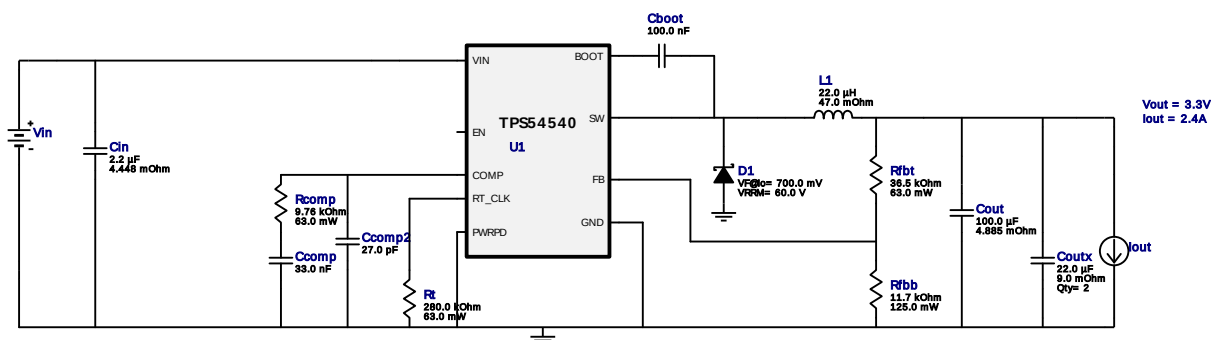
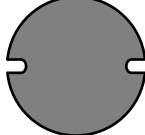


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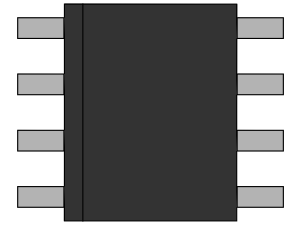
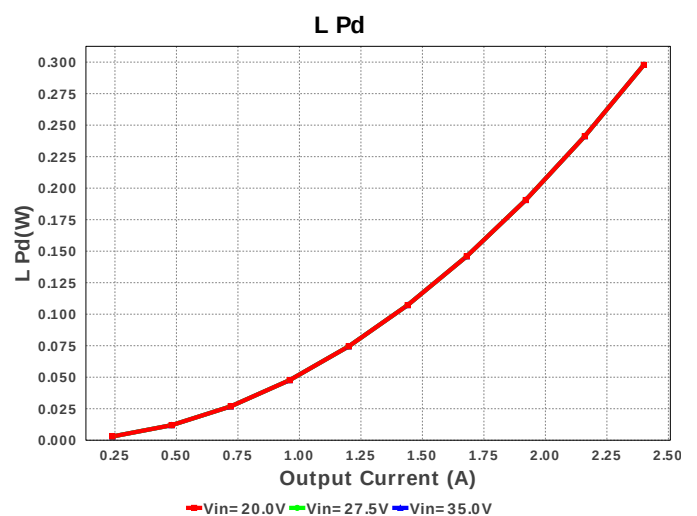
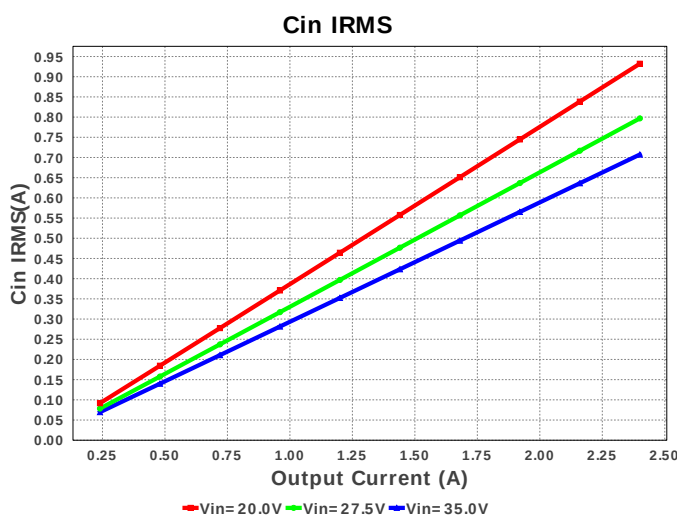
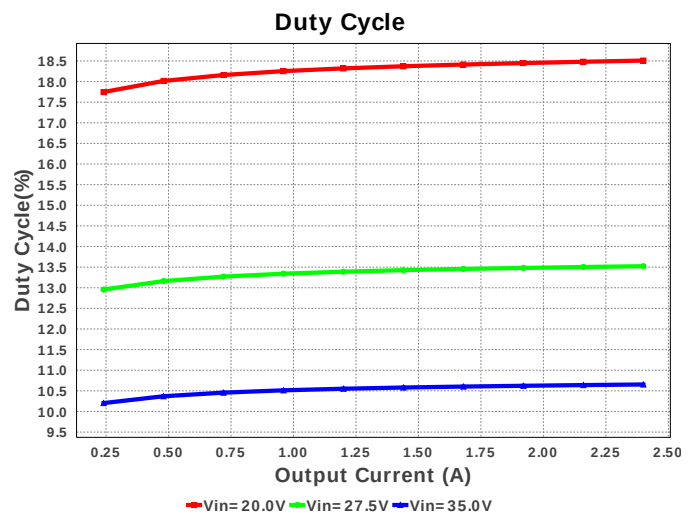
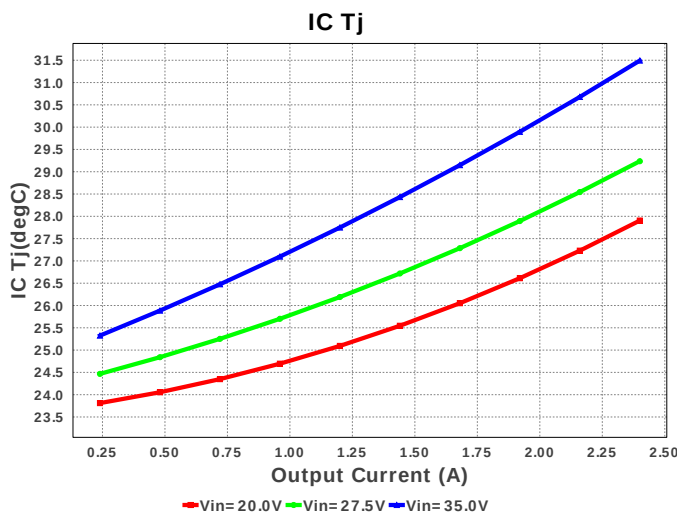
Design : 4774498/17 TPS54540DDAR
TPS54540DDAR 20.0V-35.0V to 3.30V @ 2.4A

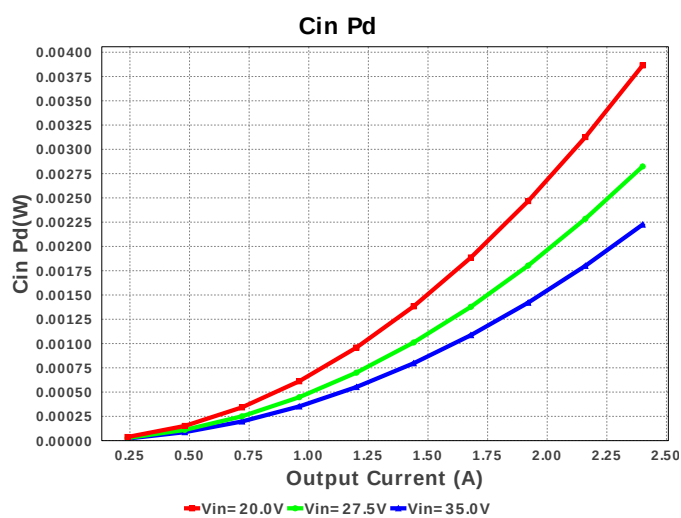
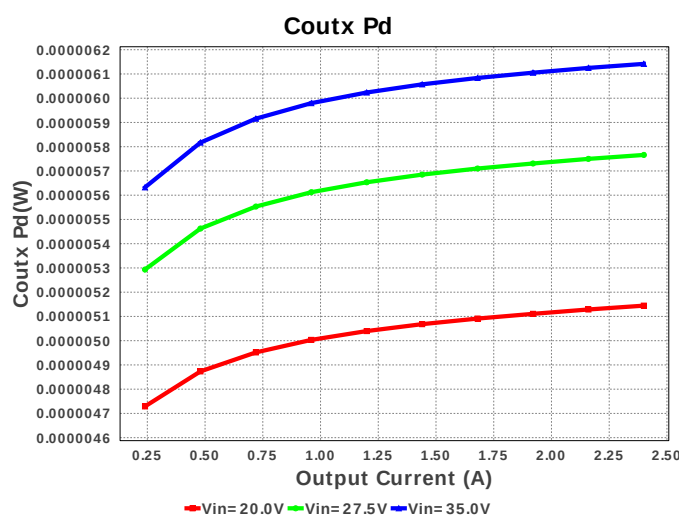
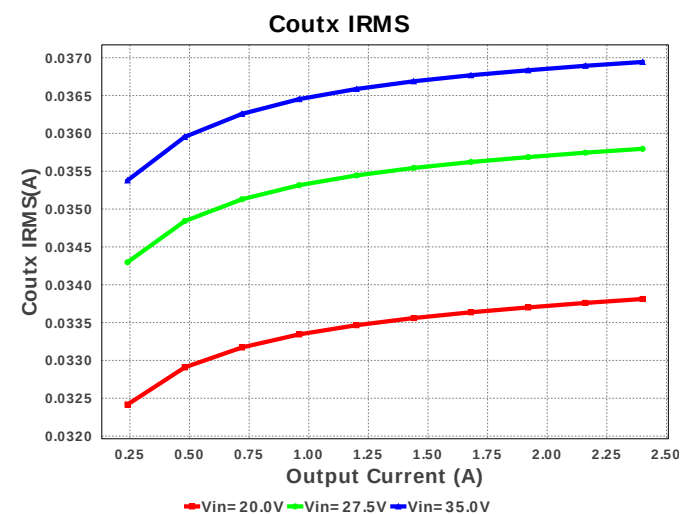
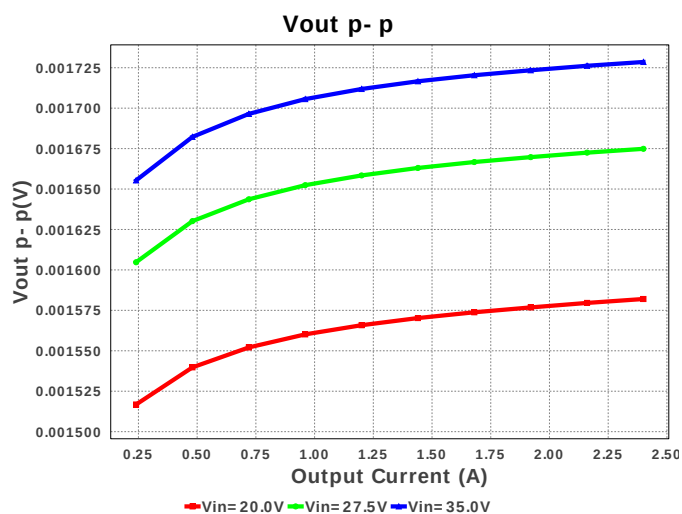
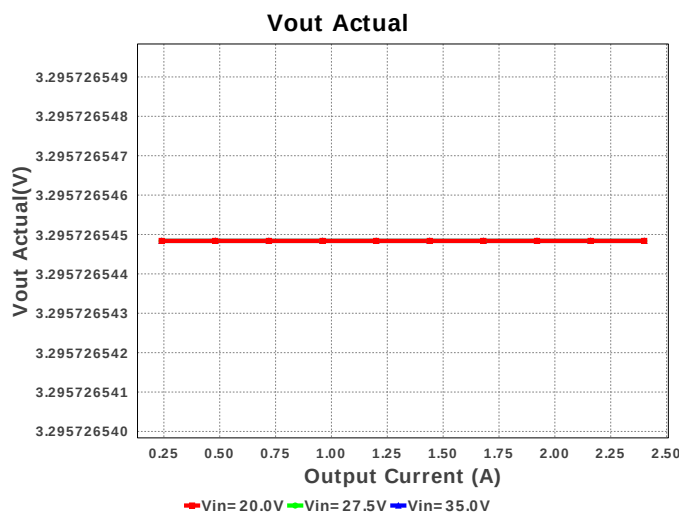
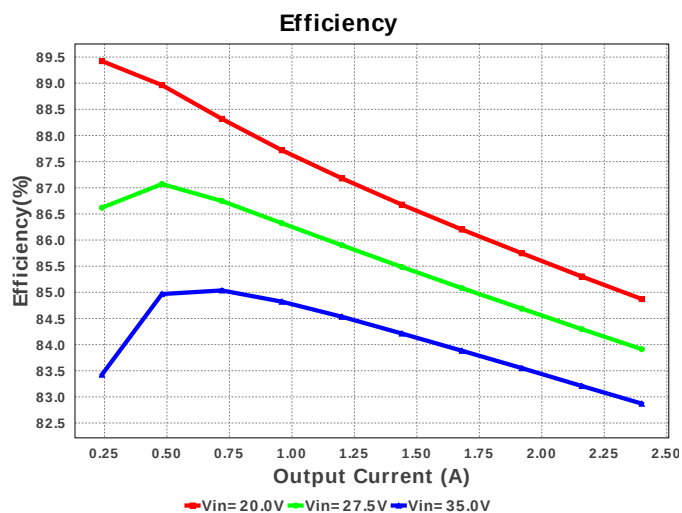


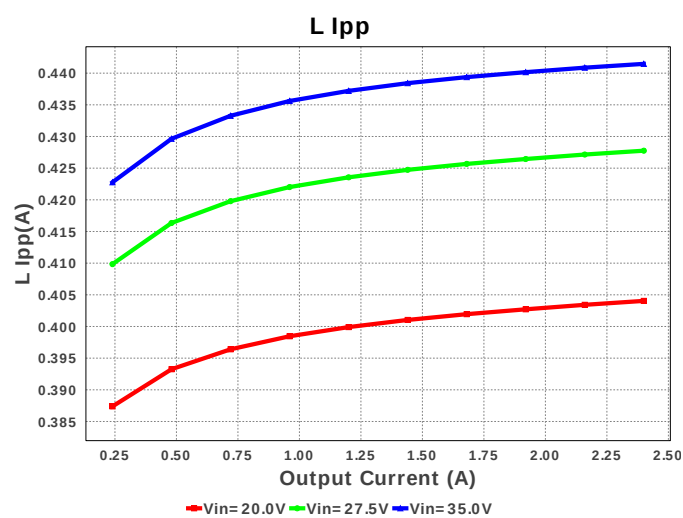
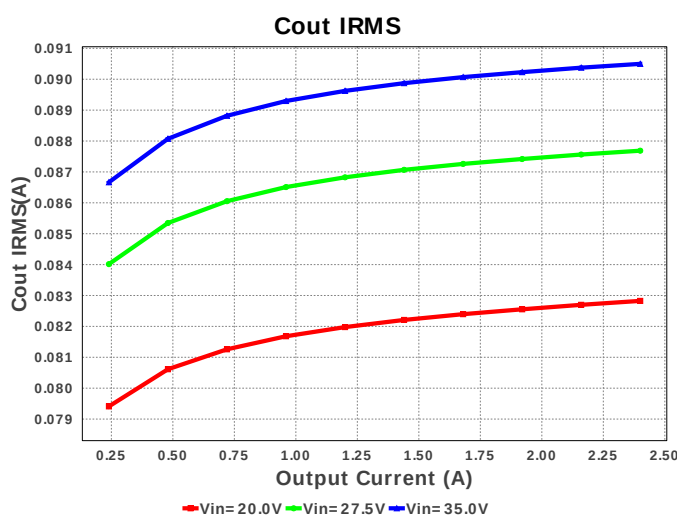
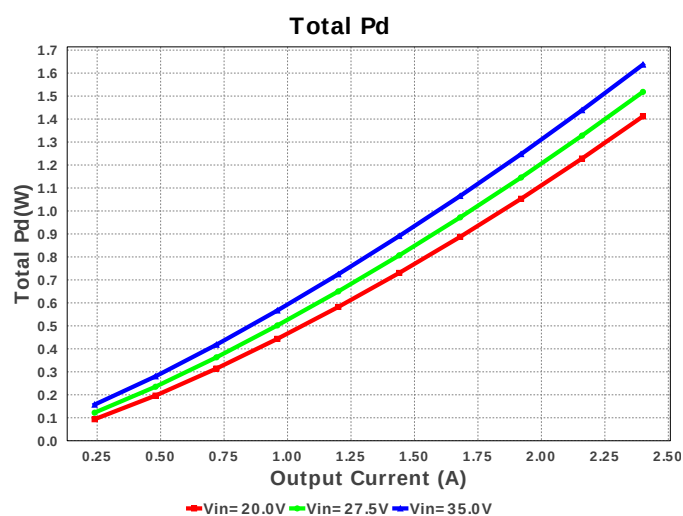
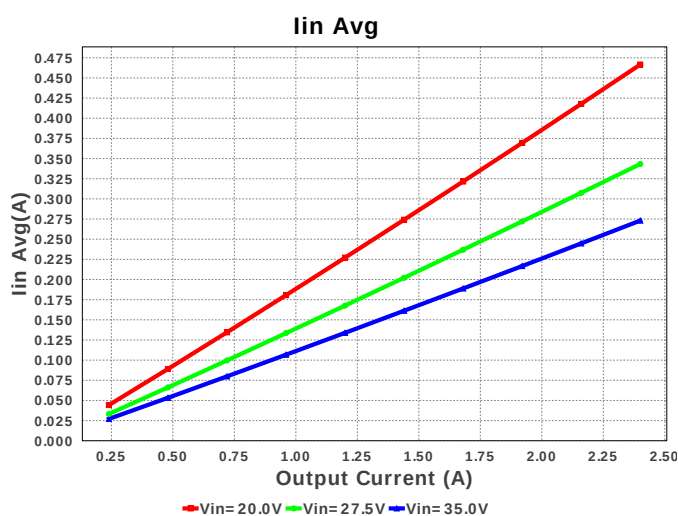
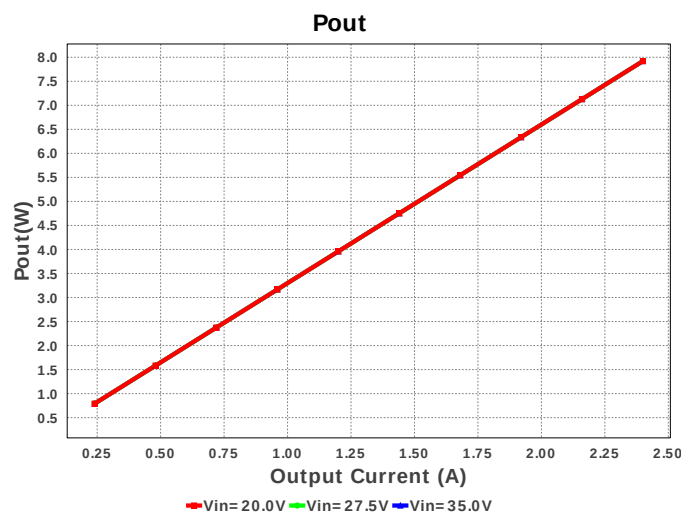
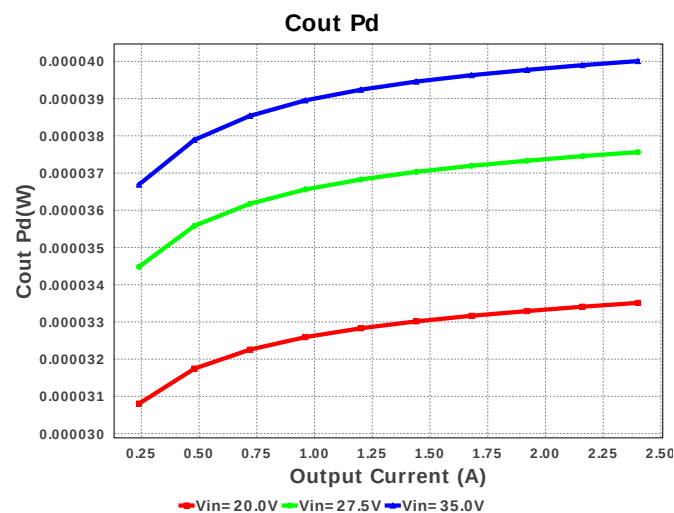
Electrical BOM

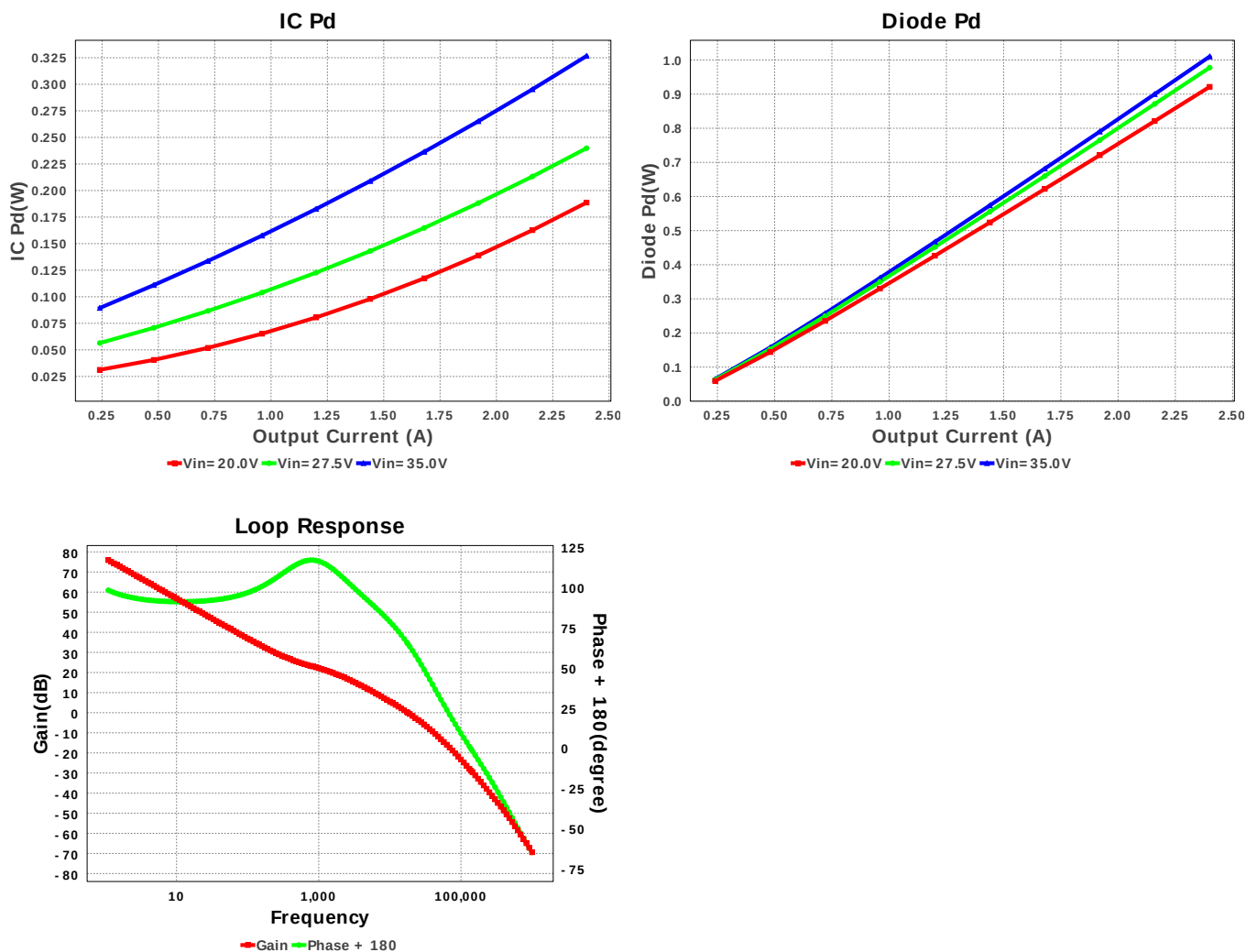
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cboot	MuRata	GRM155R61A104KA01D Series= X5R	Cap= 100.0 nF VDC= 10.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
2.	Ccomp	MuRata	GRM033R60J333KE01D Series= X5R	Cap= 33.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.01	 0201 2 mm ²
3.	Ccomp2	Kemet	C0805C270K5GACTU Series= C0G/NP0	Cap= 27.0 pF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
4.	Cin	MuRata	GRM31CR71H225KA88L Series= X7R	Cap= 2.2 uF ESR= 4.448 mOhm VDC= 50.0 V IRMS= 2.2252 A	1	\$0.05	 1206_190 11 mm ²
5.	Cout	MuRata	GRM31CR60J107ME39L Series= X5R	Cap= 100.0 uF ESR= 4.885 mOhm VDC= 6.3 V IRMS= 4.4118 A	1	\$0.14	 1206_190 11 mm ²
6.	Coutx	MuRata	GRM21BR60J226ME39L Series= X5R	Cap= 22.0 uF ESR= 9.0 mOhm VDC= 6.3 V IRMS= 3.5 A	2	\$0.04	 0805 7 mm ²
7.	D1	Diodes Inc.	B560C-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	\$0.17	 SMC 83 mm ²
8.	L1	Bourns	SDR1307-220ML	L= 22.0 uH DCR= 47.0 mOhm	1	\$0.35	 SDR1307 227 mm ²
9.	Rcomp	Vishay-Dale	CRCW04029K76FKED Series= CRCW..e3	Res= 9.76 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²
10.	Rfbb	Yageo America	RT0805BRD0711K7L Series= RT0805	Res= 11.7 kOhm Power= 125.0 mW Tolerance= 0.1%	1	\$0.05	 0805 7 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	Rfbt	Vishay-Dale	CRCW040236K5FKED Series= CRCW..e3	Res= 36.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
12.	Rt	Vishay-Dale	CRCW0402280KFKED Series= CRCW..e3	Res= 280.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
13.	U1	Texas Instruments	TPS54540DDAR	Switcher	1	\$1.95	

R-PDSO-G8 55 mm²







Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	708.059 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	90.757 mA	Current	Output capacitor RMS ripple current
3.	Coutx IRMS	37.049 mA	Current	Output capacitor_x RMS ripple current
4.	Iin Avg	273.79 mA	Current	Average input current
5.	L Ipp	442.73 mA	Current	Peak-to-peak inductor ripple current
6.	BOM Count	14	General	Total Design BOM count
7.	FootPrint	428.0 mm ²	General	Total Foot Print Area of BOM components
8.	Frequency	347.742 kHz	General	Switching frequency
9.	Mode	CCM	General	Conduction Mode
10.	Pout	7.92 W	General	Total output power
11.	Total BOM	\$2.85	General	Total BOM Cost
12.	ICThetaJA Effective	26.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
13.	Low Freq Gain	75.902 dB	Op_Point	Gain at 10Hz
14.	Vout Actual	3.296 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
15.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
16.	Cross Freq	17.916 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	10.685 %	Op_point	Duty cycle
18.	Efficiency	82.649 %	Op_point	Steady state efficiency
19.	Gain Marg	-28.829 dB	Op_point	Bode Plot Gain Margin
20.	IC Tj	31.497 degC	Op_point	IC junction temperature
21.	IOUT_OP	2.4 A	Op_point	Iout operating point
22.	Phase Marg	65.438 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	35.0 V	Op_point	Vin operating point
24.	Vout p-p	1.734 mV	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	2.23 mW	Power	Input capacitor power dissipation
26.	Cout Pd	40.237 μ W	Power	Output capacitor power dissipation
27.	Coutx Pd	6.177 μ W	Power	Output capacitor_x power loss
28.	Diode Pd	1.036 W	Power	Diode power dissipation
29.	IC Pd	326.82 mW	Power	IC power dissipation
30.	L Pd	297.792 mW	Power	Inductor power dissipation
31.	Total Pd	1.663 W	Power	Total Power Dissipation

#	Name	Value	Category	Description
32.	Vout Tolerance	1.842 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.4	Maximum Output Current
2.	VinMax	35.0	Maximum input voltage
3.	VinMin	20.0	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	TPS54540	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	23.0	Ambient temperature

Design Assistance

1. **TPS54540** Product Folder : <http://www.ti.com/product/TPS54540> : contains the data sheet and other resources.

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