

Rad-Tolerant 50-W DC-DC Converters Address New Space Needs

[Microchip Technology](#)'s LE50-28 family of 50-W radiation-tolerant (RT) isolated converters addresses demands for standard space-grade solutions that are reliable and cost effective for the rapidly growing new space market. Family members are available in nine variants with single- and triple-outputs ranging from 3.3 V to 28 V, and are designed to meet MIL-STD-461 (see the figure and the table).

The power converters have a companion EMI filter and offer customers ease of design to scale and customize by choosing one or three outputs based on the voltage range needed for the end application. This series provides flexibility to parallel up to four power converters to reach 200 W.

Designed to serve 28-V bus systems, the LE50-28 power converters can be integrated with Microchip's PolarFire FPGAs, microcontrollers and LX7720-RT motor control sensor for a complete electrical system solution. Designers can use these high-reliability radiation-tolerant power solutions to significantly reduce system-level development time.

The converters offer a variety of electrical connection and mounting options. The series is manufactured with conventional surface-mount and thru-hole components on a printed wiring board (rather than hybrid assembly). This distinction in the manufacturing process can reduce time to market and risks associated with supply chain disruptions.

The LE50-28 family offers space-grade radiation tolerance with 50-krad TID and SEE latch-up immunity of 37-MeV·cm²/mg linear energy transfer. The converters are supported by comprehensive analysis and test reports including worst-case analysis, electrical-stress analysis and reliability analysis.

The LE50-28 single-output and triple-output models are now available. For additional product information, see the Radiation-Tolerant Isolated DC-DC Converters [page](#). To purchase, contact a Microchip sales representative, authorized worldwide distributor or visit Microchip's Purchasing and Client Services [website](#).

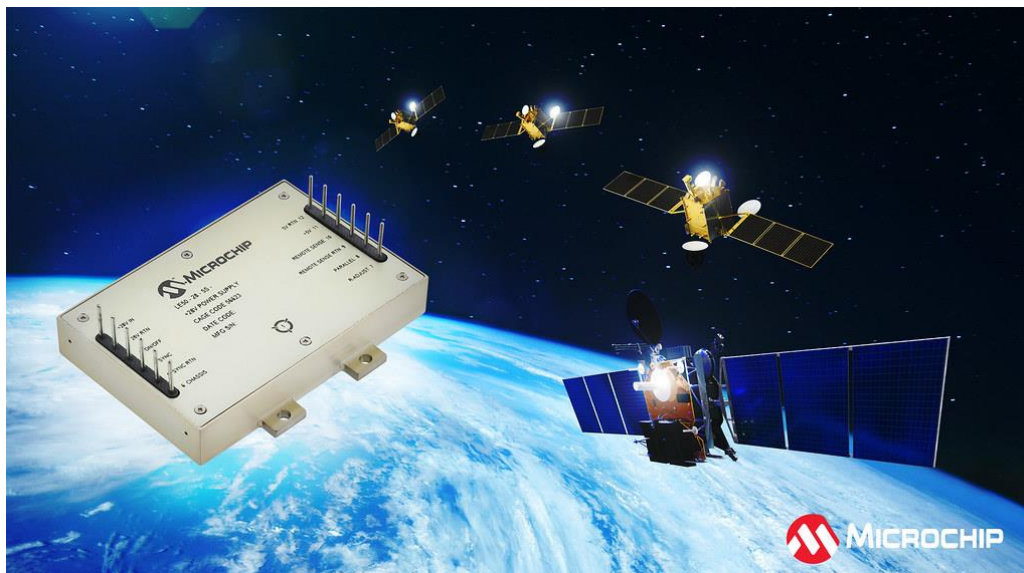


Figure. Addressing requirements for cost-effective, reliable and configurable standard power converters in new space LEO applications, the LE50-28 power converters are available in nine variants with single- and triple-outputs for optimal design configurability.

Table. Key specs for members of the LE50-28 family of 50-W radiation-tolerant (RT) isolated dc-dc converters.

Product	Input voltage range min (V)	Input voltage range max (V)	Output voltage setpoint, (main, ±mV)	Output current, main (A)	Line regulation (main, ±) (mV)	TID, gamma, (krad(Si))
LE50-28-12S	22	38	120	4.2	50	50
LE50-28-15S			150	3.3	60	
LE50-28-28S			270	1.8	120	
LE50-28-3R3-12T			30	4	20	
LE50-28-3R3-15T			30	4	20	
LE50-28-3R3S			30	10	20	
LE50-28-5-12T			50	4	20	
LE50-28-5-15T			50	4	20	
LE50-28-5S			50	10	20	