

Calculating the current carrying capability of a PCB trace.

The current carrying capability of a PCB trace may be calculated from the following relationship:

$$w = \left(\frac{1}{1.4 \cdot h} \right) \cdot \left(\frac{I}{k \cdot \Delta T^{0.421}} \right)^{1.379}$$

Here,

w = minimum trace width required to carry a current of I (amps)

h = thickness of the copper cladding in oz/ft²

k = 0.024 for inner layers and 0.048 for outer layers

ΔT = maximum permissible rise in temperature over ambient.

It is prudent to limit the temperature rise if possible (if there is room on the board). i.e provide a margin of safety of, say, 50%. Multiply the result from the above equation by 1.50.