

1300-W DC-DC Converter Delivers 451 W/in³ For Air And Sea Applications

Operating from a 270-V input, [Vicor's](#) DCM5614 is an isolated, regulated dc-dc converter that delivers 1300 W of output at 28 V in a 5.6- x 1.4- x 0.3-in. VIA package. Providing a power density of 451 W/in³—an industry best according to Vicor—at a weight of just 178 g, the DCM5614 targets advanced airborne, shipboard and UAV systems where power density, weight and efficiency are critical (Fig .1)

With up to 96% efficiency (see Fig. 2), power dissipation is significantly reduced, and the innovative planar and thermally adept VIA package enables multiple cooling strategies for enhanced thermal performance. Modules can also be easily paralleled for increased power or stacked for increased output voltage.

This dc-dc converter, which Vicor refers to as a DCM, accepts an input range of 180 to 400 Vdc to deliver an isolated, regulated, 28-V nominal, safety extra low voltage (SELV) output. Output voltage is trimmable from 22 to 36 V. This low-profile dc-dc module, also includes inrush protection and optional analog or digital communication.

The optional secondary-referenced PMBus-compatible telemetry and control interface provides access to the DCM's internal controller configuration, fault monitoring and other telemetry functions. Leveraging the thermal management and power benefits of VIA packaging technology, the DCM module offers flexible mechanical mounting options with low top- and bottom-side thermal resistances.

According to the vendor, when combined with downstream regulators and POL current multipliers, the DCM enables power system architects to achieve power-system solutions with outstanding performance metrics and low total cost. For more information, see the DCM5614 product [page](#).



Fig. 1. An isolated, regulated dc-dc converter in Vicor's flat VIA package, the DCM5614 steps down a 270-V input to 28-V output at up to 1300 W with 96% efficiency. Available in chassis- or PCB-mount form-factors, the 5.6- x 1.4- x 0.3-in. module incorporates a dc-dc converter, inrush protection and optional analog or digital communication.

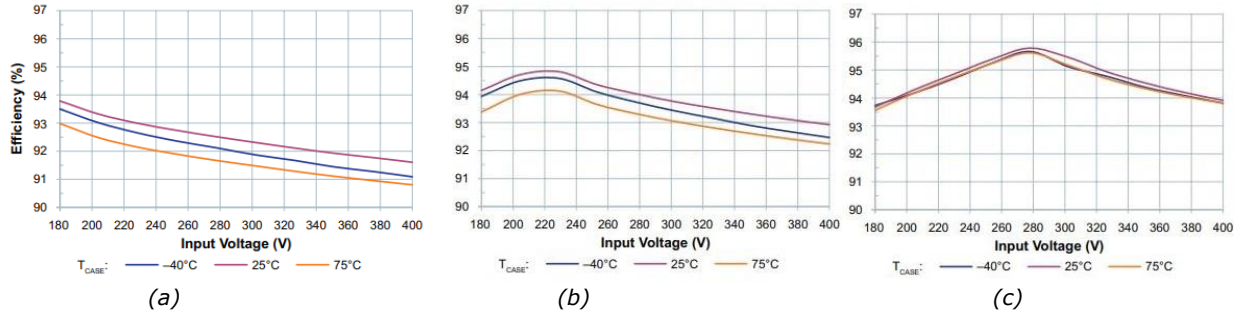


Fig. 2. Full load efficiency versus input voltage and temperature under low trim (a), nominal trim (b) and high trim (c) output-voltage settings. Output voltage is trimmable from 22 to 36 V.