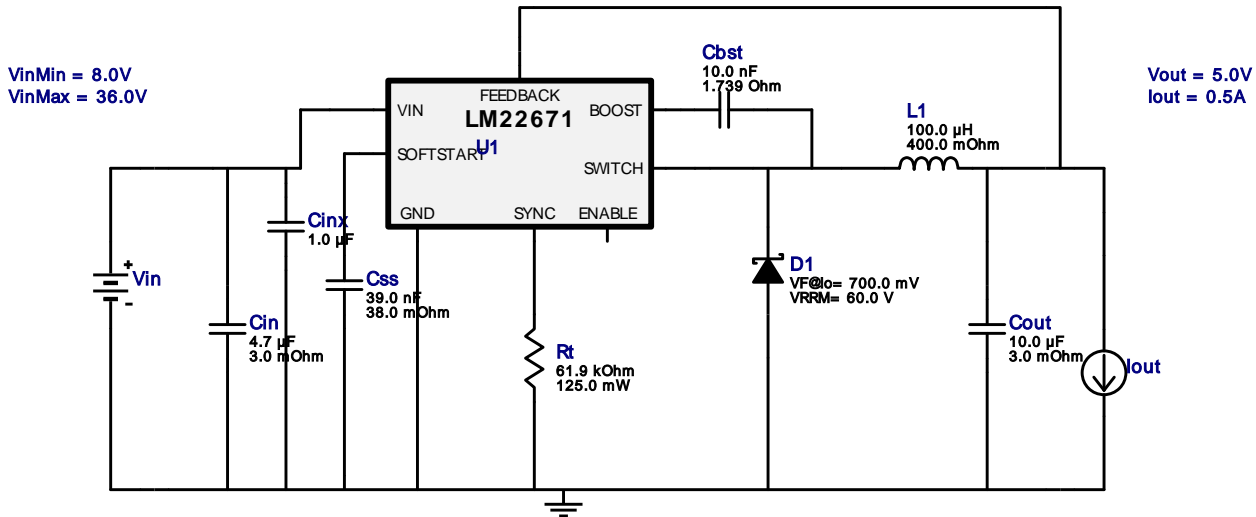

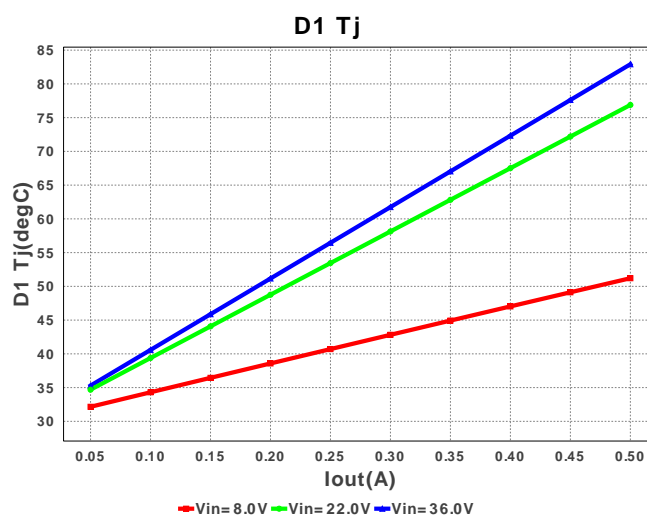
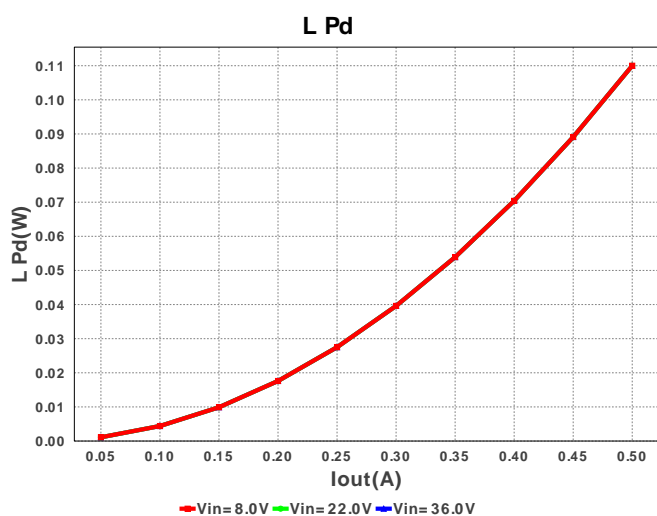
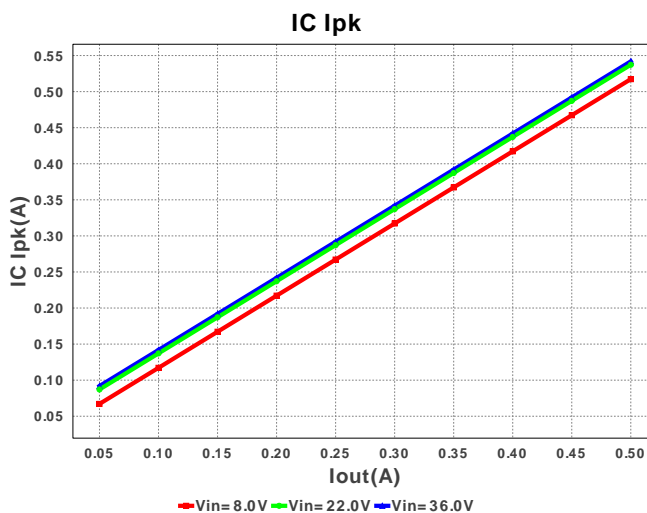
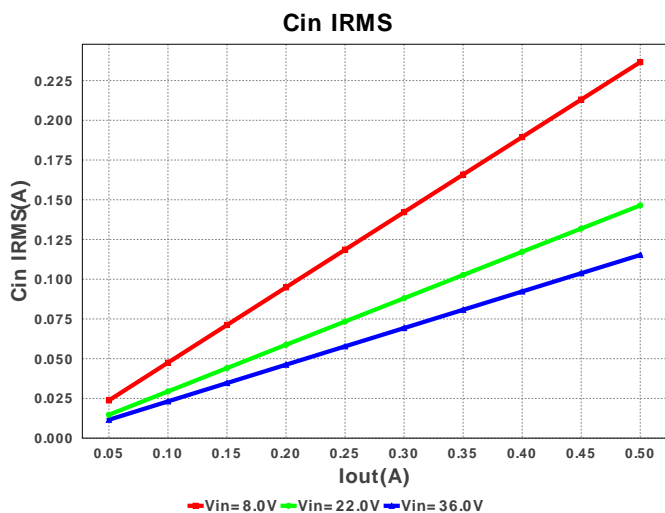
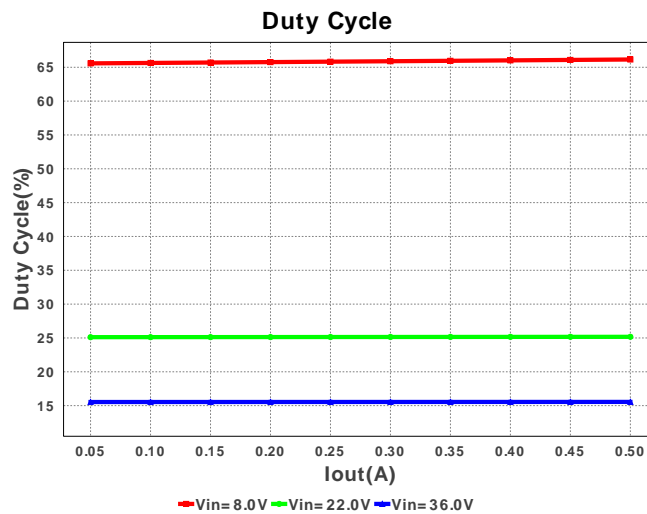
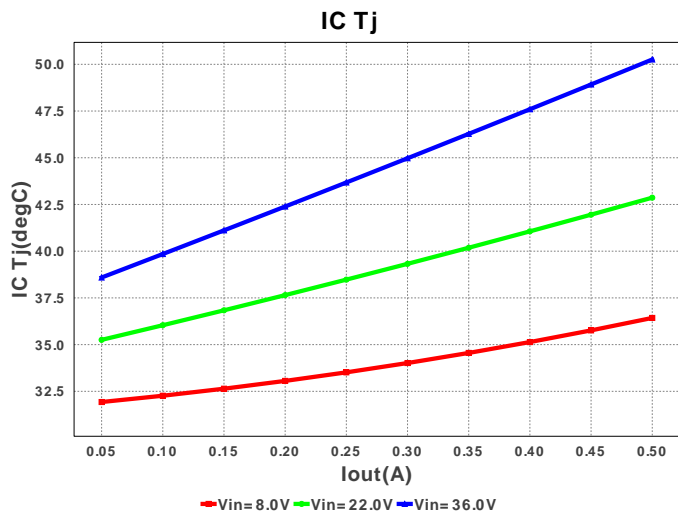


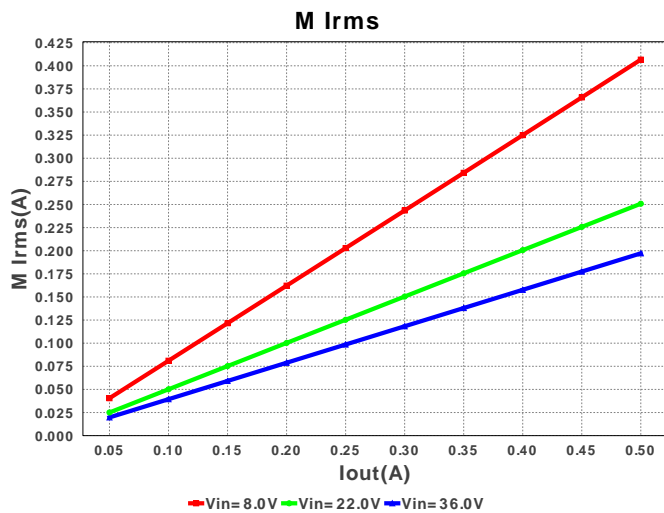
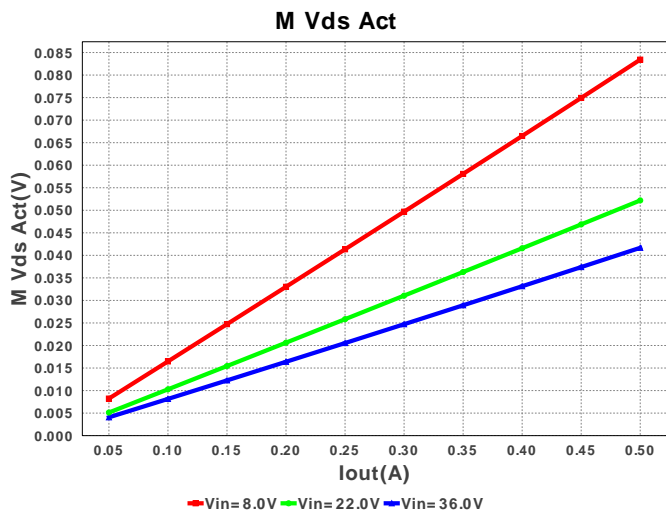
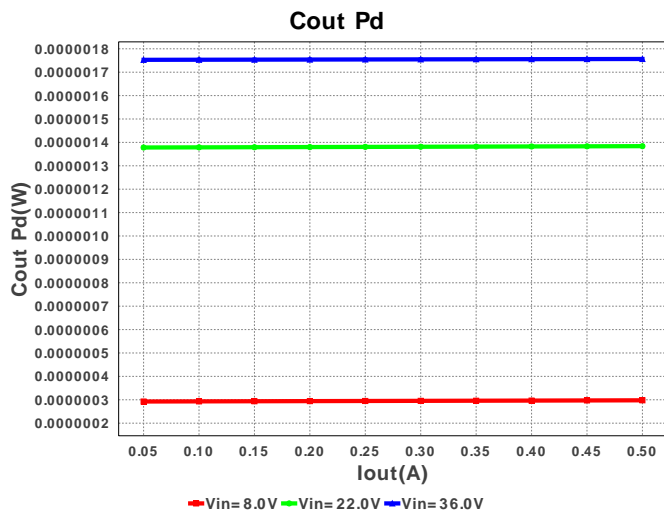
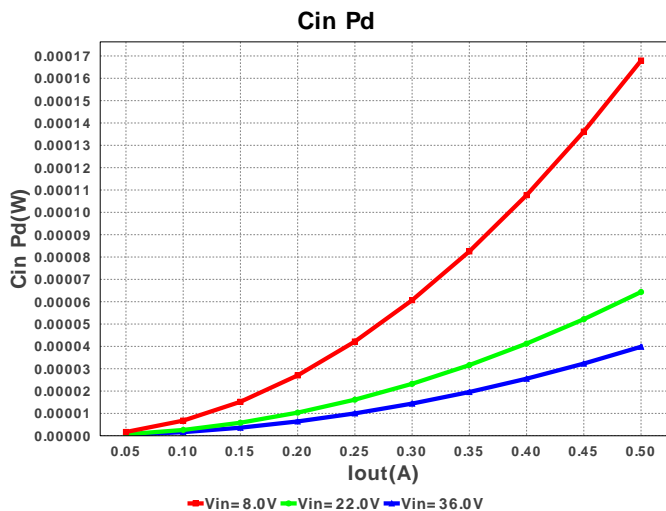
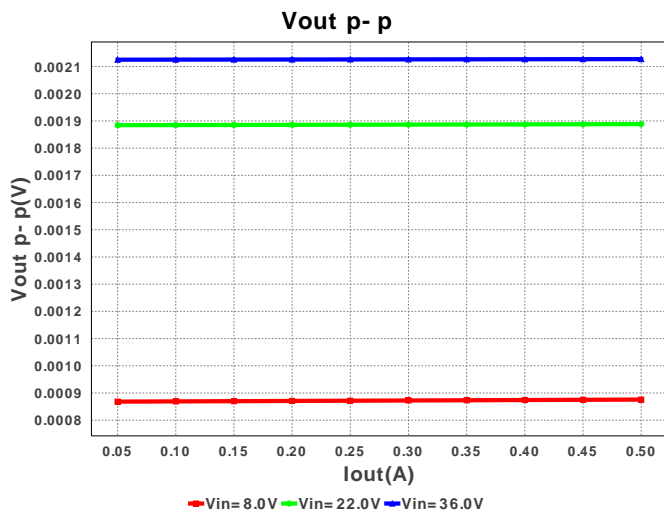
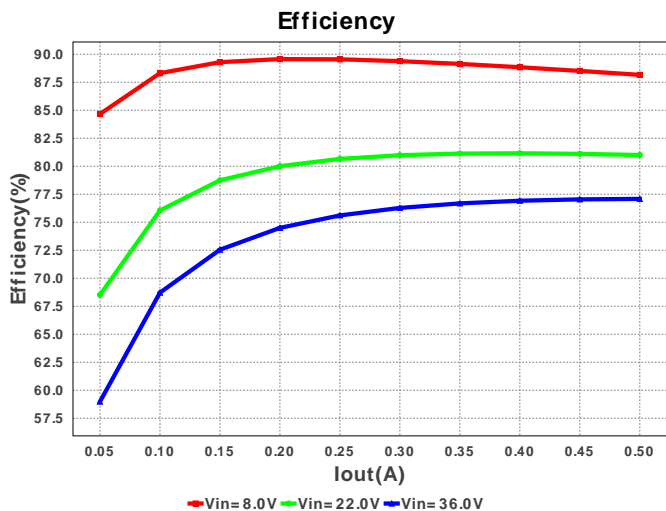
WEBENCH® Design Report

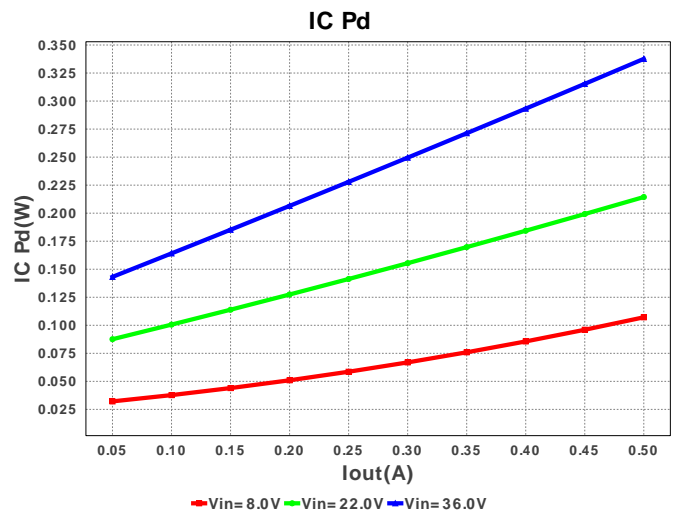
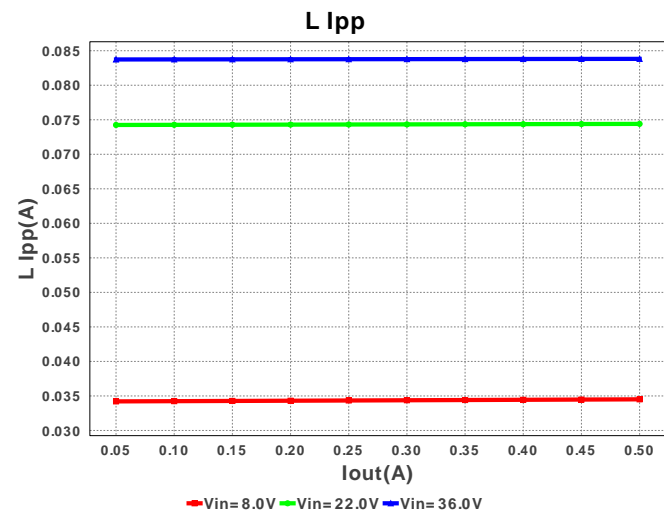
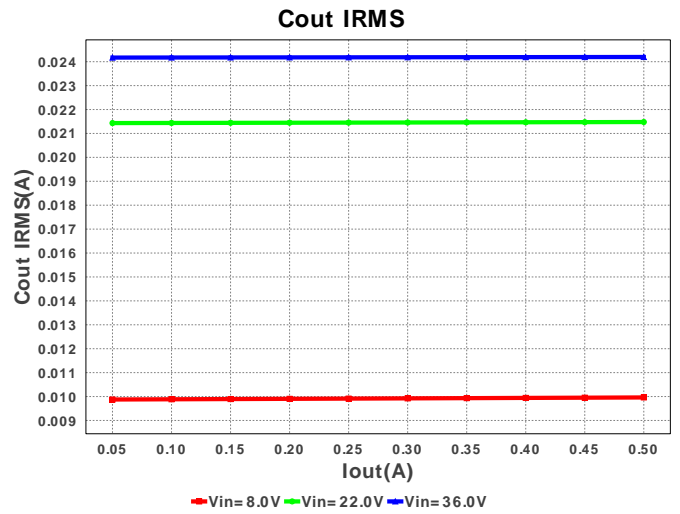
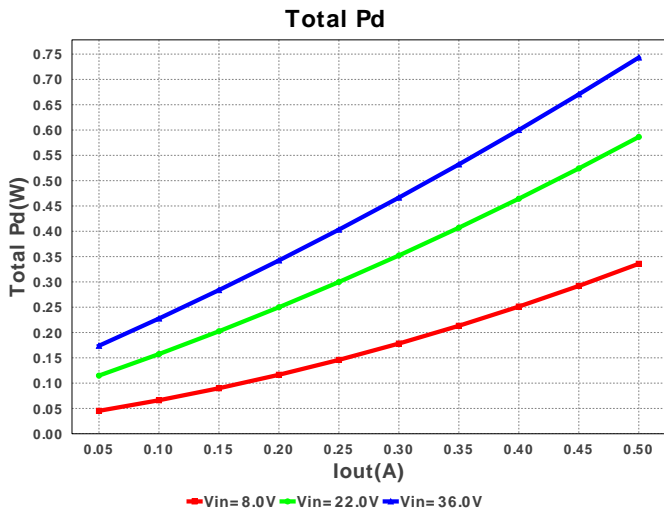
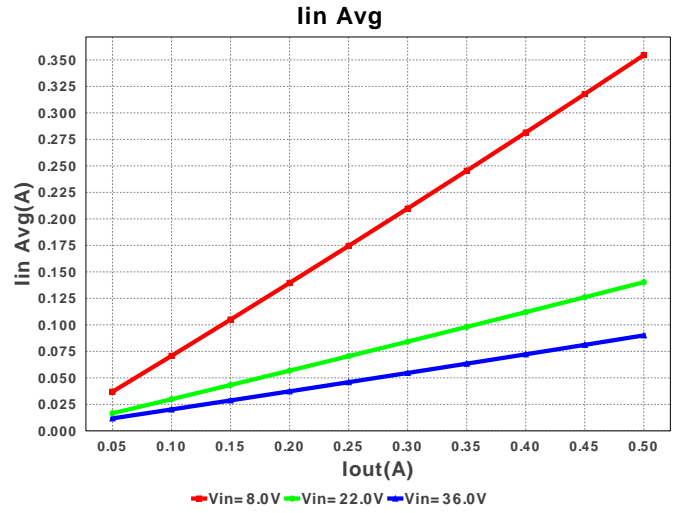
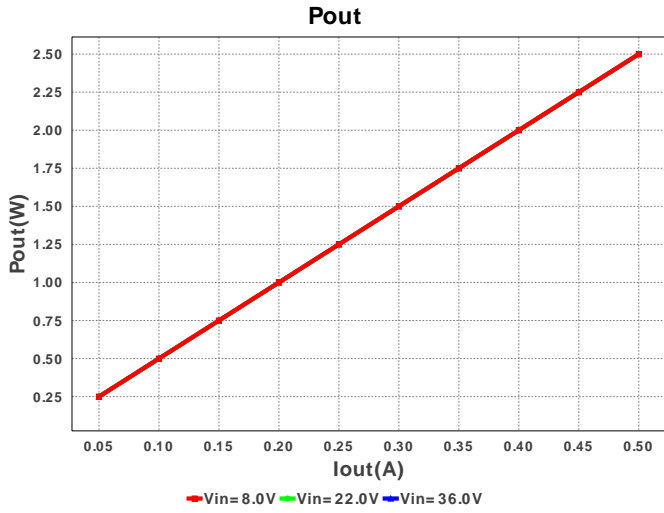
 Design : 860251/45 LM22671MRX-5.0/NOPB
 LM22671MRX-5.0/NOPB 8.0V-36.0V to 5.0V @ 0.5A

Electrical BOM

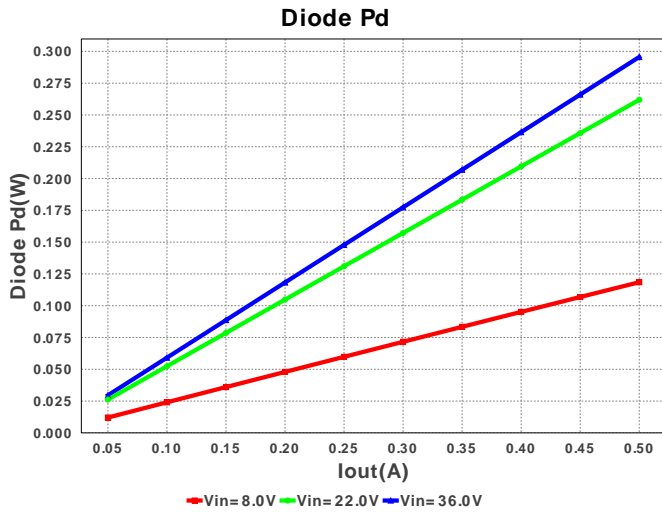
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbst	Kemet	C0805C103K5RACTU Series= X7R	Cap= 10.0 nF ESR= 1.739 Ohm VDC= 50.0 V IRMS= 411.0 mA	1	\$0.01	 0805 7mm2
2.	Cin	MuRata	GRM31CR71H475KA12L Series= X7R	Cap= 4.7 µF ESR= 3.0 mOhm VDC= 50.0 V IRMS= 4.98 A	1	\$0.10	 1206 11mm2
3.	Cinx	MuRata	GRM21BR71H105KA12L Series= X7R	Cap= 1.0 µF VDC= 50.0 V IRMS= 0.0 A	1	\$0.10	 0805 7mm2
4.	Cout	Kemet	C0805C106K8PACTU Series= X5R	Cap= 10.0 µF ESR= 3.0 mOhm VDC= 10.0 V IRMS= 11.43 A	1	\$0.04	 0805 7mm2
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 7mm2
6.	D1	Diodes Inc.	B160-13-F	VF@Io= 700.0 mV VRRM= 60.0 V	1	\$0.06	 SMA 37mm2
7.	L1	Bourns	SRN8040-101M	L= 100.0 µH DCR= 400.0 mOhm	1	\$0.21	 SRN8040 100mm2
8.	Rt	Panasonic	ERJ-6ENF6192V Series= 225	Res= 61.9 kOhm Power= 125.0 mW Tolerance= 1.0%	1	\$0.01	 0805 7mm2

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
9.	U1	Texas Instruments	LM22671MRX-5.0/NOPB	Switcher	1	\$1.30	 MRA08B 56mm2









Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	115.246 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	24.197 mA	Current	Output capacitor RMS ripple current
3.	IC Ipk	541.91 mA	Current	Peak switch current in IC
4.	Iin Avg	90.091 mA	Current	Average input current
5.	L Ipp	83.82 mA	Current	Peak-to-peak inductor ripple current
6.	M1 Irms	197.161 mA	Current	Q Iavg
7.	BOM Count	9	General	Total Design BOM count
8.	FootPrint	238.0 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	575.061 kHz	General	Switching frequency
10.	IC Tolerance	75.0 mV	General	IC Feedback Tolerance
11.	M Vds Act	41.673 mV	General	Voltage drop across the MosFET
12.	Pout	2.5 W	General	Total output power
13.	Total BOM	\$1.85	General	Total BOM Cost
14.	D1 Tj	82.909 degC	Op_Point	D1 junction temperature
15.	Vout OP	5.0 V	Op_Point	Operational Output Voltage
16.	Cross Freq	47.828 kHz	Op_point	Bode plot crossover frequency
17.	Duty Cycle	15.549 %	Op_point	Duty cycle
18.	Efficiency	77.083 %	Op_point	Steady state efficiency
19.	IC Tj	50.258 degC	Op_point	IC junction temperature
20.	ICThetaJA	60.0 degC/W	Op_point	IC junction-to-ambient thermal resistance
21.	IOUT_OP	500.0 mA	Op_point	Iout operating point
22.	Phase Marg	45.943 deg	Op_point	Bode Plot Phase Margin
23.	VIN_OP	36.0 V	Op_point	Vin operating point
24.	Vout p-p	2.127 mV	Op_point	Peak-to-peak output ripple voltage
25.	Cin Pd	39.845 μW	Power	Input capacitor power dissipation
26.	Cout Pd	1.756 μW	Power	Output capacitor power dissipation
27.	Diode Pd	295.579 mW	Power	Diode power dissipation
28.	IC Pd	337.638 mW	Power	IC power dissipation
29.	L Pd	110.0 mW	Power	Inductor power dissipation
30.	Total Pd	743.262 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	500.0 mA	Maximum Output Current
2.	Iout1	500.0 mAmps	Output Current #1
3.	VinMax	36.0 V	Maximum input voltage
4.	VinMin	8.0 V	Minimum input voltage
5.	Vout	5.0 V	Output Voltage
6.	Vout1	5.0 Volt	Output Voltage #1
7.	base_pn	LM22671	Base Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. Part Description The LM22671 is a monolithic integrated circuit that provides all of the active functions for a step-down (buck) switching regulator capable of driving up to 0.5A 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. **LM22671** Product Folder : <http://www.ti.com/product/lm22671> : contains the data sheet and other resources.

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