

## DFN2×2-8L

DFN2×2-8L 是一种超小型、无引脚、底部散热的表面贴装封装，属于 DFN (Dual Flat No-lead) 家族，核心特点是 2mm×2mm 极小尺寸、8 个引脚、底部带散热焊盘，广泛用于便携 / 高密度电子设备。

DFN2×2-8L is an ultra-compact, leadless surface-mount package with bottom thermal dissipation, belonging to the DFN (Dual Flat No-lead) family. It features an extremely small footprint of 2mm×2mm, 8 leads and a thermal pad on the bottom, and is widely applied in portable and high-density electronic devices.



### 一、核心物理参数

#### Core Physical Parameters

1. 外形尺寸: 2.0mm × 2.0mm (长 × 宽), 厚度约 0.5mm (典型)。

Outline dimensions: 2.0mm × 2.0mm (length × width), typical thickness: 0.5mm.

2. 引脚数量: 8 个 (侧边焊盘), 引脚间距 0.5mm。

Lead count: 8 (side pads), lead pitch: 0.5mm.

3. 底部结构: 中央带大面积散热焊盘 (DAP), 显著提升散热能力。

Bottom structure: A large central exposed thermal pad (DAP) for greatly enhanced heat dissipation.

4. 封装类型: 无铅 (Pb-free)、符合 RoHS, 环保标准。

Package type: Pb-free and RoHS compliant, meeting environmental standards.

5. 引脚配置: 常见为两侧各 4pin, 或按功能分布 (如电源、地、输入、输出、使能等)。

Pin configuration: Typically 4 pins on each side, or arranged by functions including power, ground, input, output and enable.



## 二、关键特性与优势

### Key Features & Advantages

1. 极致小巧: 2×2mm 占位, 比传统 SOT-23、QFN 更小, 适配 TWS 耳机、智能手表、蓝牙音箱等微型设备。

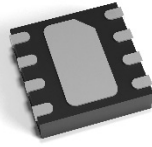
Ultra-compact size: 2×2mm footprint, smaller than traditional SOT-23 and QFN packages. Ideal for miniature devices such as TWS earbuds, smart watches and Bluetooth speakers.
2. 高效散热: 底部散热焊盘直接接触 PCB, 热阻低, 支持中大功率芯片 (如 3W D 类功放) 稳定工作。

Excellent heat dissipation: The bottom thermal pad makes direct contact with the PCB for low thermal resistance, enabling stable operation of medium and high-power chips such as 3W Class-D amplifiers.
3. 高密度贴片: 0.5mm 间距适合自动化 SMT 生产, 提升 PCB 空间利用率。

High-density mounting: 0.5mm pitch suits automated SMT production and improves PCB space utilization.
4. 低寄生参数: 无引脚设计减小寄生电感 / 电容, 适合高频、高速电路 (如电源驱动、射频)。

Low parasitic parameters: The leadless design reduces parasitic inductance and capacitance, making it suitable for high-frequency and high-speed circuits such as power drivers and RF modules.
5. 宽电压 / 高集成: 适配 2.5–6.5V 供电, 单芯片集成度高, 外围器件少。

Wide voltage range & high integration: Supports 2.5–6.5V power supply. The single chip features high integration with fewer peripheral components.



### 三、典型应用场景

#### Typical Application Scenarios

1. 音频 IC: D 类 / AB 类功放 (如 LTK5136、NS4131), 用于 TWS、骨传导耳机、微型音箱。

Audio ICs: Class-D / Class-AB amplifiers (e.g. LTK5136, NS4131), applied in TWS earbuds, bone conduction headphones and mini speakers.

2. 电源管理: 充电芯片、DC-DC 转换器、负载开关。

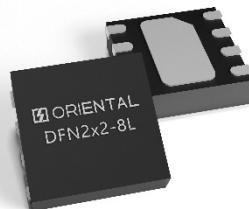
Power management: Charging ICs, DC-DC converters and load switches.

3. 驱动芯片: 电机驱动、GaN 驱动器 (如 HP3000), 用于开关电源、电机控制。

Driver ICs: Motor drivers and GaN drivers (e.g. HP3000), used in switching power supplies and motor control systems.

4. 便携设备: 智能穿戴、超薄 IoT、便携式医疗设备。

Portable devices: Smart wearables, ultra-thin IoT devices and portable medical equipment.



### 四、与相近封装对比

#### Comparison with Similar Packages

1. DFN2×2-8L vs SOT-23-6: 尺寸更小 (2×2 vs 2.9×1.6mm), 散热更好, 引脚更多。

DFN2×2-8L vs SOT-23-6: Smaller footprint (2×2 mm vs 2.9×1.6 mm), better heat dissipation and more pins.

2. DFN2×2-8L vs QFN3×3-8: 面积减小约 55%, 更适合超紧凑设计。

DFN2×2-8L vs QFN3×3-8: The area is reduced by approximately 55%, making it more suitable for ultra-compact designs.

3. DFN2×2-8L vs DFN3×3-8L: 尺寸更小, 散热略弱, 优先用于低功耗 / 小功率场景。

DFN2×2-8L vs DFN3×3-8L: Smaller in size with slightly inferior heat dissipation, preferred for low-power applications.