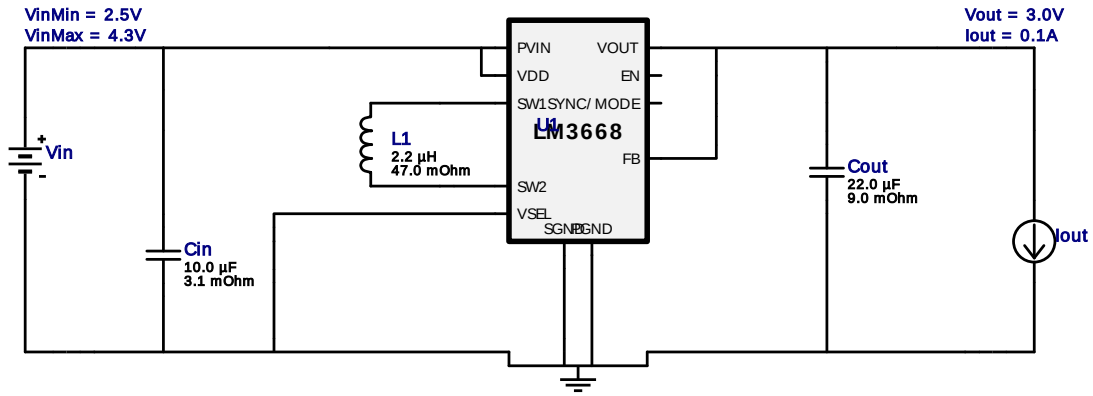
WEBENCH® Design Report

VinMin = 2.5V
VinMax = 4.3V
Vout = 3.0V
Iout = 0.1A

Device = LM3668SD-3034/NOPB
Topology = Buck_Boost
Created = 8/4/13 2:58:36 AM
BOM Cost = $1.26
Total Pd = 0.02W
Footprint = 96.0mm2
BOM Count = 4

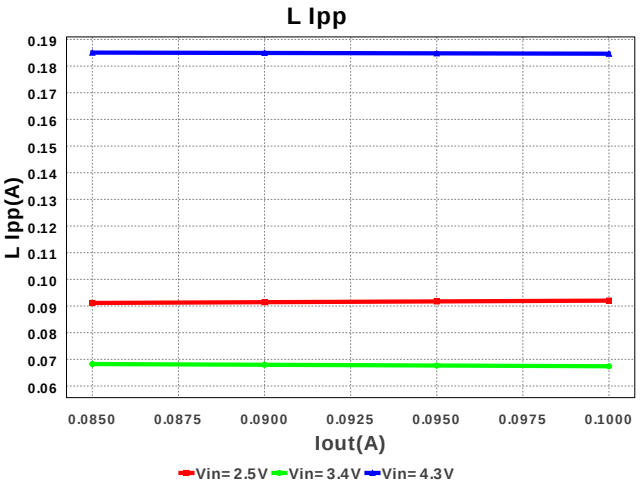
Design : 1095666/10 LM3668SD-3034/NOPB
LM3668SD-3034/NOPB 2.5V-4.3V to 3.0V @ 0.1A

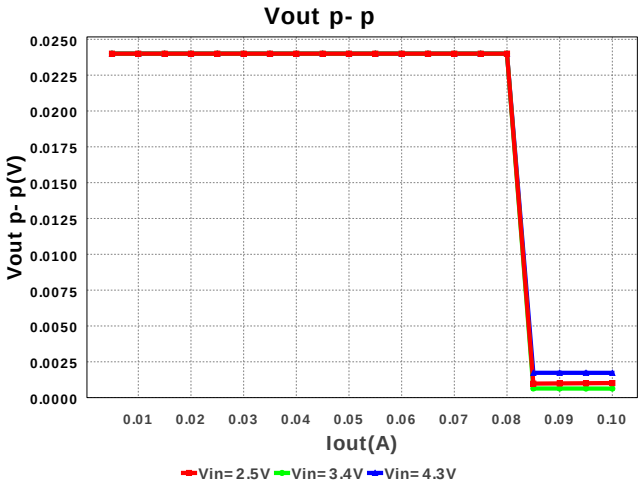


1. 1) This device supports two output voltage settings. If your output voltage is 2.8V, 3.0V, or 4.5V, set Vsel = GND. If your output voltage is 3.3V, 3.4V, or 5.0V, set Vsel=Vin. 2) SYNCMODE pin should be grounded, for operation at the default switching frequency of 2.2MHz (typical). Refer to the LM3668 datasheet for further information.

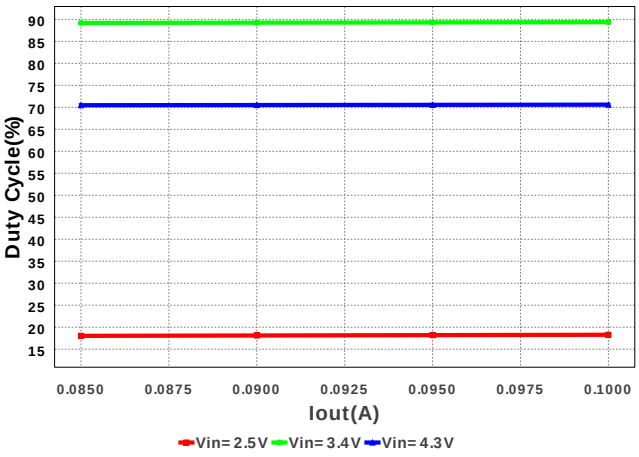
Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	TDK	C3216X5R0J106K Series= X5R	Cap= 10.0 µF ESR= 3.1 mOhm VDC= 6.3 V IRMS= 4.1 A	1	$0.04	1206 19mm2
2.	Cout	MuRata	GRM21BR60J226ME39L Series= X5R	Cap= 22.0 µF ESR= 9.0 mOhm VDC= 6.3 V IRMS= 3.5 A	1	$0.05	0805 13mm2
3.	L1	Bourns	SDR0403-2R2ML	L= 2.2 µH DCR= 47.0 mOhm	1	$0.17	SDR0403 39mm2
4.	U1	Texas Instruments	LM3668SD-3034/NOPB	Switcher	1	$1.00	SDF12A 25mm2

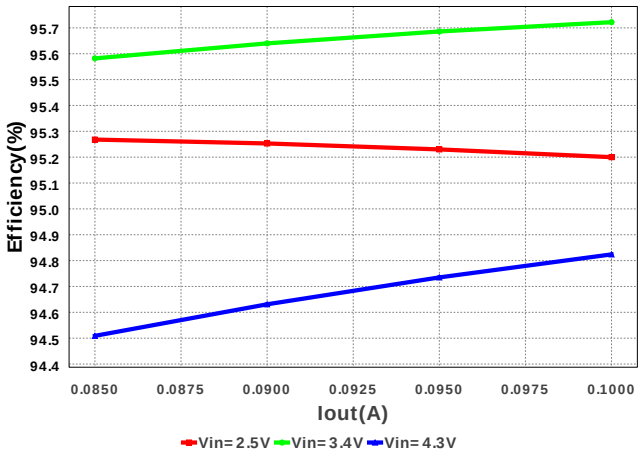




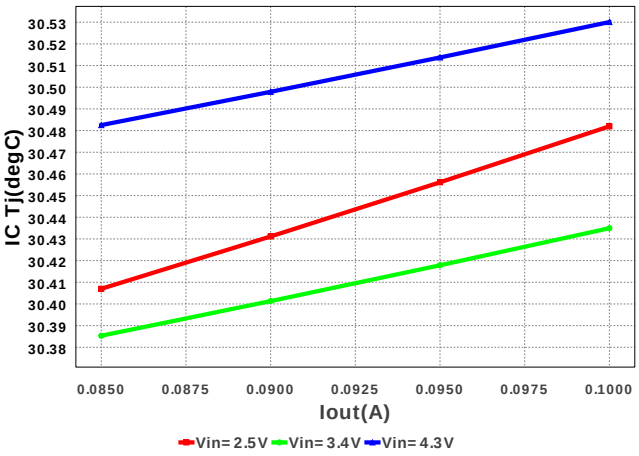
Duty Cycle



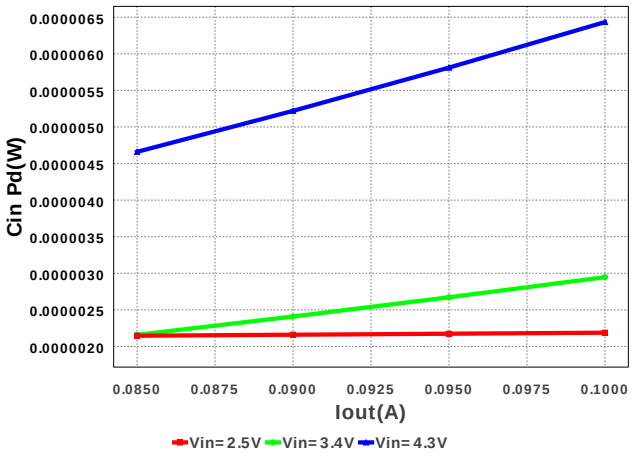
Efficiency



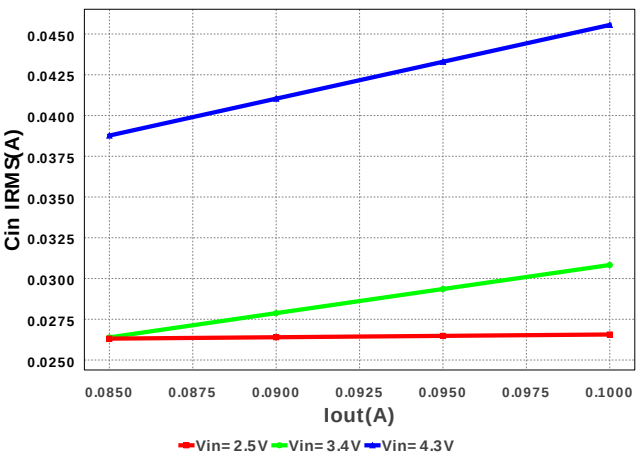
IC Tj



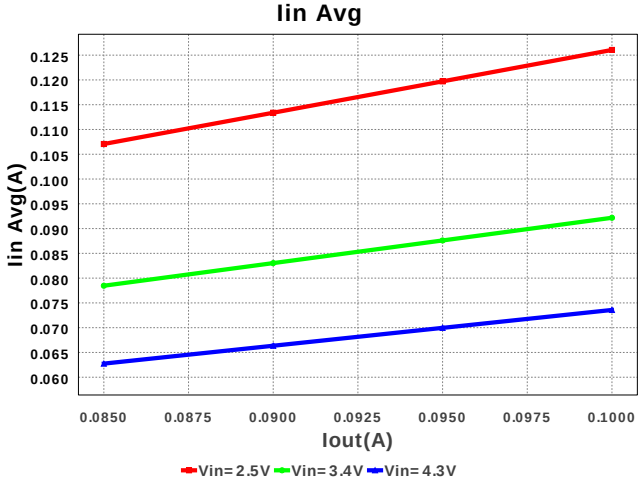
Cin Pd

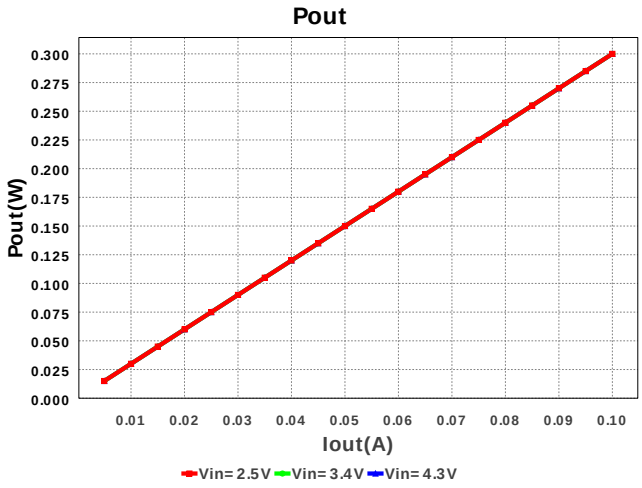


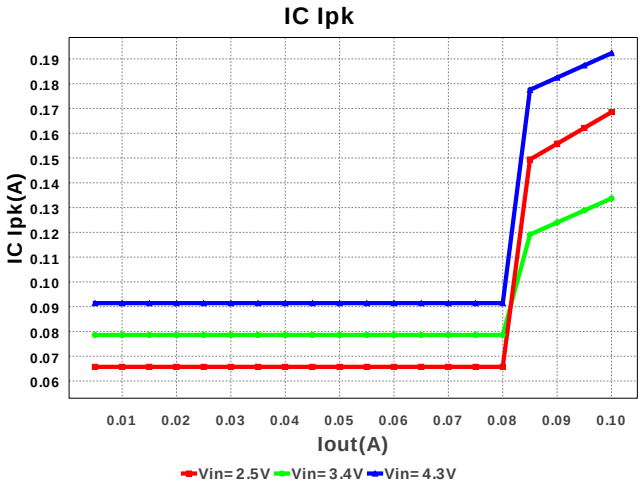
Cin IRMS

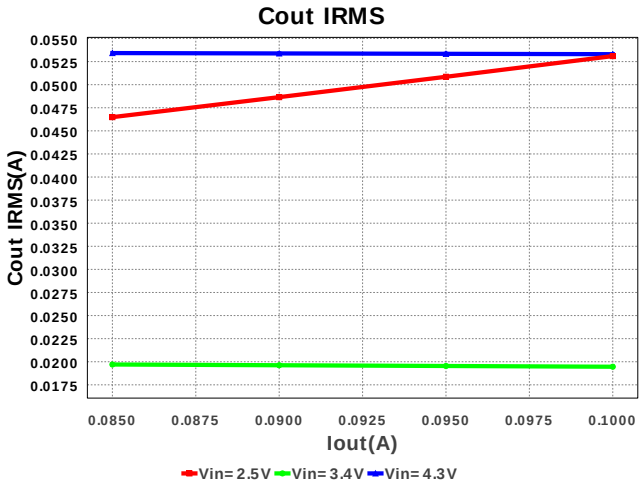


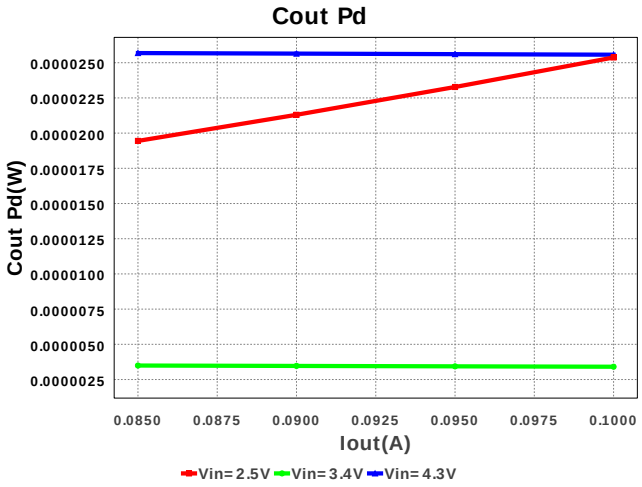
Iin Avg

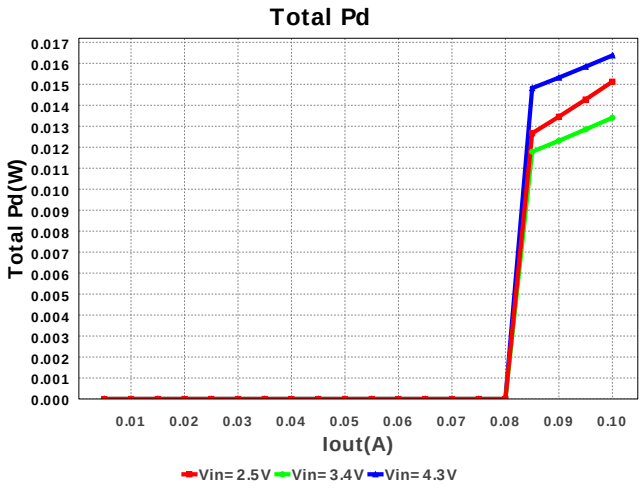


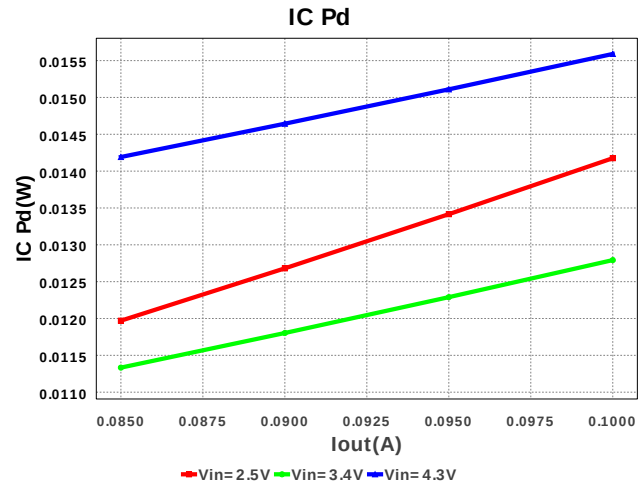


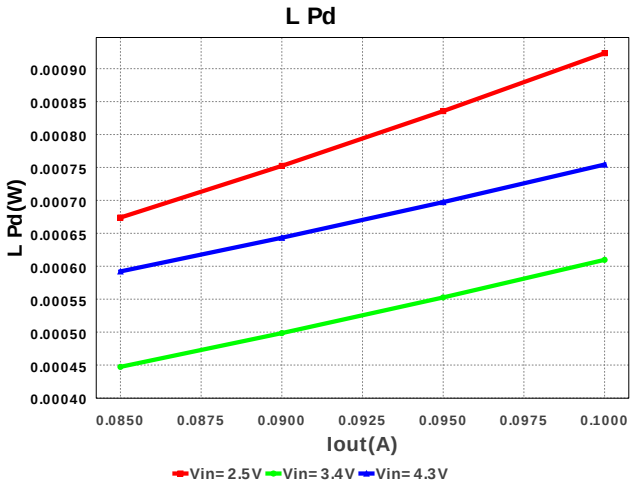












Operating Values

#	Name	Value	Category	Description
1.	BOM Count	4		Total Design BOM count
2.	Total BOM	$1.262		Total BOM Cost
3.	Cin IRMS	26.566 mA	Current	Input capacitor RMS ripple current
4.	Cout IRMS	53.095 mA	Current	Output capacitor RMS ripple current
5.	IC Ipk	168.543 mA	Current	Peak switch current in IC
6.	Iin Avg	126.05 mA	Current	Average input current
7.	L Ipp	92.028 mA	Current	Peak-to-peak inductor ripple current
8.	FootPrint	96.0 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	2.2 MHz	General	Switching frequency
10.	IC Tolerance	150.0 mV	General	IC Feedback Tolerance
11.	Mode	PWM	General	PWM/PFM Mode
12.	Pout	300.0 mW	General	Total output power
13.	Duty Cycle	18.275 %	Op_point	Duty cycle
14.	Efficiency	95.2 %	Op_point	Steady state efficiency
15.	IC Tj	30.482 degC	Op_point	IC junction temperature
16.	ICThetaJA	34.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	100.0 mA	Op_point	Iout operating point
18.	VIN_OP	2.5 V	Op_point	Vin operating point
19.	Vout p-p	1.017 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	2.188 µW	Power	Input capacitor power dissipation
21.	Cout Pd	25.371 µW	Power	Output capacitor power dissipation
22.	IC Pd	14.175 mW	Power	IC power dissipation
23.	L Pd	923.501 µW	Power	Inductor power dissipation
24.	Total Pd	15.126 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	100.0 mA	Maximum Output Current
2.	Iout1	100.0 mAmps	Output Current #1
3.	VinMax	4.3 V	Maximum input voltage
4.	VinMin	2.5 V	Minimum input voltage
5.	Vout	3.0 V	Output Voltage
6.	Vout1	3.0 Volt	Output Voltage #1
7.	base_pn	LM3668	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. **LM3668** Product Folder : http://www.ti.com/product/lm3668 : contains the data sheet and other resources.