



Signal Detection and Identification

High Performance Dual-Source Architecture



PCDM



High
Efficiency



Low
EMI



Small Size,
Low Profile

The Customer's Challenge

RF SIGINT applications are very complex systems, requiring many pieces of ever more advanced technology to work together, demanding increasing levels of processing power, usually in shrinking footprints, and at reduced costs.

That was the challenge faced by one customer looking for a new power solution that could provide higher power and improved efficiency to support an increase in processing capability in the same constrained space. The supply's radiated emissions had to be very low to provide the clean signal environment necessary for optimum sensitivity and performance.

An additional complexity for the designers was to provide both universal AC and wide 24V inputs in the space-constrained system, needing to operate at high ambient temperatures without the use of fans.

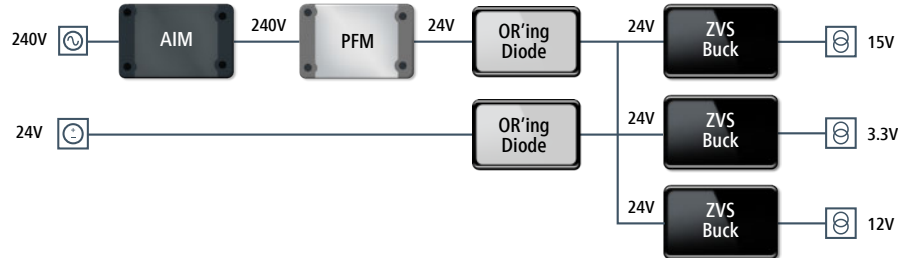


The Solution

Vicor's Power Component Design Methodology is a scalable and modular building block approach to power system designs, integrating powerful online design tools and an extensive portfolio of small, proven power components, all the way from the power source (AC and DC) to the point of load. Each power component is optimized to work together to deliver outstanding performance.

This enabled the innovative ZVS Buck Regulators to supply the low voltage output rails, directly from both DC and AC inputs. The AC input was handled by a PFM Isolated AC-DC converter.

[Link to Whiteboard »](#)



The Results

The Vicor-based power component solution provided the multiple outputs required, with higher power, in a smaller size than the existing solution. The new solution's improved efficiency reduced the heat generated in the system itself, allowing operation at high ambient temperatures without the need for derating or additional mechanical cooling. The high switching frequency of the regulators helped reduce the size of the EMI filters required.

Product Family Key Specifications

PFM™ Isolated AC-DC Converters with PFC

| | |
|-----------------|--|
| Input Voltages | Universal rectified: 85 – 264 VRMS |
| Output Voltages | 24V and 48V isolated and regulated outputs |
| Output Power | 400W |
| Efficiency | Up to 92% |
| Dimensions | PFM 4414: 111 x 36 x 9.4 mm PFM 4914: 125 x 36 x 9.4 mm |

Cool-Power® ZVS Buck Regulator Module

| | |
|----------------|--|
| Input Voltages | 12V, 24V, 48V (Nominal) |
| Output Voltage | Wide output range (1 – 16 V) |
| Output Current | 8A, 9A, 10A, and 15A versions |
| Efficiency | Up to 96.5% Light load and full load High efficiency performance |
| Dimensions | LGA SiP: 10 x 14 x 2.56 mm LGA SiP: 10 x 10 x 2.56 mm |