VinMin = 24.0V
VinMax = 32.0V
Vout = 3.3V
Iout = 2.0A

Device = LM3151MHX-3.3/NOPB
Topology = Buck
Created = 7/7/15 7:42:40 PM
BOM Cost = $3.49
Total Pd = 0.85W
Footprint = 429.0 mm^2
BOM Count = 10
tSim Id = 1

TEXAS INSTRUMENTS

WEBENCH® Thermal Simulation Report

Design : 4420283/1 LM3151MHX-3.3/NOPB
LM3151MHX-3.3/NOPB 24.0V-32.0V to 3.30V @ 2.0A

Operating Condition

Name	Value
VIN_OP	32.0V
IOUT_OP	2.0A

Ambient Temperature

Name	Temperature
Ambient_plus_Z	30.0
Ambient_minus_Z	30.0
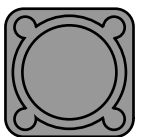
Air Flow

Name	Direction
Flow_Type	Convection
Flow_Rate	0.0LFM
Flow_Direction	Top to Bottom

Edge Temperature

Name	Temperature	Thermal Type
Edge_plus_X (Right)		Insulated
Edge_minus_X (Left)		Insulated
Edge_plus_Y (Top)		Insulated
Edge_minus_Y (Bottom)		Insulated

BOM

Component Name(s)	Part Number	Max Temp	Power Dissipation	Manufacture	Properties	Qty	Price	Footprint
pcb_bottom		44°C						
M1	SI4446DY	53°C	0.17W	Vishay-Siliconix	VdsMax=40.0V IdsMax=3.9Amps	1	$0.28	SOIC-8 55.131 mm^2
M2	BSC265N10LSF G	45°C	0.177W	Infineon Technologies	VdsMax=100.0V IdsMax=40.0Amps	1	$0.52	PG-TDSON-8 55.131 mm^2
L1	MSS1210-223MEB	42°C	0.13W	Coilcraft	L=2.2E-5H DCR=0.026Ohm	1	$0.81	MSS1210 204.49 mm^2
Cin	GRM31CR71H475KA12L	41°C	0.001W	MuRata	VDC=50.0V ESR=0.003Ohm IRMS=4.98A Cap=4.7E-6F	1	$0.07	1206 10.92 mm^2
Cout	6TPG100M	40°C	0.002W	Panasonic	VDC=6.3V ESR=0.07Ohm	1	$0.39	

Component Name(s)	Part Number	Max Temp	Power Dissipation	Manufacture	Properties	Qty	Price	Footprint
					IRMS=1.0A Cap=1.0E-4F			3528-12 17.1 mm^2
U1	LM3151MHX-3.3/NOPB	46°C	0.371W	Texas Instruments		1	$1.35	MXA14A 58.8 mm^2
pcb_top		45°C						

ti.com/webench

WEBENCH® Assembly Document   LM3151MHX-3.3/NOPB : LM3151MHX-3.3/
NOPB 24.0V-32.0V to 3.30V @ 2.0A   July 7, 2015 19:49:16 GMT-07:00
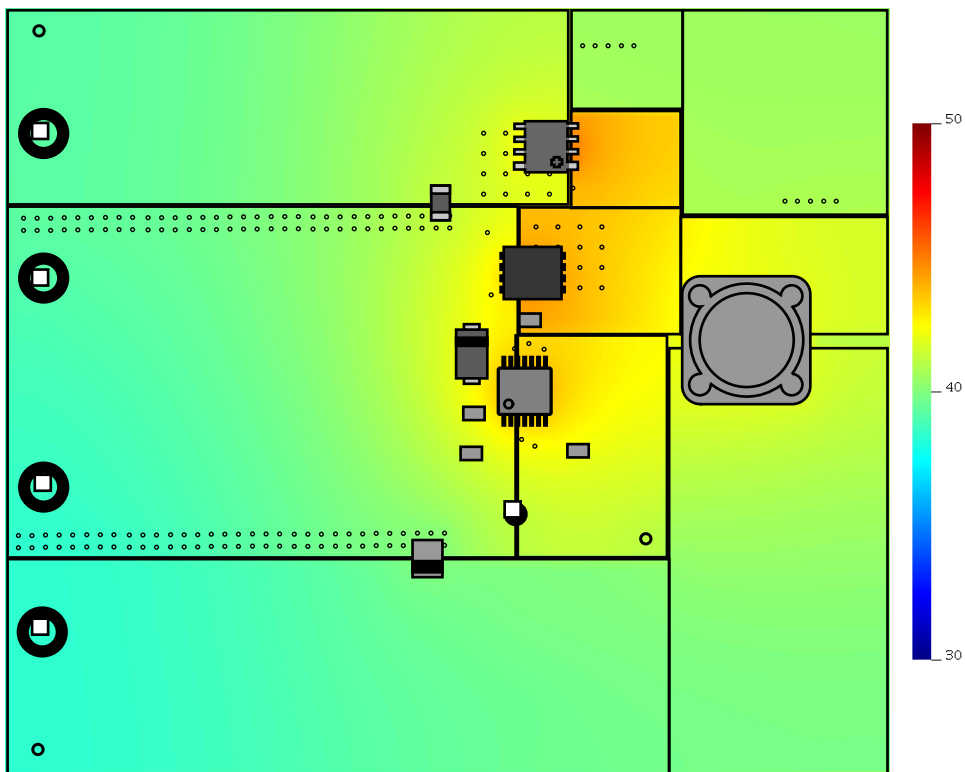
Thermal Images

Thermal Top Image

Thermal Bottom Image

WEBENCH® Assembly Document   LM3151MHX-3.3/NOPB : LM3151MHX-3.3/
NOPB 24.0V-32.0V to 3.30V @ 2.0A   July 7, 2015 19:49:16 GMT-07:00

WEBENCH® Assembly Document   LM3151MHX-3.3/NOPB : LM3151MHX-3.3/
NOPB 24.0V-32.0V to 3.30V @ 2.0A   July 7, 2015 19:49:16 GMT-07:00

Top Image

Bottom Image

5

WEBENCH® Assembly Document   LM3151MHX-3.3/NOPB : LM3151MHX-3.3/
NOPB 24.0V-32.0V to 3.30V @ 2.0A   July 7, 2015 19:49:16 GMT-07:00
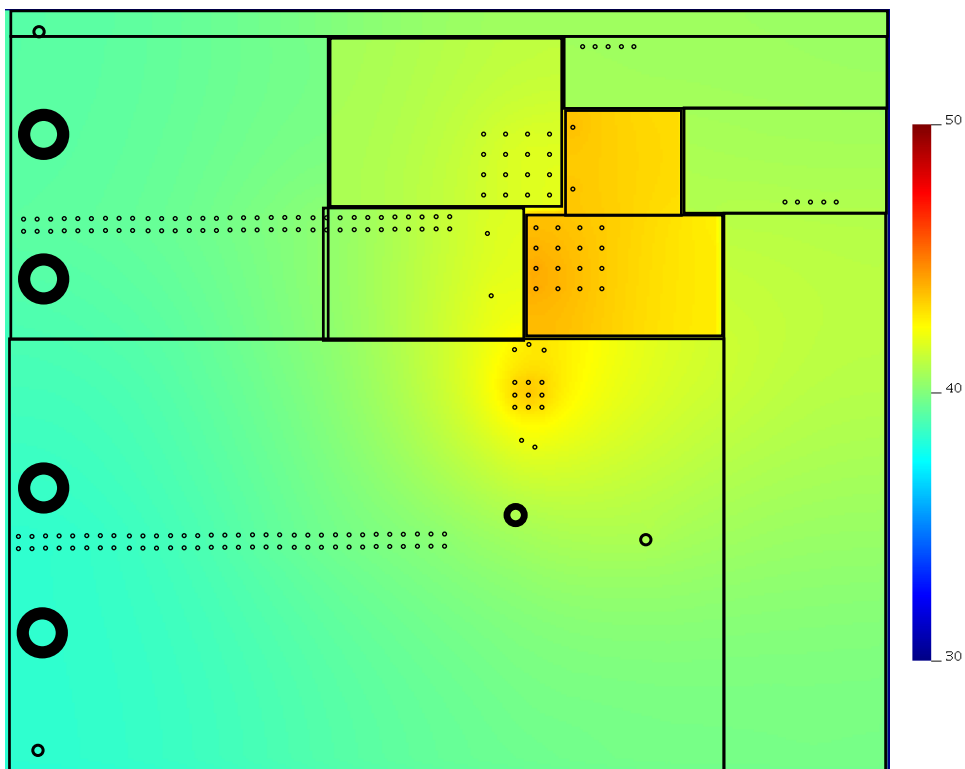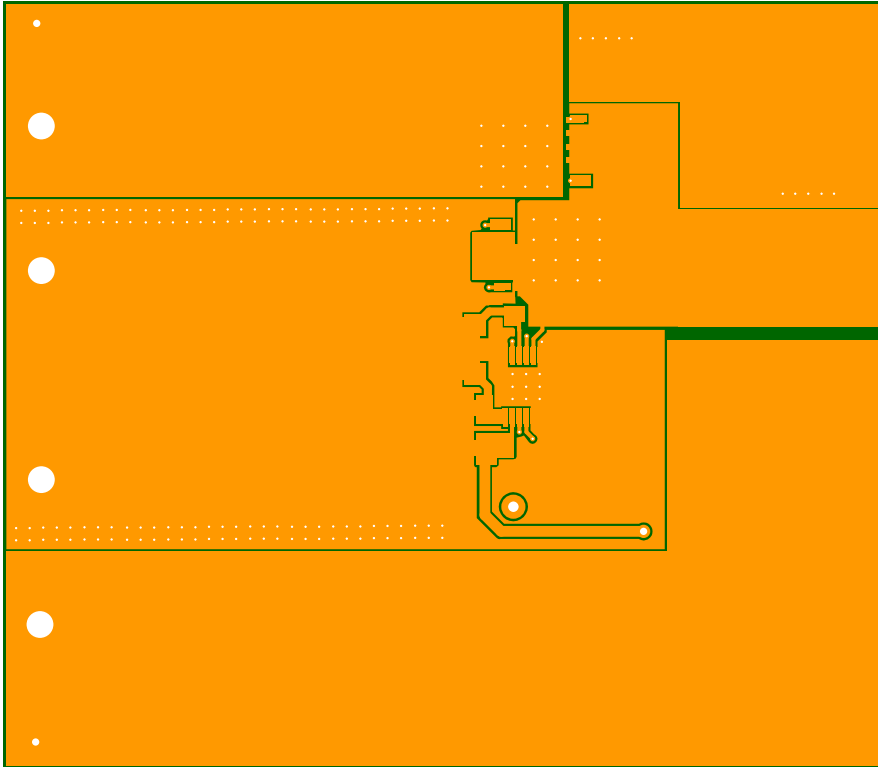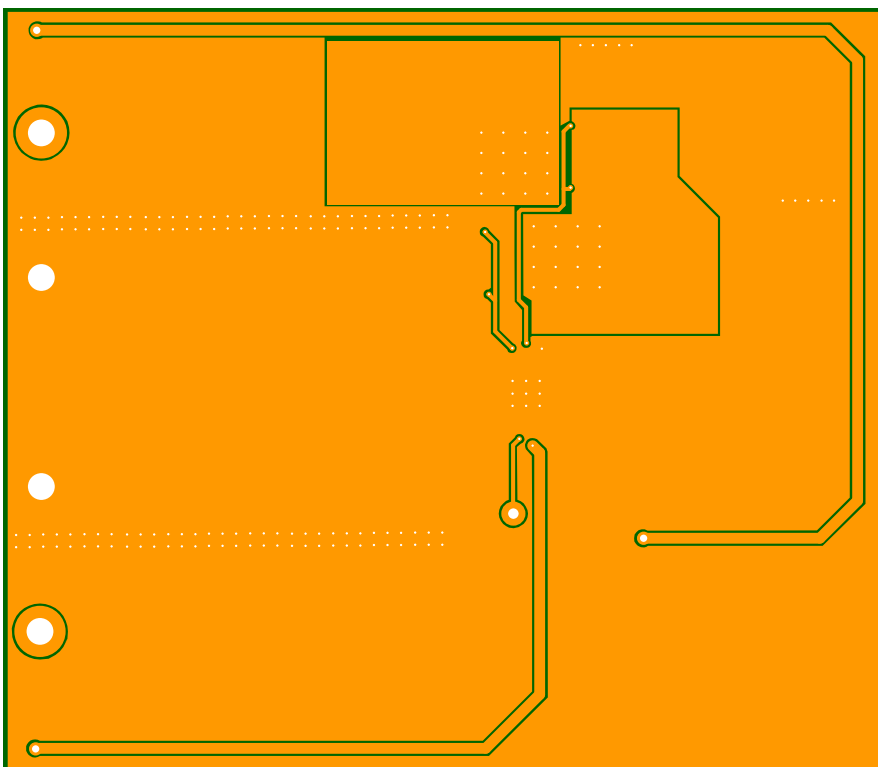
Schematic
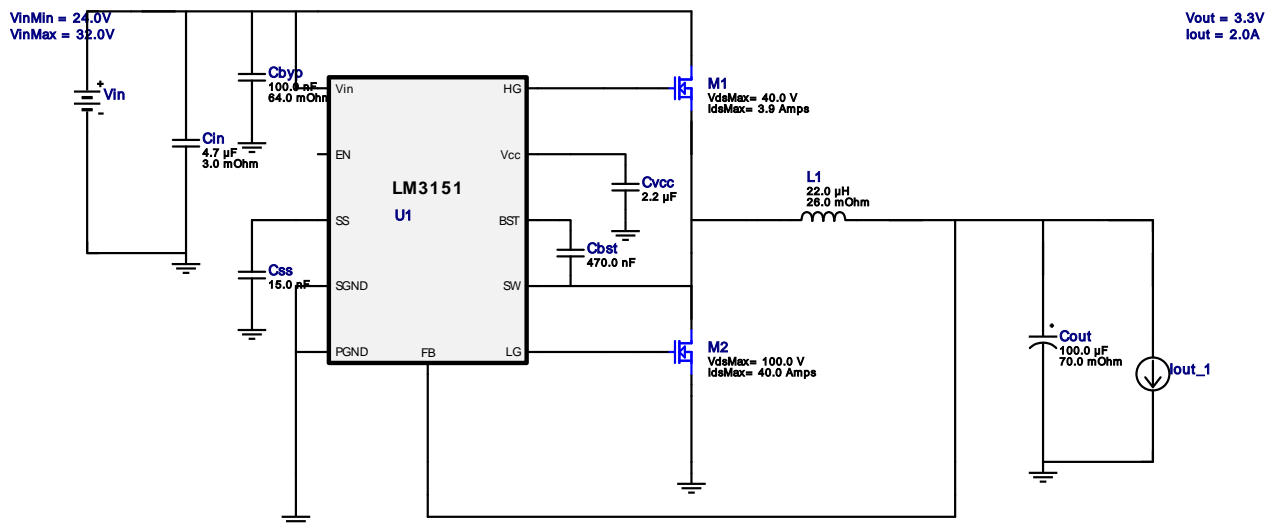
Design Assistance

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

Texas Instruments' WEBENCH simulation tools attempt to recreate the performance of a substantially equivalent physical implementation of the design. Simulations are created using Texas Instruments' published specifications as well as the published specifications of other device manufacturers. While Texas Instruments does update this information periodically, this information may not be current at the time the simulation is built. Texas Instruments does not warrant the accuracy or completeness of the specifications or any information contained therein. Texas Instruments does not warrant that any designs or recommended parts will meet the specifications you entered, will be suitable for your application or fit for any particular purpose, or will operate as shown in the simulation in a physical implementation. Texas Instruments does not warrant that the designs are production worthy.

You should completely validate and test your design implementation to confirm the system functionality for your application prior to production.

Use of Texas Instruments' WEBENCH simulation tools is subject to Texas Instruments' Site Terms and Conditions of Use. Prototype boards based on WEBENCH created designs are provided AS IS without warranty of any kind for evaluation and testing purposes and are subject to the terms of the Evaluation License Agreement.