



PRODUCTS

OSFP Thermal Solutions

Passive Cooling (Heatsink)

- Bonded Fin Heatsink
- Crimped Heatsink
- Extruded Heatsink
- Skived Fin Heatsink
- Stacked/Zipper Fin Heatsink
- BGA Heatsink

Active Cooling (Fan)

- AC Fans
- DC Fans
- DC Blowers
- DC Impellers
- Crossflow Fans
- Frameless DC Fans

Metal Fabrications

- CNC Machining
- Die Casting
- Extrusion
- Plastic Injection Molding
- Sheet Metal

Cold Plates

Heat Pipes

Vapor Chambers

Air Filtration

Friction Stir Welding

Thermal Pad / Grease

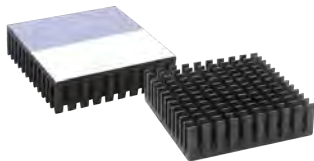
BGA Heatsink: Complete Guide to Cooling Ball Grid Array Packages

A **BGA heatsink** is a thermal management solution designed for **Ball Grid Array (BGA) packages** commonly found in high-performance electronics such as GPUs, CPUs, FPGAs, and other integrated circuits.

Since BGA components generate significant heat during operation, an effective heatsink is critical to **prevent thermal damage, maintain performance, and extend device lifespan**.

Product Information

- Process: Extrusion
- Material: Aluminum
- Application: Thermal Management
- Part No: 90-12-40067



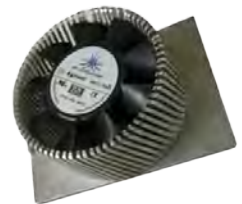
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- Part No: 90-12-70089



How a BGA Heatsink Works

1. Heat Absorption

The heatsink is mounted directly on the BGA chip using thermal adhesive, thermal tape, or a clip-on mechanism.

2. Heat Spreading

Made from high thermal conductivity materials such as aluminum or copper, the heatsink spreads heat evenly across its surface.

3. Heat Dissipation

Fins increase surface area, improving airflow and enabling heat to dissipate into the surrounding environment.

4. Cooling Methods

5. **Passive Cooling:** Relies on natural convection.

6. **Active Cooling:** Uses an integrated fan or system airflow for enhanced heat removal.

Types of BGA Heatsinks

- **Clip-On Heatsinks** – Easy to install and remove using spring clips or push-pins.
- **Adhesive Heatsinks** – Attached directly with thermal tape or epoxy.
- **Fan-Cooled Heatsinks** – Built-in fan for high-performance cooling.

Applications

- High-performance computing (GPUs, CPUs)
- Networking equipment (switches, routers)
- Industrial automation
- AI and machine learning processors
- FPGA-based systems

Benefits of Using a BGA Heatsink

- **Optimized Heat Management** – Keeps high-power chips at safe operating temperatures.
- **Extended Component Lifespan** – Prevents thermal degradation.
- **Consistent Performance** – Maintains stability during prolonged workloads.

Key Factors When Choosing a BGA Heatsink

- **Chip size and thermal contact area**
- **Material** – Aluminum for lightweight, copper for superior conductivity
- **Cooling method** – Passive vs. active
- **Mounting method** – Adhesive, clip-on, or custom
- **System airflow** – Ensure compatibility with internal ventilation

A **BGA heatsink** is an essential component for ensuring reliable performance in high-power electronics.

By selecting the right type, material, and cooling method, you can **maximize efficiency, prevent overheating, and maintain optimal performance** in demanding applications.