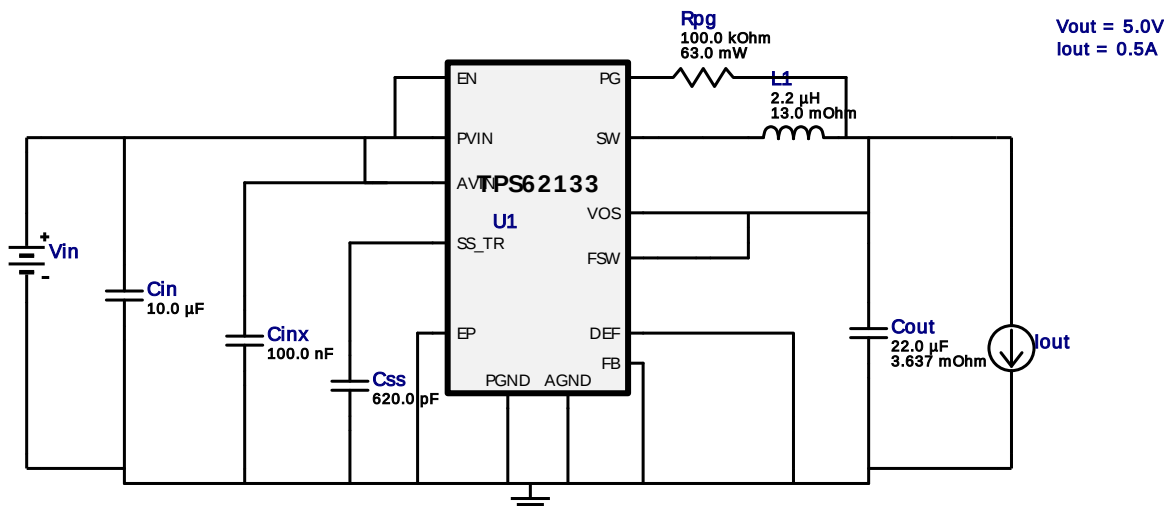


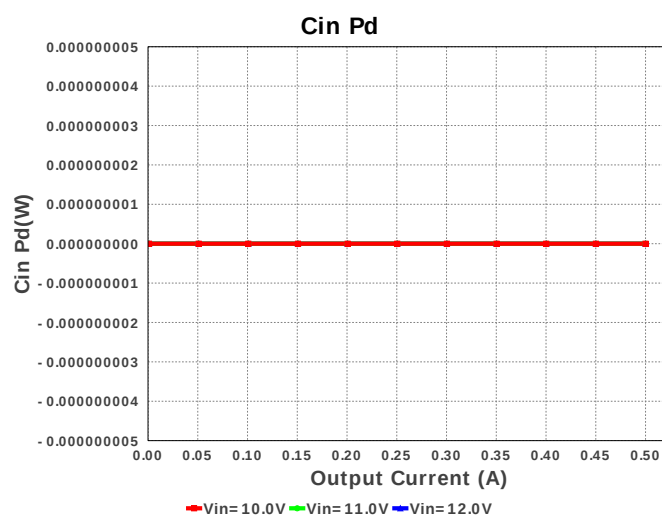
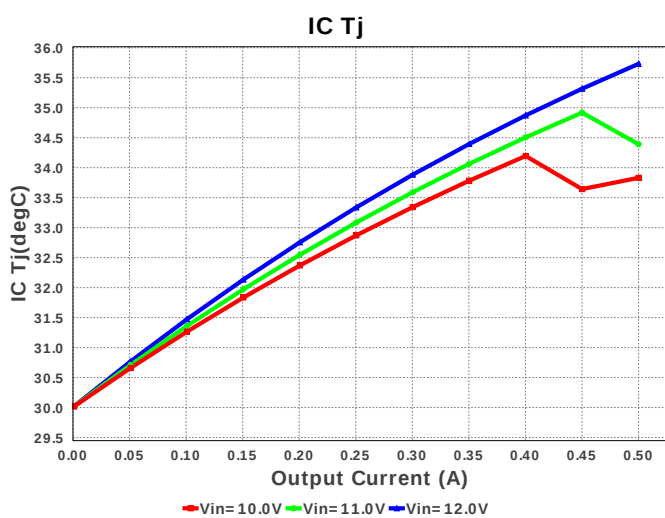
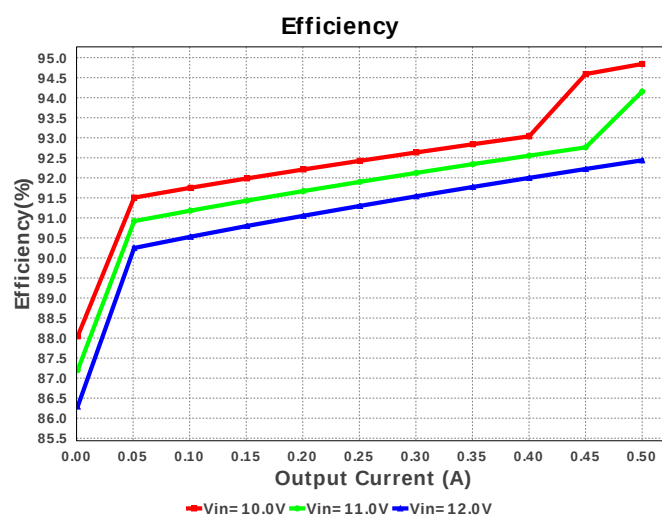
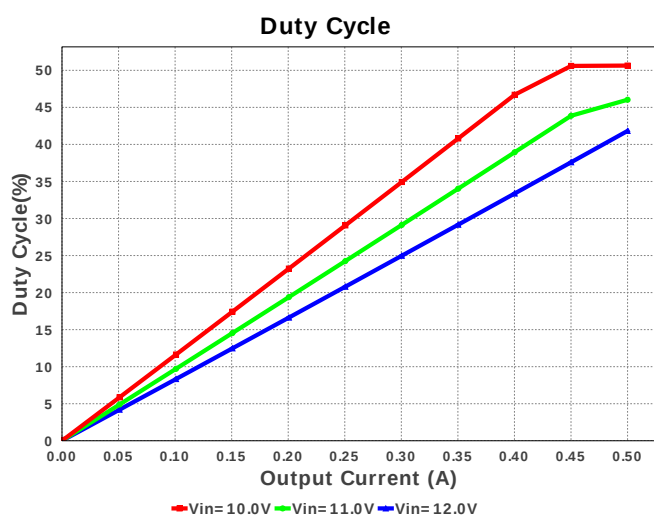
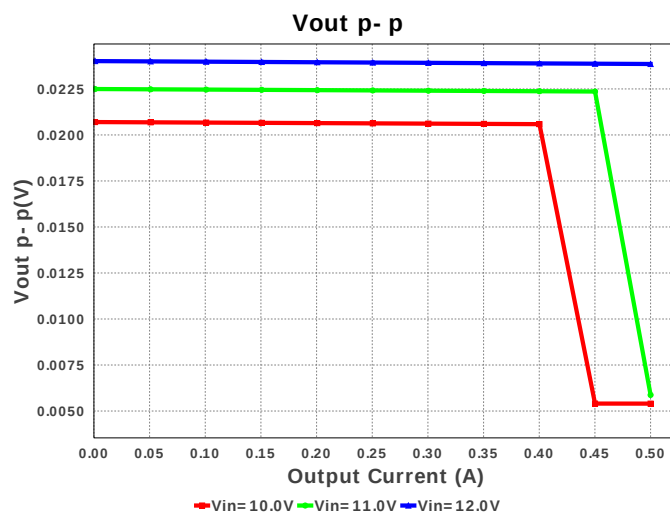
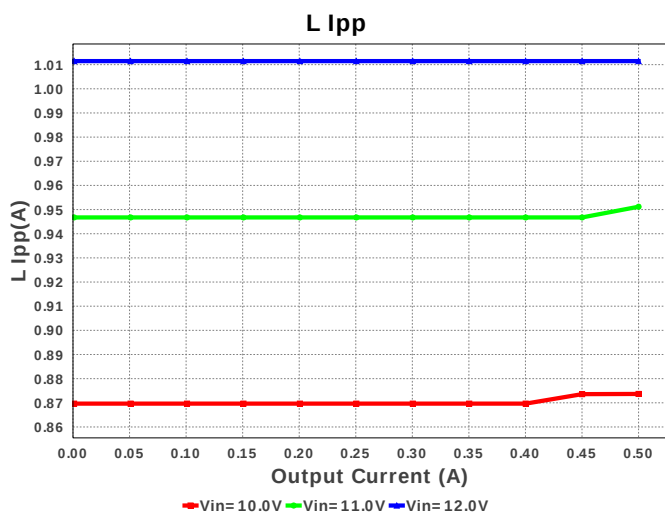
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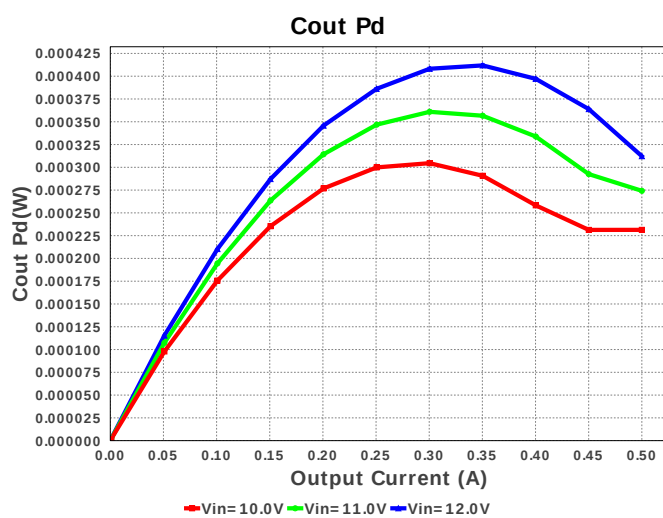
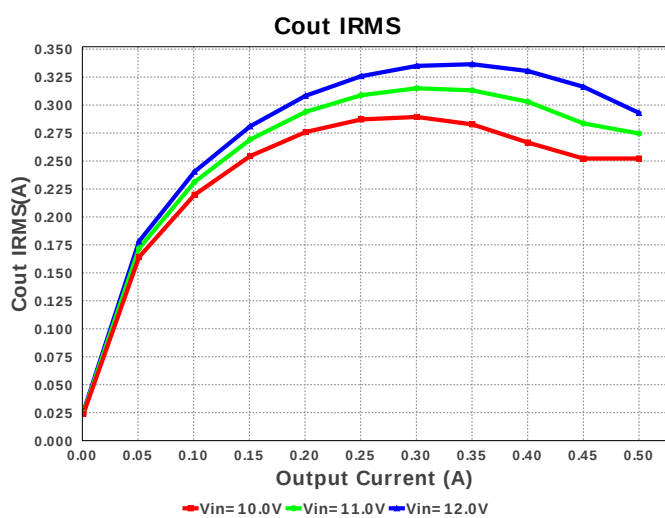
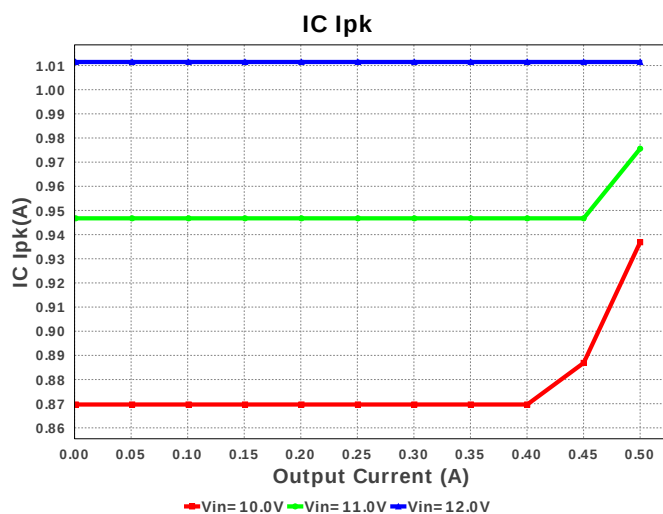
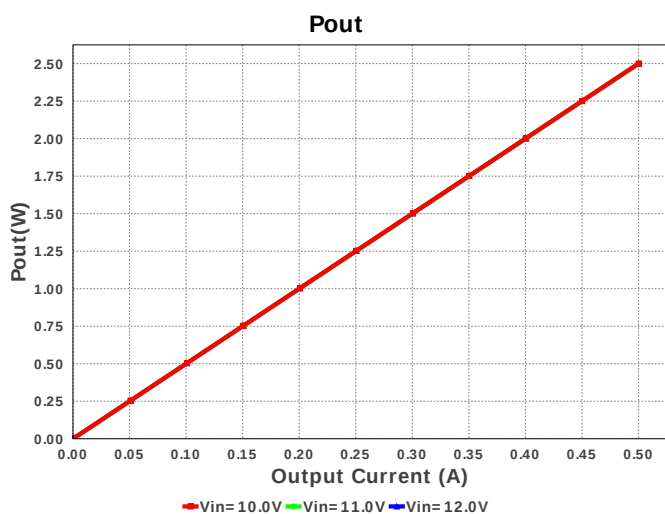
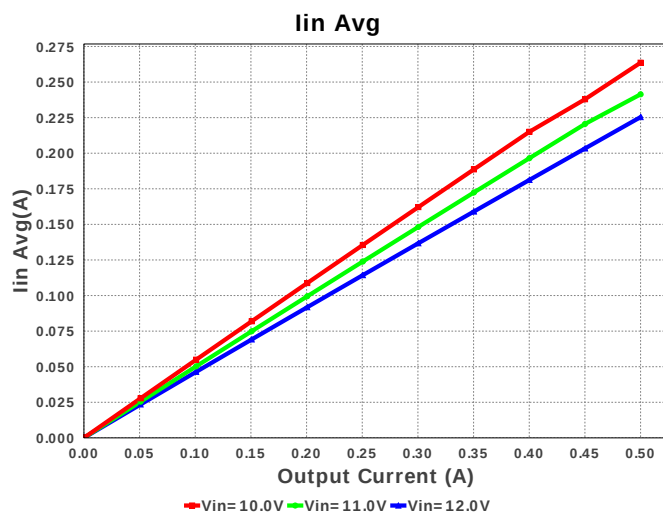
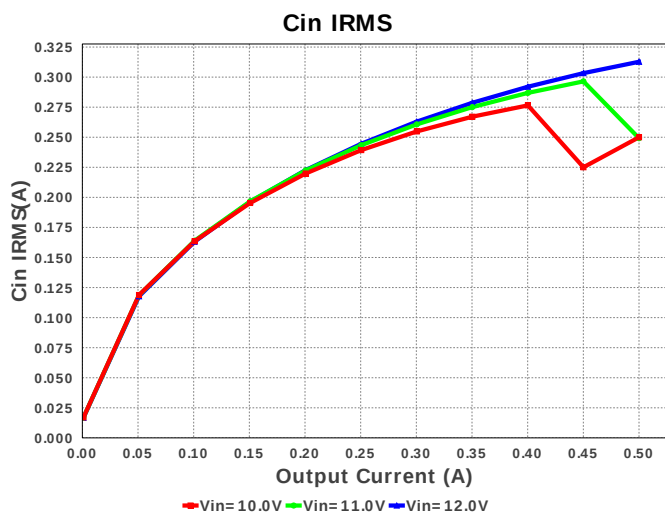
Design : 4742013/217 TPS62133RGTR
TPS62133RGTR 10.0V-12.0V to 5.00V @ 0.5A

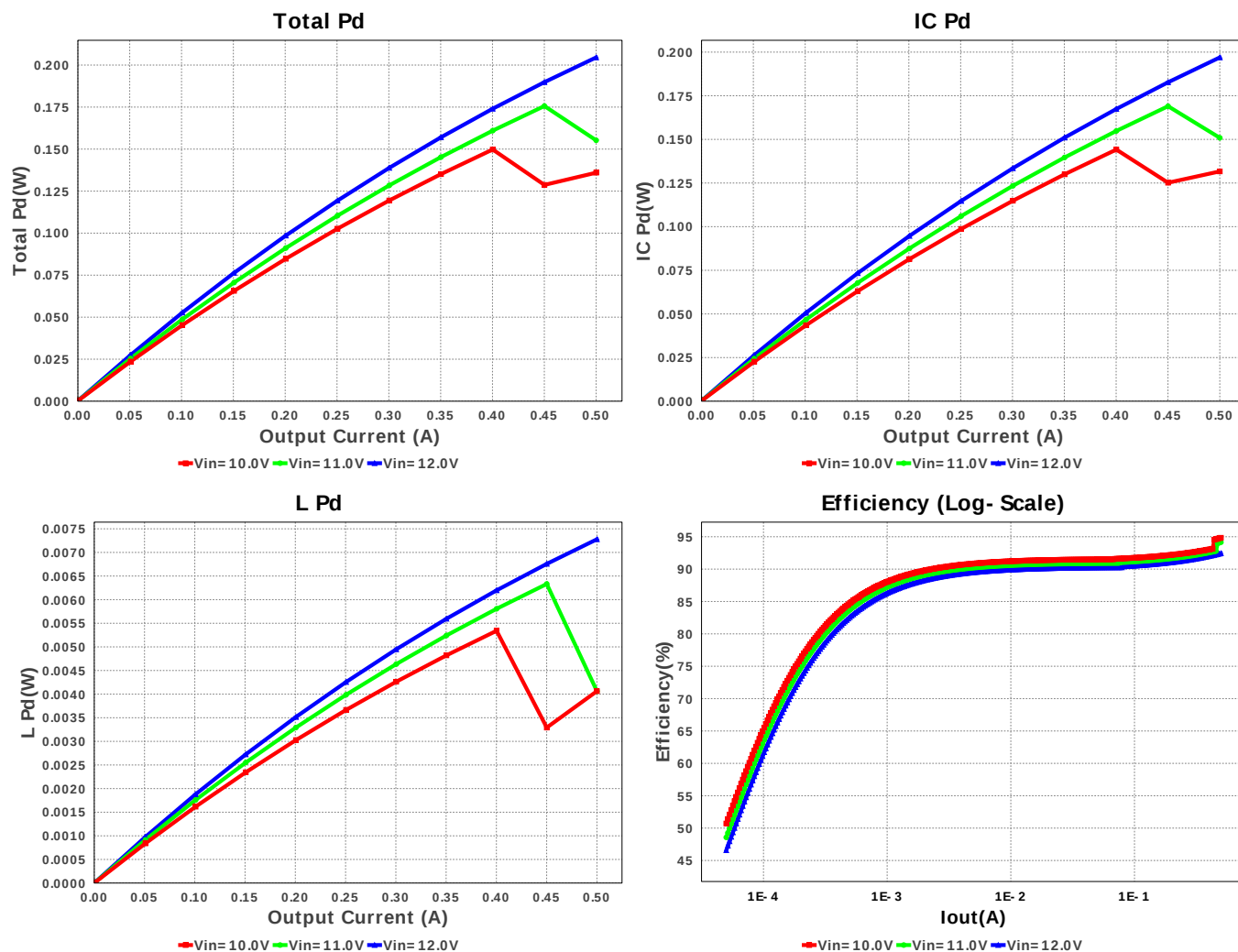


Electrical BOM

#	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.	Cinx	Kemet	C0603C104K3RACTU Series= X7R	Cap= 100.0 nF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	 0603 5 mm ²
3.	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
4.	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
5.	L1	Bourns	SRN8040-2R2Y	L= 2.2 uH DCR= 13.0 mOhm	1	\$0.22	 SRN8040 100 mm ²
6.	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
7.	U1	Texas Instruments	TPS62133RGTR	Switcher	1	\$0.96	 S-PVQFN-N16 17 mm ²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	312.757 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	293.0 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.011 A	Current	Peak switch current in IC
4.	Iin Avg	225.38 mA	Current	Average input current
5.	L Ipp	1.012 A	Current	Peak-to-peak inductor ripple current
6.	BOM Count	7	General	Total Design BOM count
7.	FootPrint	153.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	1.316 MHz	General	Switching frequency
9.	Pout	2.5 W	General	Total output power
10.	Total BOM	\$1.33	General	Total BOM Cost
11.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
12.	Duty Cycle	41.824 %	Op_point	Duty cycle
13.	Efficiency	92.437 %	Op_point	Steady state efficiency
14.	IC Tj	35.731 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	23.855 mV	Op_point	Peak-to-peak output ripple voltage
19.	Cin Pd	0.0 W	Power	Input capacitor power dissipation
20.	Cout Pd	312.233 μW	Power	Output capacitor power dissipation
21.	IC Pd	196.956 mW	Power	IC power dissipation
22.	L Pd	7.278 mW	Power	Inductor power dissipation
23.	Total Pd	204.546 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	TPS62133	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 3A 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. **TPS62133** Product Folder : <http://www.ti.com/product/TPS62133> : contains the data sheet and other resources.

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