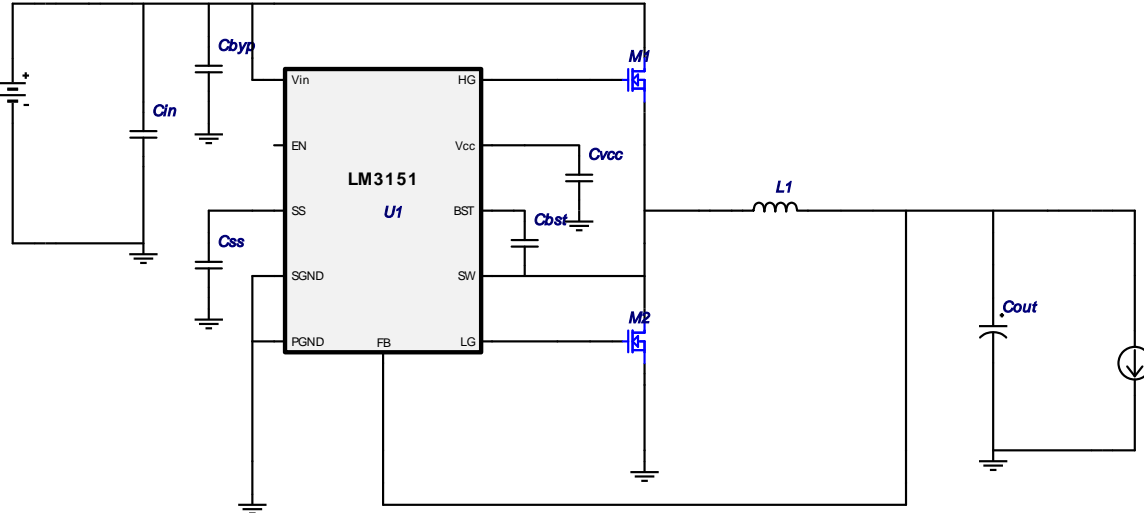



WEBENCH® Design Report

 Design : 1227927/14 LM3151MH-3.3/NOPB
 LM3151MH-3.3/NOPB 6.0V-8.0V to 3.3V @ 1.0A

Electrical BOM

#	Name	Manufacturer	Part Number	Quantity	Price	Properties	Footprint
1.	Cbst	Taiyo Yuden	EMK212B7474KD-T Series= X7R	1	\$0.02	Cap= 470.0 nF VDC= 16.0 V IRMS= 0.0 A	 0805 13mm2
2.	Cbyp	AVX	08053C104KAT2A Series= X7R	1	\$0.01	Cap= 100.0 nF ESR= 280.0 mOhm VDC= 25.0 V IRMS= 0.0 A	 0805 13mm2
3.	Cin	TDK	C3216X5R1C106M Series= X5R	1	\$0.06	Cap= 10.0 µF ESR= 4.6 mOhm VDC= 16.0 V IRMS= 2.7 A	 1206 19mm2
4.	Cout	AVX	TPSD107K010R0100 Series= TPS	1	\$0.35	Cap= 100.0 µF ESR= 100.0 mOhm VDC= 10.0 V IRMS= 1.102 A	 7343-31 59mm2
5.	Css	Yageo America	CC0805KRX7R9BB153 Series= X7R	1	\$0.01	Cap= 15.0 nF VDC= 50.0 V IRMS= 0.0 A	 0805 13mm2
6.	Cvcc	Taiyo Yuden	EMK212B7105KG-T Series= X7R	1	\$0.02	Cap= 1.0 µF VDC= 16.0 V IRMS= 0.0 A	 0805 13mm2
7.	L1	Bourns	SRR1260-270M	1	\$0.41	L= 27.0 µH DCR= 45.0 mOhm	 SRR1260 210mm2
8.	M1	Vishay-Siliconix	SI2316BDS-T1-E3	1	\$0.16	VdsMax= 30.0 V IdsMax= 4.5 Amps	 SOT-23 22mm2
9.	M2	Vishay-Siliconix	SI2316BDS-T1-E3	1	\$0.16	VdsMax= 30.0 V IdsMax= 4.5 Amps	 SOT-23 22mm2

#	Name	Manufacturer	Part Number	Quantity	Price	Properties	Footprint
10.	U1	Texas Instruments	LM3151MH-3.3/NOPB	1	\$1.55	Switcher	 MXA14A 59mm2

Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	494.865 m A	Current	Input capacitor RMS ripple current
2.	Cout IRMS	86.642 m A	Current	Output capacitor RMS ripple current
3.	I lim	2.571 A	Current	Current limit threshold
4.	Iin Avg	440.76 m A	Current	Average input current
5.	L Ipp	300.137 m A	Current	Peak-to-peak inductor ripple current
6.	SW Ipk	1.15 A	Current	Peak switch current
7.	BOM Count	10.0	General	Total Design BOM count
8.	FootPrint	443.0 mm2	General	Total Foot Print Area of BOM components
9.	Frequency	248.538 k Hz	General	Switching frequency
10.	IC Tolerance	66.0 m V	General	IC Feedback Tolerance
11.	Mode	CCM	General	Conduction Mode
12.	Pout	3.3 W	General	Total output power
13.	Total BOM	\$2.75	General	Total BOM Cost
14.	Duty Cycle	42.853 %	Op_point	Duty cycle
15.	Efficiency	93.589 %	Op_point	Steady state efficiency
16.	IC Tj	33.58 degC	Op_point	IC junction temperature
17.	IOUT_OP	1.0 A	Op_point	Iout operating point
18.	M1 Tj	35.507 degC	Op_point	M1 MOSFET junction temperature
19.	M2 Tj	39.392 degC	Op_point	M2 MOSFET junction temperature
20.	VIN_OP	8.0 V	Op_point	Vin operating point
21.	Vout p-p	30.052 m V	Op_point	Peak-to-peak output ripple voltage
22.	Cin Pd	1.127 m W	Power	Input capacitor power dissipation
23.	Cout Pd	750.684 μ W	Power	Output capacitor power dissipation
24.	IC Pd	55.079 m W	Power	IC power dissipation
25.	L Pd	56.25 m W	Power	Inductor power dissipation
26.	M1 Pd	42.413 m W	Power	M1 MOSFET total power dissipation
27.	M1 PdCond	36.148 m W	Power	M1 MOSFET conduction losses
28.	M1 PdSw	6.265 m W	Power	M1 MOSFET switching losses
29.	M2 Pd	70.426 m W	Power	M2 MOSFET total power dissipation
30.	M2 PdCond	47.211 m W	Power	M2 MOSFET conduction losses
31.	M2 PdSw	23.214 m W	Power	M2 MOSFET switching losses
32.	Total Pd	226.057 m W	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	Iout	1.0 A	Maximum Output Current
2.	Iout1	1.0 Amps	Output Current #1
3.	VinMax	8.0 V	Maximum input voltage
4.	VinMin	6.0 V	Minimum input voltage
5.	Vout	3.3 V	Output Voltage
6.	Vout1	3.3 Volt	Output Voltage #1
7.	base_pn	LM3151	National Based Product Number
8.	source	DC	Input Source Type
9.	Ta	30.0 degC	Ambient temperature

Design Assistance

1. **LM3151** Product Folder : <http://www.ti.com/product/lm3151> : contains the data sheet and other resources.

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