

High Power C series required for transfection of cells

INDUSTRY**Medical****SOLUTION****High Power C Series****APPLICATION****Flow Electroporation****CHALLENGE**

An advanced medical treatments manufacturer required a rugged and reliable dual-output ± 500 V 125 W power supply, designed specifically for flow electroporation instruments.

These instruments allow cells to be transfected in high volume as opposed to the more traditional approach of “static” electroporation, in which the system can only transfect one vial or cuvette at a time. The power supply provides dual-polarity high voltage power to a power module, which creates a wide range of electric pulses with varying shapes, pulse widths, and intervals. The quality of these pulses is critical for an effective and reliable transfection of sample cells.

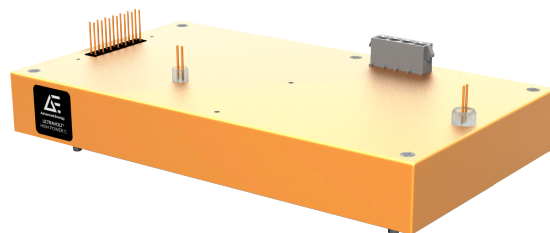
Advanced Energy (AE) was challenged with providing a high voltage power supply with high stability and repeatability, ensuring consistent pulse quality which is an absolute necessity for scientific accuracy and reliability. Additionally, the power supply needed to boast a rapid ramp-up time constant, a crucial feature for maintaining efficiency in fast-paced laboratory environments. This case study explores how Advanced Energy's solution transformed traditional cell transfection methods.

SOLUTION

In response to this technological challenge, the Advanced Energy (AE) engineering team carefully reviewed the customer's specifications and recommended the High Power C series (P/N 1/2C24-NP125-1) from UltraVolt product line. This selection was deemed successful for several compelling attributes:

■ **Dynamic Dual-Output Packaging:**

Featuring advanced dual tracking capabilities, this design exemplifies robustness and reliability.



- **Protection Against Flashovers and Arcs:** The power supply comes fortified against short-circuits, ensuring uninterrupted operations.
- **Prototyping Efficiency:** AE's ability to swiftly produce prototypes accelerates development cycles, empowering innovation.
- **Expedited Lead-Time:** Standing out with delivery times well below industry standards, AE reinforces its promise of readiness.
- **Esteemed Expertise:** Rooted in extensive experience in life science and medical applications, AE ensures competence and understanding.

RESULT

AE's dual-output High Power C series delivered unwavering performance exactly where it was needed most to the customer's fast-charging, arc-prone application. As a dual output power supply it enabled significant space savings for the system designers. Instead of two discrete power supplies for the positive and negative outputs, having one power supply saved PCB space and reduced system wiring. Having one power supply dramatically streamlined the customer's supply chain, replacing separate positive and negative supplies with a single part number by cutting BOM complexity and procurement time in half.

By accommodating low-volume orders with lightning-fast turnaround, AE empowered the customer to accelerate product development, minimize financial risk, and iterate quickly. Lead times that consistently beat industry averages reinforced the customer's confidence in AE's ability to support their roadmap, from prototype to full-scale production.

More than a vendor, AE became a true partner in the customer's life science journey. Through proactive collaboration, technical expertise, and responsive service, AE not only met the project's demanding specifications but also laid a foundation for continued innovation and growth.



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