

High voltage power supply required for transfection of cells

INDUSTRY

Medical Treatments -
Life Science

SOLUTION

UltraVolt® High Power
C Series

EQUIPMENT

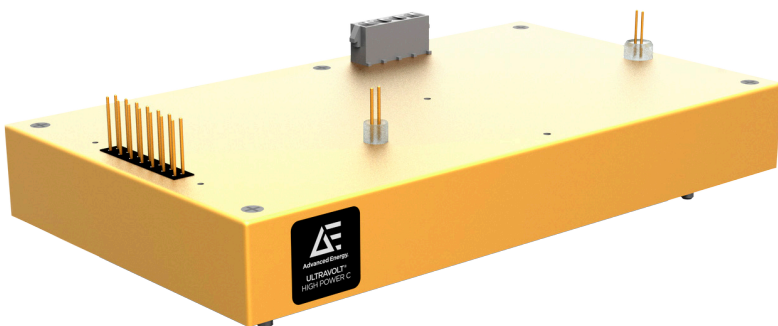
Medical (Flow
Electroporation)

CHALLENGE

The challenge for this medical treatment customer was to provide a rugged and reliable dual-output +/-500 V 125 W power supply for their line of flow electroporation instruments. These instruments allow cells to be transfected in high volumes as opposed to the more traditional approach of “static” electroporation, in which the system can only transfect one vial/cuvette at a time. The power supply needed to provide a dual-polarity high voltage power to a power module, which would create a wide range of electric pulses with varying shapes, pulse widths and intervals. The quality of these pulses was critical for an effective and reliable transfection of sample cells. In turn, high stability and repeatability of the high voltage power supply was critical for providing these pulses. Finally, the power supply must have a rapid ramp-up time constant.

SOLUTION

After careful review of the customer’s requirements the Advanced Energy® team recommended the UltraVolt High Power C (P/N 1/2C24-NP125-1). This solution aligned with the customer needs due to a number of favorable attributes:



- Dual-output packaging, with dual tracking capabilities, reducing the system footprint and simplifying packaging requirements
- A robust, well-protected supply immune to flashovers, arcs and short-circuits
- Higher system throughput with quick capacitor charging
- UltraVolt’s fast turnaround on prototypes
- Short lead-time (well below the industry average)
- UltraVolt’s historically strong experience and extensive domain knowledge for life science and medical applications

RESULT

- The dual-output packaging allowed the customer to purchase a single part number instead of a (-) and a (+) supply, simplifying their supply chain and BOM count
- Since this unit is part of UltraVolt's High Power C Series it is well-suited to the customer's fast-charging, arc-prone application
- The solution provided a more responsive and adaptable control of high voltage capacitor charging
- Expanded mechanical integration and interconnection possibilities
- Advanced Energy's fast response to very low volume needs enabled fast product development with reduced financial outlay and risk
- Short lead-time (well below the industry average) provided the customer with confidence that AE could provide reliable, on-time deliveries once mass production of their systems was achieved
- The customer viewed Advanced Energy as a partner in their life science application instead of just a high voltage power supply vendor

CONCLUSION

The High Power C series of regulated DC-to-DC supplies is optimal for your laser, capacitor charging, pulsed power, pulse generator, and medical treatment applications. The dual polarity solution from Advanced Energy provided a perfect power solution, enabling the customer to stay ahead of evolving medical treatment market needs. AE's High Power C Series minimizes stress on storage capacitors, enhances system reliability, and simplifies product design.



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