



Thermal Analyzer

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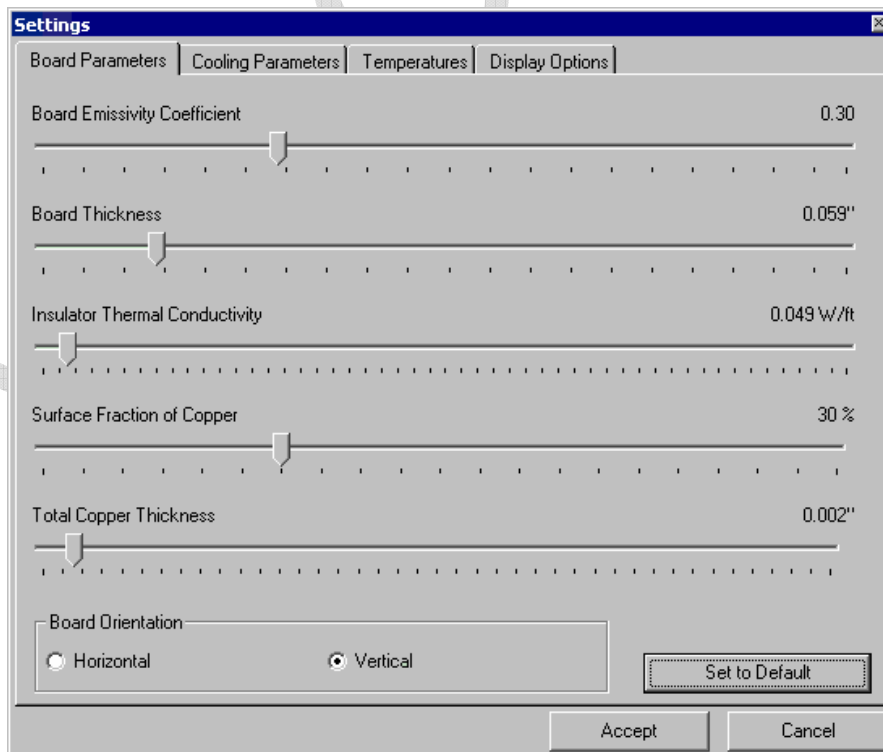
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Thermal Analyzer

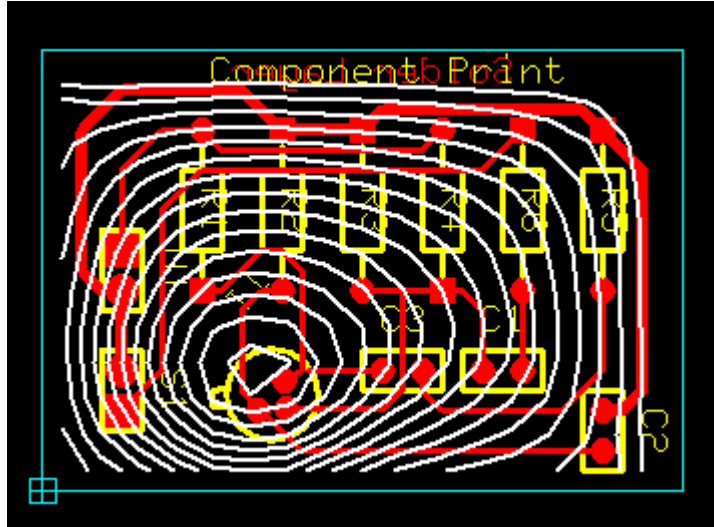
The Thermal Analyzer is intended to be used for analyzing and identifying potential thermal problems on a Printed Circuit Board. It evaluates the Temperature Distribution on a finished PCB, at steady state conditions. The result of the analysis may be displayed using isotherms or color mapping scheme.

Steps for Thermal Analysis

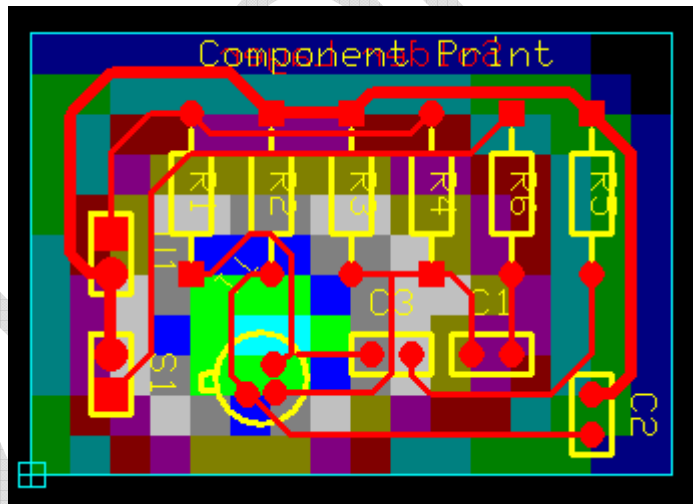
1. Right click on the **PCB Layout** in the Project Explorer. Select **Board Analyzer** in the list.
2. Select the **Thermal Analyzer** tab.
3. From **Analysis**, choose **Settings** to open the settings window and click the **Display Options** tab. Click on **Set to default** button .
4. From the **Analysis** menu select **Settings** click and select the tool  **Board Parameters** Click on **Set to default** button



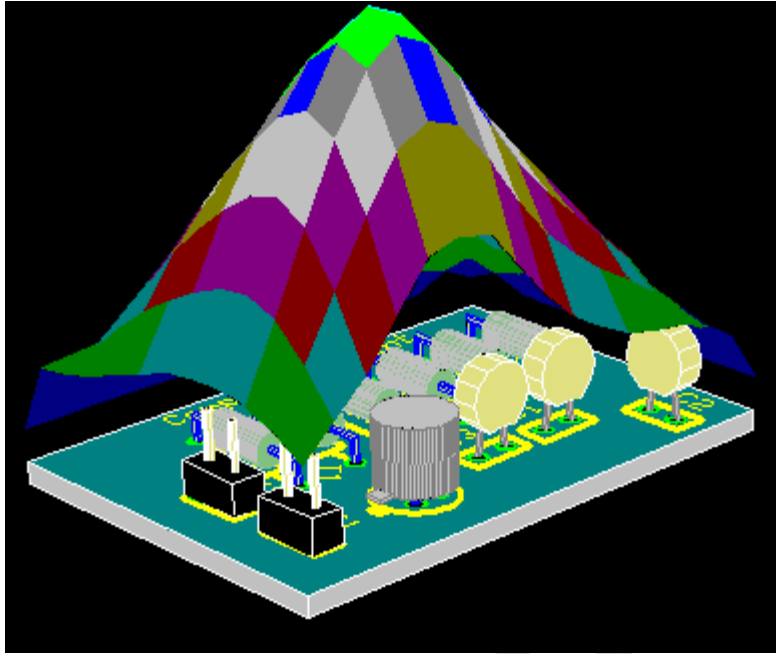
5. After supplying necessary parameters, right click and select the tool  **Execute** to execute the analysis. The result is displayed in the form of isotherms.




6. Color mapping of the board may be viewed by switching on the option **View->Analysis Results->Colored board**.



7. 3D Board may be viewed by switching on the option **View->Analysis Results->3D Board Viewer**. This option allows to view the temperature distribution on the circuit in the form of a 3D graph. The higher the temperature, the higher will be the location of the point on the graph.

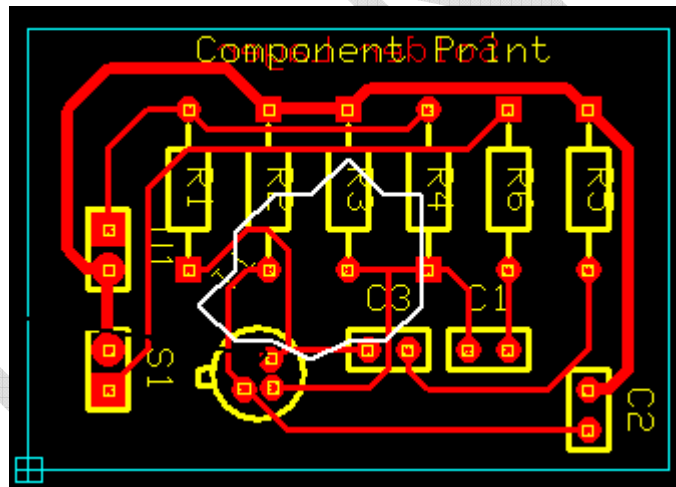



8. The analysis result is obtained. From the result it may be easy to identify the most heated up component so a heat sink of about may be used.
9. To simulate the heat sink effect, Select the tool  **Component Parameters** and click on the component. A **Thermal Parameters** window pops up where you may set the cooling parameter for the component. Check **Component Mounted Heat Sink** check box, enter the **Thermal Resistance of Heatsink** (e.g. 1.2°C/Watt) value and click OK.

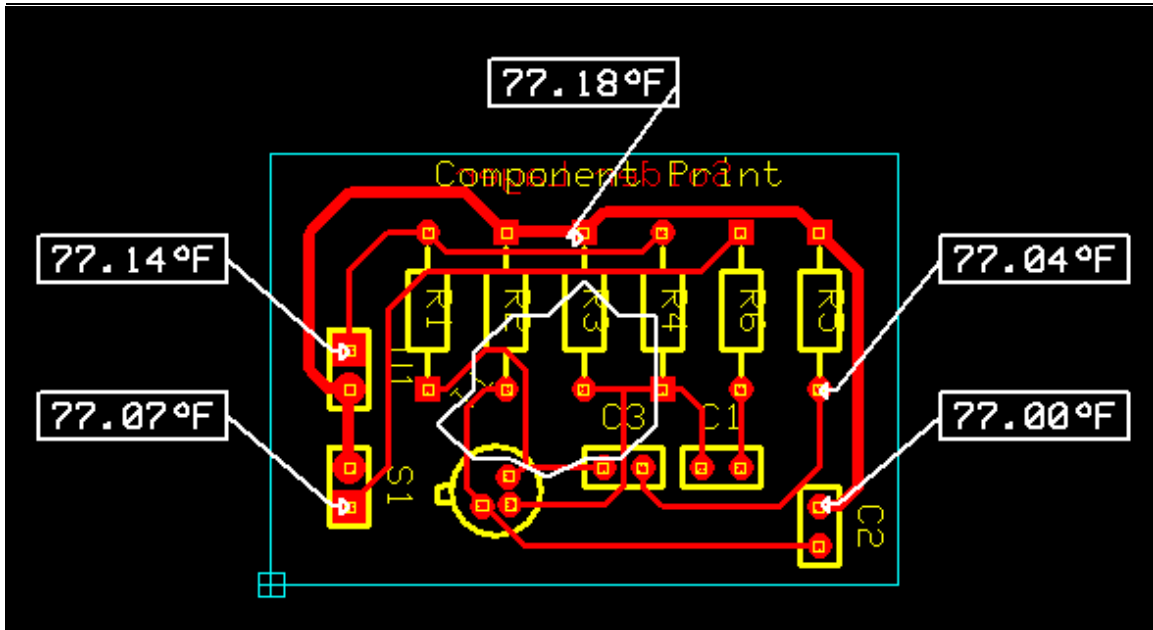
Thermal parameters: S1(VGEN)	
Component Parameters	Value
Package Type	Special Shape Plastic
Minimum Power Dissipation	0.01 W
Maximum Power Dissipation	0.02 W
Junction-Case Thermal Resistance	54.0 °F/W
Case-Air Thermal Resistance	126.0 °F/W
Power Duty Cycle	50 %
Component Cooling Parameters	Value
Component mounted Cooling Fan	<input type="checkbox"/>
Component mounted Heat Sink	<input checked="" type="checkbox"/>
Thermal Resistance of Heatsink	1.2 °F/W
Thermal Interfacing material	<input type="checkbox"/>

Set to Default Accept Cancel

10. Repeat the same step for all other components and execute the analysis again. You can notice the change in the isotherms after conducting the thermal analysis in the figure given below.



11. Labels may be placed to display the temperature at various points on the board. For this right click and select the tool  **Set/ Delete Label** and click on the board at required locations. Label gets tagged to the cursor. Now drag the mouse to place the label at proper place.



Note: To delete the isotherm label click again on the label.

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