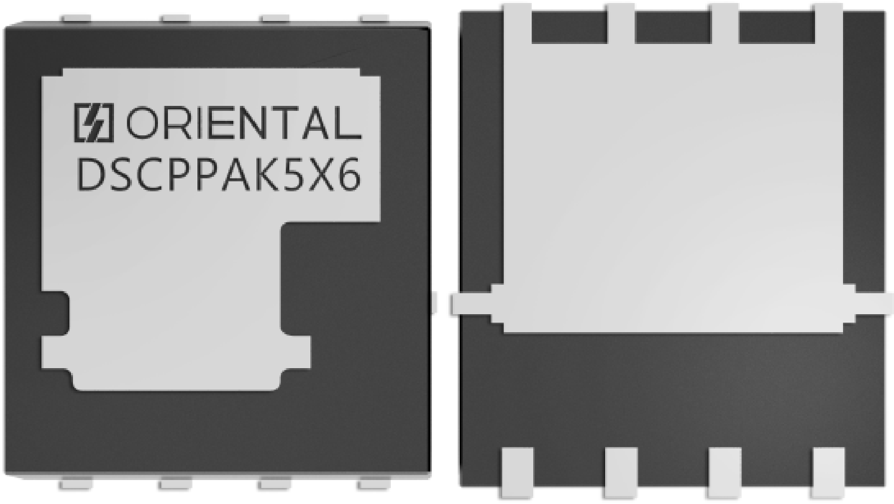
DSCPPAK5x6 Double-sided Cooling Package

东微半导体已成功实现 **DSCPPAK** 5*6 双面散热封装量产。该技术通过创新性的结构设计，实现了散热效率的革命性提升，有效突破了高功率密度应用中的热管理瓶颈。此举不仅展现了东微的前沿技术实力，也精准契合了功率电子向小型化、高效化及高可靠性发展的主流趋势。

Oriental Semiconductor has successfully achieved mass production of the **DSCPPAK 5×6 Double-sided Cooling Package**. Through innovative structural design, this technology delivers a revolutionary improvement in heat dissipation efficiency, effectively breaking through the thermal management bottleneck in high-power-density applications. This achievement not only demonstrates Oriental Semiconductor’ s advanced technological capabilities but also precisely aligns with the mainstream trend of power electronics toward miniaturization, high efficiency and high reliability.



封装优势

1. **热阻降低：** 双面散热结构允许热量从芯片正反两侧同时导出，形成平衡的热流路径，相比单面散热器件热阻有明显降低，显著提升散热效率。
2. **高功率密度：** 通过优化封装工艺，部分产品可实现更大芯片面积封装，相比传统单面散热器件，支持更高功率密度设计。在更小的体积内可以处理更大的电流和功率，使得整个电源系统的尺寸可以做得更小、更紧凑。
3. **优异的电气性能：** 具有更低的寄生电感和电阻，有利于在高频开关应用中提高效率。
4. **节省空间：** 器件的封装尺寸与传统 5*6 封装尺寸一致，可直接替换现有 PCB 设计，无需修改电路布局。
5. **提高可靠性：** 通过有效降低芯片的工作结温，可以显著延长器件的使用寿命和系统可靠性，满足车规 AECQ-101 标准。
6. **灵活的散热方案：**顶部外露铜夹片结构可直接连接散热片或冷却系统，简化系统散热设计，适用于汽车电子、工业控制等对空间敏感的应用场景。

Package Advantages

1. **Reduced Thermal Resistance**

The double-sided cooling structure enables heat dissipation from both the front and back sides of the chip simultaneously, creating a balanced heat flow path. Compared with single-sided cooling devices, it achieves a significant reduction in thermal resistance and a marked improvement in heat dissipation efficiency.

2. **High Power Density**

By optimizing the packaging process, some products can accommodate chips with larger areas. In comparison with conventional single-sided cooling devices, they support higher power density designs. They can handle larger currents and power levels within a smaller footprint, enabling the overall power supply system to be more compact and miniaturized.

3. **Excellent Electrical Performance**

It features lower parasitic inductance and resistance, which helps to improve efficiency in high-frequency switching applications.

4. **Space-Saving**

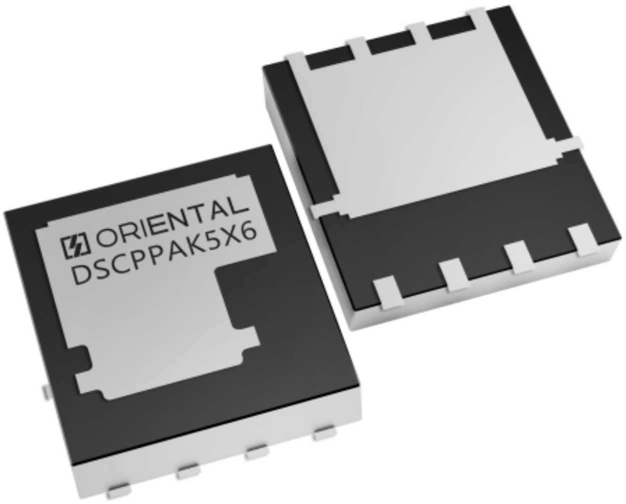
The device has the same package dimensions as the traditional 5×6 package. It can directly replace existing PCB designs without the need for circuit layout modifications.

5. **Enhanced Reliability**

Effectively lowering the chip's operating junction temperature significantly extends the service life of the device and improves system reliability, meeting the automotive-grade **AECQ-101 standard**.

6. **Flexible Thermal Dissipation Solutions**

The top-exposed copper clip structure can be directly connected to heat sinks or cooling systems, simplifying the system's thermal design. It is suitable for space-constrained applications such as automotive electronics and industrial control.



应用领域

- **大电流 DC-DC 转换器：** 如 AI 服务器、超算中心储能、通信设备、显卡的 VRM。
- **汽车电子：** 尤其是电动汽车的 BMS、OBC、DC-DC 转换器、ADS 驱动模块、电机驱动等。
- **高密度电源模块：** 如砖式电源。
- **电机驱动与逆变器：** 无人机、工业机器人等。
- **高端消费电子：** 游戏笔记本、工作站等。

Application Fields

- **High-current DC-DC Converters**: Such as VRMs for AI servers, energy storage systems in supercomputing centers, communication equipment, and graphics cards.

- **Automotive Electronics**: Especially BMS, OBC, DC-DC converters, ADS driver modules, and motor drives for electric vehicles.
- **High-density Power Modules**: Such as brick power supplies.
- **Motor Drives & Inverters**: For drones, industrial robots, etc.
- **High-end Consumer Electronics**: Such as gaming laptops, workstations, etc.