

Multiple High-Voltage Power Supplies Required in Electron Gun Controller

INDUSTRY

**Semiconductor -
Material Metrology**

SOLUTION

**HVA Series (High Voltage
Amplifier) and D Series**

APPLICATION

**Electron Gun
Analyzer Controller**

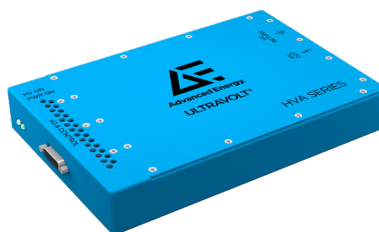
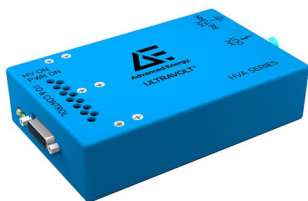
CHALLENGE

A leading manufacturer of materials metrology systems was redesigning their materials analyzer controller. The reason for the redesign was to increase component measurement and metrology. Part of the goal was to eliminate reliance on existing high voltage DC-DC modules and to also migrate away from proprietary and outdated power supplies currently used in the existing design.

The existing system was using a combination of competitive products as well as in-house proprietary power supplies. The customer needed to enhance the system for higher performance, but this was limited by the performance of the existing modules. They wanted an assortment of high voltage DC-DC modules that can take the place of nearly all power supplies used in the controller.

AE has numerous power supplies that can be retrofit into their system but to achieve the higher level of performance, the HV ripple of every module would need to be reduced. The reduction required varies across the board from as little as 20% to, in some cases, as much as 95% reduction in ripple.

The power supplies needed to be used to power numerous sections: quadrupole, detectors, decel lenses, deceleration modules, inner sphere, outer sphere and mid-ring. The customer was very interested in AE striving to use existing designs and platforms as a basis, rather than developing full ground-up custom designs.



SOLUTION

Several onsite meetings and online discussions were conducted by AE and the customer to review the feasibility of leveraging existing UltraVolt platforms. It was determined solutions were achievable by modifying the following power supplies:

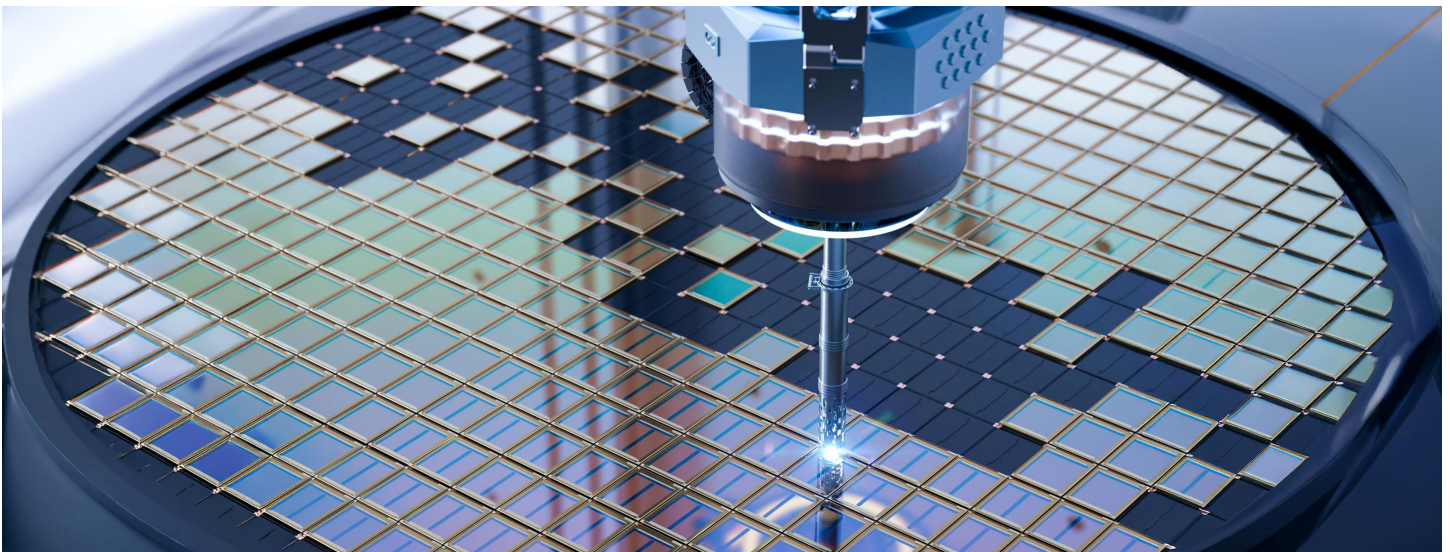
- 1HVA24-BP1-F
- 2HVA24-BP1-F
- 4HVA24-BP1-F
- 10HVA24-BP1-F
- 6D24-N1
- 6D24-N4

Among factors that affected the customer's decision were:

- AE's close attention to detail and to the parameters that were the most crucial for success
- Adhering diligently to the customer's decided preference to leveraging existing platforms instead of launching into a custom design.
- AE's fast responses to evolving spec requirements
- Our high level of expertise in low-ripple precision power high voltage DC-DC applications
- Excellent customer service and technical follow-through

CONCLUSION / RESULT

The customer was impressed with the base specifications of the HVA Series and the compact form factor which resulted in confidence that these units would be an excellent choice for their fast-switching modules. Additionally, the extremely compact form factor of the D Series was well-suited for replacements of legacy modules in areas of their controller that are more seriously space challenged. This led to a comprehensive multi-module solution from one supplier, freeing up their internal resources to focus more on gun & column designs and less on high voltage DC-DC product development.



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