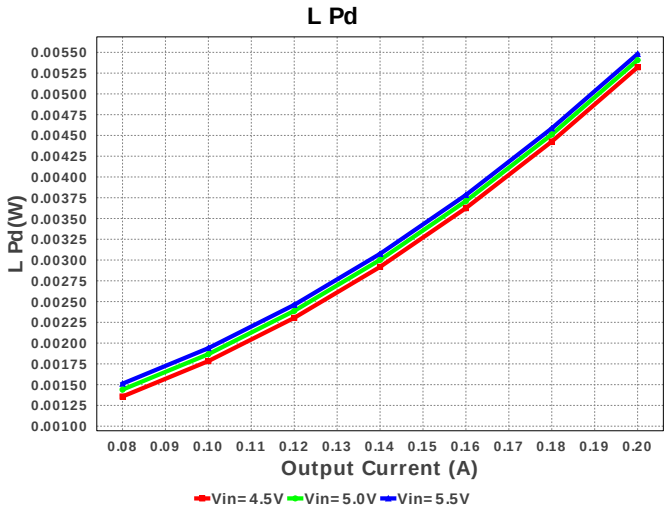
Cout IRMS











Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	94.792 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	82.715 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	343.266 mA	Current	Peak switch current in IC
4.	Iin Avg	71.146 mA	Current	Average input current
5.	L Ipp	286.53 mA	Current	Peak-to-peak inductor ripple current
6.	L1 Irms	216.429 mA	Current	Inductor ripple current
7.	BOM Count	4	General	Total Design BOM count
8.	FootPrint	26.0 mm^2	General	Total Foot Print Area of BOM components
9.	Frequency	2.0 MHz	General	Switching frequency
10.	IC Tolerance	0.0 V	General	IC Feedback Tolerance
11.	Mode	CCM	General	Conduction Mode
12.	Pout	360.0 mW	General	Total output power
13.	Total BOM	$0.47	General	Total BOM Cost
14.	Duty Cycle	34.074 %	Op_point	Duty cycle
15.	Efficiency	92.0 %	Op_point	Steady state efficiency
16.	IC Tj	42.186 degC	Op_point	IC junction temperature
17.	ICThetaJA	85.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
18.	IOUT_OP	200.0 mA	Op_point	Iout operating point
19.	VIN_OP	5.5 V	Op_point	Vin operating point
20.	Vout p-p	2.579 mV	Op_point	Peak-to-peak output ripple voltage
21.	Cin Pd	44.927 µW	Power	Input capacitor power dissipation
22.	Cout Pd	61.575 µW	Power	Output capacitor power dissipation
23.	IC Pd	25.718 mW	Power	IC power dissipation
24.	L Pd	5.48 mW	Power	Inductor power dissipation
25.	Total Pd	31.304 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	200.0 m	Maximum Output Current
2.	VinMax	5.5	Maximum input voltage

#	Name	Value	Description
3.	VinMin	4.5	Minimum input voltage
4.	Vout	1.8	Output Voltage
5.	base_pn	LM3671	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	40.0	Ambient temperature

Design Assistance

1. **LM3671** Product Folder : http://www.ti.com/product/LM3671 : contains the data sheet and other resources.