



New Product Announcement

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DESD3V3Z1BCSF

Ultra-Compact TVS Device with Ultra-Low Channel Input Capacitance for High-Speed Dataline ESD Protection

Diodes Incorporated introduces the DESD3V3Z1BCSF, which is the newest ultra-low input capacitance (0.17pF typ.) TVS device in the dataline protection product family. The device protects the high-speed I/O of mixed-signal SoCs (system-on-chip) manufactured on the advanced nanometer process nodes.

DESD3V3Z1BCSF features:

- Lowest C_j at 0.17pF and 66% lower insertion compared to the devices last released in the same product family
- An ultra-compact 0.6 x 0.3mm footprint
- 9V breakdown voltage (V_{BR}), 3A max. peak pulse current (I_{PP}) and 4.5V (typ.) clamping voltage (V_{CL}) as per IEC61000-4-5 (8/20 μ s)
- Withstand repetitive ESD strikes (VESD) up to ± 8 kV per IEC61000-4-2 for air and contact discharge.

DESD3V3Z1BCSF is well-suited for protecting high-speed interfaces such as USB 3.1/3.2 (up to 20Gbps) and Thunderbolt™ 3 (up to 40Gbps) from possible ESD hazards.

Housed in the green X2-DSN0603-2 package, the device is well-suited to fully-automated manufacturing environments and easily fits into systems where space is at a premium.

Thunderbolt™ is a trademark of Intel Corporation or its subsidiaries in the U.S. and/or other countries



The Diodes Advantage

Ultra-low Channel Input Capacitance

With the input capacitance as low as 0.17pF typ., the insertion loss over any pair of high-speed differential transmission lines meets or exceeds those required by USB 3.1/3.2 & Thunderbolt™ 3.

Low Clamping Voltage and Reverse Standoff Voltage

With clamping voltage (V_{CL}) of 4.5A typ. for $I_{PP} = 3A$, and reverse standoff voltage (V_{RWM}) at 3.3V max., the device ensures the mixed-signal SoC being protected operates comfortably within the safe limits.

IEC61000-4-2 and IEC61000-4-5 Compliance

1 channel of I/O protection at IEC61000-4-2 (ESD) up to ± 8 kV air & contact, IEC61000-4-5 (8/20 μ s surge) up to peak pulse current (I_{PP}) of 3A max.

Ultra-compact X2-DSN0603-2 Package

The combination of the very small footprint (0.6mm x 0.3mm typ.) and ultra-low z-height (0.3mm typ.) allow the device to fit in tight application environments.

Applications

- Smartphones
- 4K/8K Monitors
- AR/VR Equipment
- PCs & Computing Peripherals
- Audio/Visual Equipment



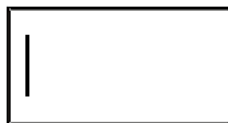
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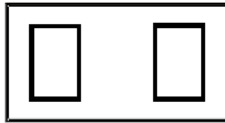
Product Portfolio

Part Number	# of Ch.	Direction	Application	C _J (pF)	IEC61000-4-2	V _{TRIGGER}	V _{SNAPBACK}	V _C @ TLP I _{PP} = 16A	V _C @ I _{PP_MAX} (8/20μs)	Package
DESD3V3Z1BCSF	4	Bi-dir	USB 3.1/3.2 Thunderbolt 3	0.17pF	Air: ±8kV Con: ±8kV	8.8V	2.4V	11.5V	4.5V @ 3A	DSN0603
D3V3F4U10LP	4	Uni-dir	USB, HDMI, DP	0.50pF	Air: ±12kV Con: ±12kV	7.9V	1.5V	5V	3.5V @ 5A	DFN2510
D3V3X4U10LP	4	Uni-dir	USB, HDMI, DP	0.45pF	Air: ±8kV Con: ±8kV	7.8V	1.4V	6V	3.0V @ 3A	DFN2510

X2-DSN0603-2



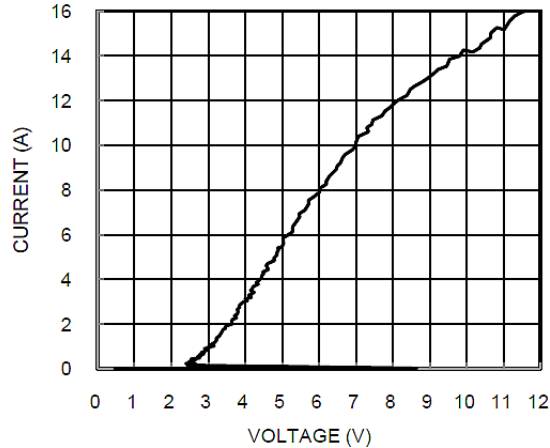
Top View



Bottom View



Device Schematic



DESD3V3Z1BCSF: Current vs. Voltage

Ordering Information

Part Number	Compliance	Marking	Reel Size (Inch)	Tape Width (mm)	Quantity per Reel
DESD3V3Z1BCSF	Standard	MZ	7	8	10,000
D3V3F4U10LP-7	Standard	QD6	7	8	3,000
D3V3X4U10LP-7	Standard	MU2	7	8	3,000