



New Product Announcement

D3V3Z1BD2CSP

Space-Saving TVS Delivers Robust ESD and Surge Protection for High-Speed Connectivity Applications

The D3V3Z1BD2CSP, bidirectional transient voltage suppressor (TVS) diode, is designed to protect high-speed differential data lines from both electrostatic discharge (ESD) strikes and surge events. It is well-suited for use in high-performance and space-constrained applications such as portable, mobile, and wearable devices. In addition, the device is designed to protect sensitive I/O connectors and interfaces, such as USB Type-C®, DisplayPort™, HDMI™, and SD-Card.

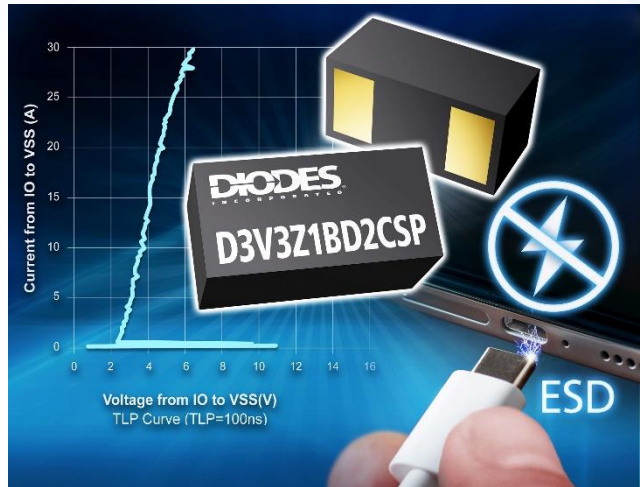
This new TVS delivers a strong combination of robust safeguards and high performance, without the usual trade-off; the risk of electrical overstress damage is minimized from activities such as frequent hot plugging.

Thanks to its high peak pulse current (I_{PP} 10.5A typical) and low clamping voltage (5.3V), the D3V3Z1BD2CSP provides robust protection for sensitive electronics from transient voltages up to ± 20 kV, improving system stability and reliability.

The D3V3Z1BD2CSP has an ultra-low input capacitance of 0.3pF (typical), minimizing insertion loss and maintaining signal integrity for high-speed data up to 20Gbps.

Its broad operating temperature range, from -55°C to $+150^{\circ}\text{C}$, ensures continued protection even in challenging application environments.

The D3V3Z1BD2CSP is available in the extremely compact X2-DSN0603-2 wafer-level chip-scale package, (0.6mm x 0.3mm x 0.3mm) and is fully RoHS 3.0 compliant with no exceptions.



The DIODES Advantage

The D3V3Z1BD2CSP TVS safeguards high-speed data lines against damaging ESD and surge events.

- **0.3pF Low Capacitance**
Maintains high-speed data integrity
- **Low-Clamping Voltage**
Enhances downstream system protection
- **High Surge and ESD Immunity (IEC Compliant):**
IEC61000-4-2 ESD up to ± 20 kV air and contact
IEC61000-4-5 up to peak pulse current (IPP) 10.5A max
Provides rugged protection for high reliability
- **0.18mm² Space-Saving PCB Footprint**
Maximizes board real estate
- **Totally Lead-Free Green**
Meets full RoHS compliance and is halogen and antimony free

Applications

- Consumer electronics
- Laptops/tablets
- Portables/wearables
- Computer peripherals
- Active cables
- Industrial systems
- USB Type-C
- 10G Ethernet
- USB 3.2, USB 4
- HDMI 2.0
- Thunderbolt™ 3

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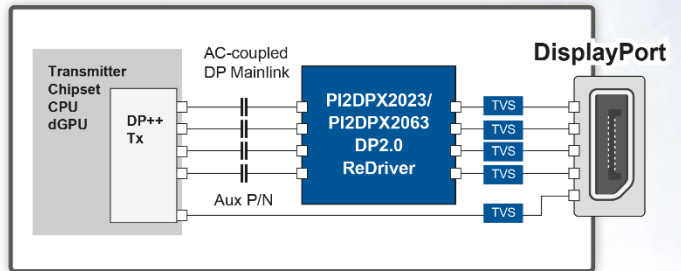
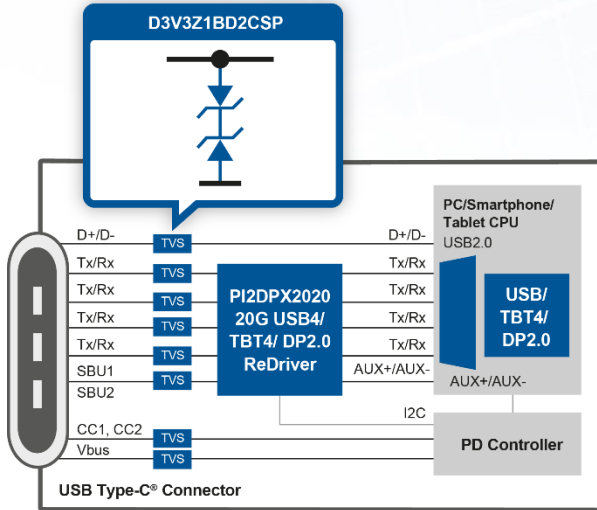
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Typical Applications



Product Portfolio

Part Number	Configuration	V_{RWM}	CT Typ.	ESD Protection	Surge Robustness 8/20 μ s	R_{DYN}	Package
		V	pF	kV	A	Ω	
D3V3Z1BD2CSP	Single (Bi-Directional)	3.3	0.3	± 20	10.5	0.14	X2-DSN0603-2

Competitor Product Cross Reference

Diodes Incorporated Part Number	Nexperia Part Number	Compatibility
D3V3Z1BD2CSP-7	PESD3V3Z1BSF	PP

PP = Pin-to-Pin Replacement

Ordering Information

Orderable Part Number	Package	Packing	
		Quantity	Carrier
D3V3Z1BD2CSP-7	X2-DSN0603-2	10,000	Tape & Reel