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Rad-Hard Power MOSFET Family Achieves JANSF 300-krad Capability

[Microchip Technology](#) has completed its family of radiation-hardened (rad-hard) power MOSFETs to the MIL-PRF-19500/746 slash-sheet specification and the achievement of JANSF qualification for its JANSF2N7587U3, 100-V n-channel MOSFET to 300 Krad (Si) total ionizing dose (TID). Microchip's JANS series of rad-hard power devices is available in voltage ranges from 100 V to 250 V to 100 Krad (Si) TID, with the family expanding to higher radiation hardness assurance (RHA) levels, starting with the JANSF2N7587U3 at 300 Krad (Si) TID.

The JANS RH MOSFET die is available in multiple package options including a plastic package using the MIL-qualified JANSR die, providing a cost-effective power device for new space and low earth orbit (LEO) applications. The ceramic package is hermetically sealed and developed for total dose and single event effects (see the figure).

The devices are designed to meet the MIL-PRF19500/746 standard with enhanced performance, making them excellent options for applications that demand high-reliability components capable of withstanding the harsh environments of space and extending the reliability of power circuitry. SPICE models are available for the JANS MOSFETs.

The JANSF and JANSR RH power MOSFETs serve as the primary switching elements in power conversion circuits, including point-of-load converters, dc-dc converters, motor drives and controls, and general-purpose switching. With low $R_{DS(ON)}$ and a low total gate charge, these power MOSFETs offer improved energy efficiency, reduced heat generation and enhanced switching performance when compared to similar devices on the market, says the vendor.

To learn more about Microchip's aerospace and defense solutions, visit the [web page](#). The JANSF and JANSR devices are available in limited sampling upon request. For additional information contact a [Microchip sales representative](#).



Figure. The JANS series of rad-hard power devices is available in voltage ranges from 100 V to 250 V and TID to 100 Krad (Si), with the family expanding to higher RHA levels, starting with the JANSF2N7587U3 at 300 Krad (Si) TID.