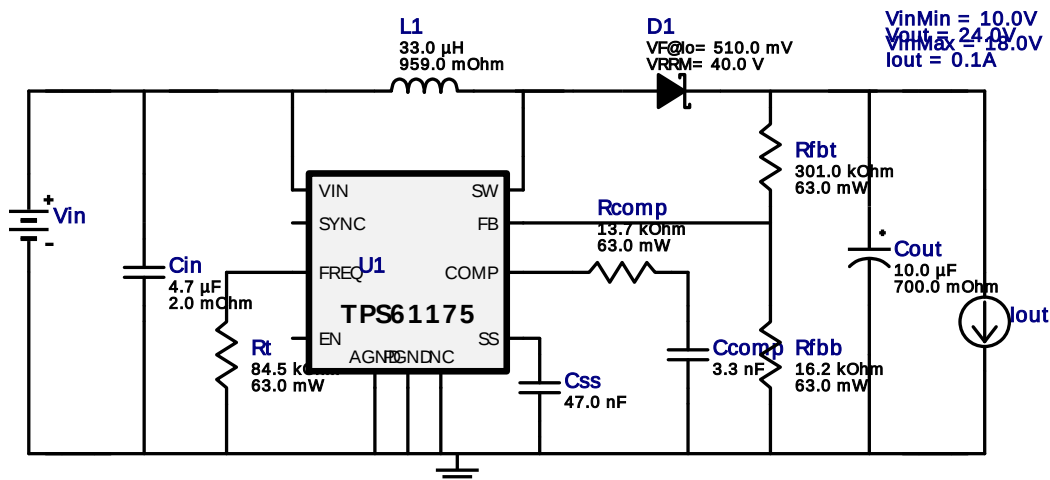


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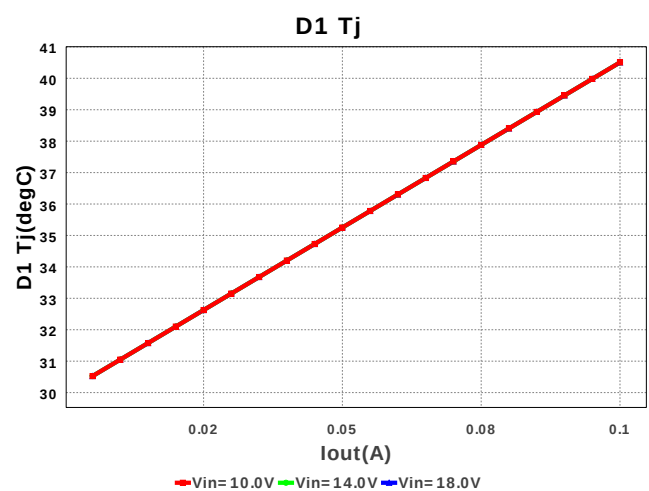
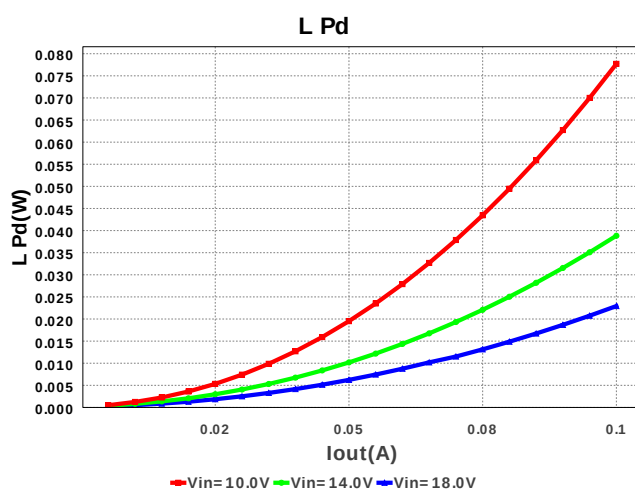
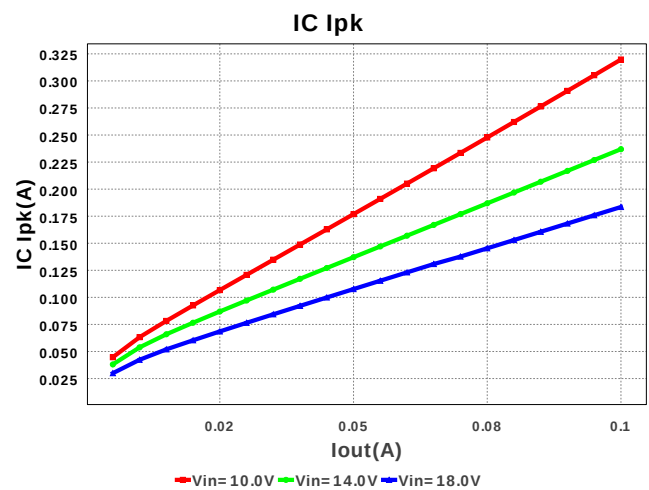
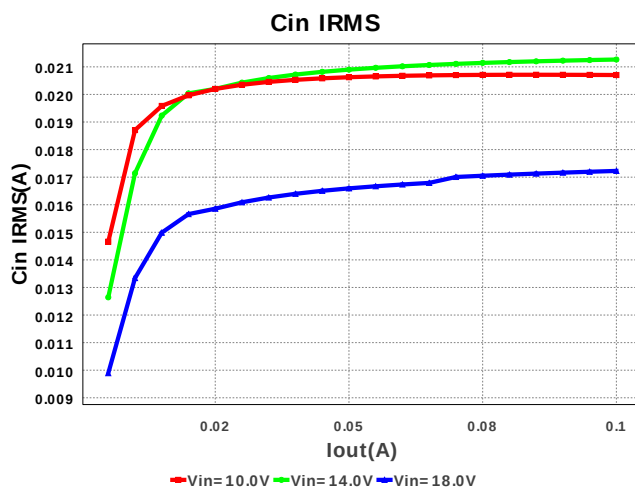
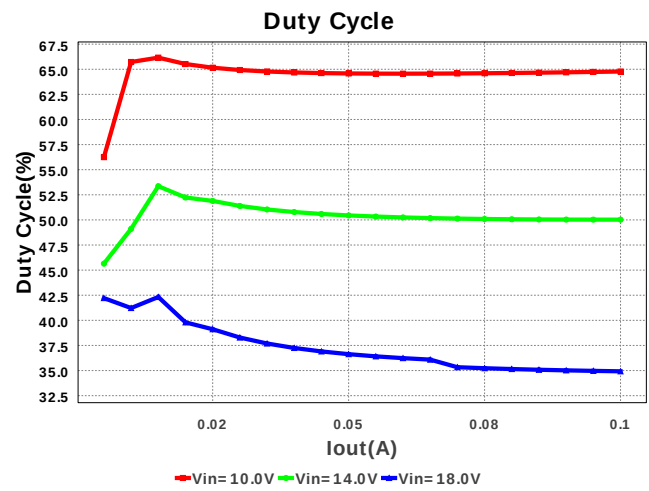
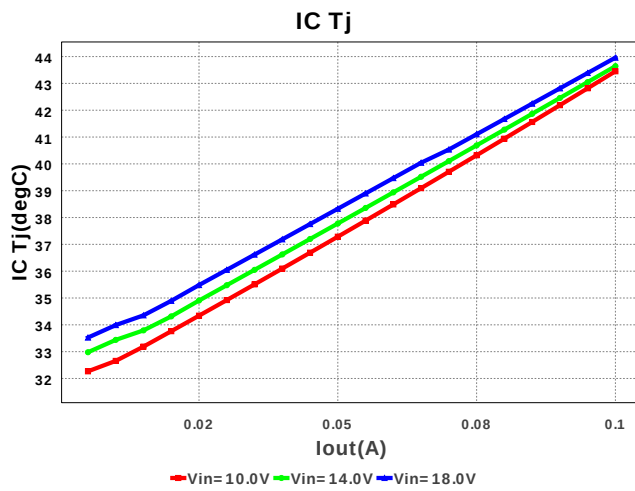
Design : 3932356/22 TPS61175PWPR
TPS61175PWPR 10.0V-18.0V to 24.0V @ 0.1A

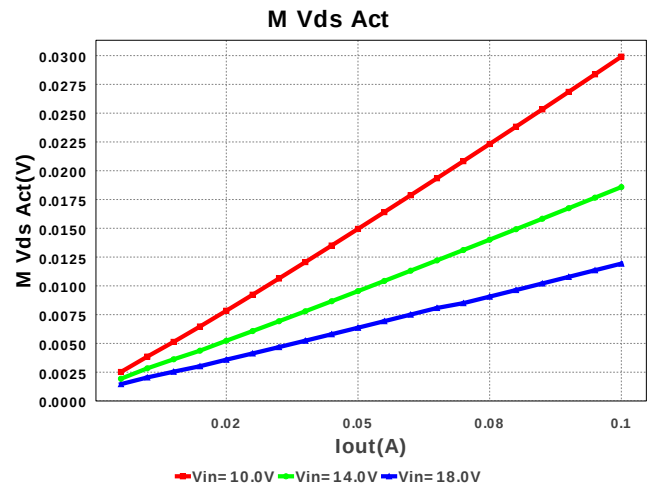
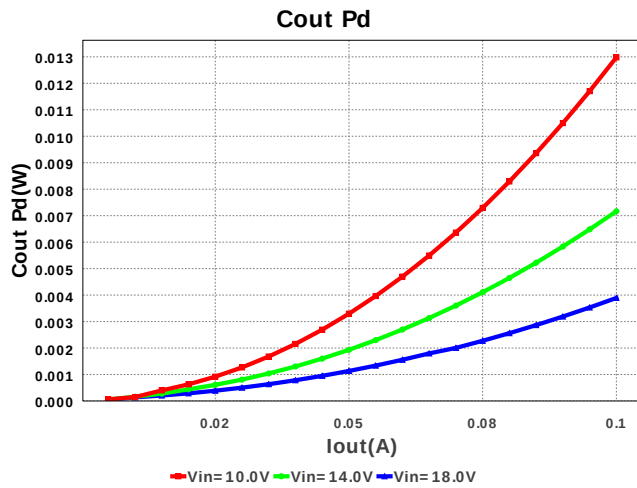
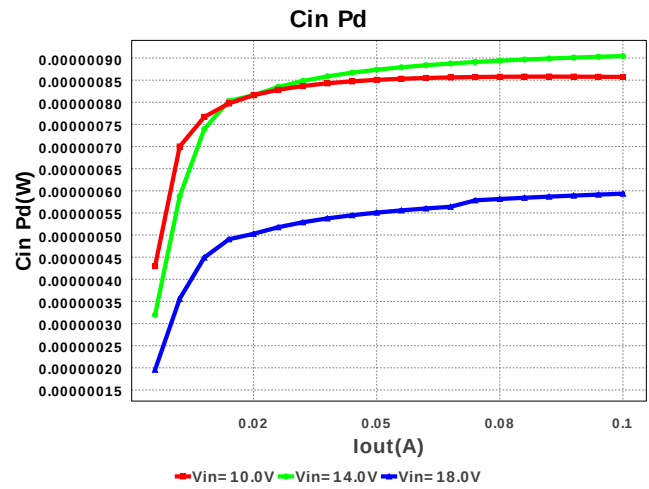
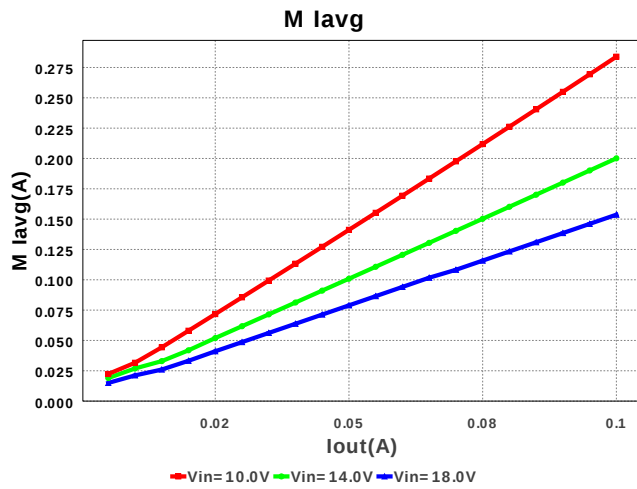
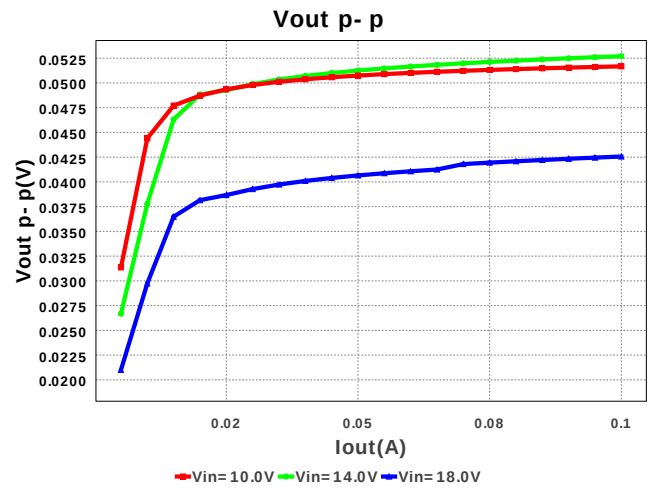
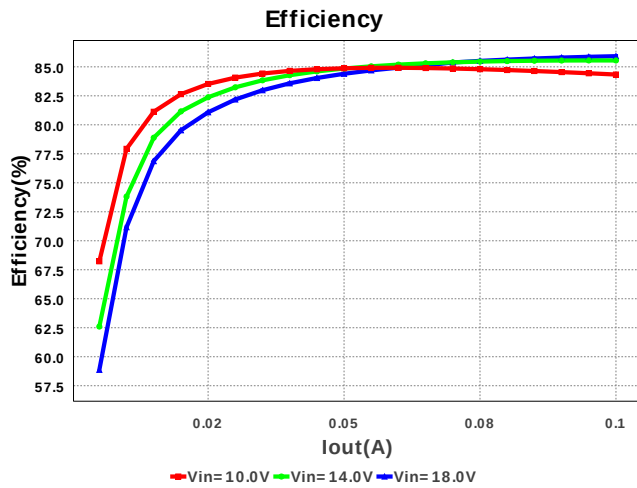


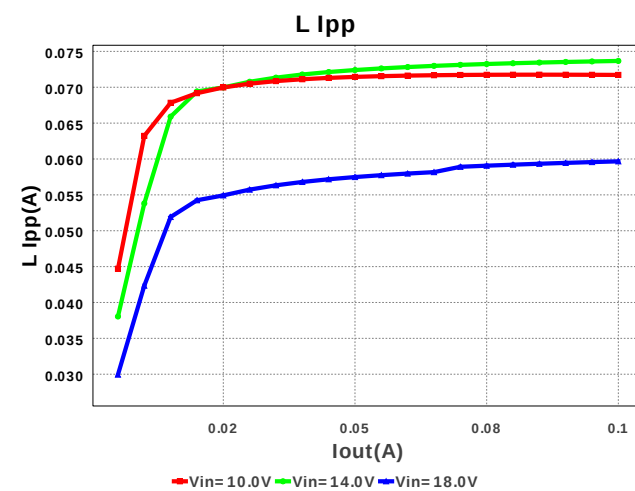
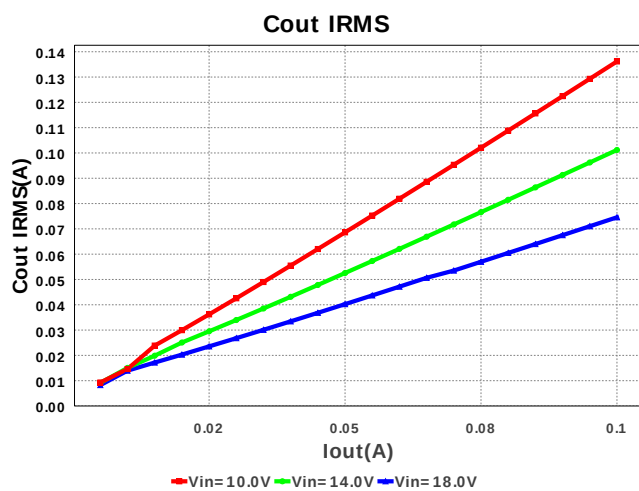
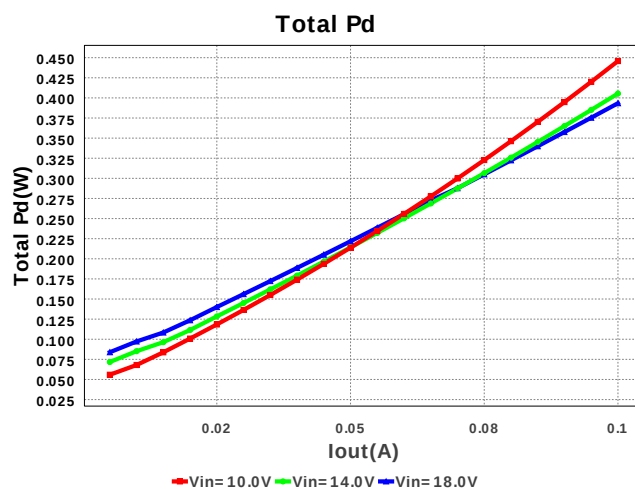
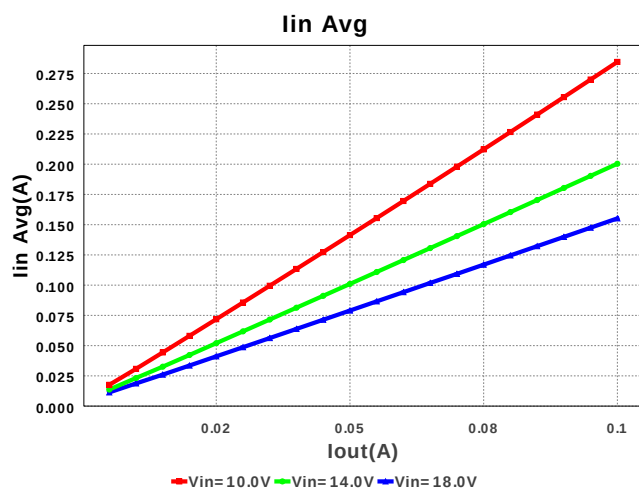
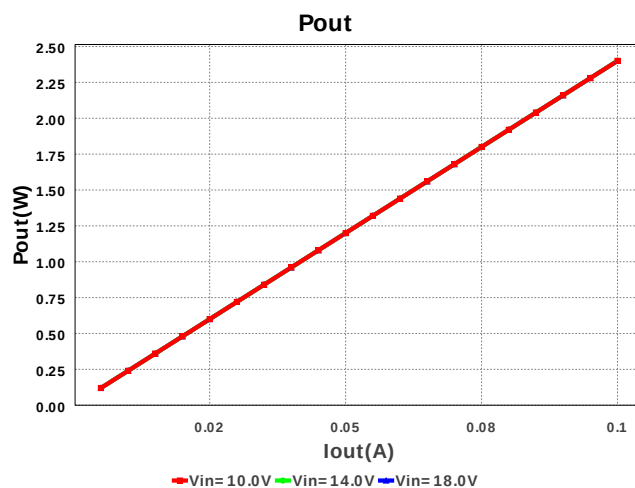
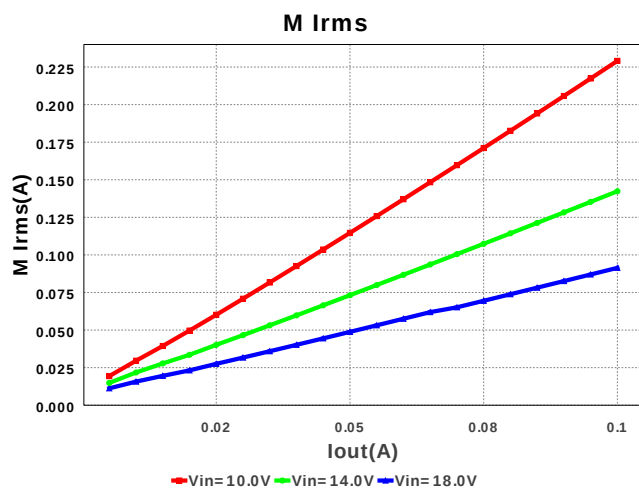
Electrical BOM

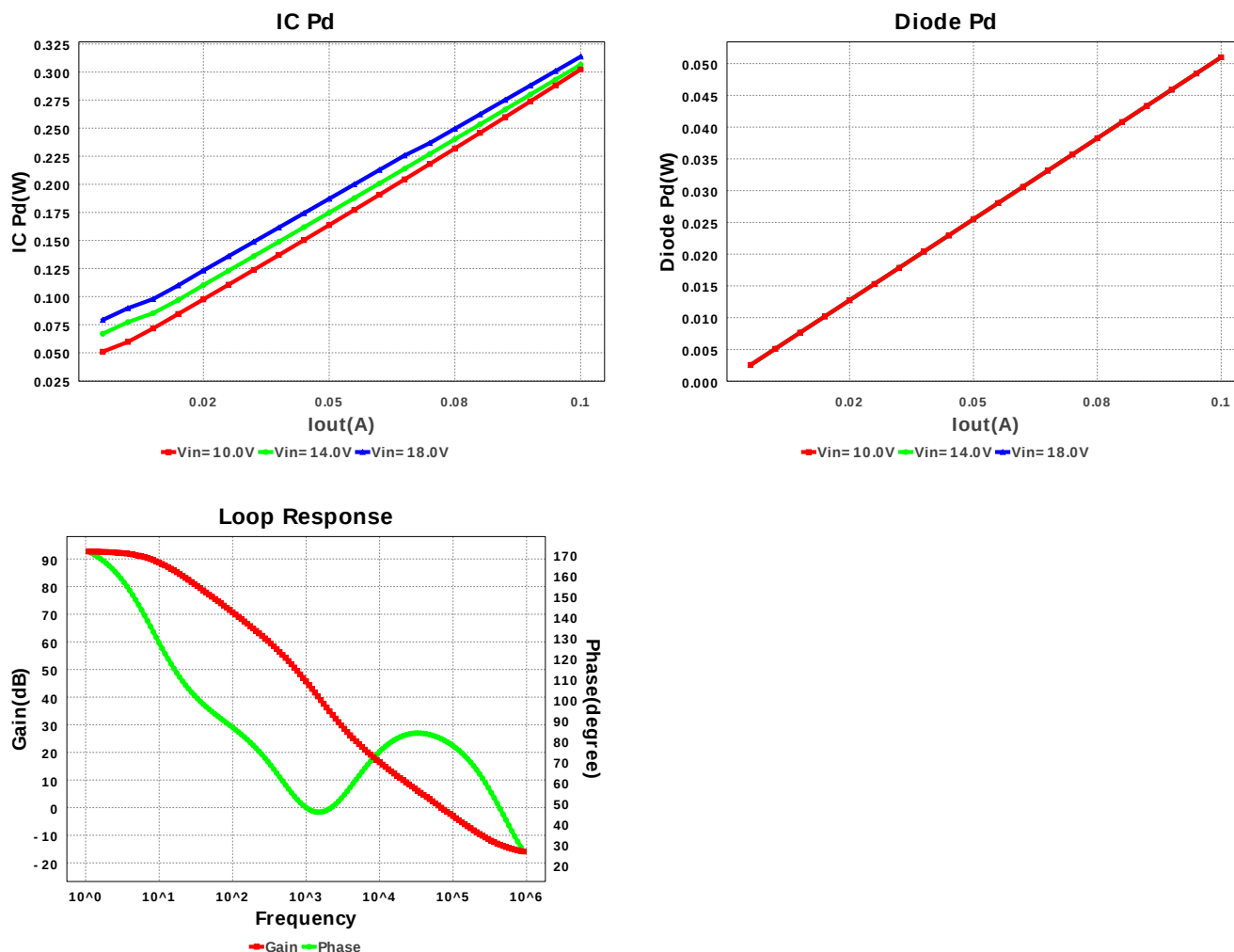
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Ccomp	Yageo America	CC0805KRX7R9BB332 Series= X7R	Cap= 3.3 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7mm2
2.	Cin	MuRata	GRM21BR61E475MA12L Series= X5R	Cap= 4.7 µF ESR= 2.0 mOhm VDC= 25.0 V IRMS= 7.29 A	1	\$0.06	 0805 7mm2
3.	Cout	Panasonic	EEE-FK1V100R Series= FK	Cap= 10.0 µF ESR= 700.0 mOhm VDC= 35.0 V IRMS= 160.0 mA	1	\$0.11	 SM_RADIAL_C 62mm2
4.	Css	Taiyo Yuden	TMK212B7473KD-T Series= X7R	Cap= 47.0 nF VDC= 25.0 V IRMS= 0.0 A	1	\$0.01	 0805 7mm2
5.	D1	ON Semiconductor	MBR0540T1G	Vf@Io= 510.0 mV VRRM= 40.0 V	1	\$0.06	 SOD-123 13mm2
6.	L1	Bourns	SRN3015-330M	L= 33.0 µH DCR= 959.0 mOhm	1	\$0.13	 SRN3015 16mm2
7.	Rcomp	Vishay-Dale	CRCW040213K7FKED Series= CRCW..e3	Res= 13.7 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
8.	Rfbb	Vishay-Dale	CRCW040216K2FKED Series= CRCW..e3	Res= 16.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
9.	Rfbb	Vishay-Dale	CRCW0402301KFKED Series= CRCW..e3	Res= 301.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2
10.	Rt	Vishay-Dale	CRCW040284K5FKED Series= CRCW..e3	Res= 84.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3mm2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11. U1		Texas Instruments	TPS61175PWPR	Switcher	1	\$1.60	 R-PDSO-G14 61mm2









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	40.006 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	132.304 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	338.389 mA	Current	Peak switch current in IC
4.	Iin Avg	270.94 mA	Current	Average input current
5.	L Ipp	138.586 mA	Current	Peak-to-peak inductor ripple current
6.	M Iavg	269.096 mA	Current	MOSFET Average current
7.	M1 Irms	215.659 mA	Current	Q Iavg
8.	BOM Count	11	General	Total Design BOM count
9.	FootPrint	184.0 mm2	General	Total Foot Print Area of BOM components
10.	Frequency	1.2 MHz	General	Switching frequency
11.	IC Tolerance	20.0 mV	General	IC Feedback Tolerance
12.	M Vds Act	28.118 mV	General	Voltage drop across the MosFET
13.	Pout	2.4 W	General	Total output power
14.	Total BOM	\$2.02	General	Total BOM Cost
15.	D1 Tj	40.506 degC	Op_Point	D1 junction temperature
16.	Vout OP	24.0 V	Op_Point	Operational Output Voltage
17.	Cross Freq	32.305 kHz	Op_point	Bode plot crossover frequency
18.	Duty Cycle	62.839 %	Op_point	Duty cycle
19.	Efficiency	88.582 %	Op_point	Steady state efficiency
20.	IC Tj	37.712 degC	Op_point	IC junction temperature
21.	ICThetaJA	44.5 degC/W	Op_point	IC junction-to-ambient thermal resistance
22.	IOUT_OP	100.0 mA	Op_point	Iout operating point
23.	Phase Marg	68.985 deg	Op_point	Bode Plot Phase Margin
24.	VIN_OP	10.0 V	Op_point	Vin operating point
25.	Vout p-p	99.629 mV	Op_point	Peak-to-peak output ripple voltage
26.	Cin Pd	3.201 μW	Power	Input capacitor power dissipation
27.	Cout Pd	12.253 mW	Power	Output capacitor power dissipation
28.	Diode Pd	51.0 mW	Power	Diode power dissipation
29.	IC Pd	173.303 mW	Power	IC power dissipation
30.	L Pd	70.979 mW	Power	Inductor power dissipation
31.	Total Pd	309.359 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	100.0 mA	Maximum Output Current
2.	Iout1	100.0 mAmps	Output Current #1
3.	VinMax	18.0 V	Maximum input voltage
4.	VinMin	10.0 V	Minimum input voltage
5.	Vout	24.0 V	Output Voltage
6.	Vout1	24.0 Volt	Output Voltage #1
7.	base_pn	TPS61175	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. **TPS61175** Product Folder : <http://www.ti.com/product/tps61175> : contains the data sheet and other resources.

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