



**MODULAR DEVICES, INC.**

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An ISO 9001:2000 Registered Company

## ***MDI's Radiation Hardened 100K+<sup>®</sup> Technology***

MDI offers the full production availability of its 100K+ Radiation Tolerant Hybrid DC-DC converter modules in the Proton Rad hard types.

Old technology radiation hardened DC/DC converters use radiation hardened N channel FETs for switching. However, these sole source transistors are expensive and have uncertain availability, resulting in higher prices and long delivery times for the DC/DC converters using these parts.

In 2003, MDI developed 100K+ technology (patented and patent pending) that eliminates the need for radiation hardened N channel FETs in high radiation environments. In the past several years, this 100K+ methodology has been further refined and optimized, resulting in additional patents pending.

MDI has incorporated 100K+ technology in its 5000, 7000, 8000 and 9000 series DC/DC converters. The parts are fully characterized for radiation effects and electrical performance. All models share self contained input EMI filters (MIL-STD-461C) as well as output common mode filters for efficient, noise free outputs essential to reliable operation of critical loads.

Total Ionizing Dose (TID) testing on complete DC/DC converters confirms guaranteed minimum performance to 100 Krads TID with typical performance exceeding 200 Krads. Single event resistance up to 82 MeV\*CM<sup>2</sup>/mg has been verified by extensive testing.

Unlike radiation resistant products offered by some competitors, MDI's 100K+ circuitry does not rely on ineffective radiation shielding, but is a true radiation hardened technique.

However, unlike radiation hardened N channel FETs, the ultimate capability of 100K+ technology falls below ITAR thresholds, simplifying export issues.

MDI has also incorporated 100K+ technology into related power circuit functions such as inrush limiters, solid state switches and synchronous buck regulators. Patents have been applied for these applications.

MDI's Radiation Hardened 100K+ technology is also especially suited for radiation hardened high voltage and high power applications such as electric actuators, high voltage buses and ion propulsion.

MDI expects that the availability and affordability of this innovative new technology will supplant many of the present applications now using radiation hardened N channel FETs.

*100K+<sup>®</sup> is a registered trademark of Modular Devices, Inc.*