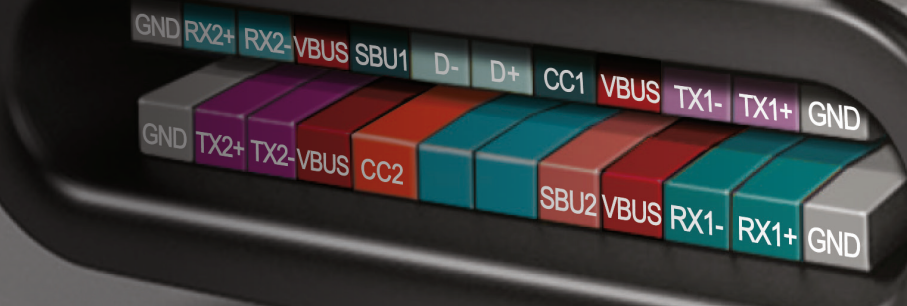


# Product at a Glance: PESD1V0x1BxSF series

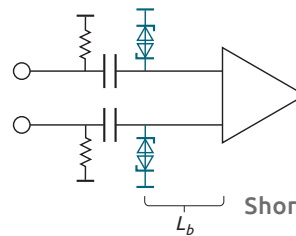


## Key applications

- › USB4<sup>®</sup> data lines
- › AC coupled LV data lines @10 GHz and higher

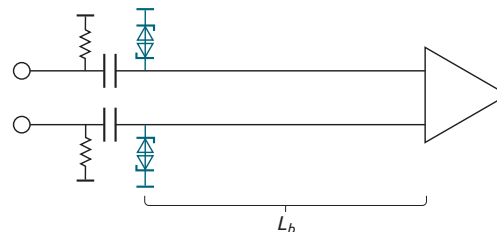
## Key features and benefits

- › Outstanding RF performance
  - Insertion loss down to -0.21 dB @ 12.8 GHz
- › Industry leading surge robustness and extremely low trigger voltage  $V_{t1}$ 
  - Critical during Vbus shorts to Tx/Rx due to noncompliant USB-C<sup>®</sup> interfaces
- › Extremely low device inductance
  - No measurable degradation of RF performance due to device inductance
  - Supports very high switching speeds during ESD events
- › Choice of four device offers to select best balance between signal integrity (long traces) and clamping (short traces)
- › Industry-standard SOD962-2 package



**Short trace, lower board inductance  $L_b$**

Most critical: ESD clamping  
Slightly larger device is beneficial to optimize for clamping reduction

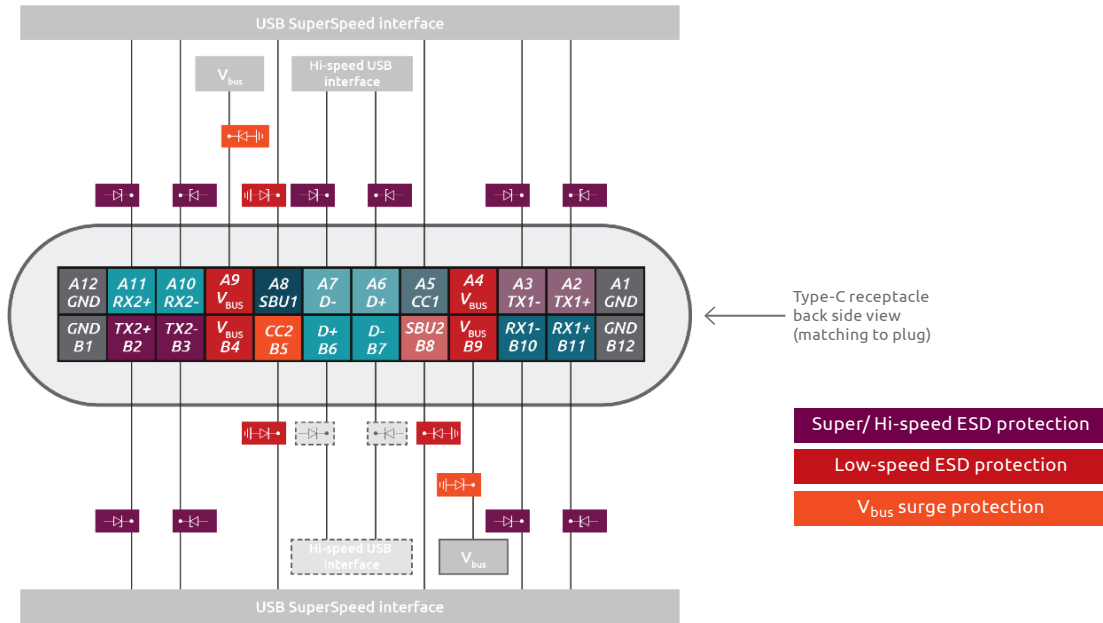


**Longer trace, higher inductance**

Most critical: signal integrity  
Slightly smaller device is beneficial to optimize for RF performance

| Device        | Cd   | S21 @ 10 GHz, 45 Ohm de-embedded | IEC 61000-4-2 limit | 8/20 $\mu$ s limit / typ. |
|---------------|------|----------------------------------|---------------------|---------------------------|
|               | pF   | dB                               | kV                  | A                         |
| PESD1V0C1BSF  | 0.18 | -0.31                            | 15                  | 6.5 / 8                   |
| PESD1V0H1BSF  | 0.15 | -0.27                            | 12                  | 5 / 6.2                   |
| PESD1V0R1BDSF | 0.13 | -0.21                            | 10                  | 4.5 / 5.5                 |
| PESD1V0R1BCSF | 0.10 | -0.16                            | 8                   | 3.6 / 4.6                 |

## Recommended USB Type-C® protection



## Portfolio excerpt:

|       | Generation  | First choice             | Alternatives                                      | Alternatives  |
|-------|---|--------------------------|---|---|
| USB4™ | Superspeed Gen4<br>Tx/Rx 80 Gbps<br>(40 Gbps / line pair) | PESD1V0R1BCSF            | PESD5V0R1BBSF (0.08pF)                            | PESD1V0R1BDSF   |
|       | Superspeed Gen3<br>Tx/Rx 40 Gbps<br>(20 Gbps / line pair) | PESD1V0C1BSF             | PESD1V0H1BSF<br>PESD5V0H1BSF<br>PESD5V0C1BSF      | PESD5V0R1BDSF   |
|       | Superspeed Tx/Rx<br>10/20 Gbps<br>(10/10 Gbps / l.pair)   | PESD1V0C1BSF             | PESD1V2Y1BSF<br>PESD3V3Z1BSF<br>PESD1V0C1BSF      | PESD5V0R1BDSF<br>PESD5V0R1BCSF  |
|       | Superspeed<br>5 Gbps Tx/Rx                                | PESD1V0C1BSF             | PUSB3BB2DF (2ch)<br>PESD9V0Z1BCSF<br>PESD5V0C1BSF |   |
|       | Hi-Speed USB<br>(USB2 D+/D-)                              | PESD3V3F1BSF             | PESD15VW1BCSF/ACSF<br>PESD9V0W1BDSF               |   |
|       | CC, SBU   | PESD5V5S1BSF             | <b>Surge focused:</b><br>PTVS5V5D1BL              | <b>ESD focused:</b><br>PESD5V5S1BSF<br>PESD24VV1BSF<br>PESD27VV1BSF<br>PESD30VV1BSF |
|       | V <sub>BUS</sub>  | PTVSxVxD1B(A)L<br>SOD882 | PTVSxVxU1UPA<br>SOT1061                           |   |



Full USB Type-C portfolio:  
[https://www.nexperia.com/USB-C\\_ESD](https://www.nexperia.com/USB-C_ESD)

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[nexperia.com](https://www.nexperia.com)

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