

Semiconductor Process Equipment

Innovative AC-DC Power Supply Architecture Simplifies Control and Boosts Performance

INDUSTRY

Semiconductor Process

SOLUTION

NeoPower™ Series

EQUIPMENT

Multi-Zone Electrostatic Chuck (ESC) Heater

CHALLENGE

The semiconductor industry demands precision and reliability, especially in wafer prober equipment where multi-zone wafer chuck heating is critical for consistent results.

The customer needed both analog and digital programming capabilities for flexible operation. They also required multiple output synchronization to allow seamless control across all heating zones. In addition, the system needed to deliver high voltage output requirements, supplying 800 W at 110 V and 7.27 A.



SOLUTION

The AE team proposed implementing the NeoPower solution with two NP08 modules connected in series.

These modules collectively supply 3200 W across eight channels at 51 V/7.27 A. Configured with two modules connected in series, each series module provides 110 V/7.27 A as an analog voltage source and utilizes air-cooled operation to satisfy ESC heater requirements.

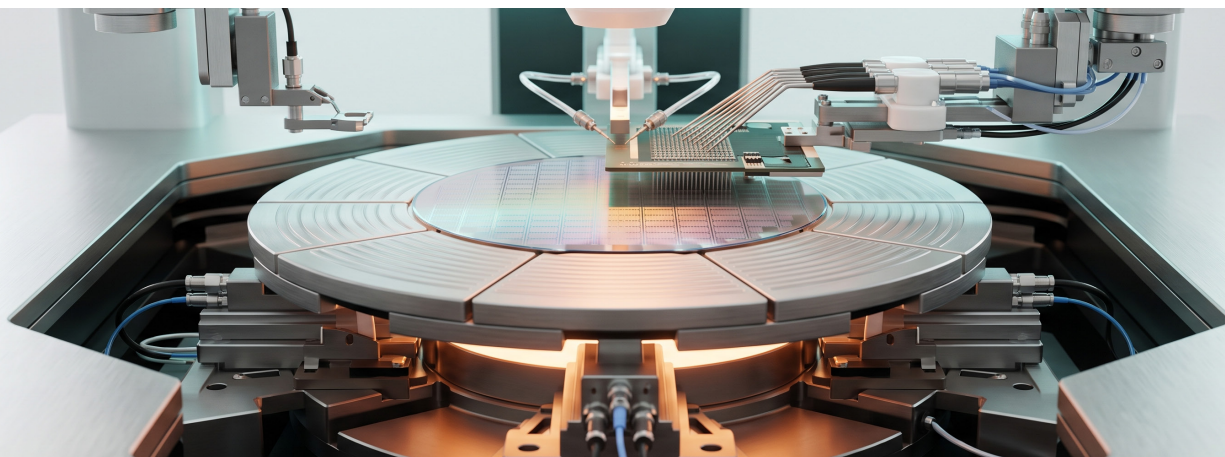
This configuration replaces several individual power supplies, thereby streamlining the system architecture and minimizing complexity. Multi-channel configurable outputs facilitate scalability and offer enhanced flexibility for accommodating additional auxiliary power needs.

The system supplies a versatile, multi-output power source designed specifically for multi-zone wafer chuck heating in wafer prober equipment. It achieves unified and precise control of multiple power supplies that drive multi-zone electrostatic chuck (ESC) heaters, ensuring uniform heating across the surface of the wafer.

BENEFITS

The NeoPower NP08 module's exceptional programmability supports both analog and digital control options, while its high power density contributes to a compact and efficient design. Compliance with SEMI F47-0706 at full rated power ensures industry standards are consistently met. The system's flexible configuration supports up to 600 V, making it ideal for challenging applications.

By replacing multiple units, NeoPower simplifies power architecture for greater cost efficiency. Users benefit from outstanding field applications engineering support, a dedicated team for customization, and NeoPower's reputation for quality and reliability in demanding environments. As a recognised leader in high-power, configurable power supply solutions, it delivers reliability, flexibility, and proven performance for multi-zone wafer chuck heating requirements.



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