750-W Converter Steps Down 48 V To 12 V With 97% Peak Efficiency

Vicor's DCM3717 750-W, dc-dc converter enables customers in data center, automotive and industrial markets to quickly deploy high-performance 48-V power delivery for legacy 12-V loads while achieving significant power-system size, weight and efficiency benefits, according to the vendor. Operating from a 40-V to 60-V SELV input, the nonisolated converter provides a regulated output with a range of 10.0 V to 13.5 V, a continuous power rating of 750 W and a peak efficiency of 97%. This performance is achieved in a 37-mm x 17-mm x 7.4-mm surface-mount converter housed in package (SM-ChiP, a proprietary package, see the figure.)

The DCM3717 supports the LV148 specification (48-V automotive standard) for pure electric and hybrid vehicles and the recent Open Compute Project (OCP) Open Rack Standard V2.2 for distributed 48-V server backplane architectures, providing a regulated 48-V-to-12-V option for downstream legacy 12-V multiphase point-of-load converters.

Applications not requiring regulation of the 12-V supply can take advantage of the Vicor NBM2317, an 800-W, 48-V-to-12-V fixed ratio converter which is available in a smaller 23-mm x 17-mm x 7.4-mm SM-ChiP with 69% higher power density and higher efficiency at 97.9%. For more information see the DCM3717 product page.

Figure. A 48-V to 12-V dc-dc converter with regulated output, the DCM3717 delivers 750-W in a package that measures 37 x 17 x 7.4 mm or 1.45 x 0.67 x 0.29 in. That equates to a power density of 2640 W/in^3.