



Littelfuse TVS Diode Arrays Provide Ultimate Ultra-Low Capacitance Protection from ESD for Ultra High-Speed Interfaces

AEC-Q101-qualified devices outperform polymer-based technologies and spark gaps

CHICAGO, April 29, 2019 — [Littelfuse, Inc.](https://www.littelfuse.com) today introduced two series of bidirectional TVS Diode Arrays (SPA[®] Diodes) designed to protect ultra high speed consumer electronics interfaces from damaging electrostatic discharge (ESD) in applications where PCB layout is especially challenging. The SP3208-01UTG, the first TVS Diode Array in the SP3208 Series, is mechanically optimized to deliver consistently ultra-low capacitance (nominally 0.08 pF). The SP3213-01UTG, the first SP3213 Series device, offers an option for highly cost-conscious ESD protection solutions.

Both of these “Ultimate Ultra-Low Capacitance ESD Protection” devices are AEC-Q101-qualified, employ the same base die, and can safely absorb repetitive ESD strikes at ± 12 kV without performance degradation and dissipate 2 A of 8/20 μ s surge current.

Typical applications for SP3208 and SP3213 Series TVS Diode Arrays include:

- Ultra-high speed data lines and interfaces, such as USB 3.2, 3.1, 3.0, 2.0, HDMI 2.1, 2.0, 1.4a, 1.3, DisplayPort™, Thunderbolt and V-by-One[®],
- Low power antenna ports,
- Consumer, mobile and portable electronics, and
- Tablet PCs and external storage with high speed interfaces.

“Rising data rate speeds present significant challenges to design engineers who need to maintain high signal integrity,” said Tim Micun, Business Development Manager, TVS Diode Arrays (SPA Diodes) at Littelfuse. “Compared to other ESD protection solutions on the market, the SP3208 and SP3213 Series provide 50 percent lower nominal capacitance, which helps preserve signal integrity and minimize data loss. Providing a passband in excess of 30 GHz allows signal integrity engineers to create a high speed, data capable environment.”

SP3208 and SP3213 Series TVS Diode Arrays offer these key benefits:



- Sub-0.1 pF silicon-based ESD protection allows for passbands as high as 30 GHz, enabling high signal integrity for the world's fastest data interfaces.
- Industry-standard 0201DFN packaging with internal construction enhancements reduce parasitic capacitance, inductance, and resistance, making these TVS Diode Arrays easier to model into a protection scheme.
- Lower parasitic capacitance and inductance permit better dynamic resistance performance, protecting the circuit faster and better.

Availability

SP3208 and SP3213 Series TVS Diode Arrays are available in surface-mount μ DFN-2 (0201) packages in tape and reel format in quantities of 15,000. Sample requests may be placed through authorized Littelfuse distributors worldwide. For a listing of Littelfuse distributors, please visit Littelfuse.com.