



NXP ultra-low clamping ESD protection diodes PESD5V0X1U family

High-performance ESD protection for sensitive ICs

Specifically designed for ultra-low clamping voltages, ultra-low overshoot voltages, and ultra-low capacitance, these advanced devices provide the highest levels of protection against ESD strikes for highly ESD-sensitive ICs.

Key features

- ▶ Best-in-class overshoot voltage for an 8 kV ESD strike
- ▶ Ultra-low clamping voltage of 7.5 V @ 30 ns after an 8 kV ESD strike
- ▶ Ultra-low capacitance: 0.95 pF
- ▶ Innovative DFN1006D-2 (SOD882D) package with solderable, tin-plated side pads

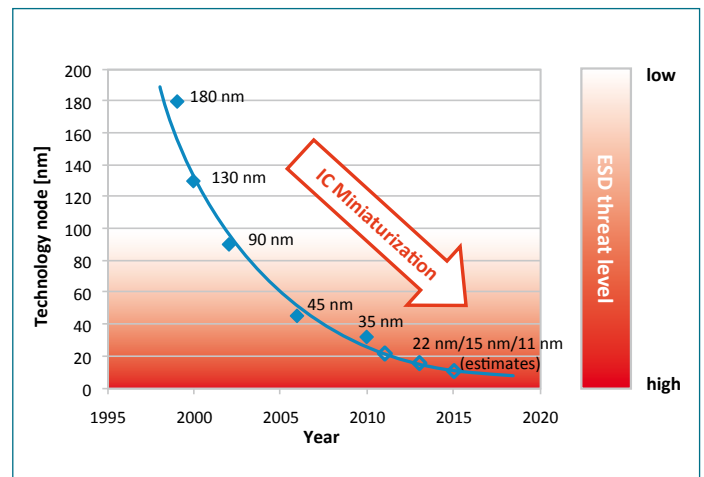
Key benefits

- ▶ Highest level of protection against ESD strikes for highly sensitive ICs
- ▶ Ultra-small packages for compact PCB designs

Applications

- ▶ High-speed data interfaces in communication, consumer, and computing markets
- ▶ Protection for highly sensitive interface controller ICs

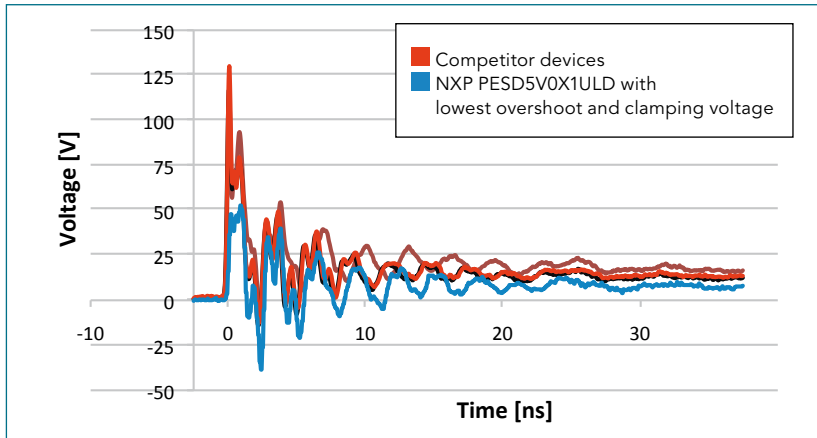
Increased ESD vulnerability due to continuing miniaturization



The ultra-small process technologies used to produce today's miniature semiconductors have the side-effect of making the ICs more vulnerable to voltage transients caused by ESD strikes. NXP's PESD5V0X1U family supports these highly sensitive ICs by providing high-performance ESD protection.



Clamping performance of the unidirectional PESD5V0X1ULD compared to other devices with comparable capacitance (positive 8 kV ESD pulse according to IEC61000-4-2)



Device	Capacitance max.	Overshoot voltage at 8 kV ESD pulse	Clamping voltage at 30 ns 8 kV ESD pulse
PESD5V0X1ULD	1.15 pF	53 V	7.5 V
Competitor 1	0.9 pF	130 V	13.1 V
Competitor 2	0.6 pF	93 V	17.1 V
Competitor 3	2.5 pF	117 V	12.6 V

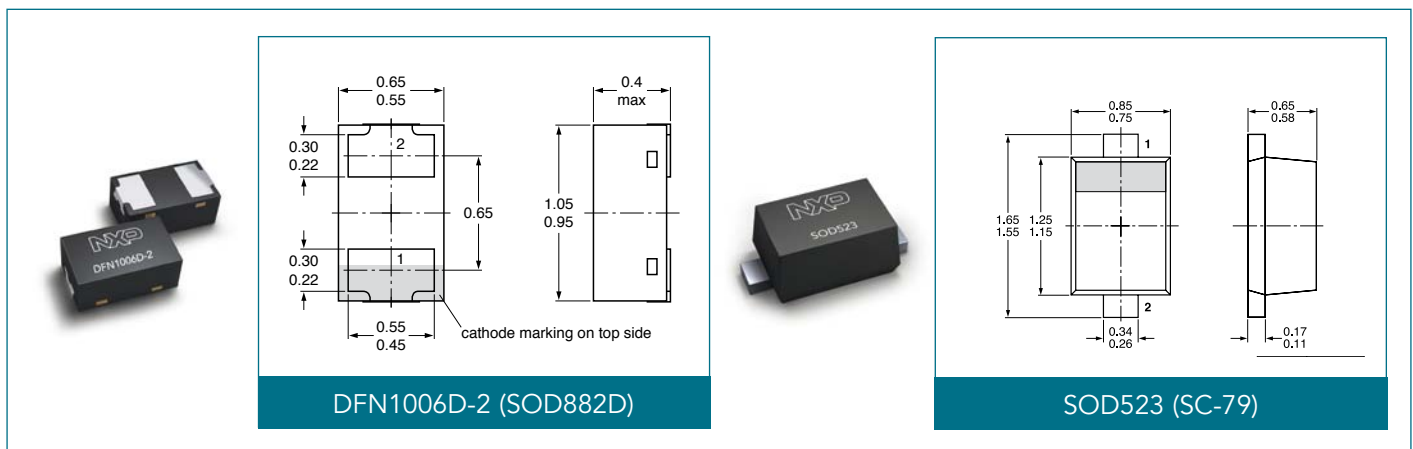
Compared to other devices with similar electrical parameters, PESD5V0X1U diodes have the lowest overshoot and clamping voltages after 30 ns for an 8 kV ESD pulse, according to

IEC61000-4-2. The combination of extremely low capacitance and ultra-low clamping voltage makes these devices ideal for high-speed dataline protection applications.

Ultra-low clamping ESD protection diodes family

Product	V_{RWM} [V]	C_d typ [pF]	C_d max [pF]	ESD rating max [kV]	R_{dyn} @ 10A [Ω]	Package	Configuration
PESD5V0X1UB	5 V	0.95 pF	1.15 pF	8 kV	0.25 Ω	SOD523 (1.2 x 0.8 x 0.6 mm)	
PESD5V0X1UAB	5 V	1.55 pF	1.75 pF	15 kV	0.15 Ω		
PESD5V0X1ULD	5 V	0.95 pF	1.15 pF	8 kV	0.25 Ω	DFN1006D-2 (SOD882D) (1.0 x 0.6 x 0.37 mm)	
PESD5V0X1UALD	5 V	1.55 pF	1.75 pF	15 kV	0.15 Ω		

Packages



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