满足中功率段需求的新封装

新型适于工业控制、太阳能光伏以及UPS应用的紧凑型封装

Vincotech

EMPOWERING **YOUR IDEAS**

VINco E3

满足中功率段需求的新封装

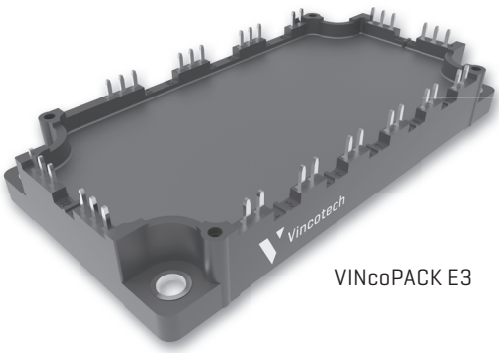
VINco E3 - Vincotech最新的适于中功率应用的封装。凭借采用行业标准低剖面紧凑封装的SLC（SoLid Cover）技术，VINco E3的封装能使工程师在工业驱动器、太阳能发电、UPS等应用领域设计出输出电流更大和能量密度更高、可靠性更好的中功率段逆变器。

主要特征

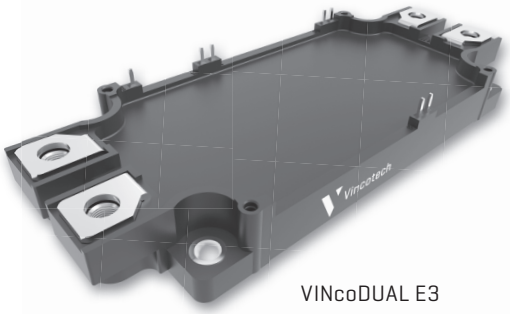
- 低损耗新型第7代芯片技术
- 新型SLC和绝缘金属基板（IMB）技术
- 卓越的热循环能力
- “无pump-out”失效风险，具有匹配CTE值（IMB,树脂填充以及封装具有非常匹配的热膨胀系数）
- 低剖面封装
- 集成了NTC
- 压接引脚和预涂相变材料

用户获益

- 延长了模块的使用寿命
- 能量密度更高
- 安装简便，使逆变器的设计和制造更为简单

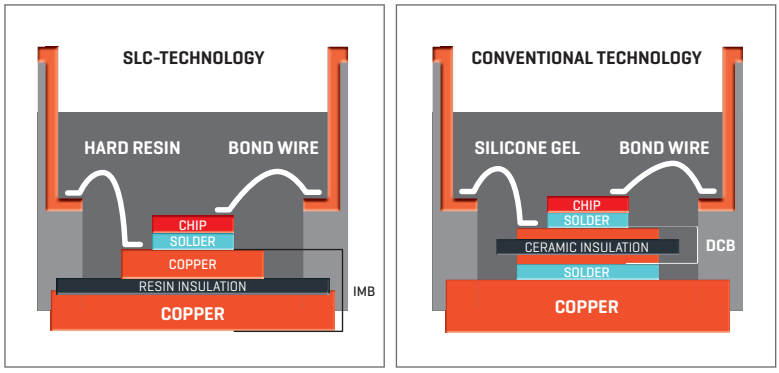


VINcoPACK E3



VINcoDUAL E3

VINco E3的
新型SLC技术



传统技术与新型SLC技术的结构对比

VINco E3是一种基于固体覆层技术（SLC）而新开发的封装技术。

新型的IMB（绝缘金属基板）将绝缘树脂层与其顶部及底部的铜层直接结合到了一起。

使用IMB可以替换传统方案中的基板焊接层与独立的底板，从而实现了：

- 更高热量循环能力
- 更低热阻
- 更高能量密度和更低杂散电感

相较于硅凝胶，直接灌封树脂具有更为均匀的机械应力分散能力，从而实现了：

- 更高的功率循环能力

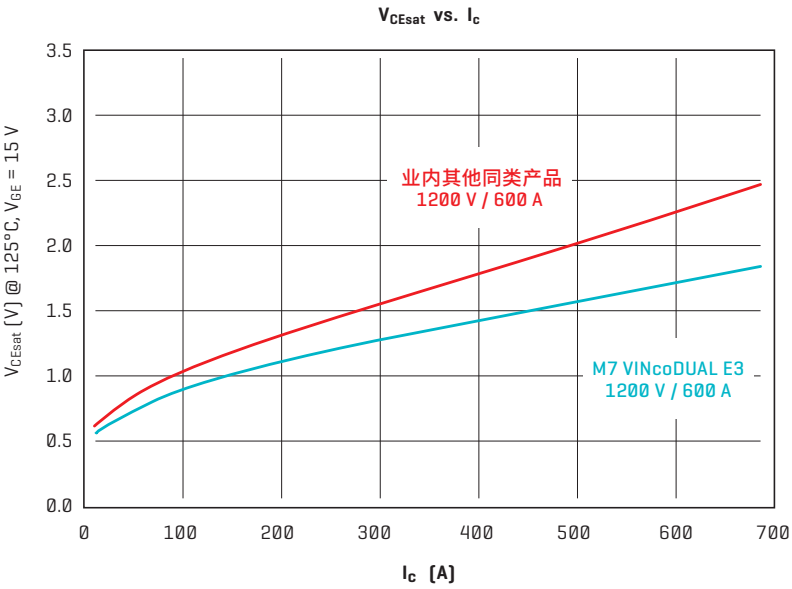
VINco E3
新型M7 IGBT

主要特征

- 超薄晶圆工艺（更薄的N漂移层）
- 优化的晶胞设计（门极电容）

主要优势

- 通态V_{CEsat}极低
- 低开关损耗
- 提升了SOA（safe operation area）性能
- 更优的dv/dt可控性（调整R_g即可）



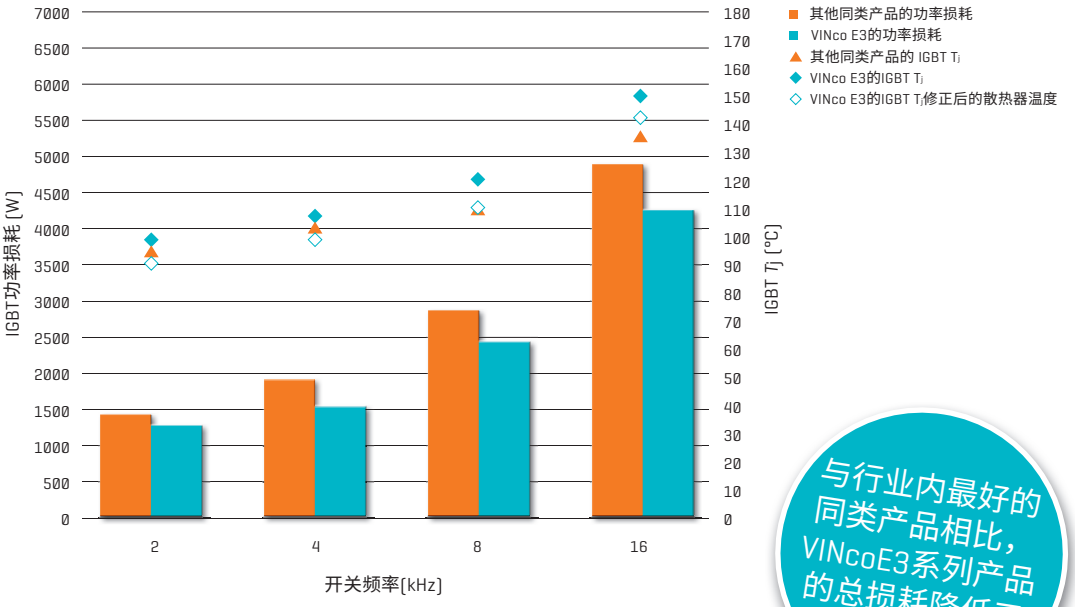
在IC 600A情况下，VINco E3的VCEsat比同类产品降低了23%，显著地降低了静态损耗，性能卓越

VINco E3
基准对比应用

VincotechISE — 一款集成式仿真环境软件，已经可用于基准测试对比半桥拓扑配置下的VINco E3及其它同类产品的总功耗。所有的功耗以及温度计算都是基于对每款模块的实测。

VINcoDUAL E3（L759F70）与行业内其他同类产品的功率损耗基准测试对比

工作点：Iout 300 A, Vout380 V, Rg 2 Ohm. cosPhi 0,8, 散热器温度80°C



与行业内最好的同类产品相比，VINcoE3系列产品的总损耗降低了**15%**以上

VINco E3
产品系列一览

- VINco E3可提供650 V、1200 V和1700 V规格的适于不同功率等级的模块，完美匹配可扩展的平台产品设计要求
- 从供应链安全角度考虑，该系列产品可提供IGBT M7和Trench IGBT3/IGBT4两个芯片源

拓扑	封装	V_{CES} 650 V	V_{CES} 1200 V	V_{CES} 1700 V	芯片技术
Half-Bridge	VINcoDUAL E3	300 A*	200 A	300 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3	300 A*	300 A	300 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3	450 A*	450 A	450 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3	600 A*	600 A	600 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3		800 A*		IGBT M7
SIXPACK	VINcoPACK E3	100 A*	100 A	100 A*	IGBT M7 / Trench IGBT3 / IGBT4*
SIXPACK	VINcoPACK E3	150 A*	150 A	150 A*	IGBT M7 / Trench IGBT3 / IGBT4*
SIXPACK	VINcoPACK E3	200 A*	200 A		IGBT M7 / Trench IGBT3 / IGBT4*

* 研发中的产品

www.vincotech.com/vinco-e3

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Vincotech

PACKAGED TO MEET **YOUR MID-POWER NEEDS**

The new low-profile package for motion control, solar and UPS applications

EMPOWERING **YOUR IDEAS**

VINco E3
PACKAGED TO MEET YOUR MID-POWER NEEDS

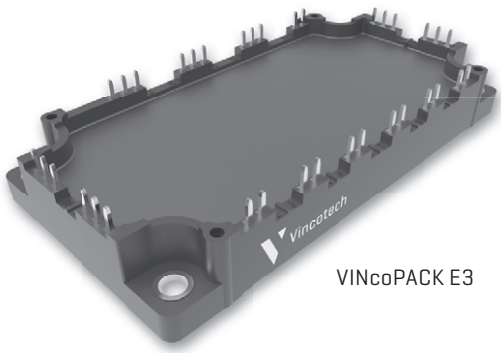
VINco E3, our latest mid-power package, features SoLid Cover (SLC) technology in the industry-standard low-profile housing. The VINco E3 enables engineers to design mid-power inverters with higher output current, greater power density and improved reliability for industrial drives, solar power, UPS and other applications.

Key features

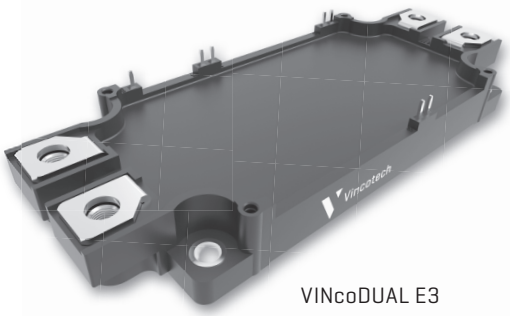
- Low-loss, new gen-7 chip technology
- New SLC and Insulated Metal Baseplate (IMB) technology
- Superior thermal cycling capability
- "Pump-out free" with matched CTE values (IMB, resin, case)
- Low-profile package
- Integrated NTC
- Press-fit pins and pre-applied Phase Change Material

User benefits

- Extended module life time
- Increased power density
- Simple mounting and easy inverter design and manufacturing

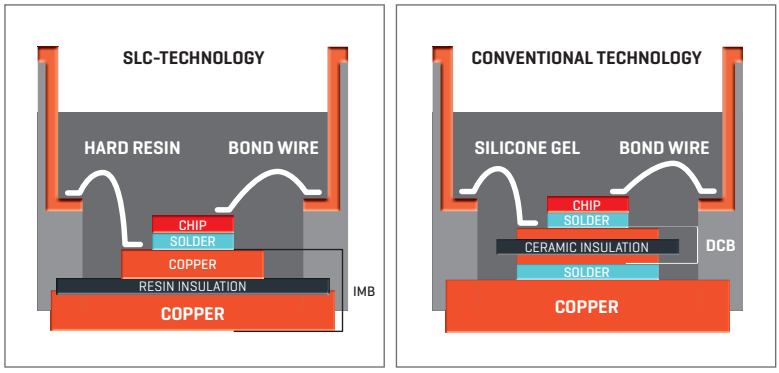


VINcoPACK E3



VINcoDUAL E3

VINco E3's
new SoLid Cover technology



Structure comparison between conventional technology and the new SLC technology

The VINco E3 is based on SLC, a newly developed package technology.

The new IMB (Insulated Metal Baseplate) combines an electrically insulating resin layer with a direct-bonded, topside and bottom-side copper layer.

It replaces the substrate solder layer and separate baseplate to achieve

- High thermal cycling capability
- Reduced thermal resistance
- High power density and low stray inductance

Direct potting resin distributes the mechanical stress more uniformly than silicone gel for

- Improved power cycling capability

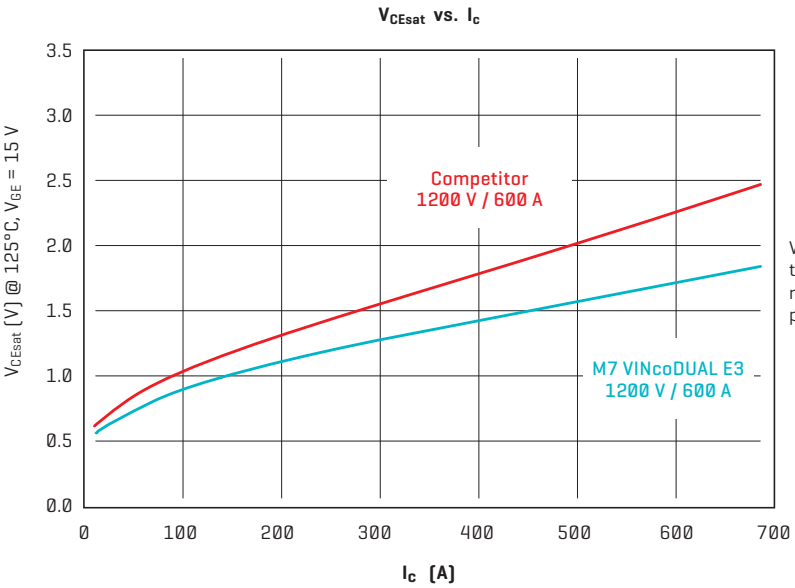
VINco E3
with the new IGBT M7

Key features

- Ultra-thin wafer processing technology (N⁻drift layer)
- Optimized cell design (gate capacitance)

Benefits

- Lowest on state V_{CEsat}
- Low switching losses
- Improved SOA capability
- Easier-to-control dv/dt with R_g



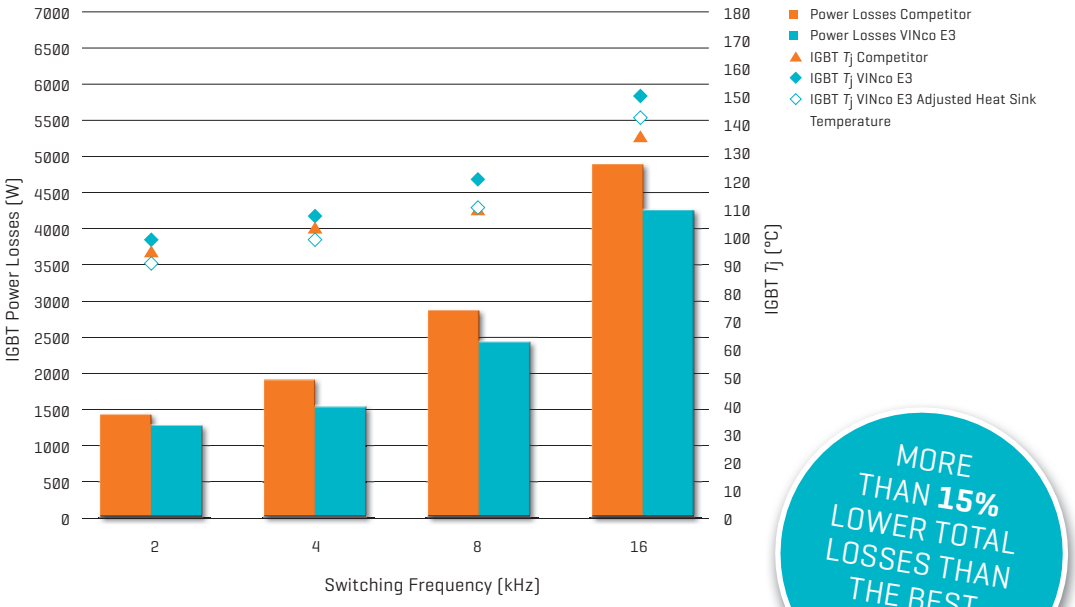
V_{CEsat} @Ic 600A 23% lower than the competition, significantly reducing static losses for superior performance

VINco E3
benchmark application

VincotechISE, our Integrated Simulation Environment, served to benchmark the VINco E3's total power losses in comparison with rival products using a half-bridge configuration. All power loss and temperature calculations are based on actual measurements taken of each module.

Power Loss Benchmark VINcoDUAL E3 (L759F70) with competition

Operation point: Iout 300 A, V_{out} 380 V, Rg 2 Ohm. cosPhi 0,8, $T_{heatsink}$ 80°C



MORE THAN **15%** LOWER TOTAL LOSSES THAN THE BEST COMPETITOR

VINco E3
line-up at a glance

- VINco E3 will be available in 650 V, 1200 V and 1700 V versions for scalable platform designs
- IGBT M7 and Trench IGBT3/IGBT4 chips available from multiple sources to protect your supply lines

Topology	Housing	V_{CES} 650 V	V_{CES} 1200 V	V_{CES} 1700 V	Chip Technology
Half-Bridge	VINcoDUAL E3	300 A*	200 A	300 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3	300 A*	300 A	300 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3	450 A*	450 A	450 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3	600 A*	600 A	600 A*	IGBT M7 / Trench IGBT3 / IGBT4*
Half-Bridge	VINcoDUAL E3		800 A*		IGBT M7
SIXPACK	VINcoPACK E3	100 A*	100 A	100 A*	IGBT M7 / Trench IGBT3 / IGBT4*
SIXPACK	VINcoPACK E3	150 A*	150 A	150 A*	IGBT M7 / Trench IGBT3 / IGBT4*
SIXPACK	VINcoPACK E3	200 A*	200 A		IGBT M7 / Trench IGBT3 / IGBT4*

* Under development

www.vincotech.com/vinco-e3

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