

ISSUE: [October 2024](#)

240-V, 1-kA Bidirectional Power TVS Diode Comes In Surface-Mount Package

Bourns' model PTVS1-240C-M PTVS is described as the industry's first 240-V, 1-kA bidirectional power TVS (PTVS) diode that offers the highest power density available in a surface-mount package. The diode is designed with advanced silicon processing technology that yields exceptionally high voltage-handling capabilities, which along with the diode's surface-mount packaging places this transient voltage protector in "a league of its own," according to the vendor (see the figure).

Offering 1-kA surge handling capability under 8-/20- μ s test conditions, the PTVS1-240C-M is well suited for a broad variety of systems that employ high-voltage dc bus architectures. These systems commonly experience high current switching transients and dynamic load behaviors where snubbing is needed or protection of bus-powered subsystems is required.

The PTVS1-240C-M is a low-leakage device consuming only 10 μ A in standby while delivering a maximum breakdown voltage of 295 V, repetitive standoff voltage of 240 V and precise clamping voltage of 340 V. Under 10-/350- μ s conditions, this device is rated for 200-A peak current, and its voltage breakdown sensitivity over temperature is an extremely linear 0.1%/ $^{\circ}$ C. The surface-mount package offers a significantly reduced PCB footprint and lower inductance design advantages compared to traditional through-hole mounted power TVS diodes, says the vendor.

Applications that can benefit from the features and capabilities of the PTVS1-240C-M include industrial power systems, motor controllers and inverters, solar inverters, battery energy storage systems and factory automation equipment.

The PTVS1-240C-M is available now, is UL497B certified and meets IEC 61000-4-5 standard specifications. It is also RoHS compliant and halogen free. For additional information, see the Power TVS Products (PTVS) [page](#).



Figure. The PTVS1-240C-M is a high-current bidirectional TVS diode designed for use in high power dc bus clamping applications. This device offers bidirectional port protection with a standoff voltage rating of 240 V. It's RoHS compliant and designed to meet IEC 61000-4-5 8-/20- μ s, 10-/350- μ s and 10-/1000- μ s current surge requirements