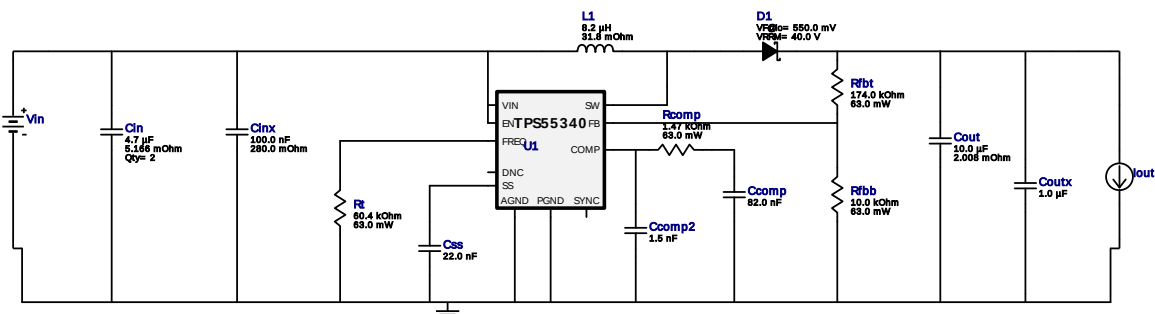


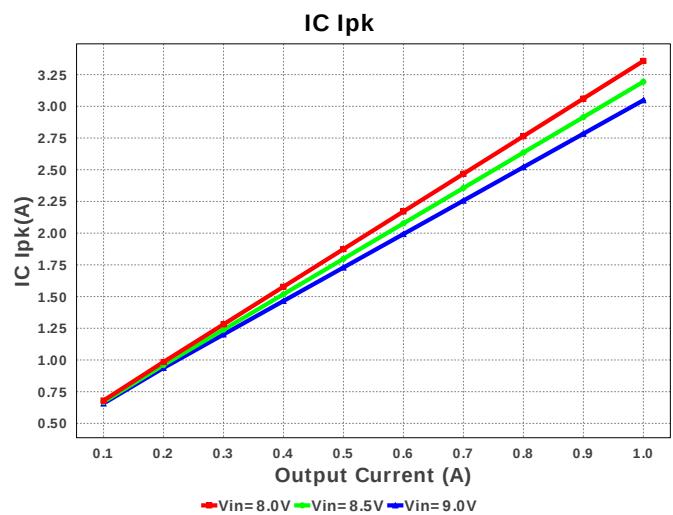
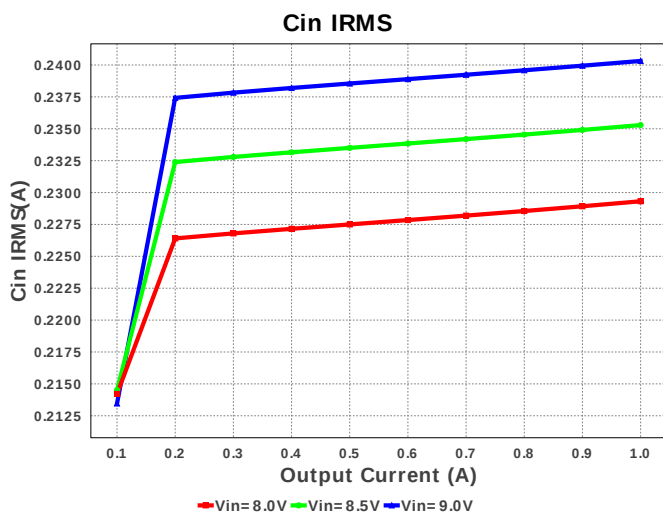
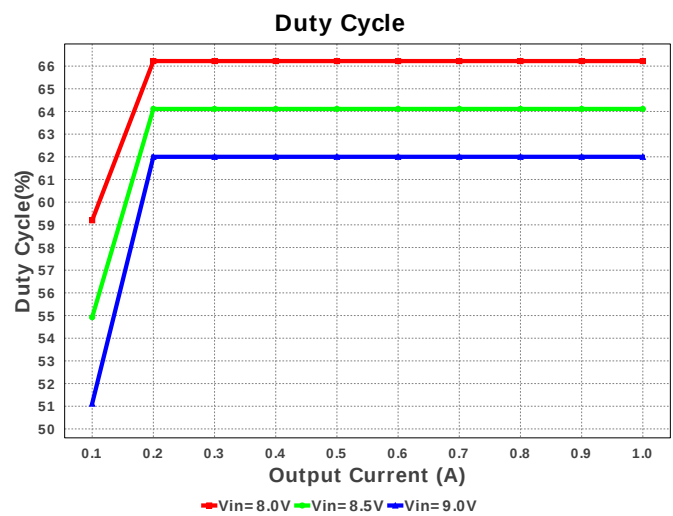
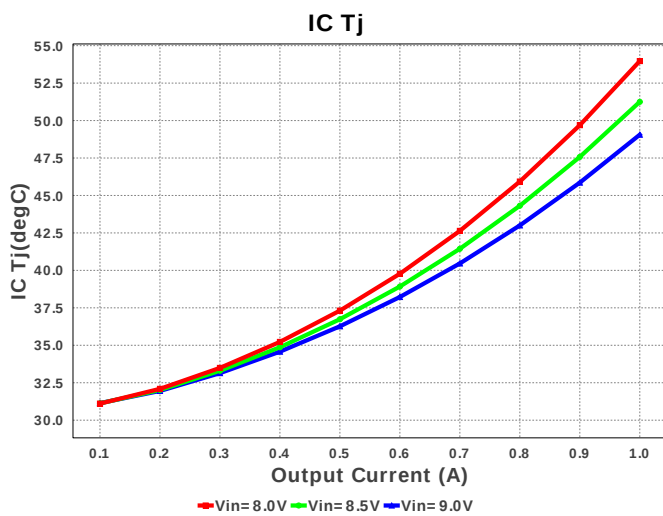
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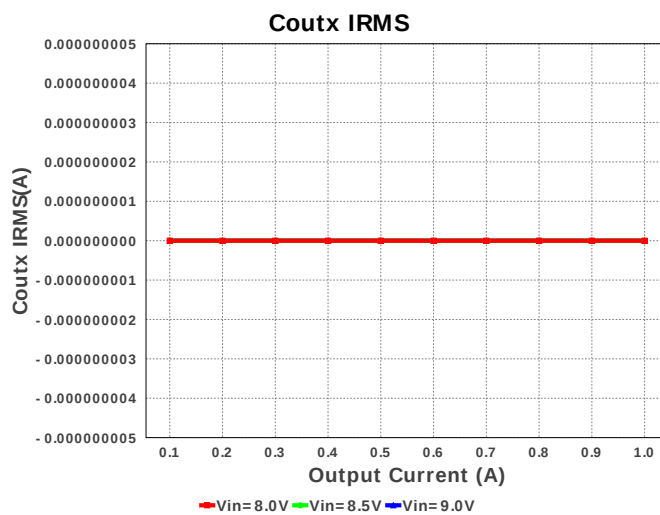
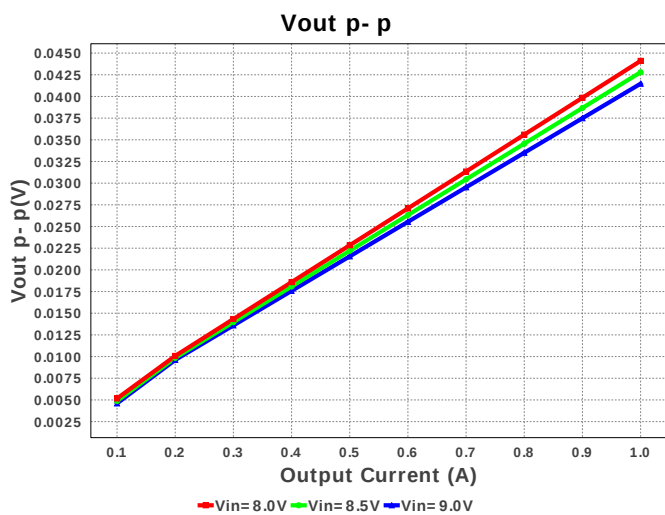
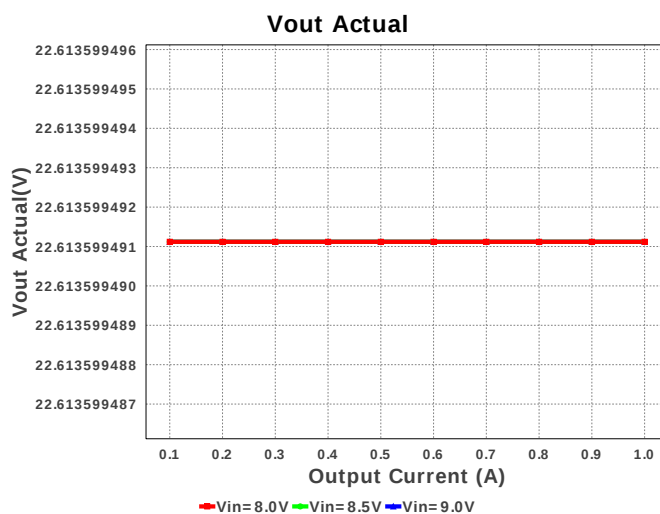
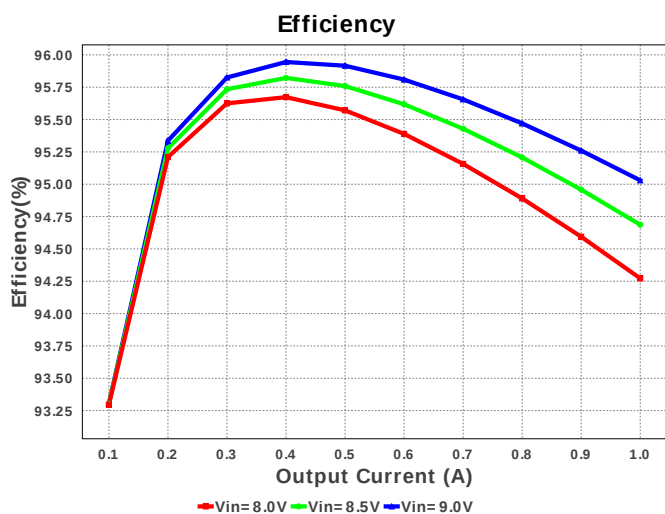
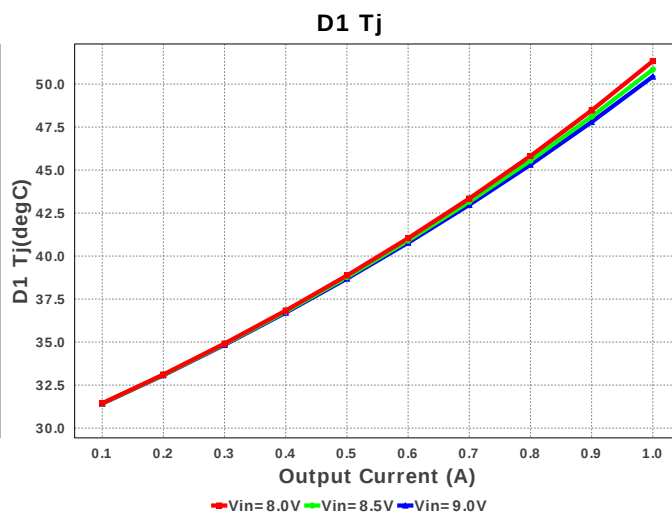
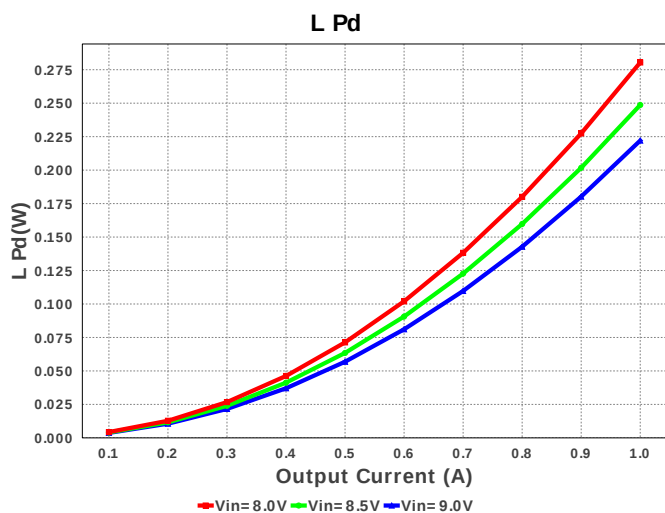
Design : 906020/2273 TPS55340RTER
TPS55340RTER 8.0V-9.0V to 22.50V @ 1.0A


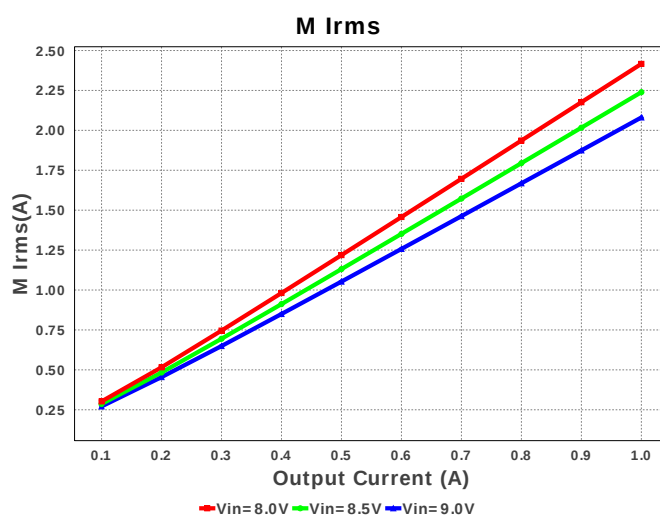
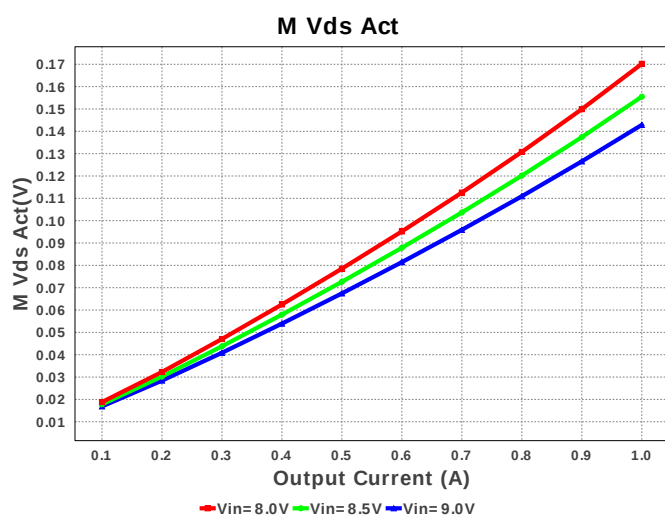
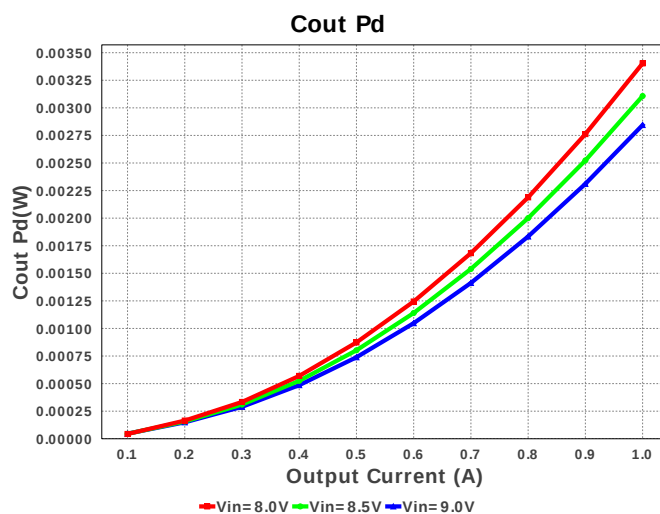
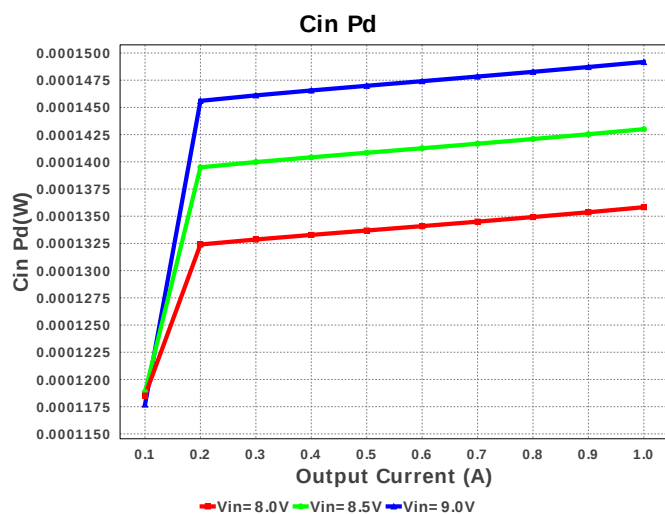
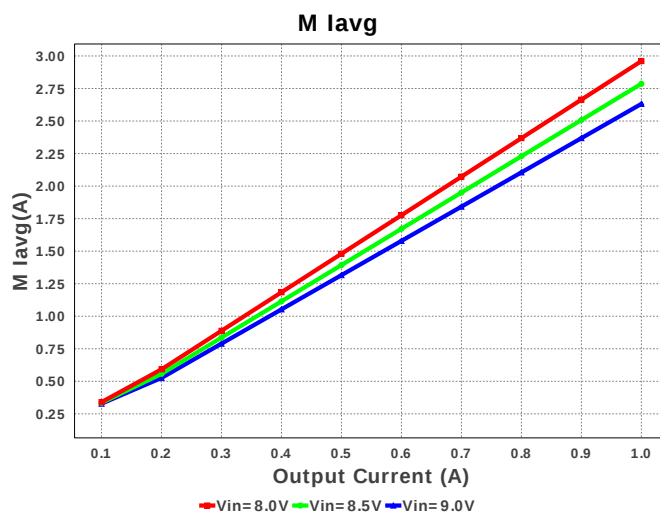
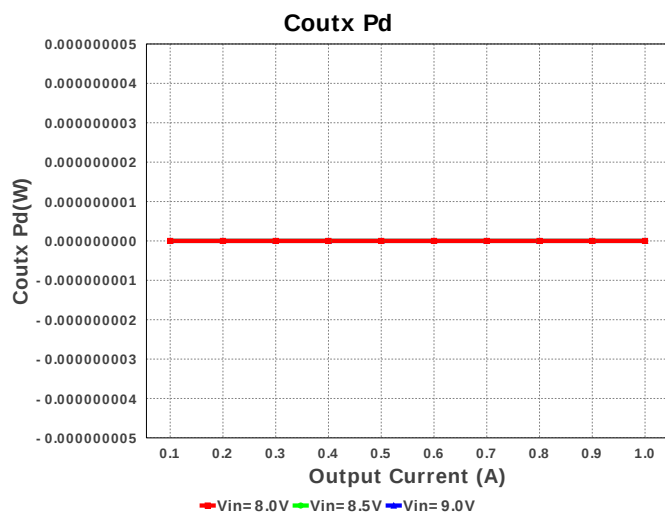
Electrical BOM

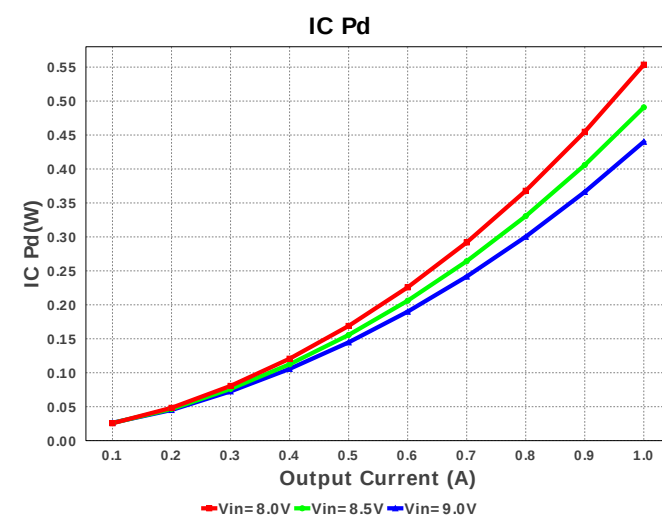
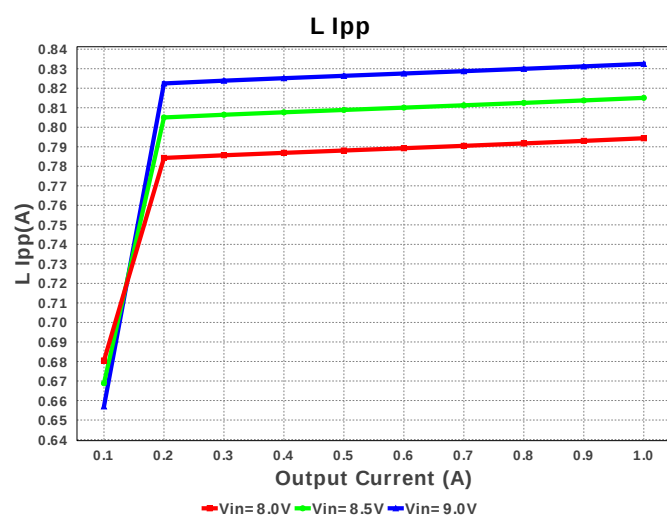
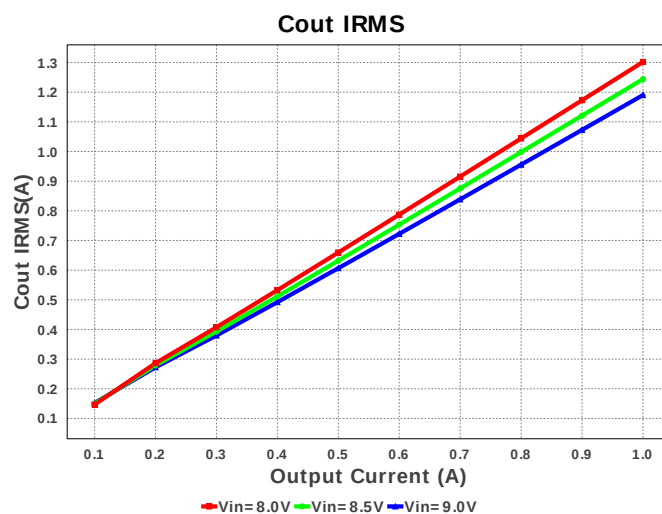
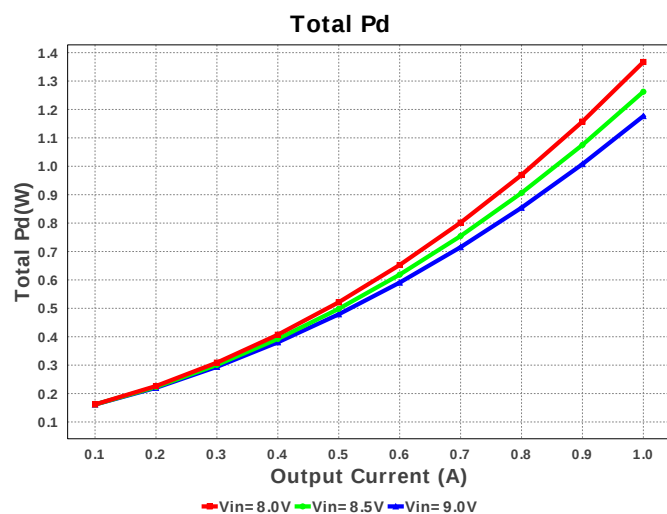
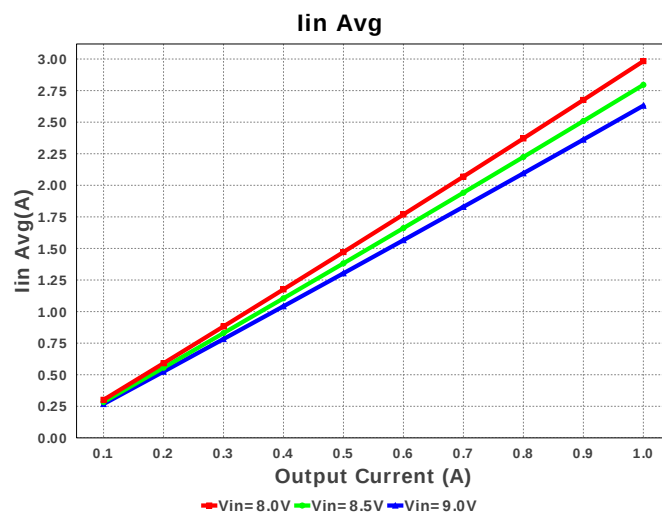
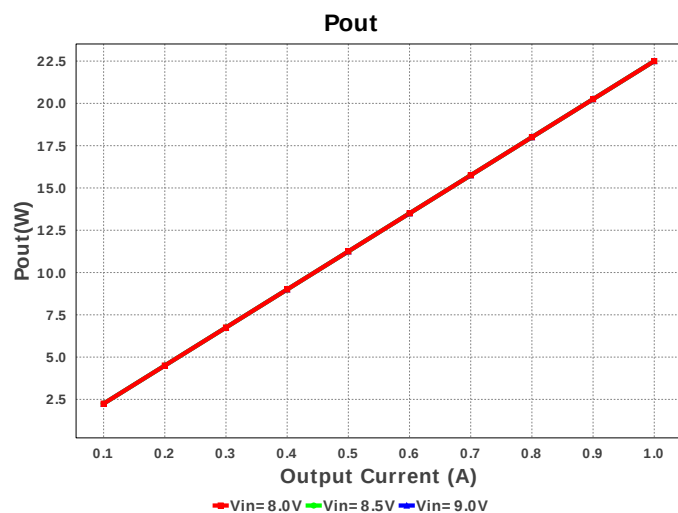
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Ccomp	MuRata	GRM155R71A823KA01D Series= X7R	Cap= 82.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	0402 3 mm ²
2.	Ccomp2	Yageo America	CC0805KRX7R9BB152 Series= X7R	Cap= 1.5 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
3.	Cin	MuRata	GRM21BC81E475KA12L Series= X6S	Cap= 4.7 uF ESR= 5.166 mOhm VDC= 25.0 V IRMS= 2.03531 A	2	\$0.02	0805 7 mm ²
4.	Cinx	AVX	08053C104KAT2A Series= X7R	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	0805 7 mm ²
5.	Cout	MuRata	GRM32ER7YA106KA12L Series= X7R	Cap= 10.0 uF ESR= 2.008 mOhm VDC= 35.0 V IRMS= 4.6772 A	1	\$0.22	1210_280 15 mm ²
6.	Coutx	Taiyo Yuden	GMK212B7105KG-T Series= X7R	Cap= 1.0 uF VDC= 35.0 V IRMS= 0.0 A	1	\$0.05	0805 7 mm ²
7.	Css	MuRata	GRM033C80J223KE01D Series= X6S	Cap= 22.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	0201 2 mm ²
8.	D1	Diodes Inc.	B540C-13-F	VF@Io= 550.0 mV VRRM= 40.0 V	1	\$0.17	SMC 83 mm ²
9.	L1	Coilcraft	XAL5050-822MEB	L= 8.2 uH DCR= 31.8 mOhm	1	\$0.92	XAL5050 54 mm ²
10.	Rcomp	Vishay-Dale	CRCW04021K47FKED Series= CRCW..e3	Res= 1.47 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
11.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

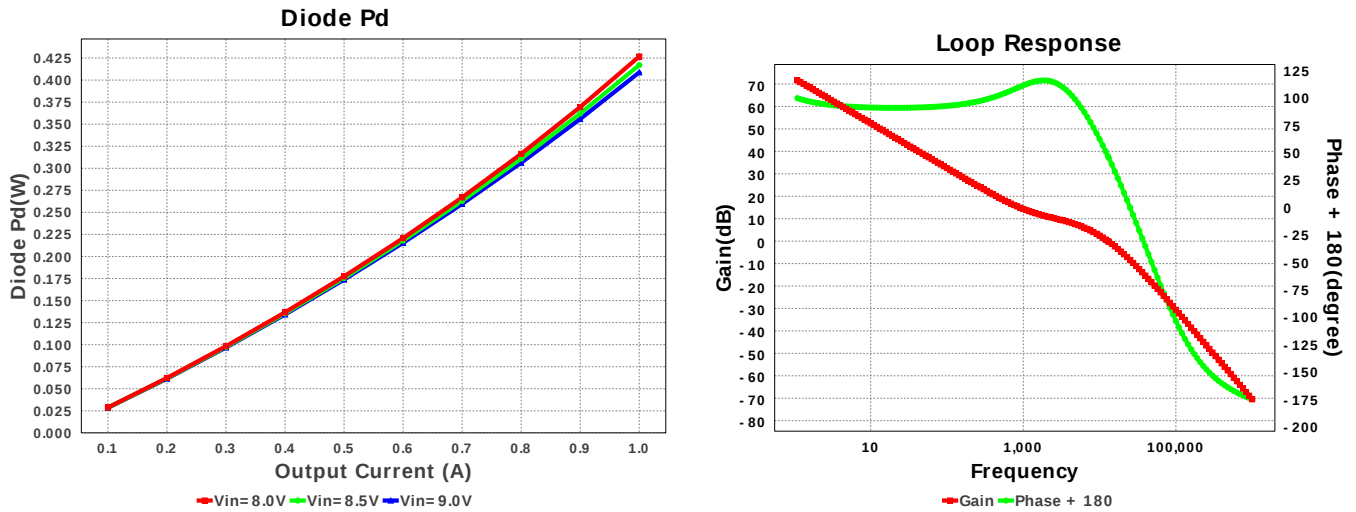
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
12.	Rfbt	Vishay-Dale	CRCW0402174KFKED Series= CRCW..e3	Res= 174.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
13.	Rt	Vishay-Dale	CRCW040260K4FKED Series= CRCW..e3	Res= 60.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
14.	U1	Texas Instruments	TPS55340RTER	Switcher	1	\$1.85	 S-PWQFN-N16 17 mm ²











Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	229.316 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.302 A	Current	Output capacitor RMS ripple current
3.	Coutx IRMS	0.0 A	Current	Output capacitor_x RMS ripple current
4.	IC IpK	3.358 A	Current	Peak switch current in IC
5.	Iin Avg	2.983 A	Current	Average input current
6.	L Ipp	794.37 mA	Current	Peak-to-peak inductor ripple current
7.	M Iavg	2.961 A	Current	MOSFET Average current
8.	M1 Irms	2.416 A	Current	Q Iavg
9.	BOM Count	15	General	Total Design BOM count
10.	FootPrint	220.0 mm ²	General	Total Foot Print Area of BOM components
11.	Frequency	778.91 kHz	General	Switching frequency
12.	IC Tolerance	9.0 mV	General	IC Feedback Tolerance
13.	M Vds Act	170.186 mV	General	Voltage drop across the MosFET
14.	Mode	CCM	General	Conduction Mode
15.	Pout	22.5 W	General	Total output power
16.	Total BOM	\$3.33	General	Total BOM Cost
17.	D1 Tj	51.335 degC	Op_Point	D1 junction temperature
18.	Low Freq Gain	71.436 dB	Op_Point	Gain at 10Hz
19.	Vout Actual	22.614 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
20.	Vout OP	22.5 V	Op_Point	Operational Output Voltage
21.	Cross Freq	9.613 kHz	Op_point	Bode plot crossover frequency
22.	Duty Cycle	66.222 %	Op_point	Duty cycle
23.	Efficiency	94.272 %	Op_point	Steady state efficiency
24.	Gain Marg	-9.845 dB	Op_point	Bode Plot Gain Margin
25.	IC Tj	53.971 degC	Op_point	IC junction temperature
26.	ICThetaJA	43.3 degC/W	Op_point	IC junction-to-ambient thermal resistance
27.	IOUT_OP	1.0 A	Op_point	Iout operating point
28.	Phase Marg	54.557 deg	Op_point	Bode Plot Phase Margin
29.	VIN_OP	8.0 V	Op_point	Vin operating point
30.	Vout p-p	44.105 mV	Op_point	Peak-to-peak output ripple voltage
31.	Cin Pd	135.829 μW	Power	Input capacitor power dissipation
32.	Cout Pd	3.403 mW	Power	Output capacitor power dissipation
33.	Coutx Pd	0.0 W	Power	Output capacitor_x power loss
34.	Diode Pd	426.704 mW	Power	Diode power dissipation
35.	IC Pd	553.597 mW	Power	IC power dissipation
36.	L Pd	280.39 mW	Power	Inductor power dissipation
37.	Total Pd	1.367 W	Power	Total Power Dissipation
38.	Vout Tolerance	2.657 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	1.0	Maximum Output Current
2.	VinMax	9.0	Maximum input voltage
3.	VinMin	8.0	Minimum input voltage
4.	Vout	22.5	Output Voltage
5.	base_pn	TPS55340	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS55340** Product Folder : <http://www.ti.com/product/TPS55340> : contains the data sheet and other resources.

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