Heat sink:

A Heat sink is a mechanical device which is connected or press fit to the case of the transistor that provides a large surface area to dissipate the developed heat. Due to the heat sink power handling capacity of the transistor can approach the rated maximum value. The heat sink cause the temperature of the case to be lowered. If the head developed is transferred to the surroundings instantaneously, the collector dissipation rating would be infinite. The heat sinks are called natural convection coolers.

An electric current flows where there exists a potential difference, while the heat flow when there is temperature difference. $(T_2 - T_1)$

$$\theta = \frac{T_2 - T_1}{P_d} \quad \boxed{^\circ C/W}$$

P_d - heat dissipated

$$T_2 - T_1 = \theta P_d$$

$$P_d = \frac{T_2 - T_1}{\theta}$$

θ = Thermal resistance

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