Silicon ESD Devices Are Asserted to Offer the Lowest Capacitance for High-Data-Rate Apps

TE Circuit Protection announced a family of eight new single-channel and multi-channel silicon ESD (SESD) protection devices offering what it asserts are the lowest capacitance (bi-directional: 0.10 pF typical; uni-directional: 0.20 pF typical), highest ESD protection (20-kV air and contact discharge) and smallest size (multi-channel: smallest flow-through form-factor and 0.31 mm height) packages available on the market. The devices' ultra-low-capacitance results in the industry's lowest insertion loss, according to the company, which is essential for maintaining signal integrity in ultra-high-speed applications. The devices help protect against damage caused by electrostatic discharge (ESD), surge and cable discharge events. The multi-channel devices also feature a flow-through design package that allows for matched impedance of PCB trace routing, which is essential for maintaining high-speed signal integrity. The ultra-low-capacitance, small size and high ESD kV rating of the SESD devices are appropriate for smart phones, HDTVs and similar consumer, auto and other markets' products using today's – and tomorrow's – highest-speed interfaces such as USB 3.0/2.0, HDMI, eSATA, DisplayPort, and Thunderbolt.

The single- and multi-channel SESD devices also feature an industry-leading 20kV contact and air discharge rating, exceeding IEC61000-4-2's 8kV industry standard. In the event of a high voltage ESD strike, this high kV rating helps minimize the risk of the ESD device failing short and permanently disabling the port, or open, exposing the downstream chipset to damage caused by another ESD strike. This capability helps reduce customer complaints and warranty repair costs.

Consumer electronics are constantly shrinking and TE Circuit Protection's SESD devices offer size advantages in the ongoing trend for miniaturization. The single-

channel devices are available in 0201-sized XDFN small footprint (0.6mm x 0.3mm x 0.31mm) and 0402-sized XDFN (1.0mm x 0.6mm x 0.38mm) packages. The multi-channel SESD arrays (two-, four- and six-channel options) feature a package height as low as 0.31mm– resulting in up to a 50% lower profile than comparable devices. The SESD devices' lower profile allows for placement closer to the edge of the PCB, or in-between boards and connectors, facilitating design flexibility.

Additionally, one miniature four-channel SESD array can be used in a smaller board area than four 0201 devices, resulting in board space, assembly cost and device cost savings. As the smallest 4- and 6-channel flow-through arrays on the market, these devices also ease routing when used with applications employing miniature-size connectors, such as HDMI Type-D, mini DisplayPort, Thunderbolt and USB 3.0 Micro-B.

TE Circuit Protection
800-227-7040, www.te.com [1]

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