



Eaton ESD suppressors protect sensitive electronics for automotive communications

New trends in automobile design include a rise in the number of connectivity features added to modern vehicles, all to enhance the driving experience. The newest designs from automakers will not only push the envelope of speed, fuel efficiency, and aerodynamics but also in vehicle communications.

On hands-free mode, drivers can now place calls, respond to instant messages via voice, use GPS navigation, and other smart mobility features that leverage data from within the vehicles. In-vehicle communications are enabled by high-speed data protocols such as Controller Area Networks (CAN), FlexRay, and Ethernet.

Leading automakers are expected to integrate more electronics into their vehicles as new features become commonplace, which will increase the overall complexity

of designs. However, this will pose fresh technical challenges for the automotive industry, as more data flows into, out of, and around a car than ever before.

Increased communications affect under-the-hood electronics

With more data transfer between various sections of modern cars, e.g., backup cameras, sensors for autonomous driving, and body electronics, incidents of technical issues such as electrostatic discharge (ESD) increases. ESD occurs when there is an accidental transfer of electricity from a charged object to a neutral one. The high-voltage spikes generated during an ESD event (aka ESD strikes) can damage highly sensitive components such as ICs for high-speed circuits.

Eaton's PS04 and 0402 ESD Polysurg® suppressors can prevent premature failures of critical automotive electronics. These devices are made of a special voltage variable material with low trigger and clamping voltages.

When an ESD strike occurs, the device will clamp the overvoltage to the required level and shunt the current through the device to the ground. Eaton ESD suppressors have low leakage current which helps to minimize power dissipation. They also have an ultra-low capacitance (0.05 pF) which preserves the signal integrity of high speed data transmission protocols.

PS04 and 0402 ESD suppressors come in an ultra-compact form factor (0402) with 12 V and 30 V maximum voltage ratings respectively. The devices meet AECQ-200

requirements, the highest-grade certification for electrical and thermal performance in automotive applications.

Eaton provides solutions for a wide range of automotive applications

Automotive applications for Eaton PS04/0402 ESD suppressors include in-vehicle infotainment and telematics, body electronics, high-speed ports and interfaces, ADAS, and satellite navigation systems. Owing to their small size, they can meet a wide range of design requirements and help to optimize board savings.

Eaton is an environmentally-responsible manufacturer. The PS04 and 0402 ESD Suppressors are lead free, halogen free, and RoHS compliant, and each product comprises eco-friendly materials to reduce carbon waste.

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