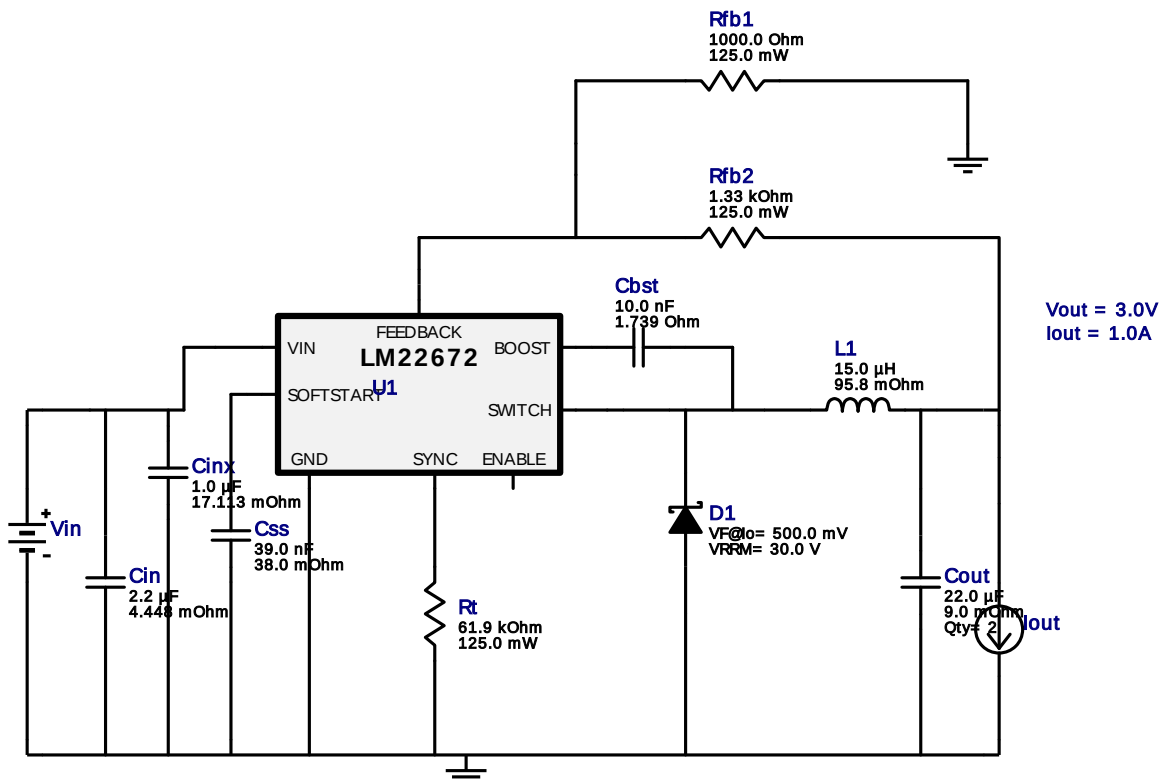


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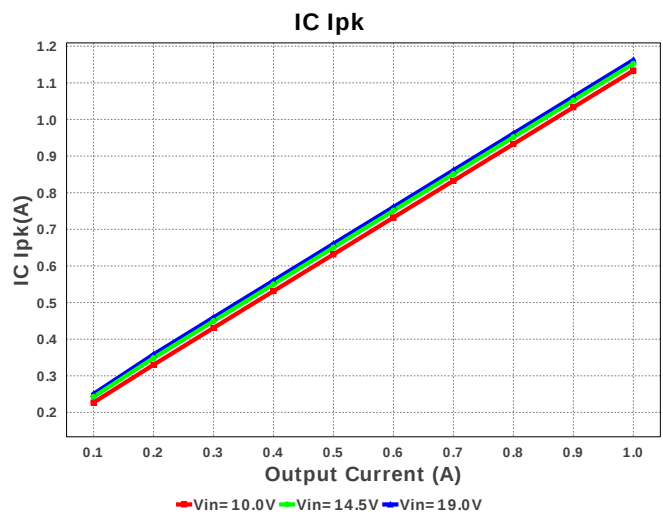
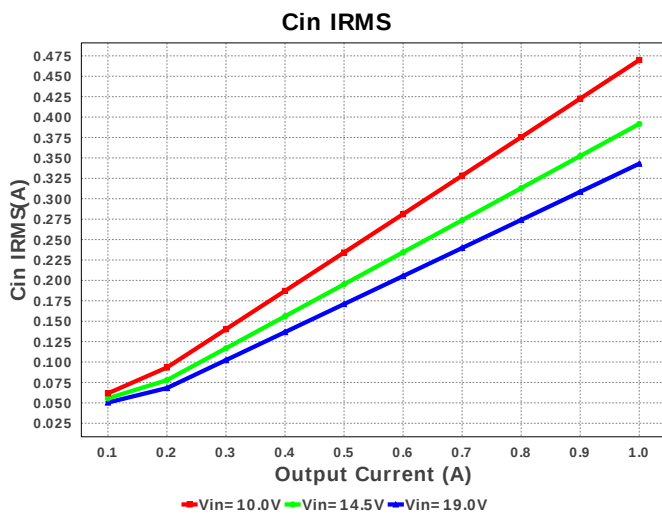
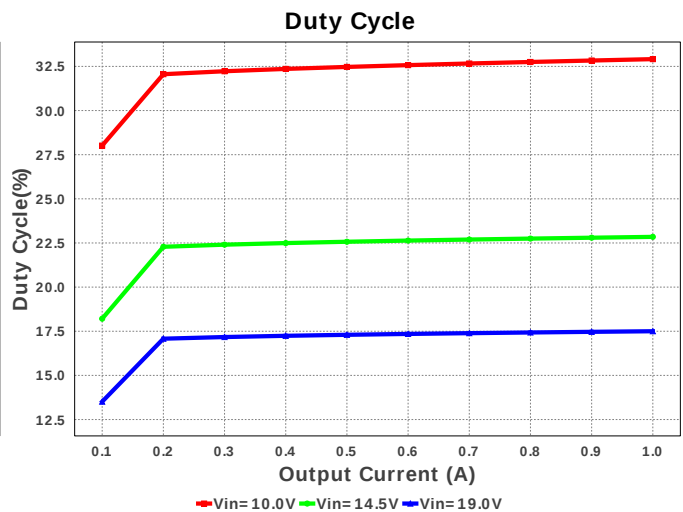
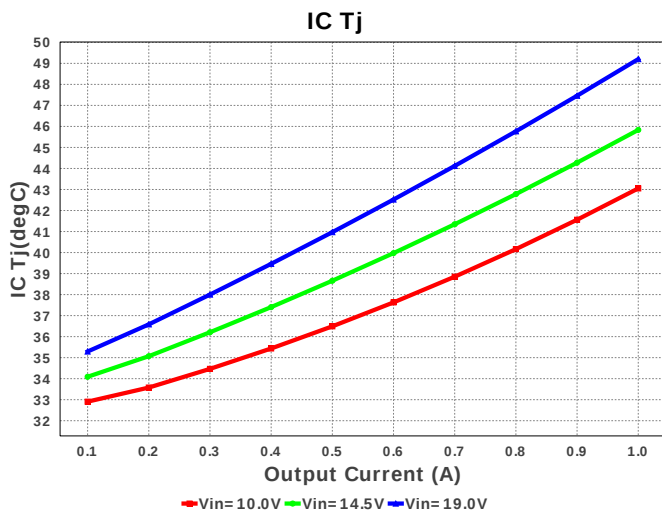
Design : 4728729/27 LM22672MRE-ADJ/NOPB
LM22672MRE-ADJ/NOPB 10.0V-19.0V to 3.00V @ 1.0A

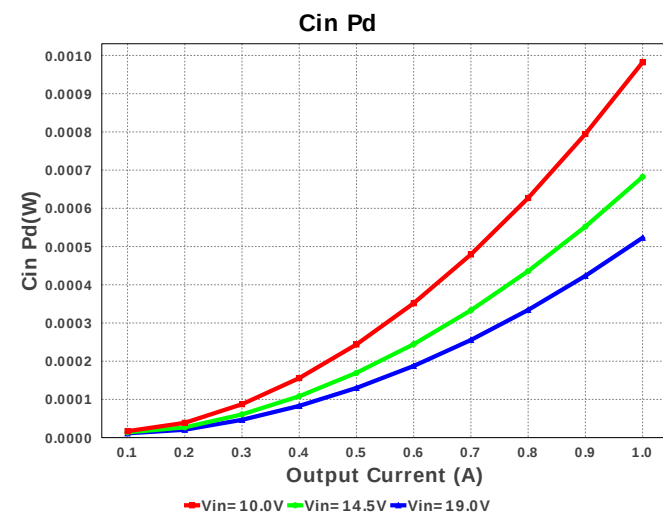
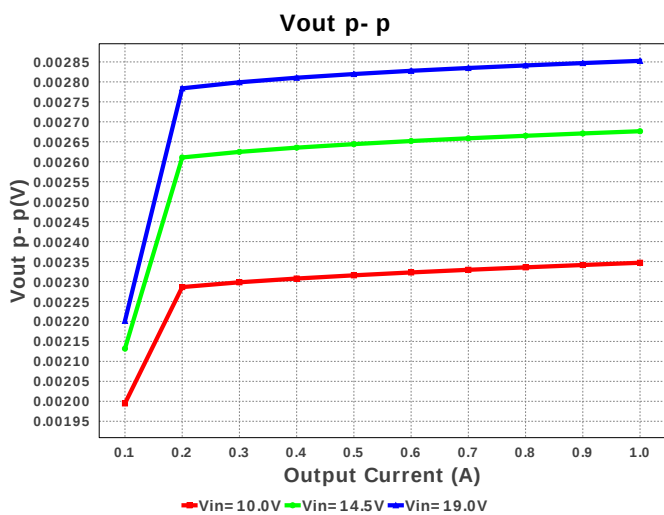
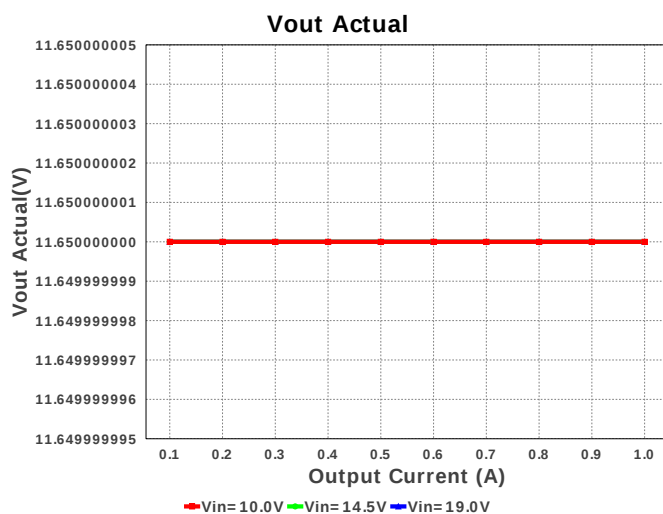
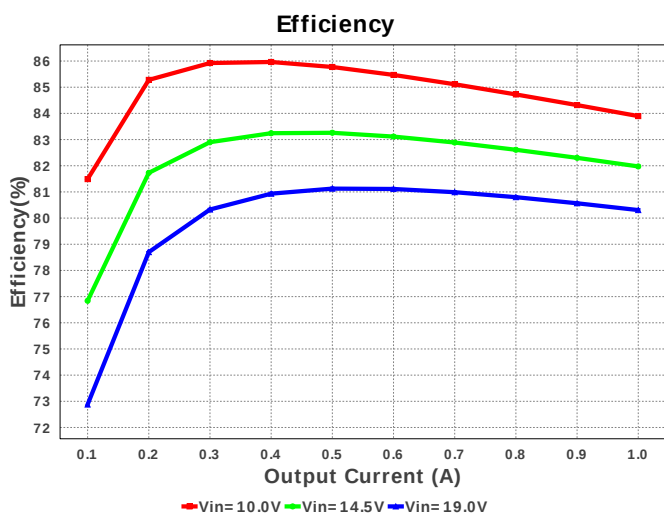
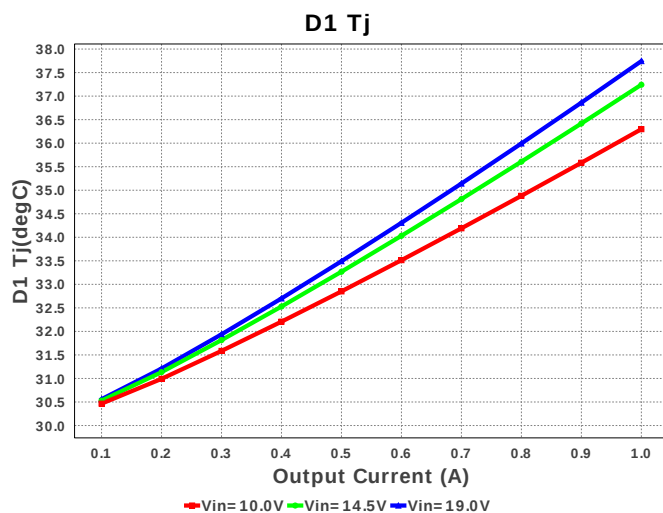
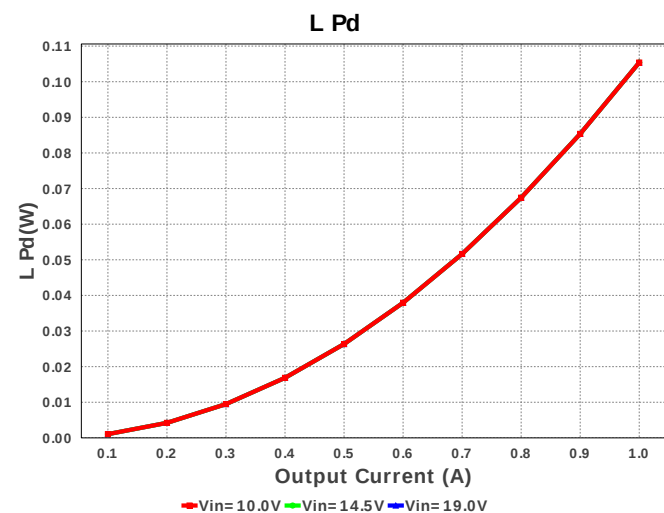


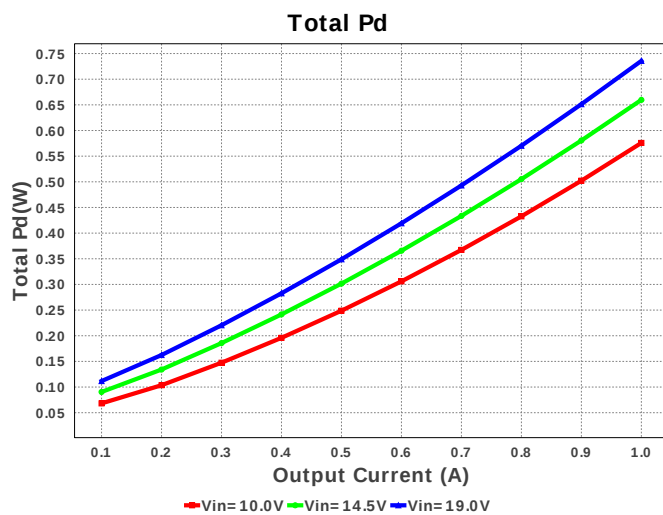
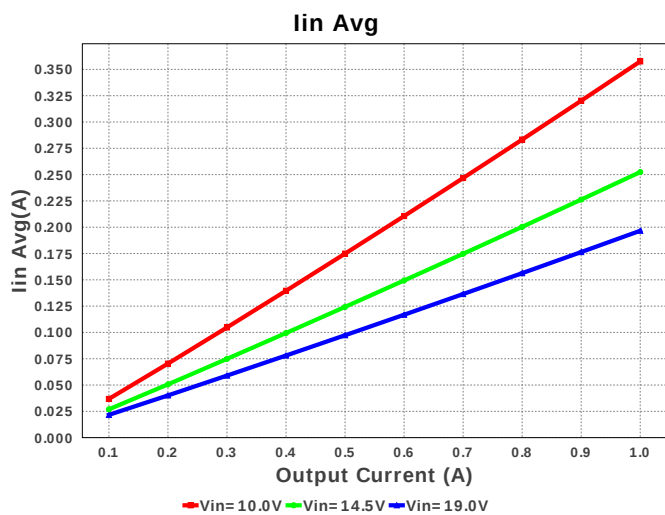
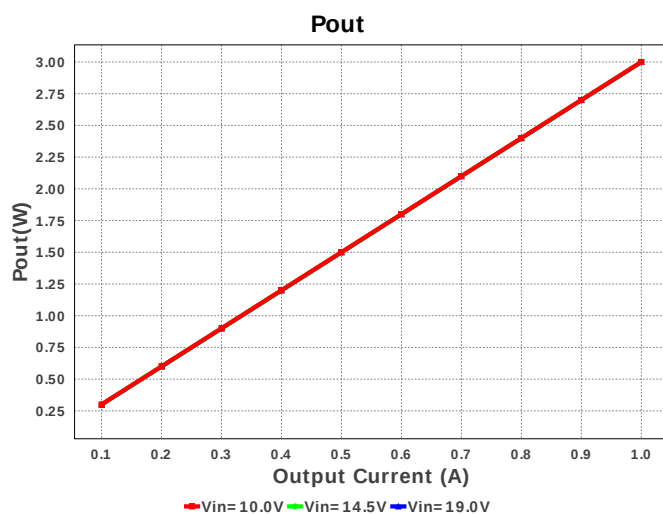
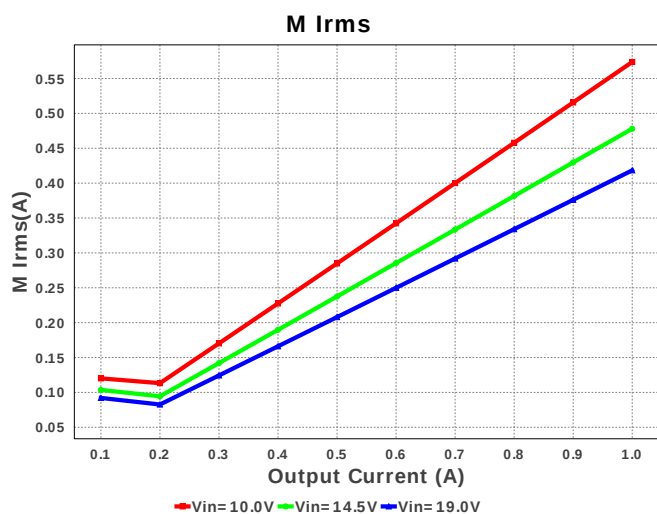
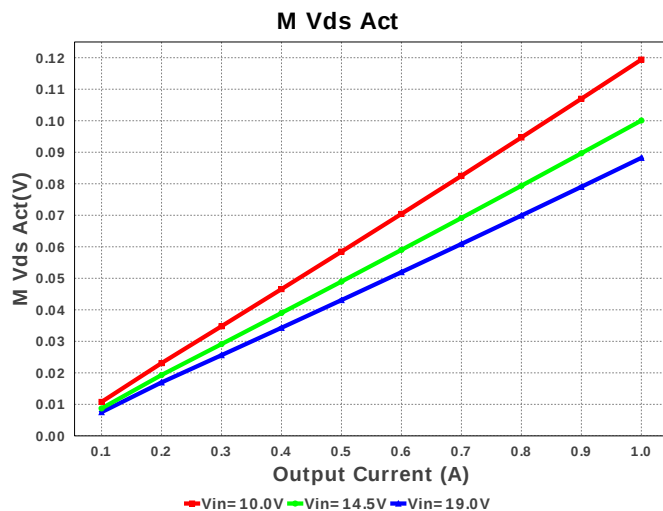
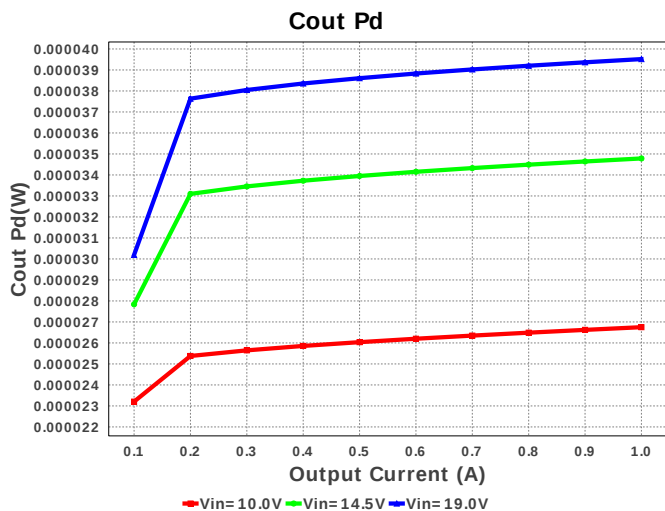
Electrical BOM

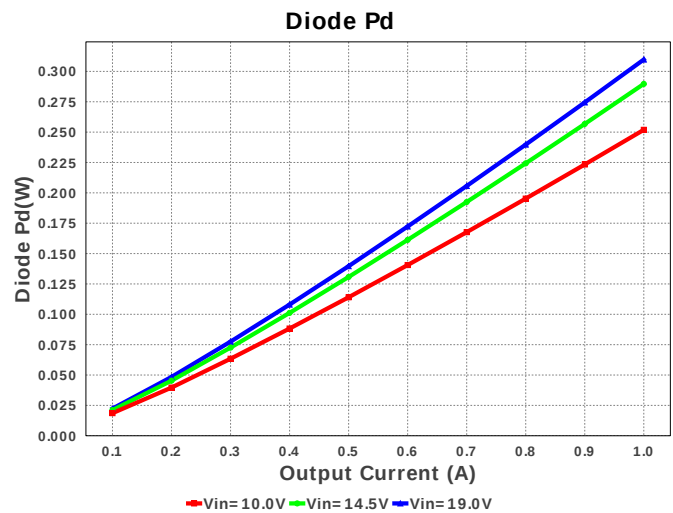
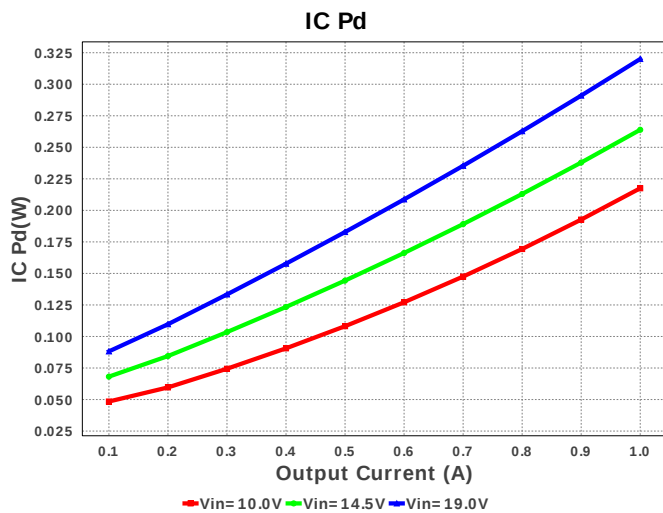
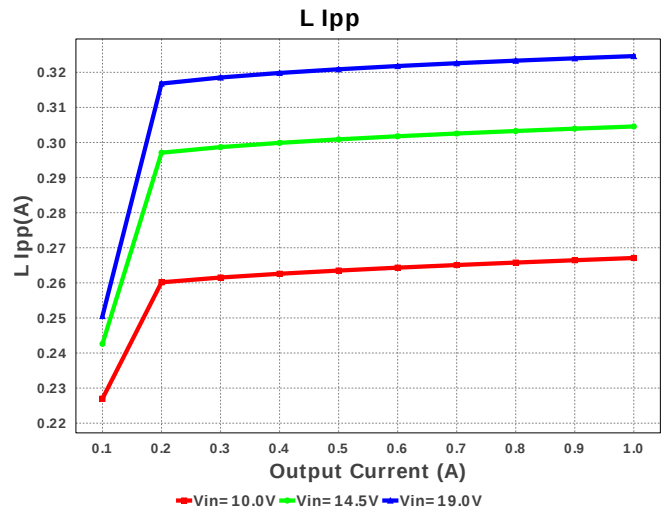
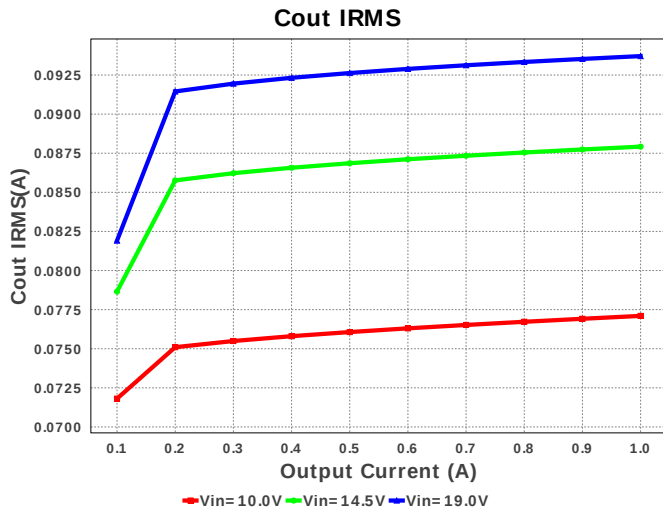
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	Kemet	C0805C103K5RACTU Series= X7R	Cap= 10.0 nF ESR= 1.739 Ohm VDC= 50.0 V IRMS= 411.0 mA	1	\$0.01	0805 7 mm ²
2.	Cin	MuRata	GRM31CR71H225KA88L Series= X7R	Cap= 2.2 uF ESR= 4.448 mOhm VDC= 50.0 V IRMS= 2.2252 A	1	\$0.05	1206_190 11 mm ²
3.	Cinx	MuRata	GRM188R61E105KA12D Series= X5R	Cap= 1.0 uF ESR= 17.113 mOhm VDC= 25.0 V IRMS= 979.39 mA	1	\$0.01	0603 5 mm ²
4.	Cout	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
5.	Css	AVX	08055C393KAT2A Series= X7R	Cap= 39.0 nF ESR= 38.0 mOhm VDC= 50.0 V IRMS= 0.0 A	1	\$0.02	0805 7 mm ²
6.	D1	Diodes Inc.	B230A-13-F	VF@Io= 500.0 mV VRRM= 30.0 V	1	\$0.09	SMA 37 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
7.	L1	Bourns	SRN6045-150M	L= 15.0 μ H DCR= 95.8 mOhm	1	\$0.16	 SRN6045 64 mm ²
8.	Rfb1	Panasonic	ERJ-6ENF1001V Series= ERJ-6E	Res= 1000.0 Ohm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
9.	Rfb2	Panasonic	ERJ-6ENF1331V Series= ERJ-6E	Res= 1.33 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
10.	Rt	Panasonic	ERJ-6ENF6192V Series= ERJ-6E	Res= 61.9 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7 mm ²
11.	U1	Texas Instruments	LM22672MRE-ADJ/NOPB	Switcher	1	\$1.84	 MRA08B 56 mm ²









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	342.908 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	93.71 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	1.162 A	Current	Peak switch current in IC
4.	Iin Avg	196.62 mA	Current	Average input current
5.	L Ipp	324.62 mA	Current	Peak-to-peak inductor ripple current
6.	M Irms	418.343 mA	Current	MOSFET RMS current
7.	BOM Count	12	General	Total Design BOM count
8.	FootPrint	220.0 mm ²	General	Total Foot Print Area of BOM components
9.	Frequency	575.061 kHz	General	Switching frequency
10.	IC Tolerance	19.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	88.225 mV	General	Voltage drop across the MosFET
12.	Pout	3.0 W	General	Total output power
13.	Total BOM	\$2.29	General	Total BOM Cost
14.	D1 Tj	37.744 degC	Op_Point	D1 junction temperature
15.	Vout Actual	2.994 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
16.	Vout OP	3.0 V	Op_Point	Operational Output Voltage
17.	Cross Freq	71.664 kHz	Op_point	Bode plot crossover frequency
18.	Duty Cycle	17.501 %	Op_point	Duty cycle
19.	Efficiency	80.306 %	Op_point	Steady state efficiency
20.	IC Tj	49.202 degC	Op_point	IC junction temperature
21.	ICThetaJA	60.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
22.	IOUT_OP	1.0 A	Op_point	Iout operating point
23.	Phase Marg	41.63 deg	Op_point	Bode Plot Phase Margin
24.	VIN_OP	19.0 V	Op_point	Vin operating point
25.	Vout p-p	2.853 mV	Op_point	Peak-to-peak output ripple voltage
26.	Cin Pd	523.021 μ W	Power	Input capacitor power dissipation
27.	Cout Pd	39.517 μ W	Power	Output capacitor power dissipation
28.	Diode Pd	309.759 mW	Power	Diode power dissipation
29.	IC Pd	320.031 mW	Power	IC power dissipation
30.	L Pd	105.38 mW	Power	Inductor power dissipation
31.	Total Pd	735.725 mW	Power	Total Power Dissipation

#	Name	Value	Category	Description
32.	Vout Tolerance	2.649 %		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	19.0	Maximum input voltage
3.	VinMin	10.0	Minimum input voltage
4.	Vout	3.0	Output Voltage
5.	base_pn	LM22672	Texas Instruments Base Part Number
6.	source	DC	Input Source Type
7.	ta	30.0	Ambient temperature

Design Assistance

1. Part Description The LM22672 is a monolithic integrated circuit that provides all of the active functions for a step-down (buck) switching regulator capable of driving up to 1.0A loads with excellent line and load regulation characteristics. High efficiency (>90%) is obtained through the use of a low ON-resistance N-channel MOSFET.

2. LM22672 Product Folder : <http://www.ti.com/product/LM22672> : contains the data sheet and other resources.

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