

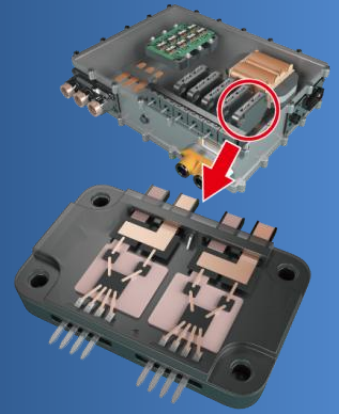


功率半导体模块用 氮化硅 (Si₃N₄) 绝缘电路板

Silicon Nitride Substrate for Power Module

高强度 · 高导热性，有效提升功率模块的功率密度和安全性

Silicon nitride substrate having high bending strength, fracture toughness and thermal conductivity contributes to improvement of the power density and reliability for the power module.



电控

概要

本公司制造的氮化硅电路板，热传导和机械强度性能优越，适用于IGBT、SiC等对可靠性要求较高的大功率半导体器件的绝缘电路板。

此外，新开发了支持低热阻的130W/m · K产品。

Proterial' silicon nitride substrates are best suited as insulated substrates for large power semiconductors that require high reliability, including insulated gate bipolar transistors (IGBT) and silicon carbide (SiC) devices. Our product lineup also includes 130W/m · K substrates to support reductions in thermal resistance.

特点

卓越的机械强度和高导热性

Having high bending strength, fracture toughness and thermal conductivity

可覆厚铜

Thicker Cu can be bonded on the Silicon nitride substrate

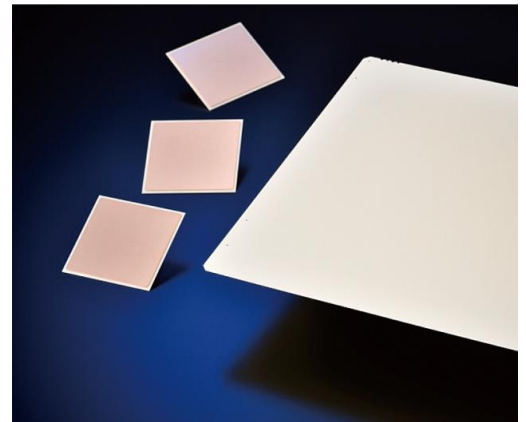
促进功率模块的小型化，提升其可靠性

Silicon nitride substrate contribute to reduce size and improve the reliability of power module

用途

**SiC功率模块
Si-IGBT模块
EV用PCU**

SiC Power module, Si-IGBT Module, PCU for EV



性能

性能参数

Basic characteristics



项目 Item	单位 Unit	Si ₃ N ₄	Si ₃ N ₄	AlN	Al ₂ O ₃
抗弯强度 Bending strength	Mpa	700	700	350-500	250
断裂韧性 Fracture toughness	MPa·m ^{1/2}	6.5	6.5	2.0-3.0	3.5
导热性 Thermal conductivity	W/m·K	130	90	180	24
热膨胀率 Thermal expansion coefficient	ppm/K	2.5	2.5	4.8	7.2
体积电阻 Volume resistivity	Ω·m	>10 ¹²	>10 ¹²	>10 ¹²	>10 ¹²
绝缘强度 Dielectric strength	kV/mm	≥18	18	17-37	13
介电常数 Dielectric constant (@1MHz)	-	8	8	9	9.5

绝缘电压

Break down voltage

厚度 Thickness	0.2mm	0.3mm	0.6mm
耐压(kV) Breakdown voltage	8.2	11.8	15.7