Powering the Future of Start Up Pulsed Field Ablation and 3D Mapping Solution

INDUSTRY	SOLUTION	EQUIPMENT
Electrosurgery	Advanced Energy's High Power C and NCF660	Pulsed Field Ablation

BACKGROUND

Pulsed field ablation (PFA) uses high voltage electrical pulses to cause nonthermal irreversible electroporation and induce cell death. Pulsed field ablation may have effectiveness comparable to traditional catheter ablation while preventing thermally mediated complications. Recently, two of the largest medical devices (Medtronic and Boston Scientific) companies received FDA approval for Pulsed Field Ablation systems indicated for treatment of paroxysmal (i.e., intermittent) atrial fibrillation (AF). Numerous other medical devices companies are investing in development of next generation PFA devices.

CHALLENGE

A medical device start-up company was designing a novel Pulsed Field Ablation System and three-dimensional electro anatomical navigation system. They required a single output CF rated AC-DC power supply as well as a high voltage DC-DC converter for a capacitor charging application.

Due to the customers unique approach to Pulsed Field Ablation, they needed a vendor with deep application knowledge and a broad standard portfolio of medically approved power supplies.

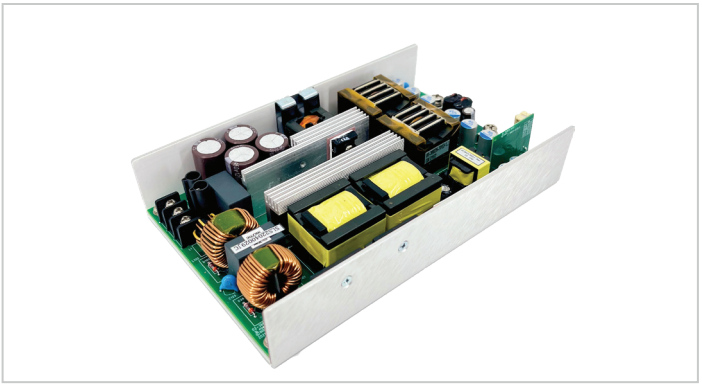

Fig. 1 SL Power NCF660 Family Single Output AC/DC

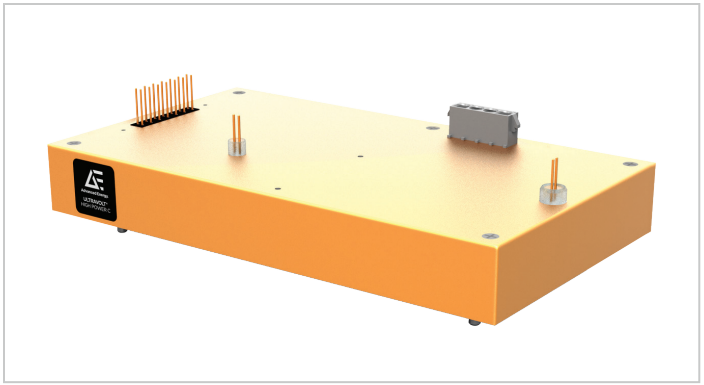

Fig. 2 UltraVolt® High Power C series 1/2C24-P250

SOLUTION

Advanced Energy provided an early engineering sample of the new NCF 660 CF rated AC-DC power supply and UltraVolt® High Power C series of high voltage regulated DC-to-DC converters.

To certify a CF rated power supply it must fulfill the following requirements:

- Patient Leakage current <10 uA
- Isolation between its secondary output and protective earth (>1500 Vac).
- 2 MOPP Isolation input to output

Advanced Energy's SL Power NCF series CF rated medically approved AC-DC power supplies are available with a nominal main output of 12 V, 15 V, 24 V or 48 V. NCF660 power supplies provide up to 660 Watts of output power with air flow. All models have output overvoltage, short circuit, and overload protection and in a small form factor. The NCF family provides 5 kV defibrillator withstand, meets Class B emissions levels, and has less than 10 uA leakage current.

Requiring a maximum of 3000 V of tightly regulated output power, the High Power C 4C24-P250 (providing up to +4000 V/250 W) was provided as a sample. The High Power C is ideal for capacitive charging and pulsed power applications. The High Power C Series is a compact, reliable high voltage power supply that features fast rise-times, low output ripple performance < 1.0 %, and controlled high voltage overshoot enhances longevity of external load components.

AE provides the following advantages:

- World-class service and consulting from technical experts
- Short lead times for samples
- Fast time to market with lowest total cost of ownership.

RESULT

By choosing Advanced Energy's NCF Family and High Power C Series, the customer satisfied their requirements for highly reliable AC-DC and DC-DC power supplies, with high power density and best in class quality. As a result of the exceptional technical support and fast delivery of samples, the customer was able to accelerate their development cycle.

CONCLUSION

Advanced Energy's NCF Family and High Power C Series are designed to meet the demanding specifications of 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 for novel Pulsed Electric Field medical devices.

Advanced Energy

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