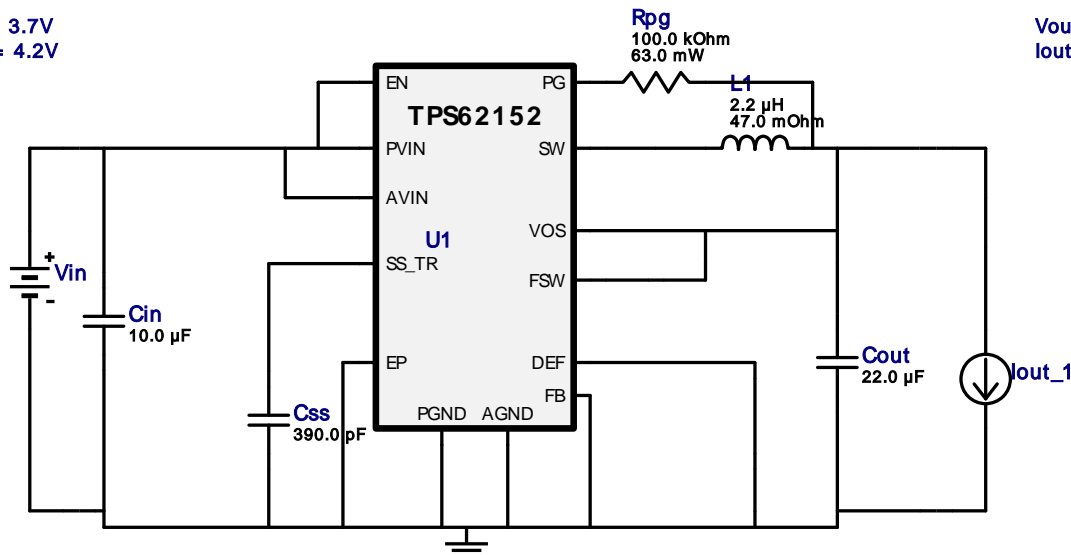


WEBENCH® Design Report







Design : 3822995/3 TPS62152RGTR
TPS62152RGTR 3.7V-4.2V to 3.3V @ 1.0A

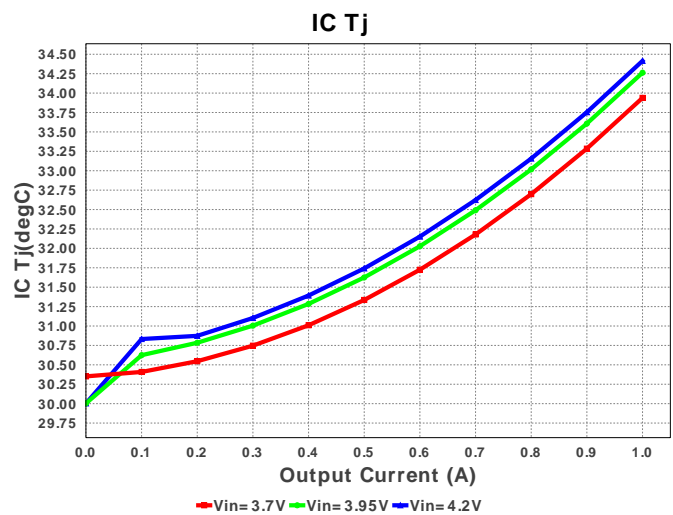
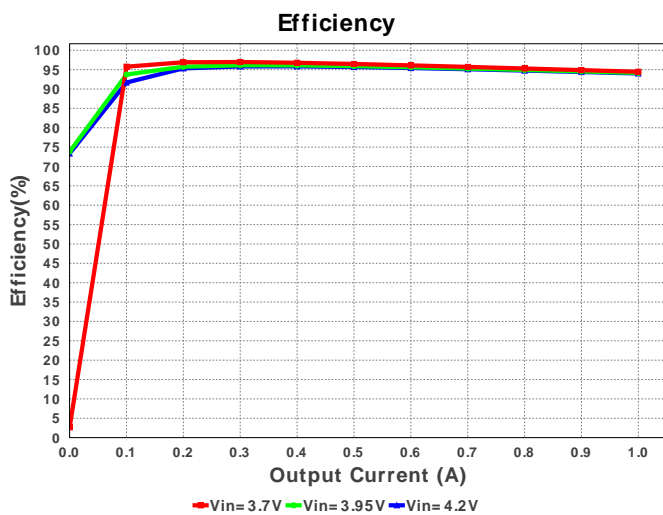
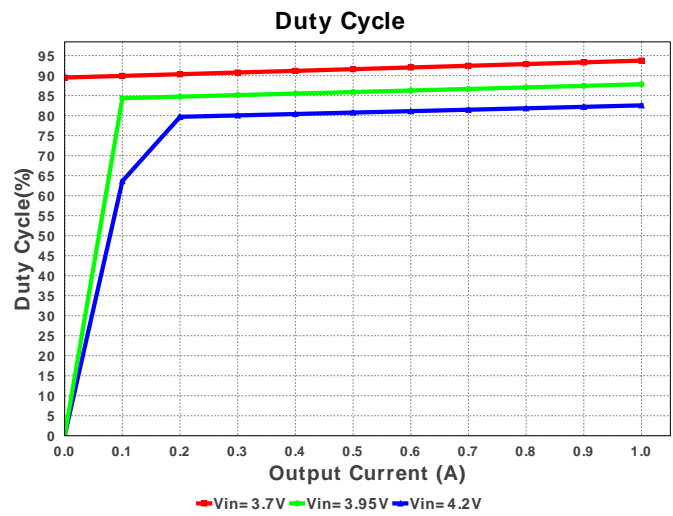
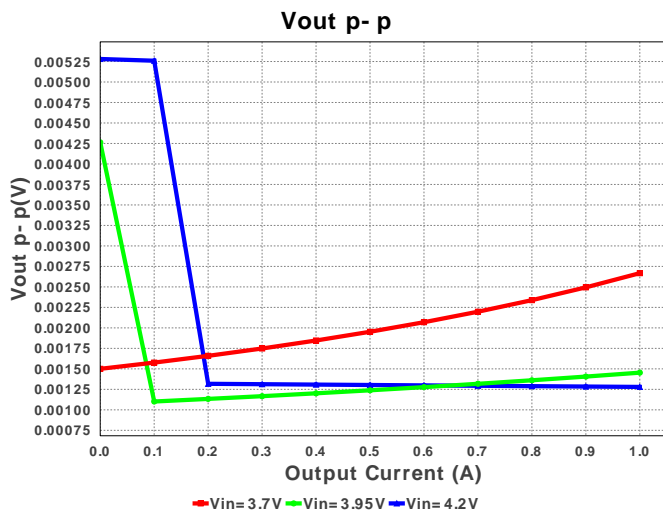
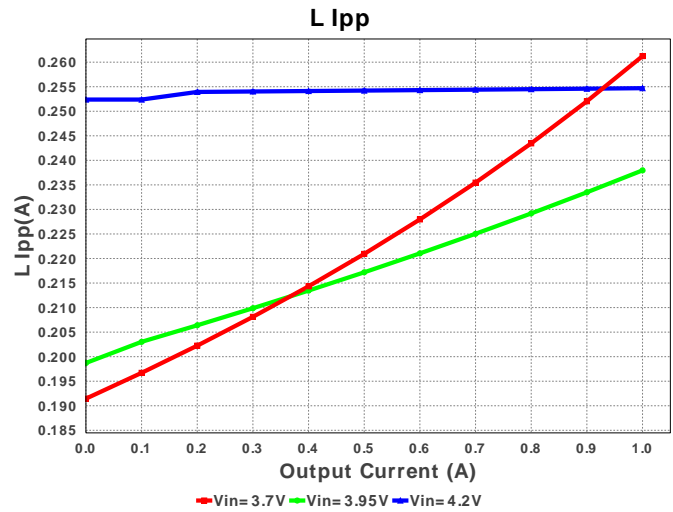
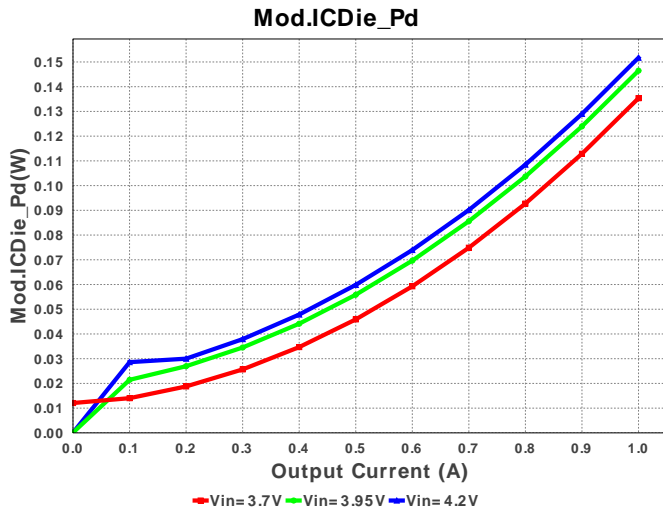
VinMin = 3.7V
VinMax = 4.2V

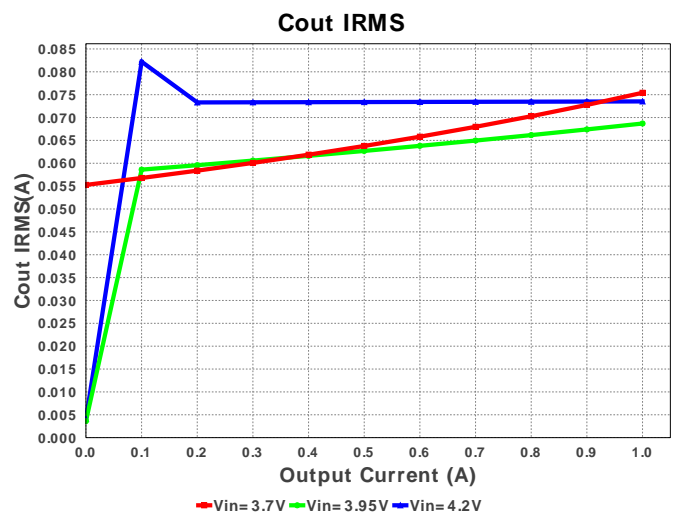
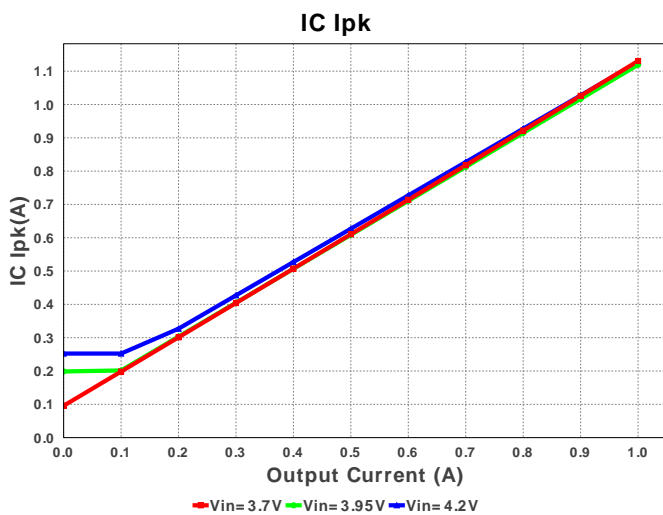
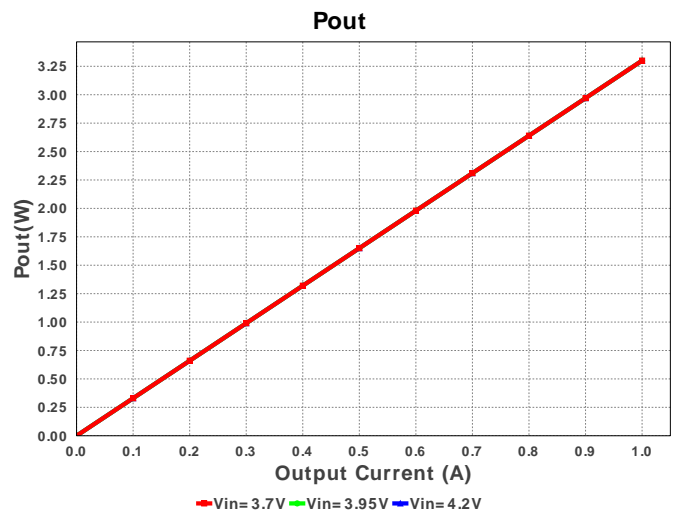
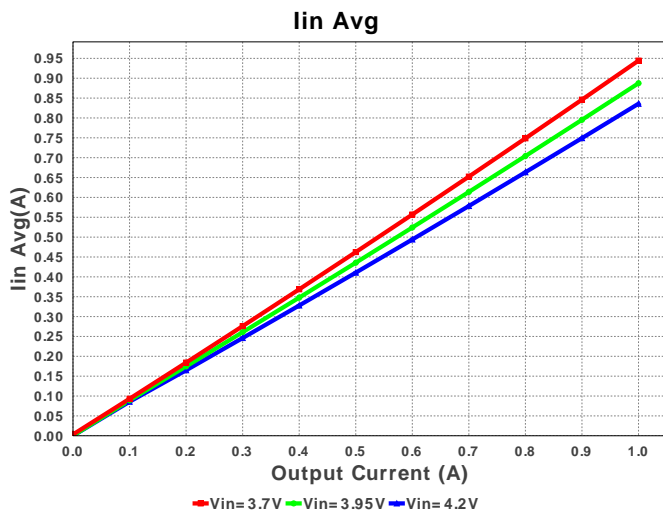
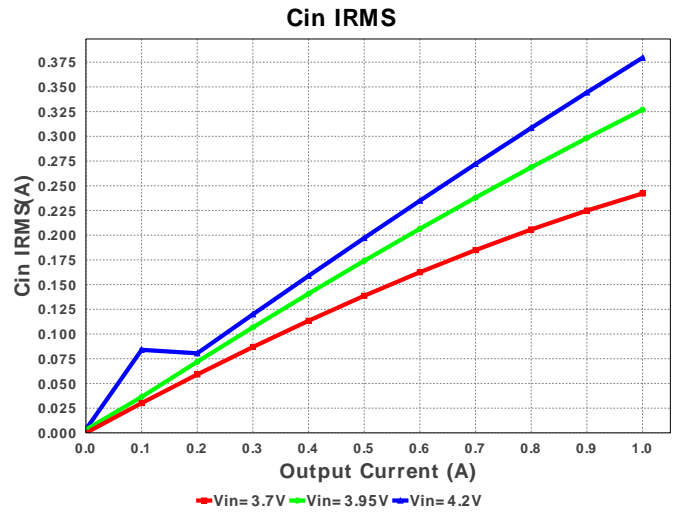
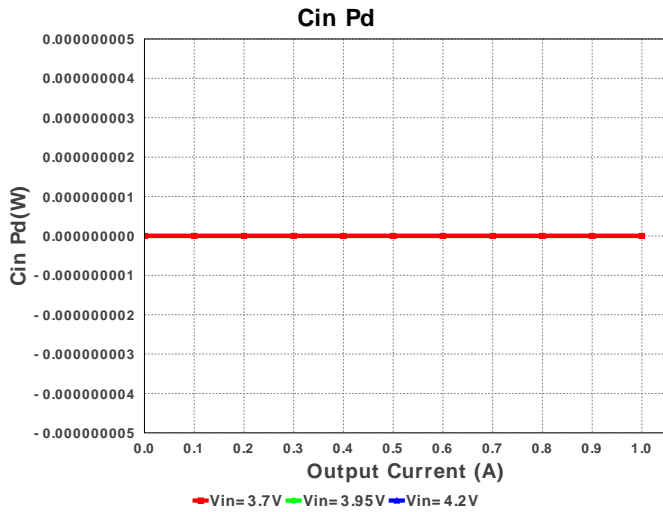
Vout = 3.3V
Iout = 1.0A

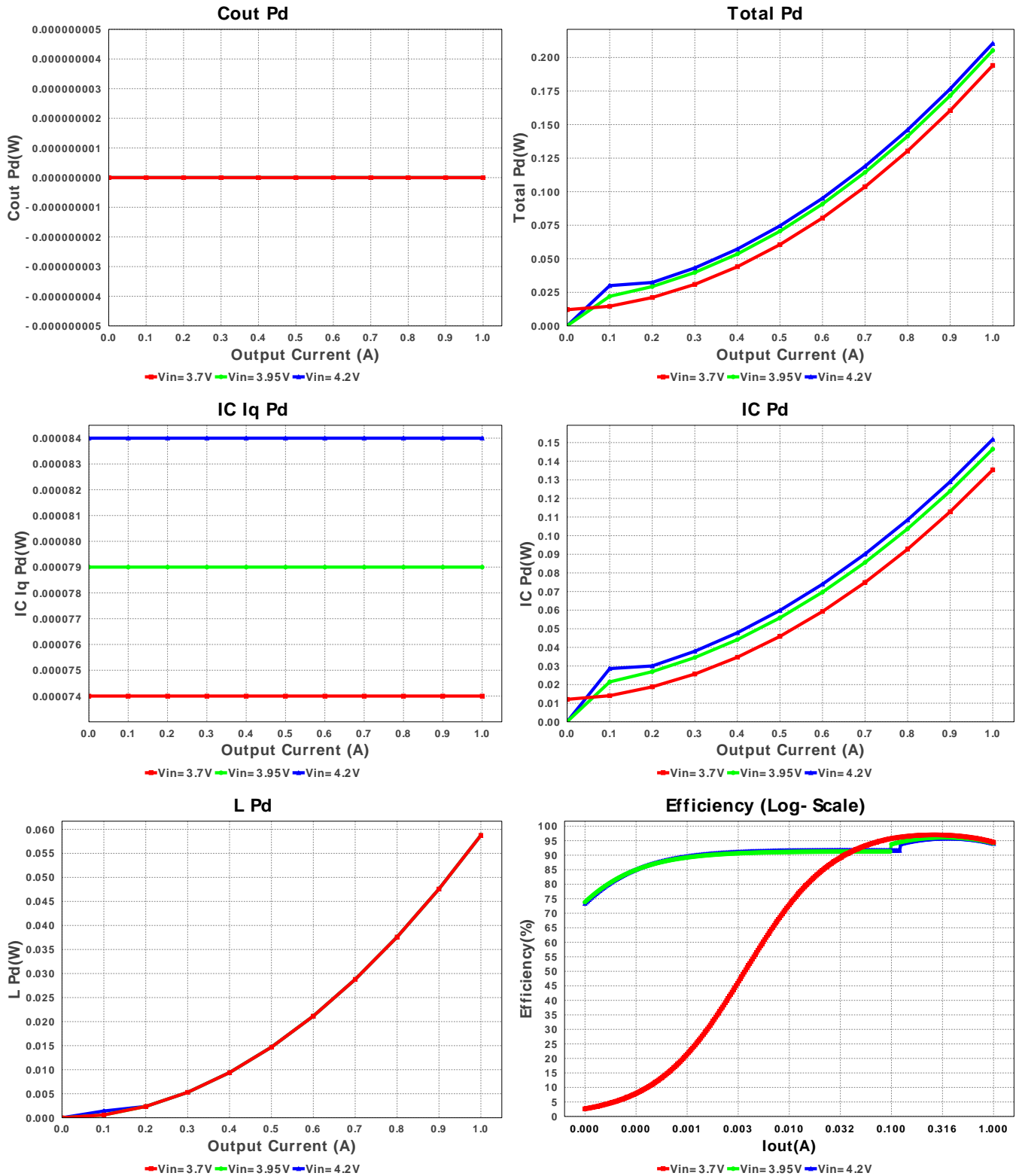


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Samsung Electro-Mechanics	CL10A106MQ8NNNC Series= X5R	Cap= 10.0 µF VDC= 6.3 V IRMS= 0.0 A	1	\$0.02	 0603 5mm2
2.	Cout	TDK	C2012X5R0J226M Series= 285	Cap= 22.0 µF VDC= 6.3 V IRMS= 0.0 A	1	\$0.06	 0805 7mm2
3.	Css	MuRata	GRM033R71C391KA01D Series= X7R	Cap= 390.0 pF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0201 2mm2
4.	L1	Bourns	SDR0403-2R2ML	L= 2.2 µH DCR= 47.0 mOhm	1	\$0.18	 SDR0403 28mm2
5.	Rpg	Vishay-Dale	CRCW0402100KFKED Series= CRCW...e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
6.	U1	Texas Instruments	TPS62152RGTR	Switcher	1	\$0.90	 S-PVQFN-N16 25mm2







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	379.506 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	73.525 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.127 A	Current	Peak switch current in IC
4.	Iin Avg	835.83 mA	Current	Average input current
5.	L Ipp	254.7 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	6	General	Total Design BOM count
7.	FootPrint	69.0 mm2	General	Total Foot Print Area of BOM components
8.	Frequency	1.326 MHz	General	Switching frequency
9.	Pout	3.3 W	General	Total output power
10.	Total BOM	\$1.18	General	Total BOM Cost
11.	Vout OP	3.3 V	Op_Point	Operational Output Voltage

#	Name	Value	Category	Description
12.	Duty Cycle	82.554 %	Op_point	Duty cycle
13.	Efficiency	94.005 %	Op_point	Steady state efficiency
14.	IC Tj	34.415 degC	Op_point	IC junction temperature
15.	ICThetaJA	29.1 degC/W	Op_point	IC junction-to-ambient thermal resistance
16.	IOUT_OP	1.0 A	Op_point	Iout operating point
17.	VIN_OP	4.2 V	Op_point	Vin operating point
18.	Vout p-p	1.28 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
20.	Cout Pd	0.0 W	Power	Output capacitor power dissipation
21.	IC Iq Pd	84.0 μ W	Power	IC Iq Pd
22.	IC Pd	151.717 mW	Power	IC power dissipation
23.	L Pd	58.75 mW	Power	Inductor power dissipation
24.	Total Pd	210.454 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	1.0 A	Maximum Output Current
2.	Iout1	1.0 Amps	Output Current #1
3.	VinMax	4.2 V	Maximum input voltage
4.	VinMin	3.7 V	Minimum input voltage
5.	Vout	3.3 V	Output Voltage
6.	Vout1	3.3 Volt	Output Voltage #1
7.	base_pn	TPS62152	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. Feature Highlights: DCS-Control(TM) Architecture with upto 1A output current, 3V to 17V Input Voltage Range, 3.3V Fixed Output voltage>Selectable 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. **TPS62152** Product Folder : <http://www.ti.com/product/tps62152> : contains the data sheet and other resources.

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