

Advanced medical power supplies for pulsed field ablation system

INDUSTRY

Electrosurgery

SOLUTION

UltraVolt® High Power C Series
SL Power™ NGB660 Family

EQUIPMENT

Pulsed Field
Ablation

CHALLENGE

Innovating the treatment of atrial fibrillation, a major medical device manufacturer was on a quest to develop a pulsed field ablation system. This system required a precise and reliable power architecture that provided the regulated voltage to allow selective targeting of cardiac tissue without affecting the surrounding areas. The design chosen demanded a single-output AC-DC power supply alongside a high-voltage DC-DC converter.

The customer was seeking:

- Trusted and well-known brand in market
- High reliability & long life
- Willingness and ability to collaborate on future requirements
- Reduced lead-time for initial samples
- Fanless solution that protects sensitive system from vibration and air disturbances

SOLUTION

Advanced Energy stepped forward with the SL Power™ NGB660 family for AC-DC power needs and the UltraVolt® High Power C series for high-voltage DC-DC conversion. Compact yet powerful, the NGB660 family was also selected for its superior performance in EMI and EMC, important for simplified compliance with key medical standards. The UltraVolt High Power C series delivered the high voltages needed for capacitor charging while supporting the precision required for pulsed electric fields (PEF) delivery.



Fig. 1. SL Power NGB660 Family Single Output AC/DC



Fig. 2. UltraVolt® High Power C series 2C24-P250

Requiring up to 2000 V of tightly regulated output power, the UltraVolt High Power C 2C24-P250 (providing up to +2000 V/250 W) was provided as a sample. This power supply met the customer's technical requirements, including suitability for high-energy pulsers, amplifiers, and discharge devices with large capacitance, fast repetition rates, and high current loads. The customer was extremely satisfied with the performance.

AE provides the following advantages:

- World-class service and consulting from technical experts
- Reduced lead-time for initial samples
- Willingness and ability to collaborate on future requirements
- Fanless solutions protecting sensitive system electronics from vibration and air disturbances

RESULT

The collaboration with Advanced Energy led to the successful implementation of a controllable power supply architecture that handled the high voltages for capacitor charging and the precision voltage regulation needed for precise and efficient operation of advanced patient cardiac treatment. Technical support and swift delivery of samples from AE accelerated system development, facilitating a quicker transition from concept to market-ready product.

CONCLUSION

Advanced Energy's SL Power NGB660 Family and UltraVolt High Power C Series were an ideal combination for this customer to meet the fast rise time required by novel pulsed field ablation applications utilizing state-of-the-art power conversion topology.

With Advanced Energy's broad portfolio of highly reliable medical solutions, we are well equipped to meet all your high and low voltage application requirements.



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