Product Range

All the items shown with a stock number in the catalogue are standard items. We can also supply components to your individual specifications. Extruded heat sinks are available in any desired length with a choice of machining and surface finishes.

Materials

Extruded profiles are made from alloys EN AW-6060, EN AW-6063 or EN AW-6101B. The thermal conductivity of these alloys is in the range of between 190 and 220 W/K · m.

Surface machining

The bearing faces of our high-power fans and heatsinks are surface milled to Rz 10 μm as standard; this finish is also available for many other extruded heatsinks on request.

Where the area to be milled is larger than the cutter diameter, milling can cause tracks which appear as steps while maintaining the peak-to-valley height.

Please indicate the areas that should be kept free from milling steps.

Surface finishes

PCB components and extruded heat sinks are available in the following finishes:

Black anodised (sw)   Silver anodised

Natural colours (m)   Pickled

A number of articles are tin-plated or painted as standard or on request.

Tolerances

Extruded shapes (circumscribing circle

< 300 mm)   DIN EN 12020 Part 2

   (DIN 17615-3)

Extruded shapes (circumscribing circle

> 300 mm)   DIN EN 755 Part 9

   (DIN 1748-4)

Machining tolerances for linear dimensions, straightness, flatness, angularity and symmetry   DIN ISO 2768 - mK

Thermal resistance

The thermal resistance of heat sinks is quoted in K/W (degrees Kelvins per Watt). This value indicates the temperature difference Δv (in Kelvin) between the surface of the heatsink and ambient depending on the applied power dissipation P_V (in Watts). Thermal resistance quoted is with fins vertical in free air.

Correction factors:

bright surface: + 10%

fins horizontal: + 20%

The characteristic curves for the various shapes are for shapes free-standing vertically and longitudinally in static air. There are no international standards for measuring the thermal resistance of heat sinks, so the values quoted in this catalogue have been measured under near-practical conditions.

Determining the thermal resistance of all heat sinks made from extruded shapes

The thermal resistance of the heatsink (R_{thK}) can be found from the curves illustrated for any selected working point of the semiconductor. The following relation applies:

$$R_{thK} = \frac{T_j - T_u}{P_{tot}} - R_{thH}$$

R_{thK} = thermal resistance of the heatsink (K/W)

R_{thH} = thermal resistance of the semiconductor (K/W)

T_j = junction temperature (°C)

T_u = ambient temperature (°C)

P_{tot} = power loss (W)

Once a suitable shape has been selected the anticipated junction temperature T_j of the semiconductor should be checked using $T_j = T_G + P_{tot} \times R_{thH}$ as the housing temperature T_G can be measured by simple means.

Thermal resistance of random shapes with forced cooling

$R_{thKf} \approx a \times R_{thK}$

R_{thKf} = thermal resistance, forced cooling

R_{thK} = thermal resistance, natural cooling

a = Proportionalfaktor/Proportional action factor