

TrEOS High-Speed ESD Protection

Ideal combination of low capacitance, low clamping voltage and high surge robustness to protect sensitive high-speed interfaces

Design benefits

- Optimizing the three pillars of ESD protection
 - Low capacitance* for highest signal integrity
 - Low clamping & trigger* for enhanced system protection
 - High robustness* against ESD & Surge transients
- Snap-back technology allows for lowest clamping voltage
- Designed to fulfill IEC 61000 standard in final application

Key technical features & portfolio

- Extremely low capacitance down to 0.1 pF
- Extremely low clamping down to 0.1 Ω (R_{dyn})
- High ESD and surge robustness up to 20 A at 8/20 μ s
- Extremely fast switching time under 1 ns

Portfolio (Excerpt)	Capacitance	Clamping	Trigger	Surge	Package
PESD1V2Y1BSF	0.26 pF	6.4 V	3.4 V	4 A	SOD962
PESD2V0Y1BSF	0.69 pF	4.6 V	4.3 V	6 A	SOD962
PESD2V5Y1BSF	0.25 pF	6.1 V	< 5 V	4 A	SOD962
PESD2V8R1BSF	0.1 pF	10.5 V	12.5 V	7 A	SOD962
PESD3V3Z1BSF	0.28 pF	5.7 V	9 V	9.5 A	SOD962
PESD3V3W1BCSF	0.55 pF	3.8 V	9 V	20 A	SOD962
PUSB3BB2DF (4V _{RWM})	0.26 pF	6.2 V	9 V	8 A	SOT8013
PESD5V0H1BSN	0.17 pF	6.1 V	12.5 V	5 A	SOD992B
PESD9V0W1BDSF	0.5 pF	3.9 V	12.4 V	20 A	SOD962

V_{RWM}

@ 16 A TLP

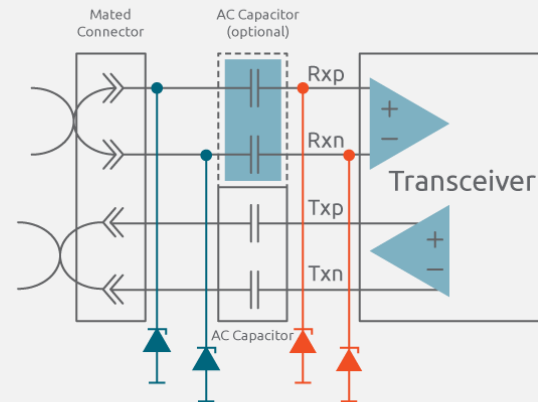
Functions & applications

Suitable for up to ~20Gbps per line pair

- USB Type-C (USB 2.0 / 3.2 / 4)
- Thunderbolt (up 40 Gbps)
- HDMI 2.1
- SD-Card protection
- All other sensitive I/Os

Application diagram

USB3.2 Rx/Tx Protection



Available packages (W x L x H in mm)

SOD992B (DSN0402)	SOD962-2 (DSN0603-2)	SOT8013 (DSN0603-3)
0.4 x 0.2 x 0.2	0.6 x 0.3 x 0.3	0.6 x 0.3 x 0.3

Small-footprint package with low-inductance & extreme-robustness

Discovery questions

- Do you need to safeguard high-speed data-lines with up to ~20Gbps per line?
- Do you need to protect very sensitive transceiver SoCs against peak pulses?
- Do you have concerns about V_{Bus} interference on data-lines?