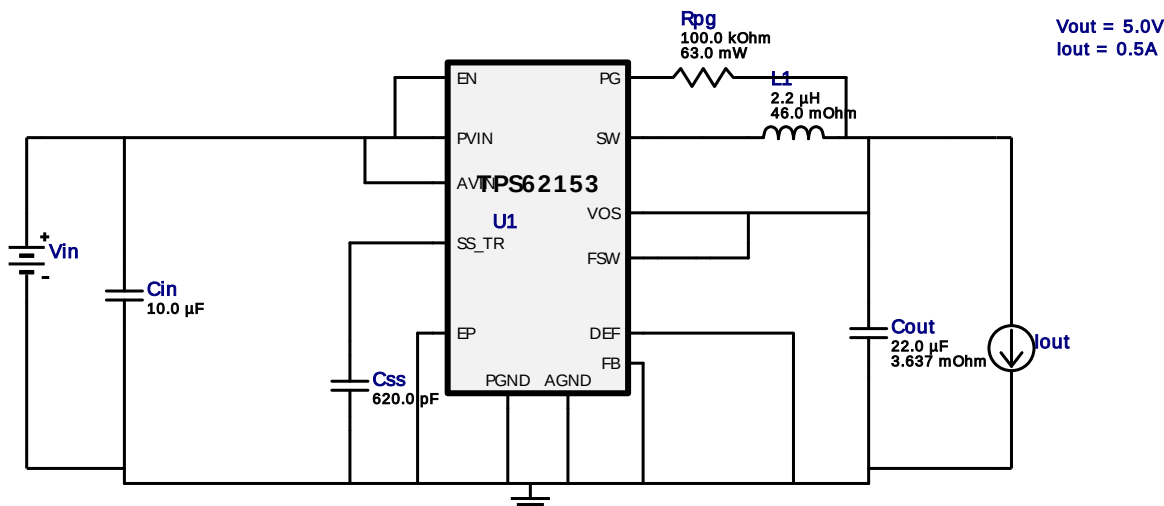


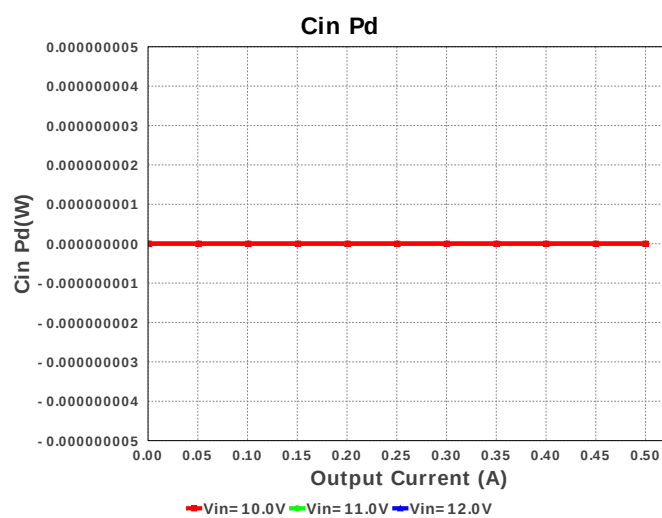
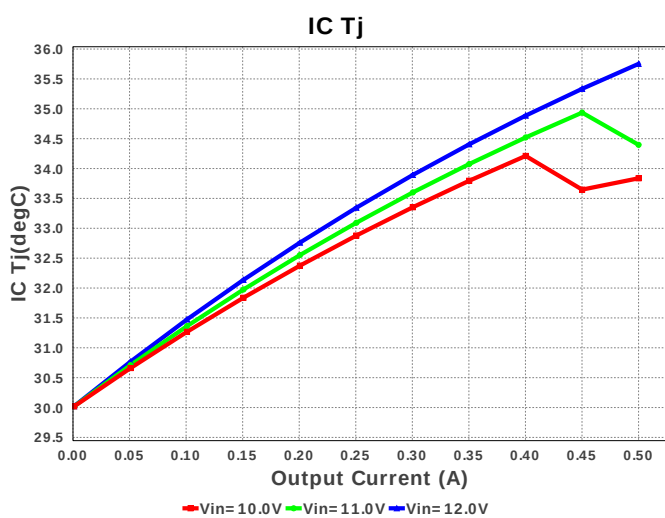
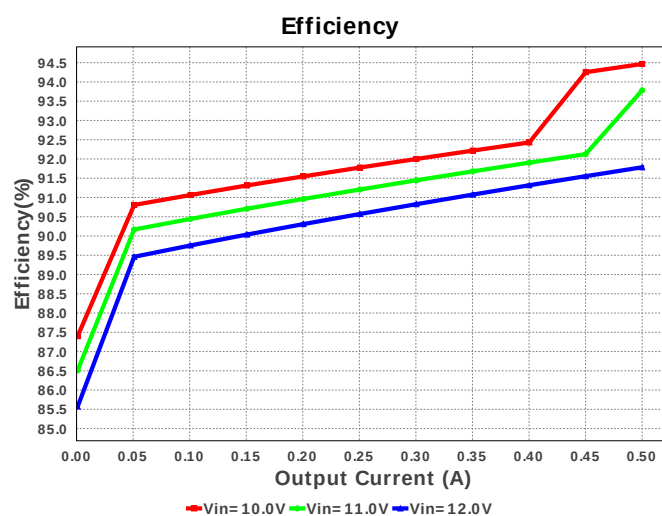
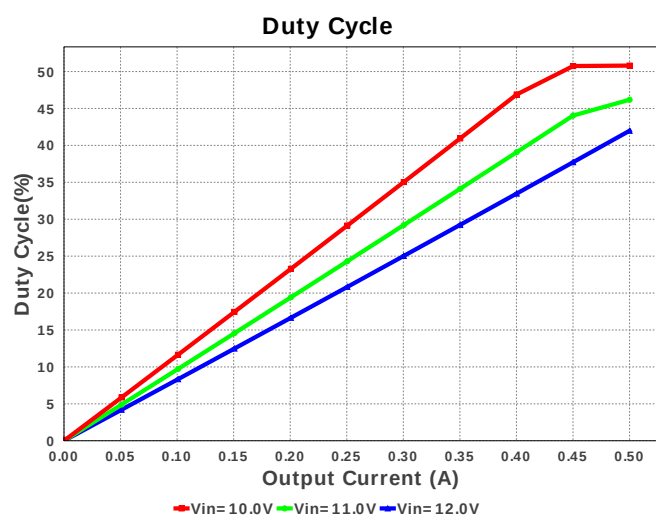
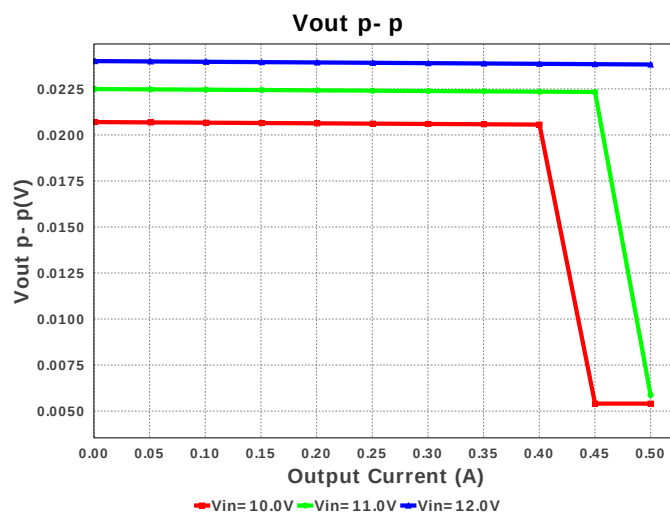
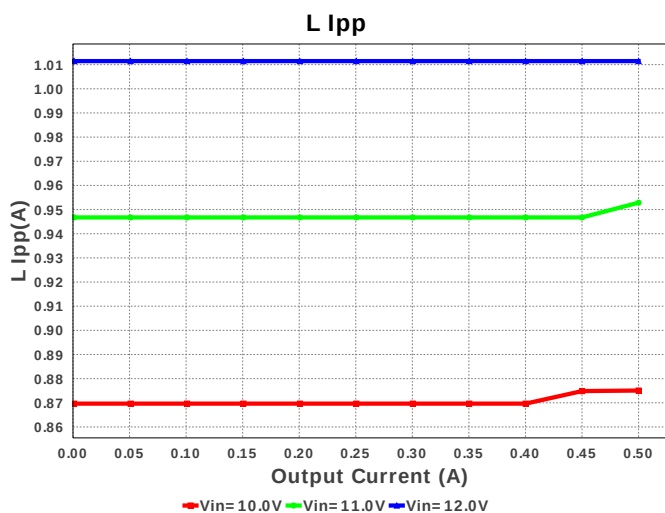
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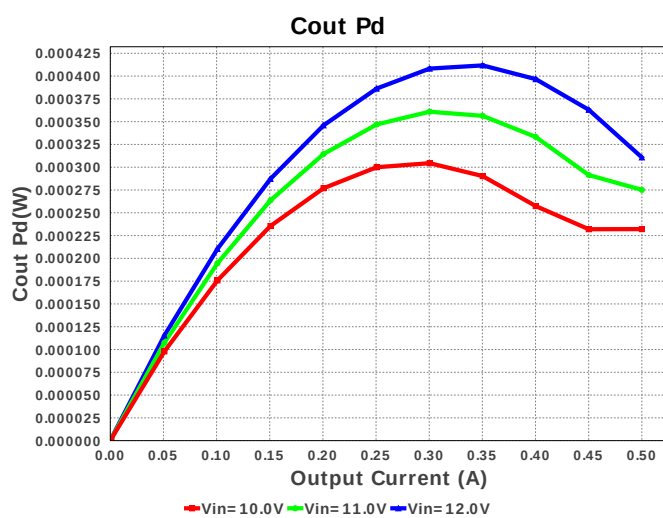
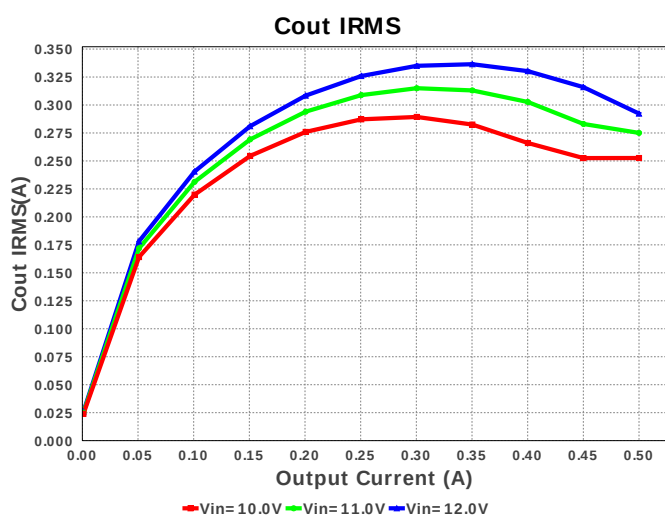
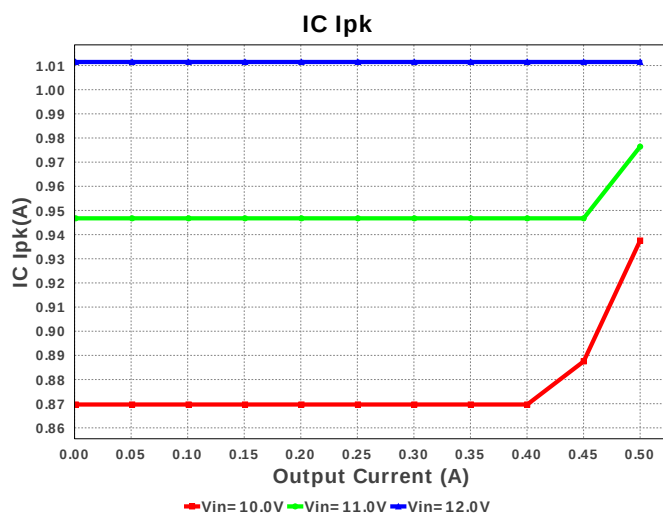
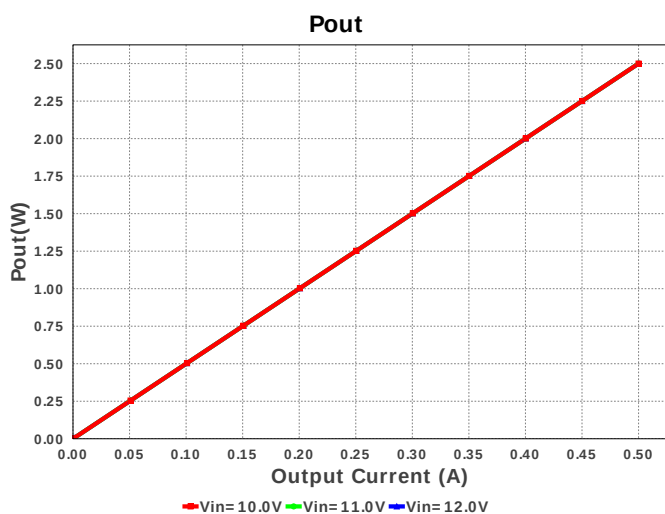
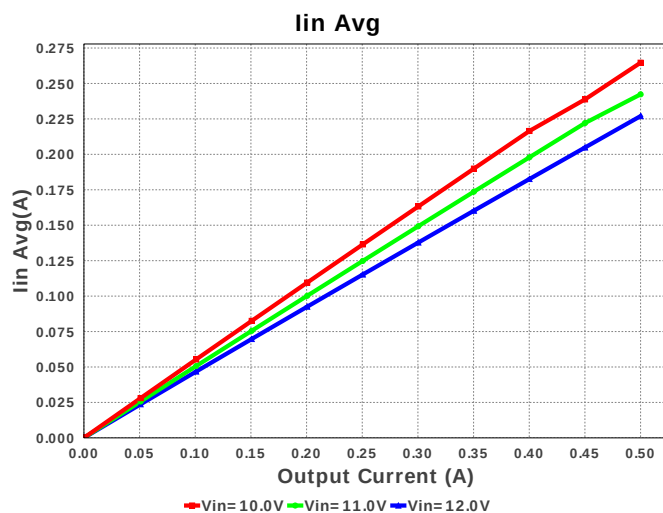
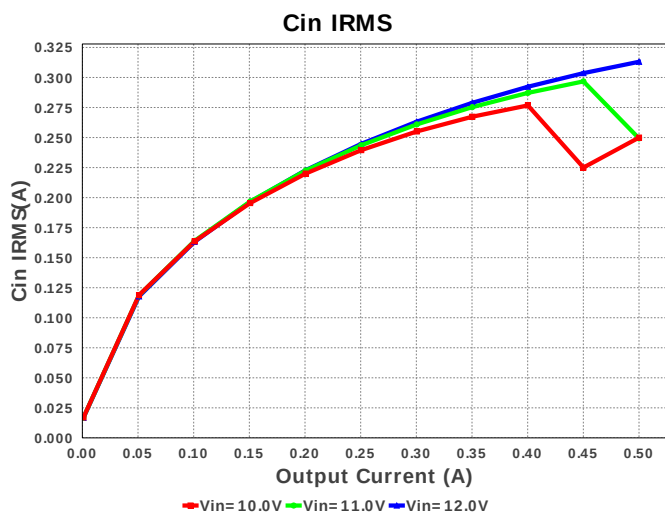
Design : 4742013/222 TPS62153RGTR
TPS62153RGTR 10.0V-12.0V to 5.00V @ 0.5A

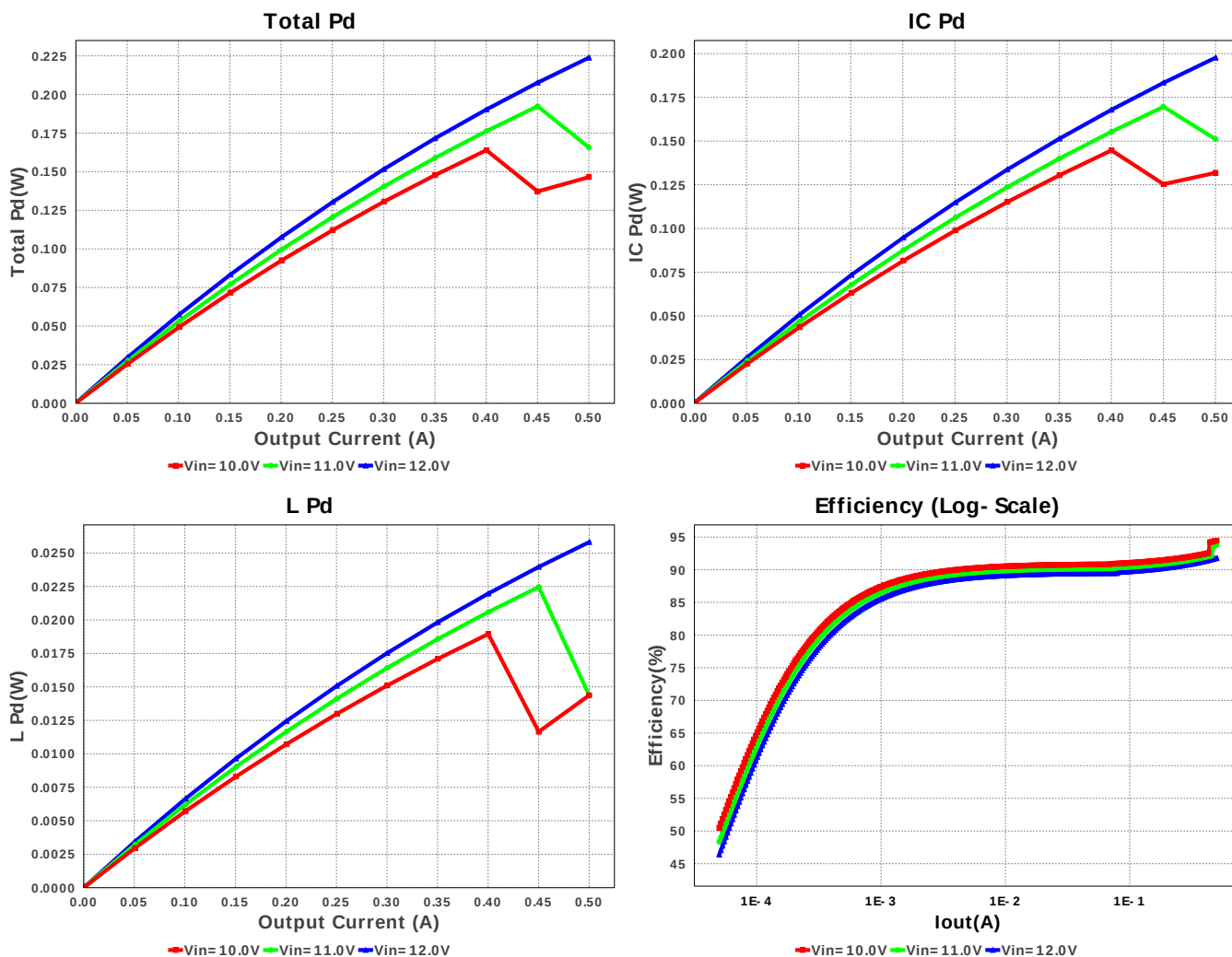


Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	Taiyo Yuden	TMK316BJ106KL-T Series= X5R	Cap= 10.0 uF VDC= 25.0 V IRMS= 0.0 A	1	\$0.05	 1206 11 mm ²
2.	Cout	MuRata	GRM31CR61A226KE19L Series= X5R	Cap= 22.0 uF ESR= 3.637 mOhm VDC= 10.0 V IRMS= 3.56456 A	1	\$0.07	 1206_190 11 mm ²
3.	Css	Samsung Electro-Mechanics	CL21C621JBCNNNC Series= C0G/NP0	Cap= 620.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
4.	L1	Vishay-Dale	IHLP1212BZER2R2M11	L= 2.2 uH DCR= 46.0 mOhm	1	\$0.56	 IHLP-1212BZ 19 mm ²
5.	Rpg	Vishay-Dale	CRCW0402100KFKED Series= CRCW..e3	Res= 100.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
6.	U1	Texas Instruments	TPS62153RGTR	Switcher	1	\$0.79	 S-PVQFN-N16 17 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	313.075 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	292.328 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.011 A	Current	Peak switch current in IC
4.	Iin Avg	226.98 mA	Current	Average input current
5.	L Ipp	1.012 A	Current	Peak-to-peak inductor ripple current
6.	BOM Count	6	General	Total Design BOM count
7.	FootPrint	68.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	1.321 MHz	General	Switching frequency
9.	Pout	2.5 W	General	Total output power
10.	Total BOM	\$1.49	General	Total BOM Cost
11.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
12.	Duty Cycle	41.981 %	Op_point	Duty cycle
13.	Efficiency	91.784 %	Op_point	Steady state efficiency
14.	IC Tj	35.752 degC	Op_point	IC junction temperature
15.	ICThetaJA	29.1 degC/W	Op_point	IC junction-to-ambient thermal resistance
16.	IOUT_OP	500.0 mA	Op_point	Iout operating point
17.	VIN_OP	12.0 V	Op_point	Vin operating point
18.	Vout p-p	23.827 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
20.	Cout Pd	310.802 μW	Power	Output capacitor power dissipation
21.	IC Pd	197.66 mW	Power	IC power dissipation
22.	L Pd	25.814 mW	Power	Inductor power dissipation
23.	Total Pd	223.784 mW	Power	Total Power Dissipation
24.	Vout Tolerance	288.0 m%		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 m	Maximum Output Current
2.	VinMax	12.0	Maximum input voltage

#	Name	Value	Description
3.	VinMin	10.0	Minimum input voltage
4.	Vout	5.0	Output Voltage
5.	base_pn	TPS62153	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	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 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. **TPS62153** Product Folder : <http://www.ti.com/product/TPS62153> : contains the data sheet and other resources.

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