VICOR

Case study: Enhanced missile defense



Efficiently powering the growing suite of advanced on-board sensors

Customer's challenge

As missile defense weapons become more sophisticated, they require higher performance power delivery to successfully incorporate advanced on-board technology to ensure more accurate and successful performance. Key goals were:

- 28V MIL-STD-704F input conversion to –28V
- Deliver high power in difficult circumstances
- Provide the necessary performance to enhance mission success

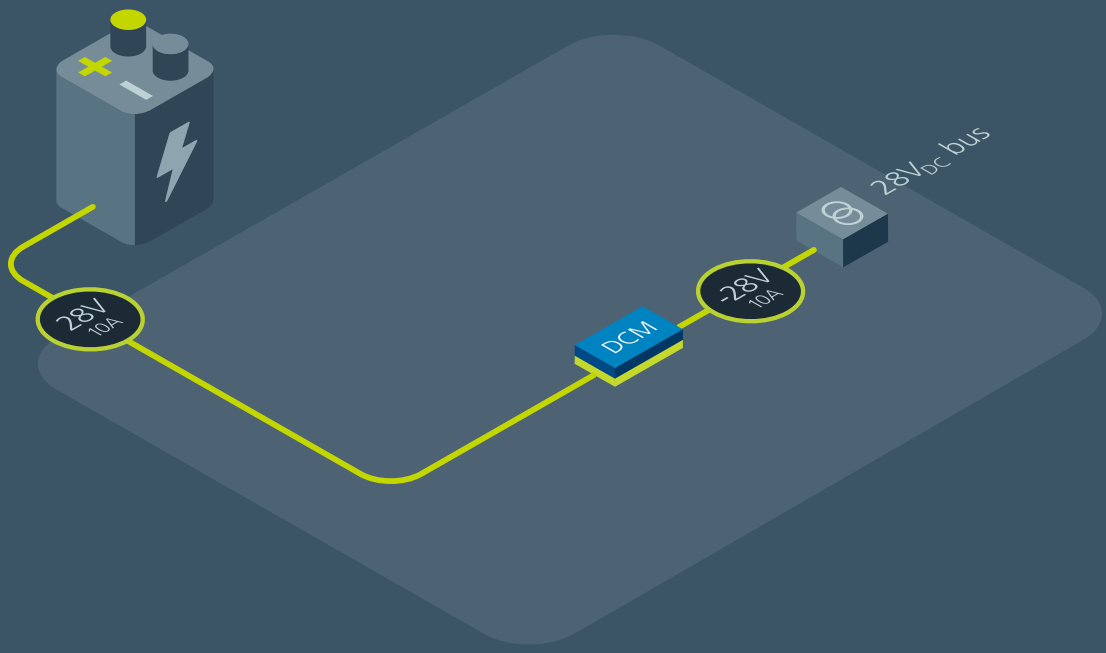
The Vicor solution

Vicor high-performance power modules provided the thermal, mechanical, and high density benefits necessary to power the advanced onboard functionality. The Vicor DCM™ DC-DC converter provides DC-DC conversion with a wide input range of 16 – 50V, and peak efficiency of 93.6%, and with superior power density to provide an isolated, regulated –28V bus.
Key benefits were:

- Previously unattainable smaller system size and lighter weight
- High performance even in harsh environments
- Wide input range

The Power Delivery Network

A 28V MIL-STD-704F input to -28V at 300W is converted using a DCM™ isolated, regulated DC converter. The thermal, mechanical, and high density benefits of Vicor ChiP packaging allow for cost-effective power solutions with previously unattainable small system size and lighter weight. Coupled with the high efficiency gained through zero voltage switching (ZVS) topology, these modules provide superior power system performance in a wide variety of environments. In this application, the Vicor DCM3623 provides DC-DC conversion with a wide input range of 16V to 50V, peak efficiency of 93.6% and power density of 818W/in^3.





MIL-COTS DCM™
DC-DC converter

Isolated regulated

Input: 28, 30, 270V

Output: 3.3, 5, 12, 15, 24, 28, 48V

Power: Up to 1300W

Peak efficiency: 96%

As small as
0.98 x 0.90 x 0.28in

vicorpower.com/mil-cots-dcm

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