Wide Input Range | Adjustable Output | Minimize Conversion | Small Size, Low Profile

Medical Cart Battery Power

Minimizing Lead Times Through Scalable Power Design

The Customer's Challenge

End-users of a medical devices company were more than happy with the functionality of a medical cart. A wide variety of electronic equipment could be powered by the standard battery built into the cart and the manufacturer had the ability to meet the wide range of equipment voltage requirements by changing the DC-DC converter within the cart.

However each customer's equipment had different requirements that were difficult to predict in advance meaning that it was not possible to keep all power variations in stock, so adding to the lead time.

To stay competitive the manufacturer recognized the need to upgrade the design of their carts, reducing the size and increasing the functionality, without losing the ability to offer end-user defined output options.

The Solution

The power design was significantly simplified by replacing the isolated DC-DC module that was being used with a single wide input/output voltage range ZVS buck-boost regulator. The small size of the buck-boost, enabled it to be integrated directly onto the main power board.

Link to Whiteboard »

The Results

The regulator is simple to design in and is small enough to add to the existing board, saving the cost of the housing for a separate converter.

The ZVS Buck-Boost's wide voltage input/output trim voltage ranges enabled the customer to implement a voltage trim circuit to cover all the possible output voltages that would be required by end-user customers. This enabled them to stock one version of the board, adjusted to order, significantly reducing lead times, and time to revenue. As they were able to fulfill orders within days rather than weeks the solution also enabled them to significantly reduce inventory.

Product Family Key Specifications	
Cool-Power® ZVS Buck-Boost Switching Regulators	
Input Voltages	16 – 34V, 21 – 60V
Output Voltages	12 – 34V, 21 – 36V, 36 – 54V
Output Power	Up to 240W continuous
Efficiency	Over 98% efficiency at >800kHz FSW
Dimensions	LGA SiP: 10 x 14 x 2.5mm