

Vincotech

1500V PV SOLAR SOLUTIONS

EMPOWERING YOUR IDEAS

PRODUCTS FOR A **SUSTAINABLE FUTURE**

Partner up for solar solutions with Vincotech!

Making the right design choices is critical to a product's success in the market. Designers of solar inverters face a multidimensional challenge to ensure solar power continues to meet the growing demand for clean energy. Vincotech offers unique opportunities for system optimization in terms of efficiency, weight, cost and reliability.

Vincotech's high-efficiency power modules feature the latest topologies using optimized combinations of Silicon and Silicon Carbide components. Housed in low parasitic inductance packages and using advanced die-attach technology, they help maximize the performance and reliability of renewable energy systems.

Fully optimized and tailor-made solutions for 1500 V systems with a broad range of power modules for the utility market:

- / Latest topologies, including NPC, ANPC, flying capacitor etc., provide significant efficiency improvements, module and system level cost savings, and system weight reduction
- / Optimized pure Silicon and hybrid Silicon/Silicon Carbide solutions using the leading-edge component technologies for maximum return on investment
- / Component supplier independent for secure supply chain
- / Advanced die-attach for increased reliability
- / Broad range of baseplate and baseplate-less housings available
- / 25+ years' experience in power modules

Technical Trends

High efficiency NPC, ANPC & flying capacitor topologies, 950 – 2000 V component technologies

High switching frequency 16 - 50+ kHz solutions

/ High power density

350 kW and beyond, <u>baseplate</u> and baseplate-less housing

/ High reliability

Advanced die-attach technology, high performance TIM

THREE-PHASE MULTI-STRING INVERTERS

PV inverter systems require DC/DC boost converters, as part of the Maximum Power Point Tracker (MPPT), to adjust the PV panel output voltage to the required DC-link voltage level. This is then input into the DC/AC converters which deliver the solar energy to the public grid.



DC/DC BOOST CONVERTER

Two-level, three-level symmetric and three-level flying capacitor boosters are commonly used in the input stage of the inverter. The flying capacitor topology has the best price/performance ratio compared to both the two-level topology and the three-level symmetric topology.









DC/AC CONVERTER

Many different inverter topologies have been proposed in the past. NPC and ANPC are widely used in 1500 V multistring inverters. Three-level flying capacitor inverters are starting to be used in the latest systems, especially in Energy Storage Systems. NPC, ANPC, and flying capacitor topologies provide a higher system blocking voltage than the individual components.













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