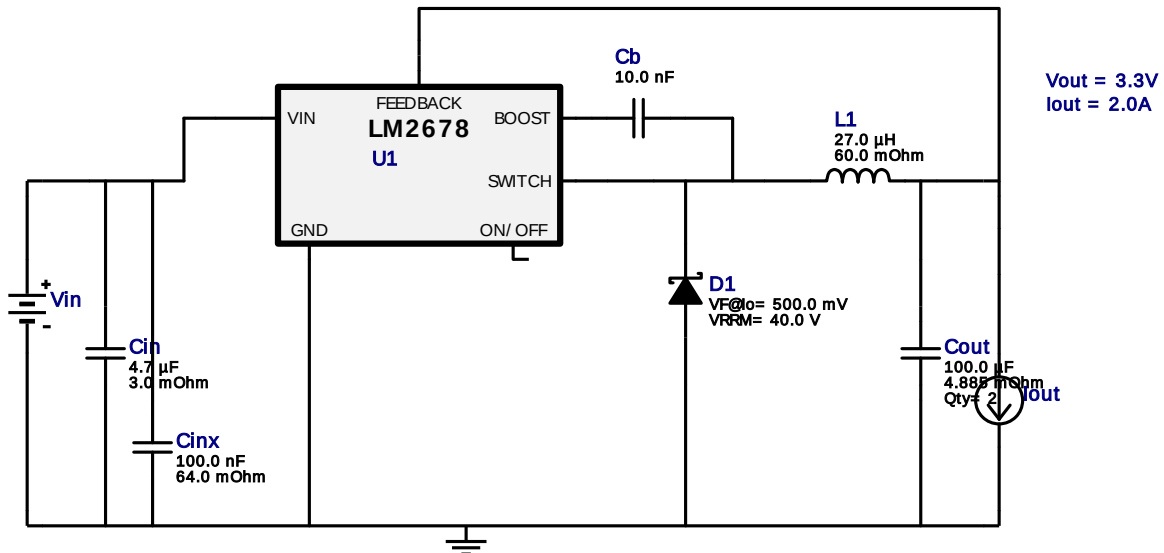
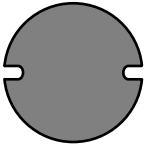


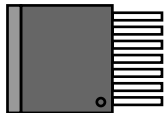
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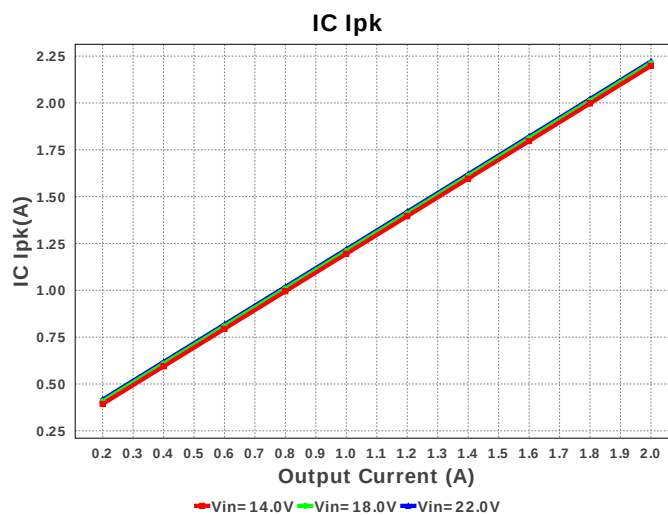
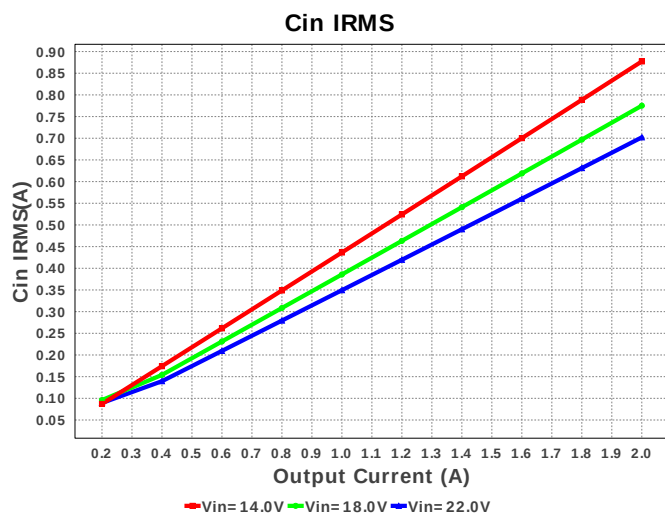
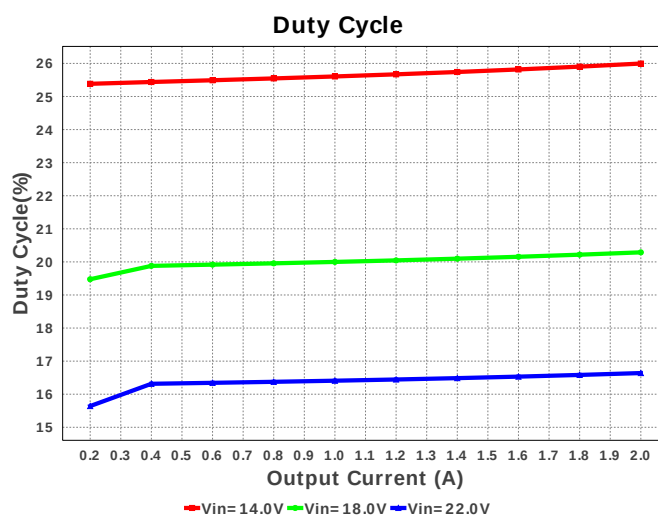
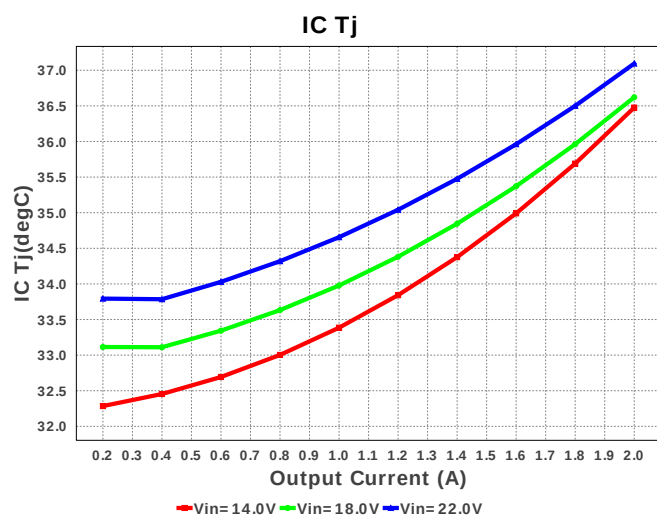
Design : 4737567/71 LM2678SX-3.3/NOPB
LM2678SX-3.3/NOPB 14.0V-22.0V to 3.30V @ 2.0A

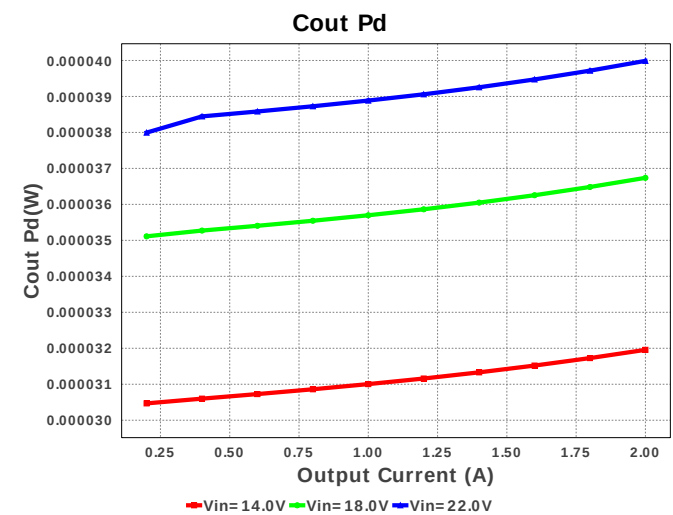
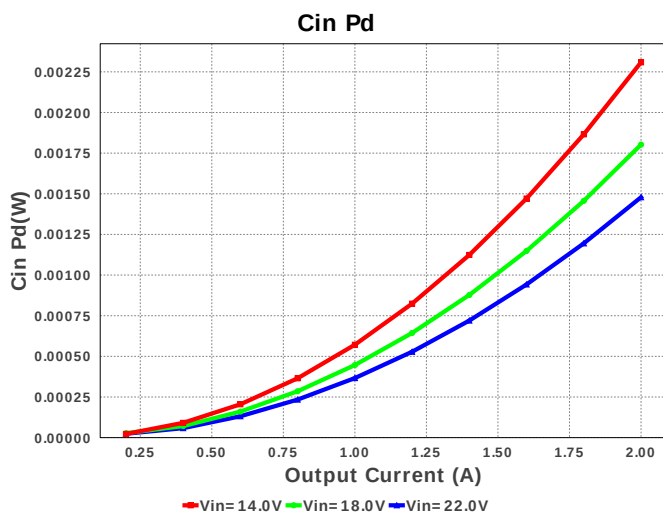
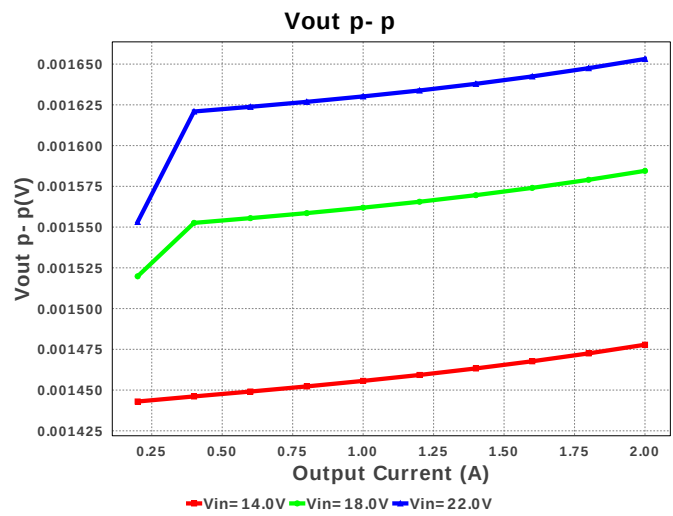
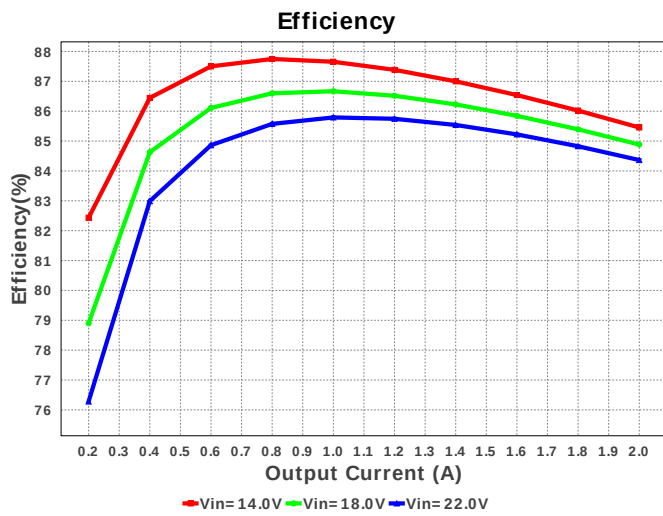
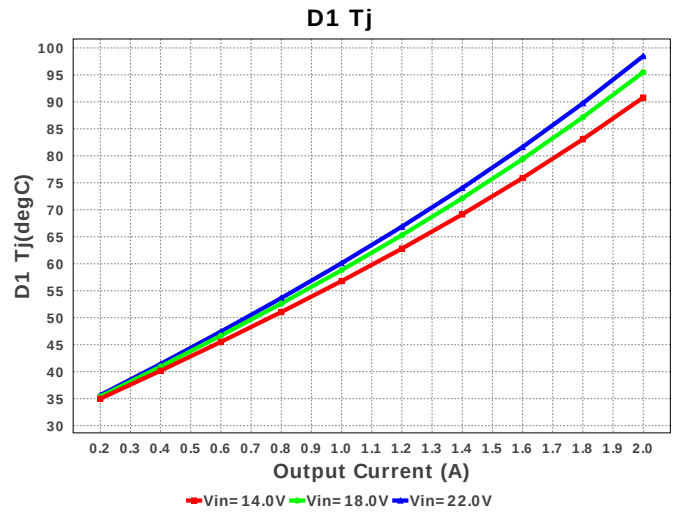
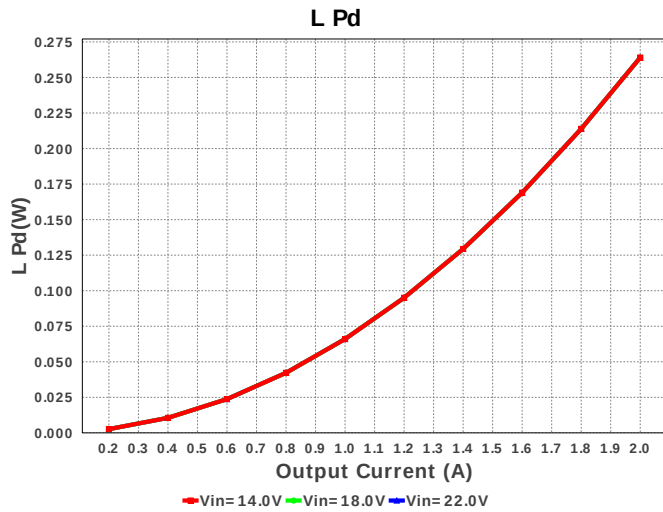


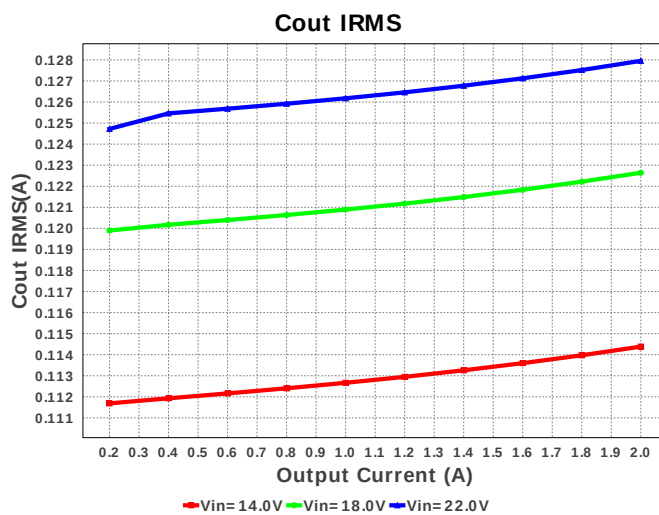
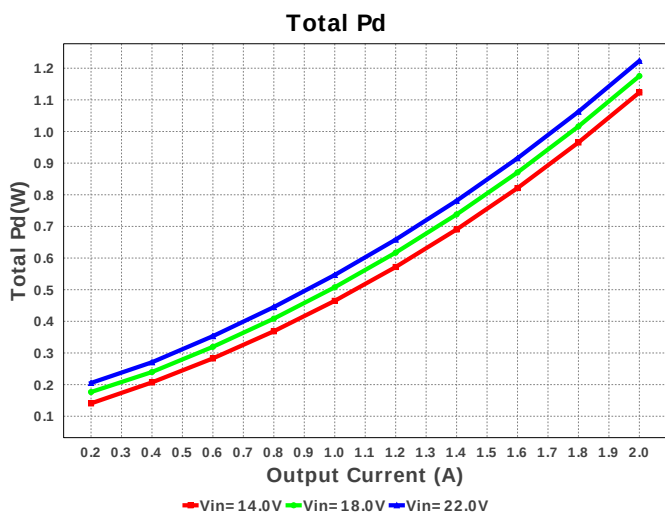
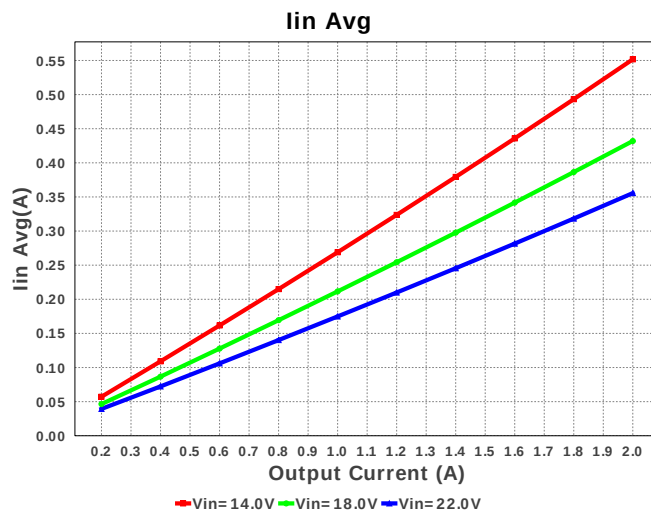
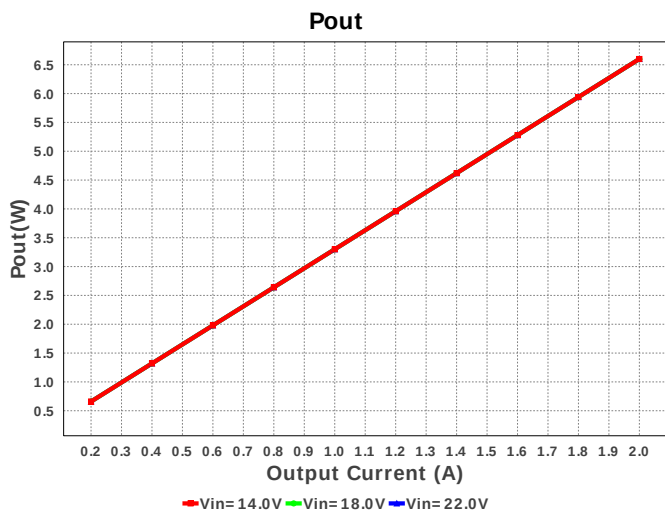
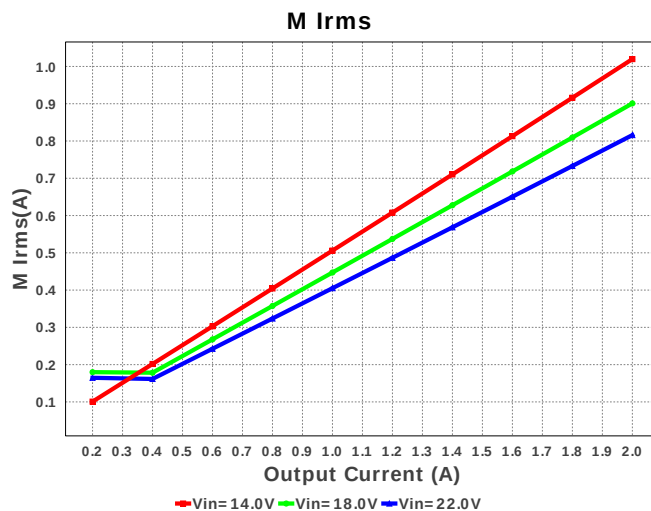
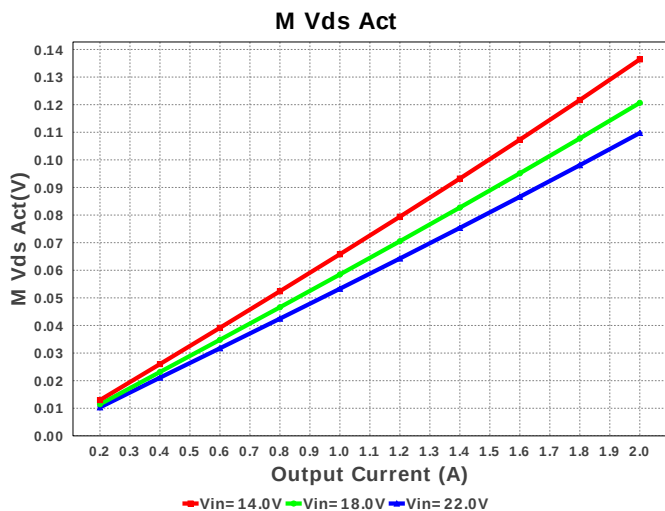
Electrical BOM

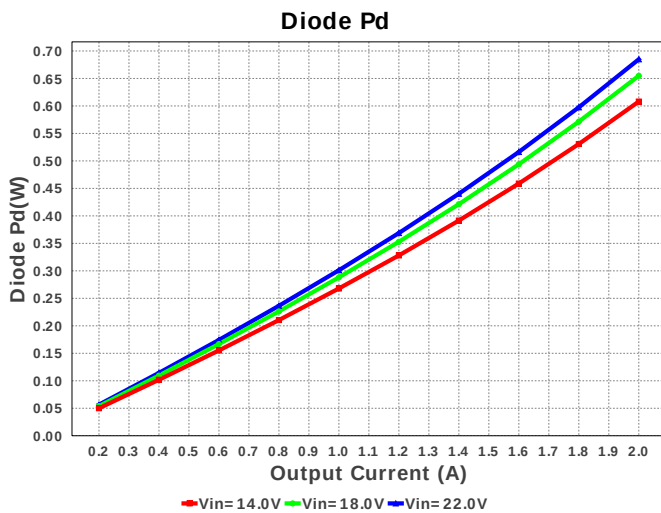
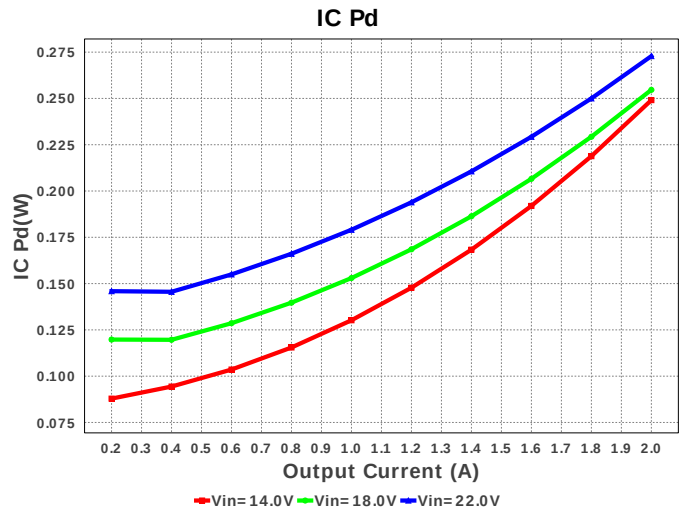
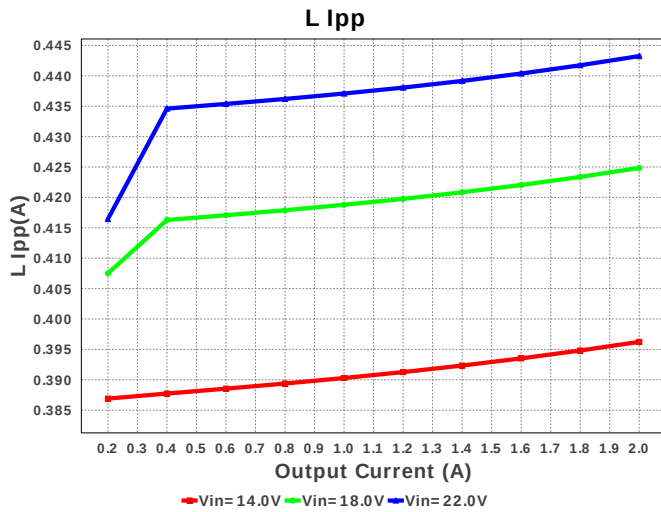
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cb	MuRata	GRM216R71H103KA01D Series= X7R	Cap= 10.0 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0805 7 mm ²
2.	Cin	MuRata	GRM31CR71H475KA12L Series= X7R	Cap= 4.7 uF ESR= 3.0 mOhm VDC= 50.0 V IRMS= 4.98 A	1	\$0.07	 1206 11 mm ²
3.	Cinx	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm ²
4.	Cout	MuRata	GRM31CR60J107ME39L Series= X5R	Cap= 100.0 uF ESR= 4.885 mOhm VDC= 6.3 V IRMS= 4.4118 A	2	\$0.14	 1206_190 11 mm ²
5.	D1	Diodes Inc.	B340A-13-F	VF@Io= 500.0 mV VRRM= 40.0 V	1	\$0.11	 SMA 37 mm ²
6.	L1	Bourns	SDR1307-270ML	L= 27.0 µH DCR= 60.0 mOhm	1	\$0.35	 SDR1307 227 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
7.	U1	Texas Instruments	LM2678SX-3.3/NOPB	Switcher	1	\$2.20	 TS7B 199 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	702.052 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	127.954 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	2.222 A	Current	Peak switch current in IC
4.	Iin Avg	355.6 mA	Current	Average input current
5.	L Ipp	443.25 mA	Current	Peak-to-peak inductor ripple current
6.	M Irms	815.83 mA	Current	MOSFET RMS current
7.	BOM Count	8	General	Total Design BOM count
8.	FootPrint	509.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	260.0 kHz	General	Switching frequency
10.	IC Tolerance	66.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	109.74 mV	General	Voltage drop across the MosFET
12.	Pout	6.6 W	General	Total output power
13.	Total BOM	\$3.03	General	Total BOM Cost
14.	D1 Tj	98.485 degC	Op_Point	D1 junction temperature
15.	Vout OP	3.3 V	Op_Point	Operational Output Voltage
16.	Cross Freq	20.475 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	16.639 %	Op_point	Duty cycle
18.	Efficiency	84.364 %	Op_point	Steady state efficiency
19.	IC Tj	37.094 degC	Op_point	IC junction temperature
20.	ICThetaJA	26.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	2.0 A	Op_point	Iout operating point
22.	Phase Marg	42.717 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	22.0 V	Op_point	Vin operating point
24.	Vout p-p	1.653 mV	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	1.479 mW	Power	Input capacitor power dissipation
26.	Cout Pd	39.989 μ W	Power	Output capacitor power dissipation
27.	Diode Pd	684.85 mW	Power	Diode power dissipation
28.	IC Pd	272.861 mW	Power	IC power dissipation
29.	L Pd	264.0 mW	Power	Inductor power dissipation
30.	Total Pd	1.223 W	Power	Total Power Dissipation

#	Name	Value	Category	Description
31.	Vout Tolerance	2.0 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	2.0	Maximum Output Current
2.	VinMax	22.0	Maximum input voltage
3.	VinMin	14.0	Minimum input voltage
4.	Vout	3.3	Output Voltage
5.	base_pn	LM2678	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. LM2678 Product Folder : <http://www.ti.com/product/LM2678> : contains the data sheet and other resources.

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