

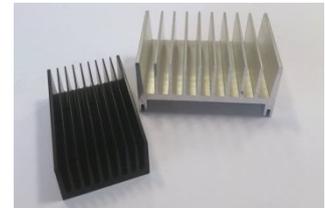
Keeping Electronics Temperatures Down and Performance Up

Today's Electronics Design Engineers are faced with the challenges of miniaturisation and also increasing performance demands. The issue with both of these is, as it always was, heat dissipation.

All electronic devices would be able to run faster if it wasn't for the heat they need to dissipate. If there was no heat dissipation then devices would become unreliable, overheat and fail. So to produce reliable devices that have acceptable performance and long life, some means of heat dissipation is introduced. Smart phones and tablets get around this by using very little power and so heat isn't so much of an issue.

One way of removing heat is to attach a heat sink.

Heatsinks are devices that enable heat dissipation from a hot component, usually the surface of a heat generating component, to a cooler, ambient medium, which is usually air.



In most situations, heat transfer through the interface between the hot component and the coolant air is the least efficient within a system. A heat sink placed on the hot component will improve the heat transfer by increasing the surface area, usually with fins, that is in direct contact with the air. This allows more heat to be dissipated and so lowers the component operating temperature. The primary purpose of a heat sink is to maintain the device temperature below the maximum allowable temperature specified by the device manufacturers.

Choosing a Heat sink

When choosing an appropriate heat sink to meet the required thermal performance, it is necessary to perform calculations and consider various parameters that affect not only the heat sink performance itself, but also the overall performance of the system. For example the air flow over the heat sink can be natural convection or forced by means of a fan and the method of attaching the heat sink to the hot component, usually thermal paste or tape, can affect the thermal performance.

Heat sink Types

There are heatsinks available for a variety of applications and include Extruded, Board / Surface mount, Fabricated Fin, and BGA that are all available in a variety of sizes, performance levels and fixing methods.

Extruded heatsinks allow the formation of two-dimensional profiles capable of dissipating large heat loads. They may be cut, machined and have options added. A cross-cutting will produce omnidirectional, rectangular pin fin heat sinks, and incorporating serrated fins also improves the performance.



Board Level heat sinks are so named because they are generally attached both to the device and the PCB. Usually constructed as either a stamping or an extrusion, these heat sinks are designed for common package sizes.

BGA heat sinks are so named because they are mounted to BGA devices, but are actually just simple extrusions. BGA heat sinks are usually crosscut to convert the extruded fins into pins which allow them to be used in more diverse applications.



ABL has been a supplier of heat sinks to the electronics industry since its formation in 1975 and now offers one of the UK's most comprehensive ranges of heat sinks. ABL is at the forefront in the design and manufacture of heat sinks and now supplies, from stock, many of the electronics industry's most widely specified components from its modern facilities. ABL continues to be recognised as an expert in the field of heat sinks and thermal dissipation technology.

Contact ABL today to learn more about how they can assist you with your heat sink requirements.

Tel : +(0)44 121 789 8686 or visit their website at <http://www.abl-heatsinks.co.uk>.