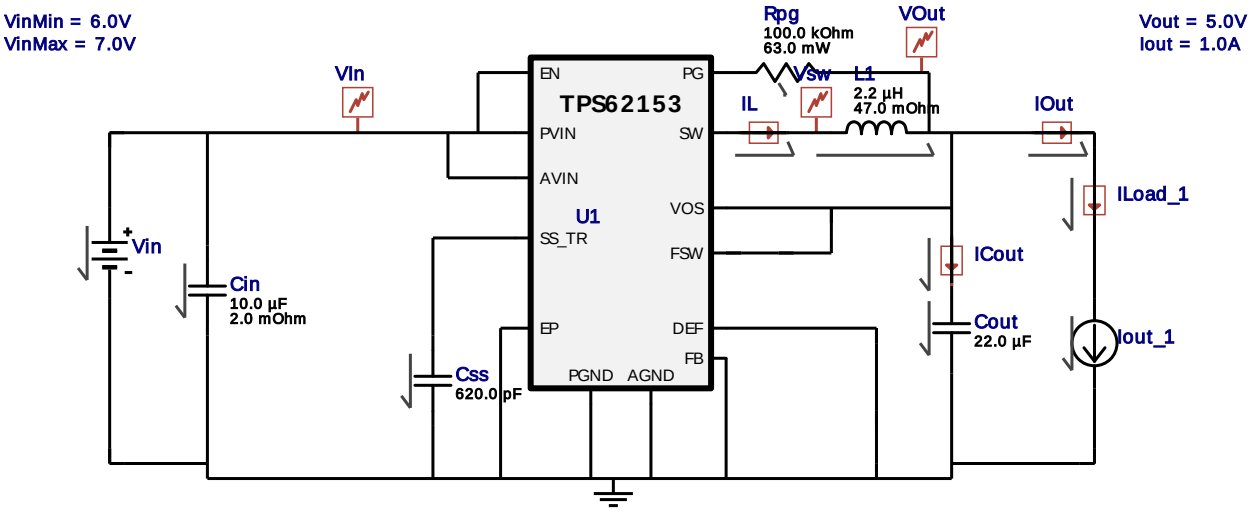
WEBENCH® Electrical Simulation Report

VinMin = 6.0V
VinMax = 7.0V
Vout = 5.0V
Iout = 1.0A

Device = TPS62153RGTR
Topology = Buck
Created = 7/9/15 4:54:28 AM
User ID = 4166583
Design Id = 25
eSim Id = 1
Simulation Type = Steady State

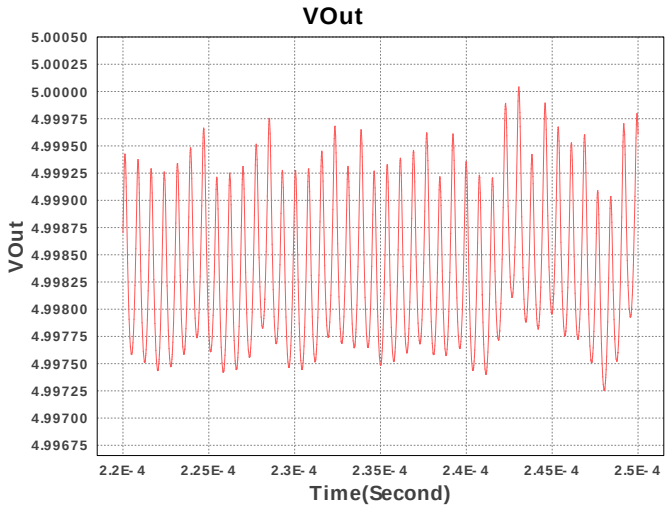


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	MuRata	GRM21BR61A106KE19L Series= X5R	Cap= 10.0 µF ESR= 2.0 mOhm VDC= 10.0 V IRMS= 0.0 A	1	$0.03	0805 7 mm²
2.	Cout	MuRata	GRM31CR61A226KE19L Series= X5R	Cap= 22.0 µF VDC= 10.0 V IRMS= 0.0 A	1	$0.08	1206 11 mm²
3.	Css	MuRata	GRM1555C1E621JA01D Series= C0G/NP0	Cap= 620.0 pF VDC= 25.0 V IRMS= 0.0 A	1	$0.01	0402 3 mm²
4.	L1	Bourns	SDR0403-2R2ML	L= 2.2 µH DCR= 47.0 mOhm	1	$0.18	SDR0403 28 mm²
5.	Rpg	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.01	0402 3 mm²
6.	U1	Texas Instruments	TPS62153RGTR	Switcher	1	$0.85	S-PVQFN-N16 25 mm²

Simulation Parameters

#	Name	Parameter Name	Description	Values
1.	Iout_1	I	Load Current	1.0 A



Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	440.829 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	147.047 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.255 A	Current	Peak switch current in IC
4.	Iin Avg	746.61 mA	Current	Average input current
5.	L Ipp	509.39 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	6	General	Total Design BOM count
7.	FootPrint	76.0 mm^2	General	Total Foot Print Area of BOM components
8.	Frequency	1.313 MHz	General	Switching frequency
9.	Mode	CCM	General	Conduction Mode
10.	Pout	5.0 W	General	Total output power
11.	Total BOM	$1.16	General	Total BOM Cost
12.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	73.595 %	Op_point	Duty cycle
14.	Efficiency	95.671 %	Op_point	Steady state efficiency
15.	IC Tj	34.863 degC	Op_point	IC junction temperature
16.	ICThetaJA	29.1 degC/W	Op_point	IC junction-to-ambient thermal resistance
17.	IOUT_OP	1.0 A	Op_point	Iout operating point
18.	VIN_OP	7.0 V	Op_point	Vin operating point
19.	Vout p-p	2.555 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	388.66 µW	Power	Input capacitor power dissipation
21.	Cout Pd	0.0 W	Power	Output capacitor power dissipation
22.	IC Iq Pd	140.0 µW	Power	IC Iq Pd
23.	IC Pd	167.102 mW	Power	IC power dissipation
24.	L Pd	58.75 mW	Power	Inductor power dissipation
25.	Total Pd	226.245 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	7.0 V	Maximum input voltage
4.	VinMin	6.0 V	Minimum input voltage
5.	Vout	5.0 V	Output Voltage
6.	Vout1	5.0 Volt	Output Voltage #1
7.	base_pn	TPS62153	Texas Instruments Base Part 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, 5.0V Fixed Output voltageSelectable 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. TPS62153 Product Folder : http://www.ti.com/product/TPS62153 : contains the data sheet and other resources.