

High voltage power supply for PIN photodiode assembly to energize body coil in MRI machines

INDUSTRY**Medical Imaging****SOLUTION****UltraVolt C Series****EQUIPMENT****MRI Machines****CHALLENGE**

A medical equipment supplier seeks to design medical imaging products with higher resolution, reduced size, increased reliability, and accurate detection. They require a high voltage DC/DC converter which will be used in their drive module unit, to power the PIN diode for the body coil in all of their MRI machines. The customer sought a vendor who was agile, accustomed to providing small initial quantities very rapidly, and would be open to adding a CANBus communications circuit, if needed in future designs.

SOLUTION

Advanced Energy's recommended solution was the UltraVolt® C series of high voltage regulated DC-to-DC converters. Requiring up to 1000V of tightly regulated output power, the a modified 1C24-P125 (providing up to +1000V/125W) has been selected. 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.

AE also provided the following advantages over the competition:

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



RESULT

By choosing UltraVolt's High Power C Series, the customer satisfied their need for a reliable HVPS stability and low ripple, which will not affect or impact the accuracy, resolution, and repeatability in the end system. As a result of the fast turnaround of samples, the end customer was able to develop their medical imaging machine in a shorter period than would have been possible with the competition. Incorporating a CANBus communications circuit in this design also helped the end customer select a solution that not only addressed the needs for this project, but also will be suitable for future designs with additional communications capabilities.

CONCLUSION

Advanced Energy's UltraVolt C Series high power density enabled the customer to easily mount the high voltage DC/DC converter in the limited space available in the remote control cabinet. The short lead time equated to more rapid development and deployment of beta systems. UltraVolt's high reliability in the customer's application gave them the confidence they needed to quickly ramp-up to full production, while also providing a proven solution for future system designs.



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