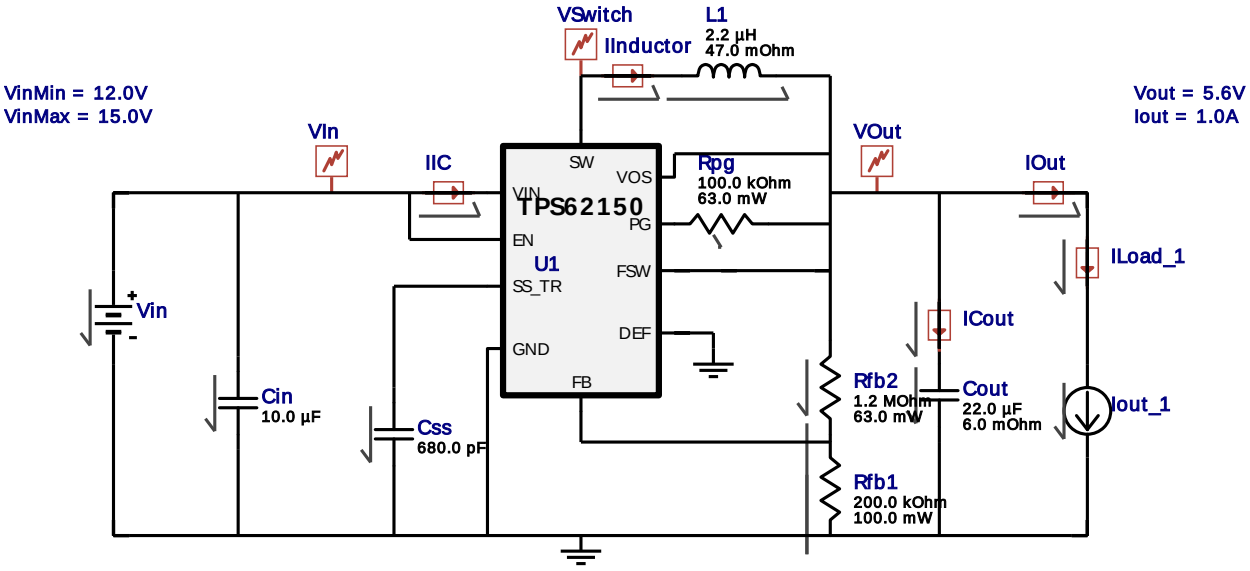
WEBENCH® Electrical Simulation Report

VinMin = 12.0V
VinMax = 15.0V
Vout = 5.6V
Iout = 1.0A

Device = TPS62150RGTR
Topology = Buck
Created = 7/9/15 4:10:07 AM
User ID = 4166583
Design Id = 17
eSim Id = 1
Simulation Type = Steady State

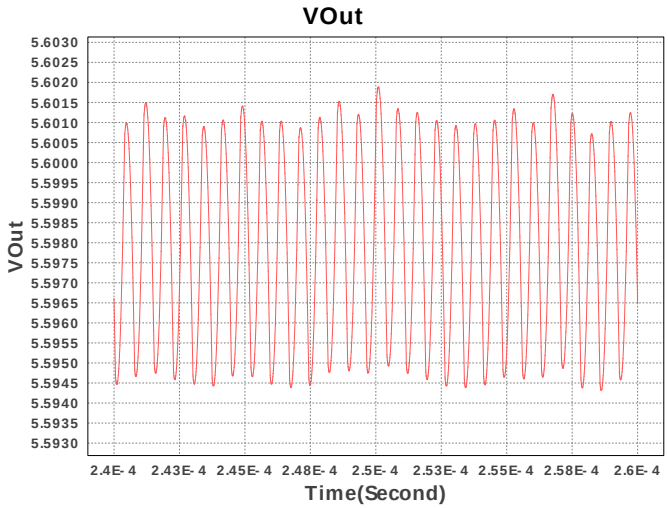


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Taiyo Yuden	TMK316BJ106KL-T Series= X5R	Cap= 10.0 µF VDC= 25.0 V IRMS= 0.0 A	1	$0.06	1206 11 mm²
2.	Cout	MuRata	GRM31CR61C226ME15L Series= X5R	Cap= 22.0 µF ESR= 6.0 mOhm VDC= 16.0 V IRMS= 0.0 A	1	$0.13	1206 11 mm²
3.	Css	MuRata	GRM033R71E681KA01D Series= X7R	Cap= 680.0 pF VDC= 25.0 V IRMS= 0.0 A	1	$0.01	0201 2 mm²
4.	L1	Bourns	SDR0403-2R2ML	L= 2.2 µH DCR= 47.0 mOhm	1	$0.18	SDR0403 28 mm²
5.	Rfb1	CUSTOM(USERCUSTOMIZED)	CUSTOM_RESISTOR_MD Series= CUSTOM	Res= 200.0 kOhm Power= 100.0 mW Tolerance= 0.5%	1	$0.10	0805 3 mm²
6.	Rfb2	CUSTOM(USERCUSTOMIZED)	CUSTOM_RESISTOR_MD Series= CUSTOM	Res= 1.2 MOhm Power= 63.0 mW Tolerance= 1.0%	1	$0.10	0805 1 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	TPS62150RGTR	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.	BOM Count	8		Total Design BOM count
2.	Total BOM	$1.44		Total BOM Cost
3.	Cin IRMS	486.067 mA	Current	Input capacitor RMS ripple current
4.	Cout IRMS	354.53 mA	Current	Output capacitor RMS ripple current
5.	IC Ipk	1.614 A	Current	Peak switch current in IC
6.	Iin Avg	400.59 mA	Current	Average input current
7.	L Ipp	1.228 A	Current	Peak-to-peak inductor ripple current
8.	FootPrint	89.0 mm^2	General	Total Foot Print Area of BOM components
9.	Frequency	1.332 MHz	General	Switching frequency
10.	Mode	CCM	General	Conduction Mode
11.	Pout	5.6 W	General	Total output power
12.	Vout OP	5.6 V	Op_Point	Operational Output Voltage
13.	Duty Cycle	38.279 %	Op_point	Duty cycle
14.	Efficiency	93.195 %	Op_point	Steady state efficiency
15.	IC Tj	40.168 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	15.0 V	Op_point	Vin operating point
19.	Vout p-p	11.937 mV	Op_point	Peak-to-peak output ripple voltage
20.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
21.	Cout Pd	754.148 µW	Power	Output capacitor power dissipation
22.	IC Iq Pd	300.0 µW	Power	IC Iq Pd
23.	IC Pd	349.399 mW	Power	IC power dissipation
24.	L Pd	58.75 mW	Power	Inductor power dissipation
25.	Total Pd	408.902 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	15.0 V	Maximum input voltage
4.	VinMin	12.0 V	Minimum input voltage
5.	Vout	5.6 V	Output Voltage
6.	Vout1	5.6 Volt	Output Voltage #1
7.	base_pn	TPS62150	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, 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. **TPS62150** Product Folder : http://www.ti.com/product/TPS62150 : contains the data sheet and other resources.