

Current carrying capability of a PCB trace

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The equation that is used to calculate the current carrying capability of a trace on the PCB most often is the following:

$$\text{Width of trace (W)} = [1/(1.4*h)] * [I / (k * T^{0.421})]^{1.379}$$

Here,

h = thickness of copper cladding in oz/ft² (typically referred to as oz)

I = current load of the trace

k = 0.024 for inner PCB layers

k = 0.048 for outer layers of the PCB

T = Maximum permissible temperature rise in Degrees C above the ambient temperature. (Typically 10 or 12 Deg C used)

The thickness of a 1 oz copper layer is 1.37 mils so from this information the thickness of other weights of copper can be calculated. For instance the thickness of 4 oz of copper is 4.0 * 1.37 mils.