



Vincotech

无与伦比的 运动控制

集大所成，性能之王

EMPOWERING YOUR IDEAS

嵌入式 设计推动了 未来的解决方案

性能更强

嵌入式驱动解决方案主要用于运动控制，可简化客户系统集成、提高客户产品性能，并加快客户产品上市时间。Vincotech的功率模块系列非常适合高可靠性、低成本电机控制的产品，可在更小的封装里提供更高的性能。

工业运动控制的 嵌入式驱动解决方案

分立式驱动器一直作为标准解决方案被广泛运用于运动控制方面。然而，更高的集成度和更复杂的子系统成为了当前工业市场的趋势。越来越多的公司开始提供不同程度的客户定制化嵌入式驱动系统。

得益于其紧凑和密封的设计，嵌入式驱动系统集成了驱动器和电机，从而减少了空间占用。由于这些设计是为特定应用而构建的，因此设计工程师可以对其进行优化，以缩小最终产品的尺寸，降低成本，并提高可靠性和性能。

分立式的驱动器包含为UL和/或CE认证而组装和测试的滤波器、连接器和电缆，从而增加了装配时间和整个系统成本。

另一方面，通过大幅提高集成水平，可以缩小整个系统的尺寸、降低成本，并缩短嵌入式驱动器的上市时间。很大程度上，大规模生产的嵌入式驱动系统受益于规模经济。

为嵌入式驱动器开发的产品组合

Vincotech的嵌入式驱动器功率模块组合包含600 V和1200 V智能功率模块 (IPM) 以及集成了PFC电路 (PIM+PFC) 的功率集成模块。它实现了市场上所有功率模块的最高集成水平, 是此类空间受限机械环境下的最佳解决方案。

除了输入滤波器、直流电容器和微控制器 (见图1) 之外, 通过集成电机驱动器的所有功能块, 可以缩小整个系统的尺寸, 降低成本, 并缩短上市时间。

Vincotech用于嵌入式驱动器的功率模块达到了市场上最高的集成度。

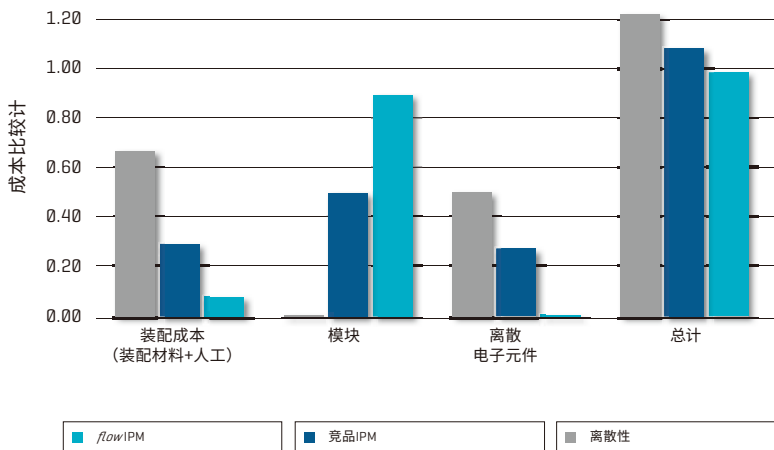


图1: 成本分析 -flowIPM、离散性和竞品IPM

对保护电路进行了调整, 使其与功率器件的性能相匹配, 并进行了出厂测试, 以提高系统的可靠性。

高度集成的器件和裸功率芯片节省了大量空间, 相较于分立的设计, 可以节省很多空间。

通过减少外部组件数量和采用智能隔离技术，电机驱动的装配可以更合理化和简化。

嵌入式驱动系统的空间有限，其紧凑、密封的设计使大量电子元件产生的热量难以消散。

通过为功率元件提供最佳的直接冷却，厚膜技术中使用的陶瓷板可以提升模块的热性能。

用于嵌入式驱动器的Vincotech功率模块安装在配有压接引脚的高度紧凑封装中（见图2）。

压接技术可大幅减少印刷电路板的装配时间和工作量，且无需焊接，不但减少了工艺时间和成本，还提高了生产产量。



图2：用于无焊接安装的压接引脚

模块的爬电距离和间隙距离符合适用的行业标准。对于散热器的形状没有特殊要求。

通过预涂相变材料，功率模块和散热器之间的热互连得到了极大的改善（见图3）。

Vincotech的内部丝网印刷工艺能以极高的精度去沉积材料，并达到适当的厚度。经过优化，这种材料可以获得最大的传热能力。

总结

Vincotech的产品组合提供了工程师设计嵌入式驱动系统所需的功能集成和功率密度。

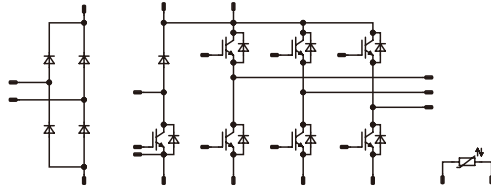
Vincotech的智能功率模块实现了出色的集成度，使系统工程师能够做出更紧凑的设计，并能利用功率元件和栅极驱动电路的成熟组合这个优点，这恰好是逆变器设计中最关键的部分。

如此设计可以降低电路设计的相关风险，加快开发速度，并显著缩短上市时间。



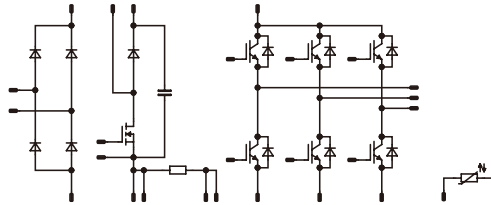
图3：相变材料

产品系列



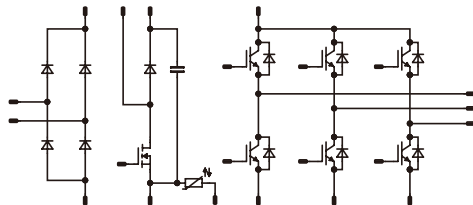
PIM+PFC [CIP] 拓扑 / *flow*PIM 0B + PFC

产品系列	Volt	A	技术	封装	高度
10-0B06PPA004RC-L022A09	600	4	IGBT RC	<i>flow</i> 0B	17
10-0B06PPA006RC-L023A09	600	6	IGBT RC	<i>flow</i> 0B	17
10-0B06PPA010RC-L025A09	600	10	IGBT RC	<i>flow</i> 0B	17
10-0B06PPA010RC01-L025A19	600	10	IGBT RC	<i>flow</i> 0B	17



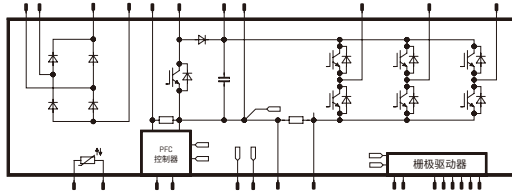
flow PIM[®] 0 + PFC

产品系列	Volt	A	技术	封装	高度
10-F006PPA006SB-M682B	600	6	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA010SB-M683B	600	10	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA015SB-M684B	600	15	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA020SB-M685B	600	20	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA020SB01-M685B10	600	20	IGBT3 LL	<i>flow</i> 0	17
10-PC06PPA006SB-M682B06Y	600	6	IGBT3 LL	<i>flow</i> 0	12
10-PG06PPA030SJ-LJ02B08T	600	30	IGBT fast	<i>flow</i> 1	12
10-PG06PPA030SJ01-LH52E08T	600	30	IGBT fast	<i>flow</i> 1	12
10-PG06PPA030SJ02-LH92E08T	600	30	IGBT fast	<i>flow</i> 1	12
10-PG06PPA050SJ-LJ04B08T	600	50	IGBT fast	<i>flow</i> 1	12
10-PG06PPA050SJ01-LH54E08T	600	50	IGBT fast	<i>flow</i> 1	12
10-PG06PPA050SJ02-LH94E08T	600	50	IGBT fast	<i>flow</i> 1	12



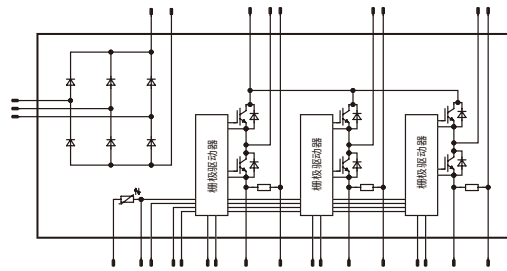
flow 90 PIM 1 + PFC

产品系列	Volt	A	技术	封装	高度
10-R106PPA020SB01-M934A	600	20	IGBT3 LL	<i>flow</i> 90	10



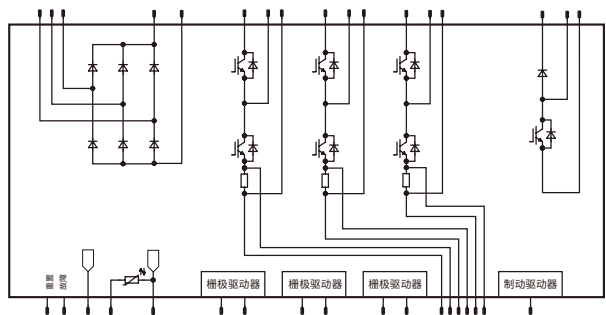
IPM (CIP/PIM+PFC) TOPOLOGY / flowIPM 1B (CIP)

产品系列	Volt	A	技术	封装	高度
20-1B06IPB004RC-P952A40	600	4	IGBT RC	flow1B	17
20-1B06IPB004RC01-P952A45	600	4	IGBT RC	flow1B	17
20-1B06IPB010RC-P955A40	600	10	IGBT RC	flow1B	17
20-1B06IPB010RC01-P955A45	600	10	IGBT RC	flow1B	17
20-1B06IPB010RC03-P955A65	600	10	IGBT RC	flow1B	17
20-1B06IPB006RC01-P953A45	600	6	IGBT RC	flow1B	17
20-1B06IPB010RC02-L815A49	600	10	IGBT RC	flow1B	17



IPM (CIB) 拓扑 / flowIPM 1B (CI)

产品系列	Volt	A	技术	封装	高度
20-1B12IPA008SC-L239C09	1200	8	IGBT4	flow1B	17
20-1B12IPA015SC-L579F09	1200	15	IGBT4	flow1B	17
20-FB12IPA008SC-L239C08Y	1200	8	IGBT4	flow1B	12



IPM (CIB) 拓扑 / flowIPM 1C (CIB)

产品系列	Volt	A	技术	封装	高度
20-1C12IBA015SH-LB18A08	1200	15	IGBT4	flow1C	12



Vincotech 官方微信二维码



Vincotech 新浪微博二维码

www.vincotech.com



Vincotech

UNRIVALLED IN MOTION CONTROL

Deepest integration,
highest performance

EMPOWERING YOUR IDEAS

EMBEDDED DESIGNS DRIVE TOMORROW'S SOLUTIONS

Higher performance

Embedded drive solutions for motion control simplify integration, enhance performance and speed up time-to-market. Vincotech's power module lineup represents the best fit for highly reliable, low-cost motor controls that deliver higher performance in a smaller footprint.

Embedded drive solutions for Industrial motion control

Discrete drives are standard solutions designed to control a wide range of motion applications. Nevertheless, higher integration and more complex sub-systems are some of the current trends in the industrial market. A growing number of companies provide embedded drive systems with different levels of customization.

Embedded drive systems integrate drives and electric motors to reduce the space occupancy thanks to their compact and hermetically sealed design. Since these designs are built for serving specific applications, design engineers can optimize them to reduce the size and cost of the final product and increase both the reliability and performance.

Discrete drives contain filters, connectors, and cables to be assembled and tested for UL and /or CE certifications. This increases the assembly time and the overall system cost.

On the other hand, the overall system's size, cost, and time to market of embedded drives can be reduced by considerably increasing the level of integration. Mass-produced embedded drive systems benefit to a large extent from economies of scale.

Product portfolio for embedded drives

Space is tight in embedded drive systems, and their compact, hermetical design makes it difficult to dissipate the heat generated by so many electronic components.

Vincotech's power module portfolio for embedded drives features 600 V and 1200 V intelligent power modules (IPMs) as well as power integrated modules integrating PFC circuit (PIM+PFC). It achieves the highest level of integration of any power module available on the market, representing the best solution for such space-constrained mechanical environments.

The overall system's size, cost, and time to market can be lowered by integrating all of a motor drive's functional blocks, apart from the input filter, DC capacitor and microcontroller [see Figure 1].

VINCOTECH
POWER MODULES
FOR EMBEDDED DRIVES
ACHIEVE THE HIGHEST
LEVEL OF INTEGRATION
AVAILABLE ON THE
MARKET

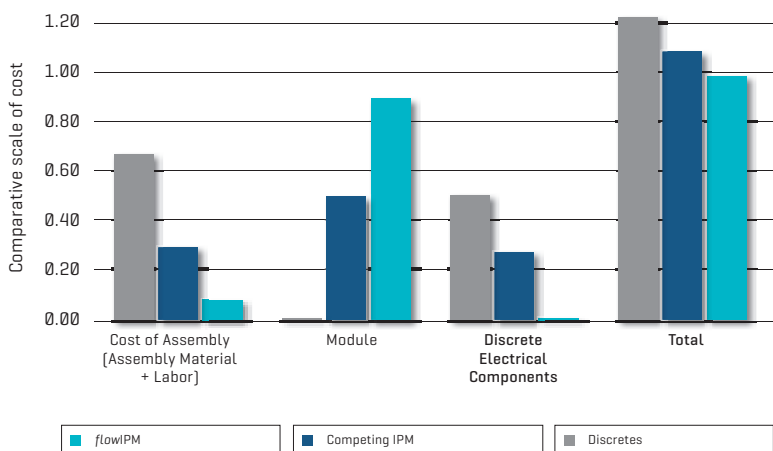


Figure 1: Cost analysis – *flowIPM* vs. discrete and competing IPM

Protection circuitry is tuned to match the power device's capability and factory-tested to improve the system's reliability.

A lot of space is saved with highly integrated components and bare power chips to achieve a much smaller footprint than that of discrete designs.

Motor drive assembly is streamlined and simplified with fewer external components and smart isolation techniques.

The ceramic sheet used in thick-film technology improves the module's thermal performance by providing the best possible direct cooling for power components.

Vincotech's power modules for embedded drives come into very compact housings equipped with Press-fit pins (see Figure 2).

Press-fit technology reduces PCB assembly time and effort considerably by eliminating the need for soldering. This cuts process time and costs, and boosts production output.



Figure 2: Press-fit pins for solder-less mounting

The module's creepage and clearance distances fulfill the applicable industrial standards. There are no special requirements regarding the shape of the heat sink.

The thermal interconnection between the power module and the heat sink is vastly improved by pre-applying phase-change material (see Figure 3).

Vincotech's in-house screen-printing process deposits the material with great precision, achieving the proper thickness. The material can be optimized for maximum heat transfer capability.

Think Integrated

Vincotech's product portfolio provides the functional integration and power density that engineers need to design embedded drive systems.

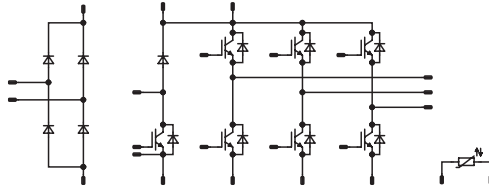
The outstanding level of integration achieved by Vincotech's intelligent power modules enables system engineers to come up with more compact designs and to take advantage of a proven combination of power components and gate drive circuits, which happen to be the most critical elements in the inverter's design.

This mitigates the risk associated with circuit design, speeds up development, and dramatically reduces time to market.



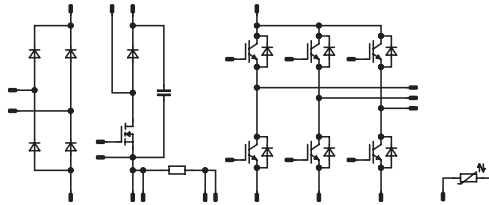
Figure 3: Phase-change material

Product Portfolio



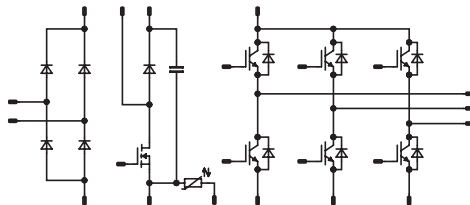
PIM+PFC (CIP) TOPOLOGY / *flow*PIM 0B + PFC

Product family	Volt	A	Technology	Housing	Height
10-0B06PPA004RC-L022A09	600	4	IGBT RC	<i>flow</i> 0B	17
10-0B06PPA006RC-L023A09	600	6	IGBT RC	<i>flow</i> 0B	17
10-0B06PPA010RC-L025A09	600	10	IGBT RC	<i>flow</i> 0B	17
10-0B06PPA010RC01-L025A19	600	10	IGBT RC	<i>flow</i> 0B	17



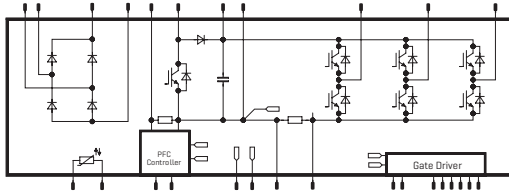
*flow*PIM® 0 + PFC

Product family	Volt	A	Technology	Housing	Height
10-F006PPA006SB-M682B	600	6	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA010SB-M683B	600	10	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA015SB-M684B	600	15	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA020SB-M685B	600	20	IGBT3 LL	<i>flow</i> 0	17
10-F006PPA020SB01-M685B10	600	20	IGBT3 LL	<i>flow</i> 0	17
10-PC06PPA006SB-M682B06Y	600	6	IGBT3 LL	<i>flow</i> 0	12
10-PG06PPA030SJ-LJ02B08T	600	30	IGBT fast	<i>flow</i> 1	12
10-PG06PPA030SJ01-LH52E08T	600	30	IGBT fast	<i>flow</i> 1	12
10-PG06PPA030SJ02-LH92E08T	600	30	IGBT fast	<i>flow</i> 1	12
10-PG06PPA050SJ-LJ04B08T	600	50	IGBT fast	<i>flow</i> 1	12
10-PG06PPA050SJ01-LH54E08T	600	50	IGBT fast	<i>flow</i> 1	12
10-PG06PPA050SJ02-LH94E08T	600	50	IGBT fast	<i>flow</i> 1	12



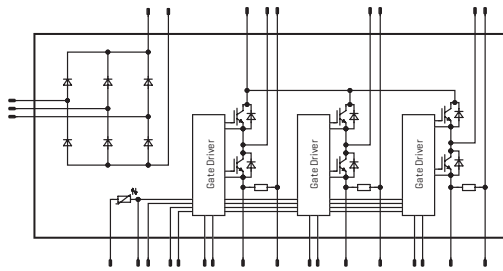
*flow*90PIM 1 + PFC

Product family	Volt	A	Technology	Housing	Height
10-R106PPA020SB01-M934A	600	20	IGBT3 LL	<i>flow</i> 90	10



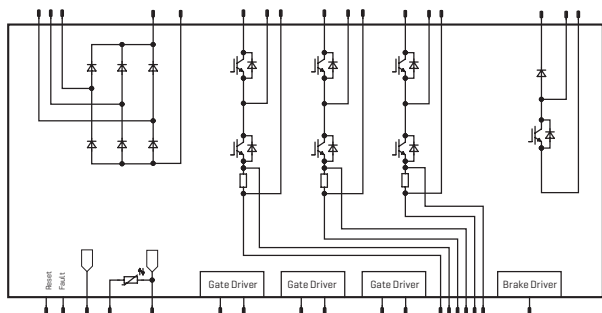
IPM (CIP/PIM+PFC) TOPOLOGY / flowIPM 1B [CIP]

Product family	Volt	A	Technology	Housing	Height
20-1B06IPB004RC-P952A40	600	4	IGBT RC	flow 1B	17
20-1B06IPB004RC01-P952A45	600	4	IGBT RC	flow 1B	17
20-1B06IPB010RC-P955A40	600	10	IGBT RC	flow 1B	17
20-1B06IPB010RC01-P955A45	600	10	IGBT RC	flow 1B	17
20-1B06IPB010RC03-P955A65	600	10	IGBT RC	flow 1B	17
20-1B06IPB006RC01-P953A45	600	6	IGBT RC	flow 1B	17
20-1B06IPB010RC02-L815A49	600	10	IGBT RC	flow 1B	17



IPM (CIB) TOPOLOGY / flowIPM 1B [CI]

Product family	Volt	A	Technology	Housing	Height
20-1B12IPA008SC-L239C09	1200	8	IGBT4	flow 1B	17
20-1B12IPA015SC-L579F09	1200	15	IGBT4	flow 1B	17
20-FB12IPA008SC-L239C08Y	1200	8	IGBT4	flow 1B	12



IPM (CIB) TOPOLOGY / flowIPM 1C [CIB]

Product family	Volt	A	Technology	Housing	Height
20-1C12IBA015SH-LB18A08	1200	15	IGBT4	flow 1C	12

德国威科电子有限公司上海代表处

中国上海浦东新区张杨路838号华都大厦4楼B座

电话: +86 21 689 118 53 / 传真: +86 21 689 118 53 - 610 / 邮编: 200120

Vincotech Shanghai Rep. Office

Room B, 4F / Huadu Tower / No.838 Zhangyang Road / Pudong district
Shanghai / China / 200120

T +86 21 689 118 53 / F +86 21 689 118 53 - 610

www.vincotech.com