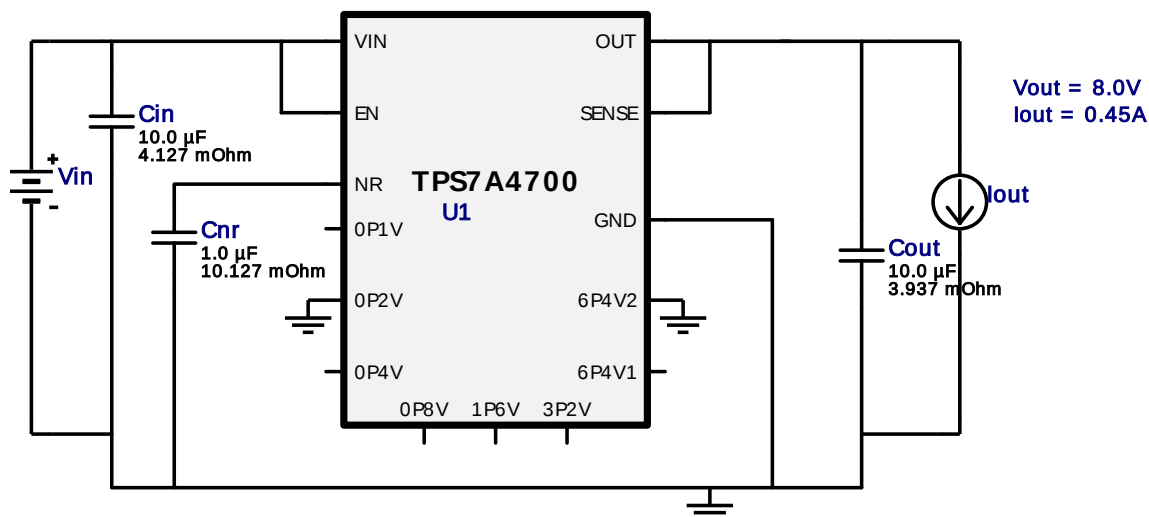


WEBENCH® Design Report

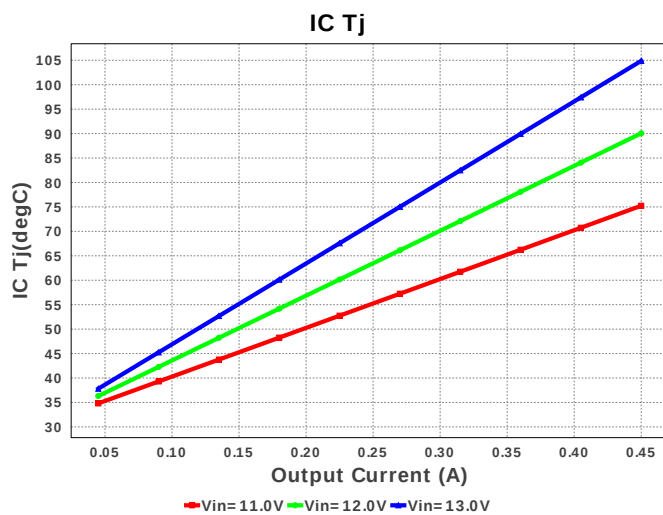
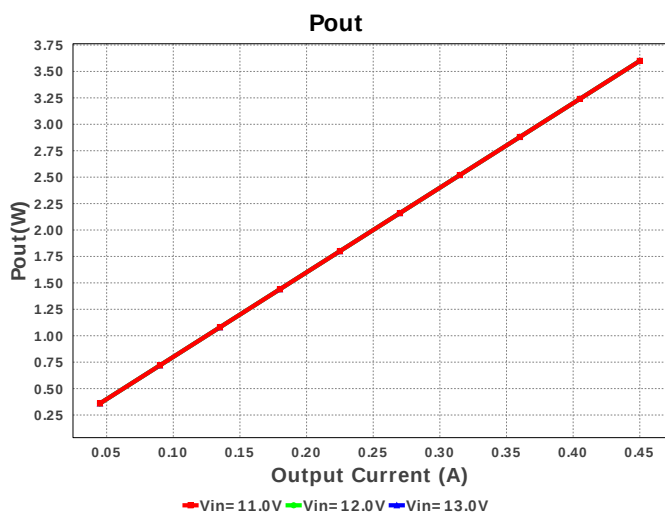
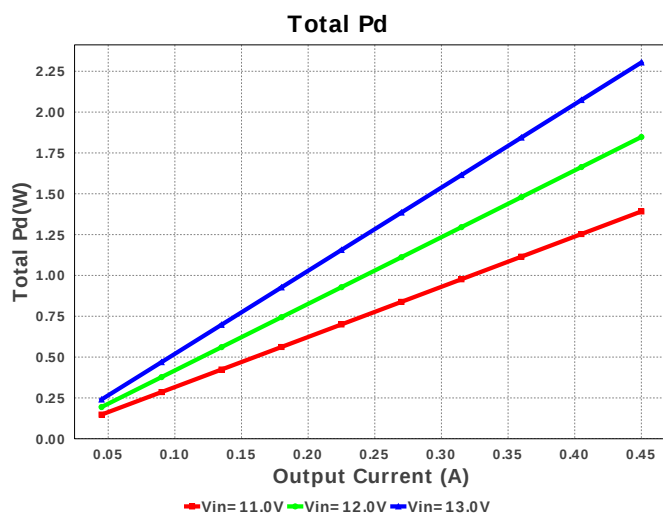
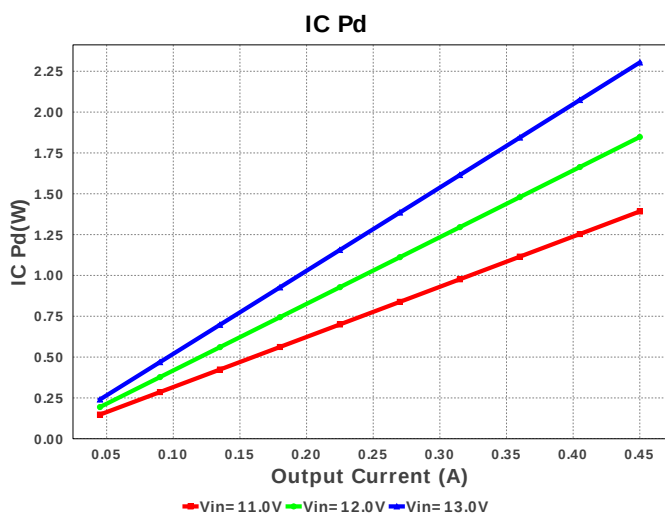
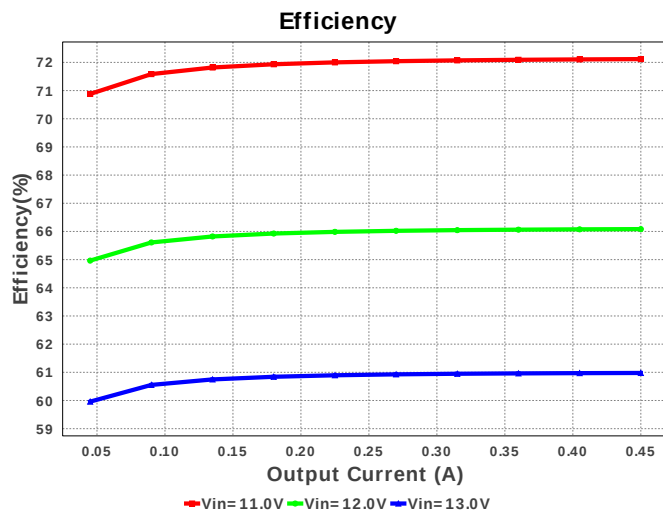
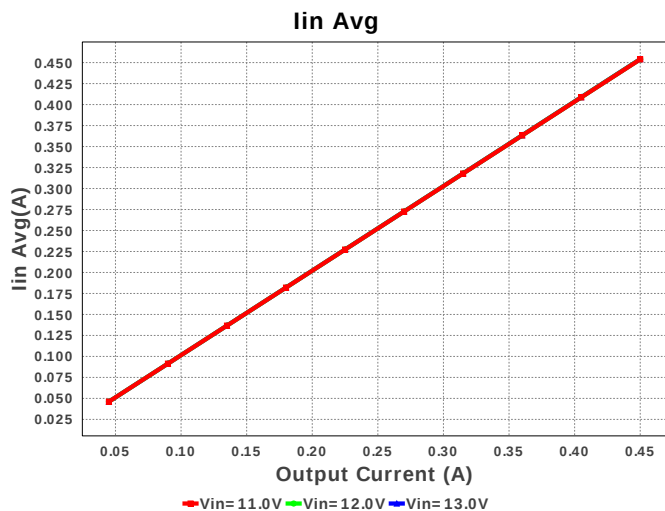
Design : 4737126/12 TPS7A4700RGWR
TPS7A4700RGWR 11.0V-13.0V to 8.00V @ 0.45A

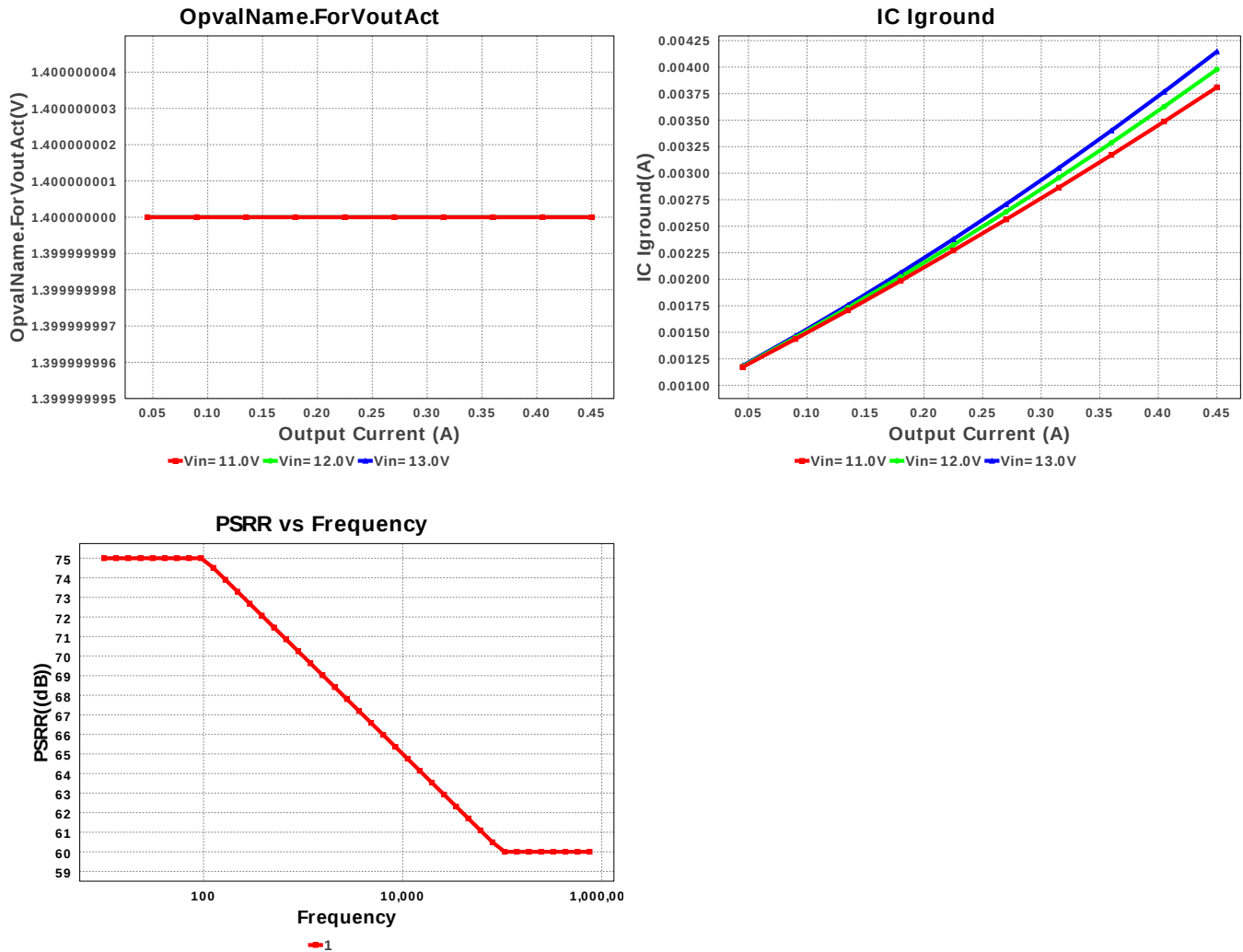


1. This regulator device is qualified for Automotive applications. All passives and other components selected in this design may not be qualified for Automotive applications. The user is required to verify that all components in the design meet the qualification and safety requirements for their specific application. View WEBENCH(R) Disclaimer.

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cin	MuRata	GRM21BR61C106KE15L Series= X5R	Cap= 10.0 uF ESR= 4.127 mOhm VDC= 16.0 V IRMS= 2.46634 A	1	\$0.03	 0805 7 mm ²
2.	Cnr	MuRata	GRM188R61C105KA93D Series= X5R	Cap= 1.0 uF ESR= 10.127 mOhm VDC= 16.0 V IRMS= 994.63 mA	1	\$0.01	 0603 5 mm ²
3.	Cout	MuRata	GRM219R61A106KE44D Series= X5R	Cap= 10.0 uF ESR= 3.937 mOhm VDC= 10.0 V IRMS= 2.7713 A	1	\$0.03	 0805 7 mm ²
4.	U1	Texas Instruments	TPS7A4700RGWR	Switcher	1	\$2.10	 RGW0020A 49 mm ²





Operating Values

#	Name	Value	Category	Description
1.	IC Iground	4.146 mA	Current	IC ground current
2.	Iin Avg	454.15 mA	Current	Average input current
3.	BOM Count	4	General	Total Design BOM count
4.	FootPrint	67.0 mm ²	General	Total Foot Print Area of BOM components
5.	IC Tolerance	35.0 mV	General	IC Feedback Tolerance
6.	Output Noise RMS	5.942 μ V	General	Noise RMS
7.	Pout	3.6 W	General	Total output power
8.	Total BOM	\$2.17	General	Total BOM Cost
9.	Vin p-p	130.0 mV	Op_Point	Input Source ripple voltage
10.	Vout OP	8.0 V	Op_Point	Operational Output Voltage
11.	Efficiency	60.977 %	Op_point	Steady state efficiency
12.	IC Tj	104.877 degC	Op_point	IC junction temperature
13.	ICThetaJA	32.5 degC/W	Op_point	IC junction-to-ambient thermal resistance
14.	IOUT_OP	450.0 mA	Op_point	Iout operating point
15.	Input Ripple Frequency	100.0 kHz	Op_point	Input Source Ripple Frequency for PSRR Calculation
16.	PSRR est.	-60.0 dB	Op_point	Power Supply Rejection Ratio, estimated
17.	VIN_OP	13.0 V	Op_point	Vin operating point
18.	Vout p-p	130.0 μ V	Op_point	Peak-to-peak output ripple voltage
19.	IC Pd	2.304 W	Power	IC power dissipation
20.	Total Pd	2.304 W	Power	Total Power Dissipation
21.	OpvalName.ForVoutAct	8.0 V		Achieved Vout with feedback resistor pair
22.	Vout Tolerance	437.5 m%		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	450.0 m	Maximum Output Current
2.	VinMax	13.0	Maximum input voltage
3.	VinMin	11.0	Minimum input voltage
4.	Vout	8.0	Output Voltage

#	Name	Value	Description
5.	base_pn	TPS7A4700	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. TPS7A4700 Product Folder : <http://www.ti.com/product/tps7a47> : contains the data sheet and other resources.

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You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

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