

## WEBENCH<sup>®</sup> Thermal Simulation Report

Design : 4105594/19 LMZ23610TZ/NOPB  
LMZ23610TZ/NOPB 20.0V-36.0V to 6.00V @ 10.0A

### Operating Condition

Name	Value
VIN_OP	36.0V
IOUT_OP	10.0A

### Ambient Temperature

Name	Temperature
Ambient_plus_Z	37.0
Ambient_minus_Z	37.0

### Air Flow

Name	Direction
Flow_Type	Convection
Flow_Rate	0.0LFM
Flow_Direction	Top to Bottom



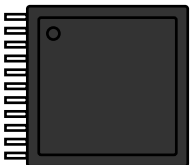
### Edge Temperature

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

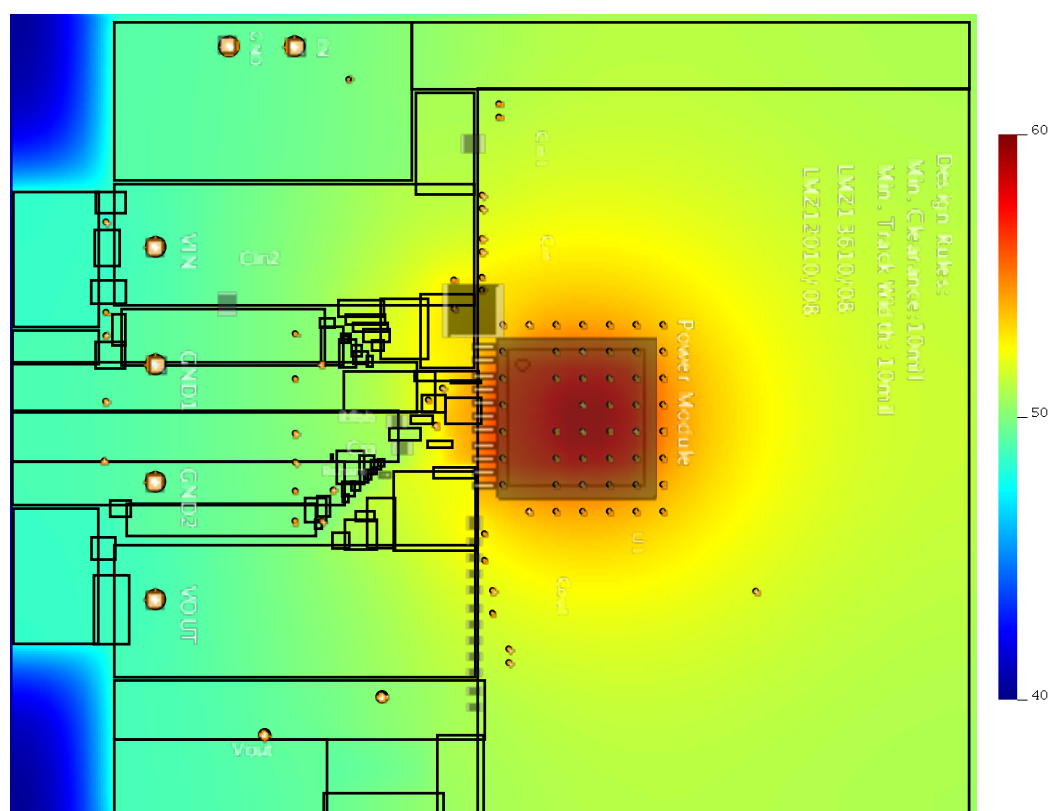
### My Comments

No comments

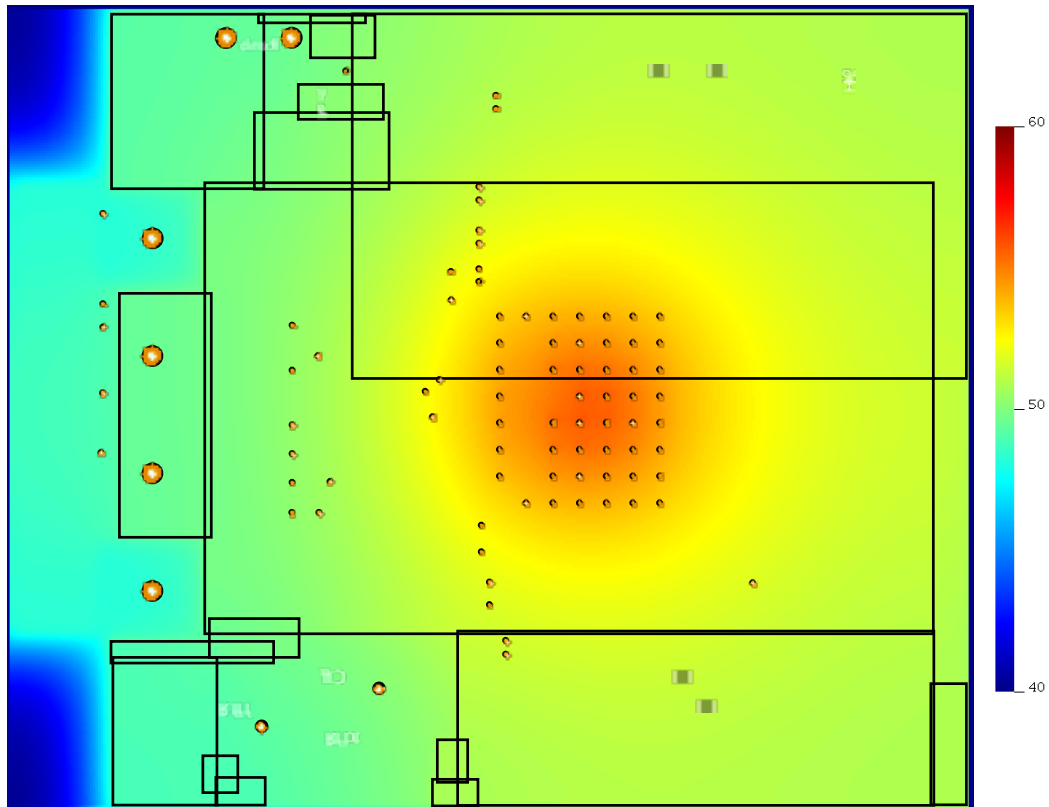
### BOM

Component Name(s)	Part Number	Max Temp	Power Dissipation	Manufacture	Properties	Qty	Price	Footprint
pcb_bottom		56°C						
Cin	C5750X7S2A106M230KB	54°C	0.018W	TDK	Cap=1.0E-5F ESR=0.005Ohm IRMS=6.45A VDC=100.0V	2	\$0.0	 2220 53.9 mm <sup>2</sup>
Cout	C1608X5R1A106K080AC	53°C	0.00W	TDK	Cap=1.0E-5F ESR=0.004639Ohm IRMS=2.41407A VDC=10.0V	20	\$0.1	 0603 4.68 mm <sup>2</sup>
U1	LMZ23610TZ/NOPB	58°C	9.54W	Texas Instruments		1	\$15.1	 TZA011A 341.644 mm <sup>2</sup>
pcb_top		58°C						

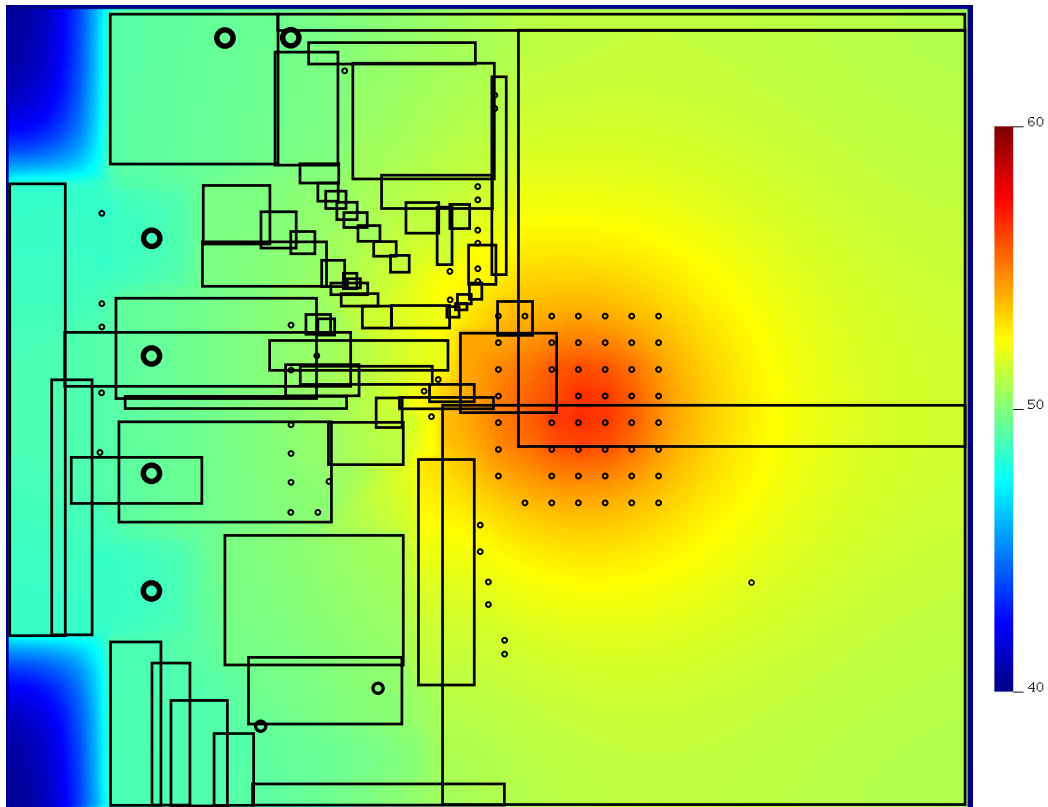
## Thermal Images



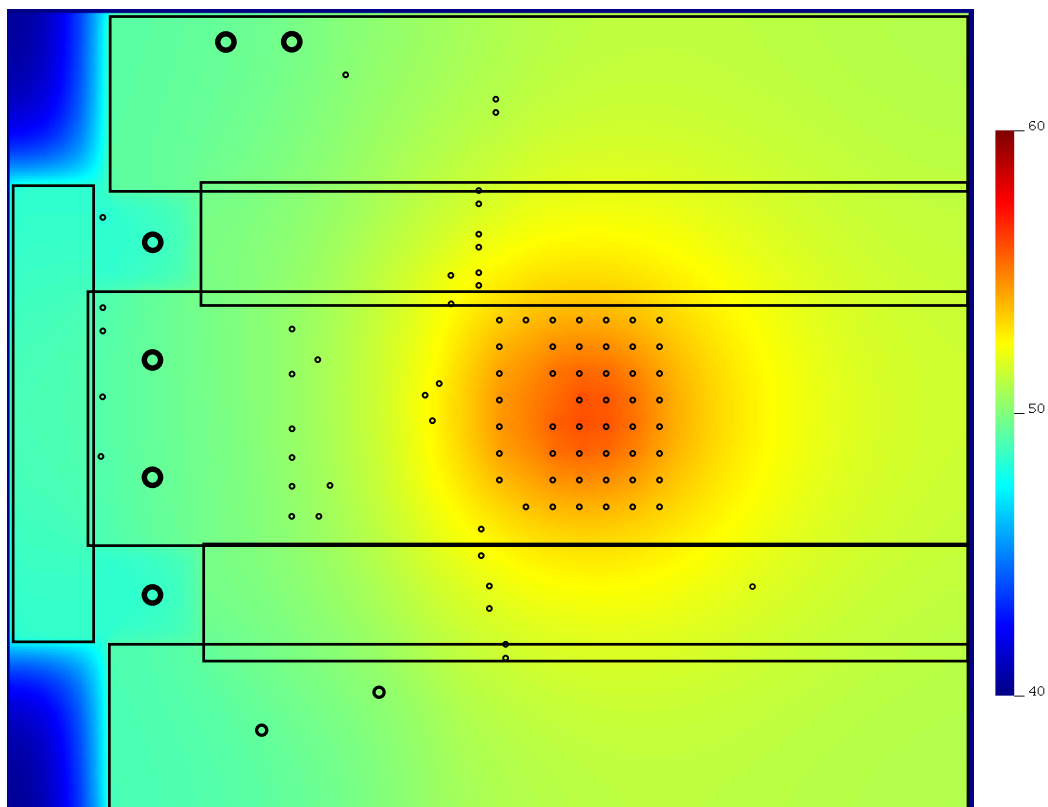
Thermal Top Image



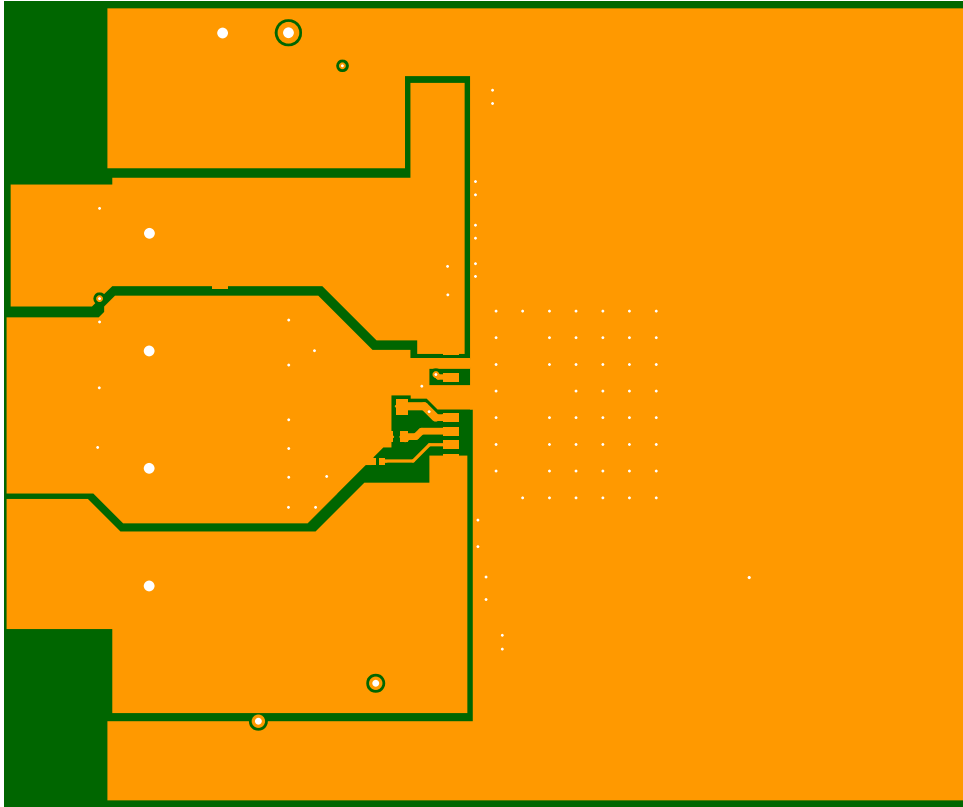
Thermal Bottom Image



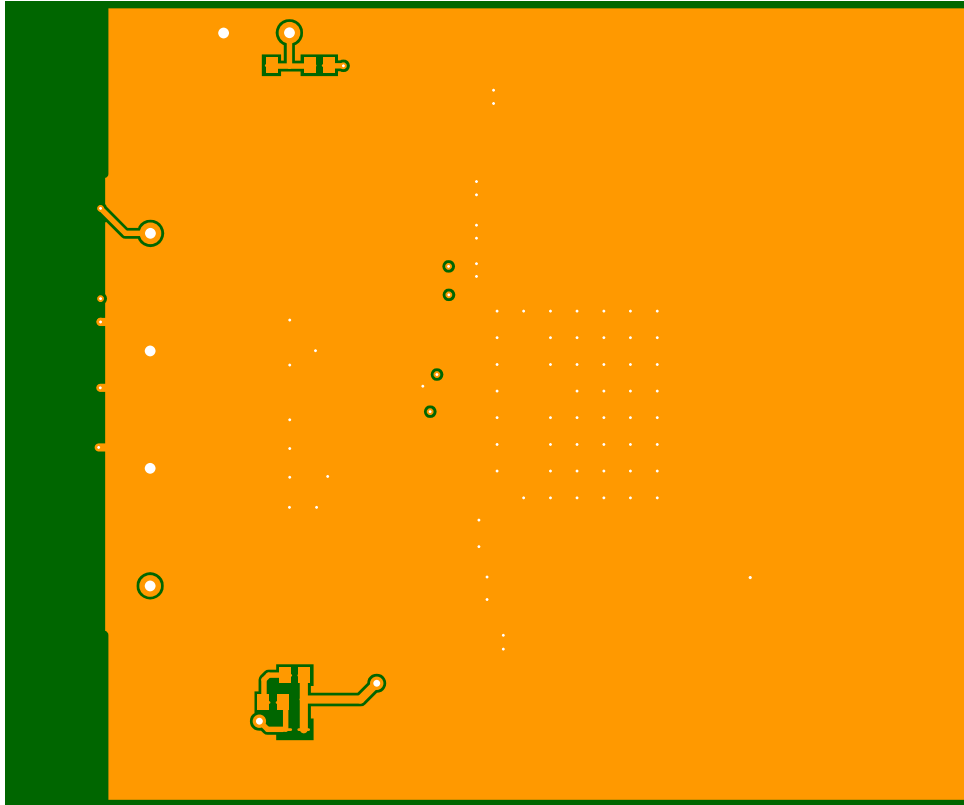
Thermal MID1 Image



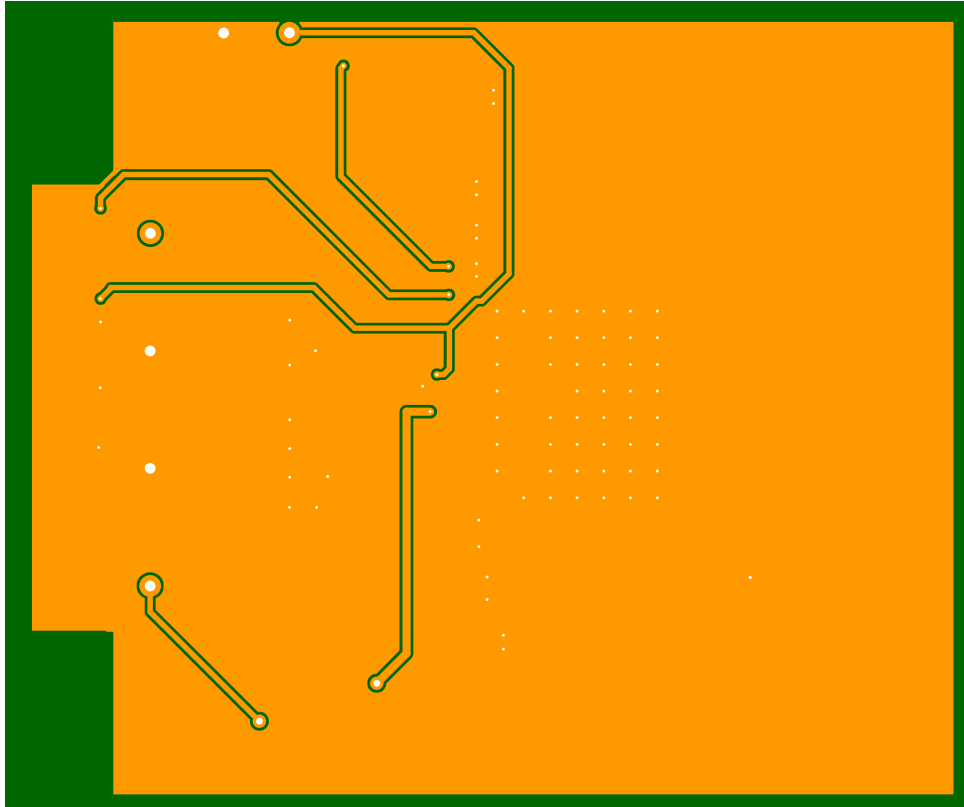
Thermal MID2 Image



PCB Top Image

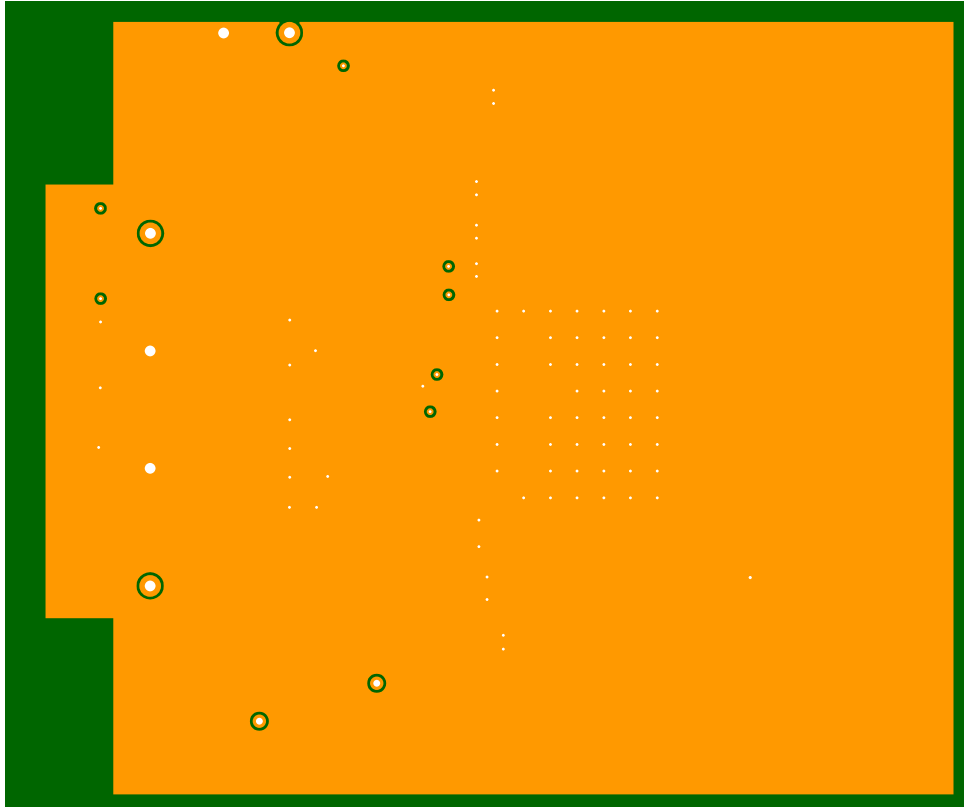


PCB Bottom Image



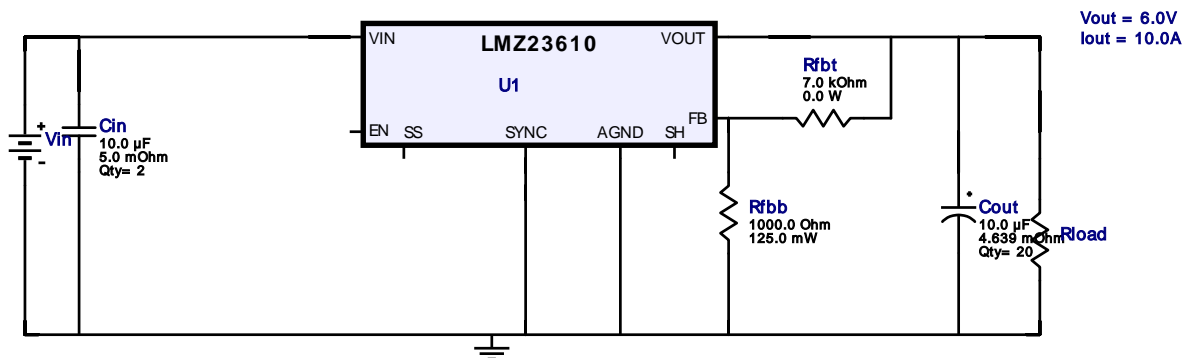
PCB MID1 Image





PCB MID2 Image

## Schematic



## Design Assistance

1. The Modules are very easy to use and just need a basic design using a resistor divider at the feedback and input and output caps to work. To design for UVLO you could click on the drop down menu in the 'Change Inputs' menu and select the 'UVLO Enabled Design'. The internal softstart time is set at 1.6mSec. If a longer softstart time is desired, you could change the preset to the desired amount and click on 'Submit'. Webench will then add an external softstartcap to the schematic. For designs requiring more than 10A of load current, multiple LMZ23610 ICs can be used by connecting their 'SH' pins together. The 'Master' LMZ23610 is set by connecting the resistor divider from feedback to the output. The slaves have their feedback pins open. Airflow There should be airflow of about 225LFM provided for the maximum input voltage of 36V and full load requirement. Without airflow the IC will heat up and has a chance of thermal failure.

2. **LMZ23610** Product Folder : <http://www.ti.com/product/LMZ23610> : contains the data sheet and other resources.

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