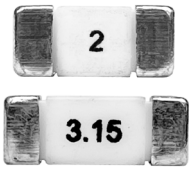
Use case
Eaton high voltage SMD fuses (1145HV/1350HV)



Eaton provides reliable overcurrent protection in automotive applications

The number of electronics integrated into modern vehicles is increasing due to demand for additional features, such as GPS navigation systems, smartphone docks, interior/exterior lighting, self-driving, and more. Due to higher power requirements, it is not surprising that circuit protection is more critical than ever in automotive applications. Many vehicles utilize 48 V power rails to supply power to additional electronics (e.g., ADAS, high-current sensors, actuators, etc.) and boost power efficiency. Higher voltage levels are needed to charge EV batteries and supply power to processors and other electronics.

Circuit protection required throughout today's vehicles

Power distribution units (PDUs) in hybrid-electric (gasoline or electric-driven) and fully electric vehicles help distribute power from energy storage units, such as batteries, to critical traction and auxiliary loads (e.g., the powertrain, body electronics, infotainment systems, etc.) These PDUs require circuit protection to protect sensitive electronics from damage due to overcurrent or overload conditions. Switch-mode power supplies, such as DC-DC power converters for stepping down voltage levels, also need circuit protection for failsafe operation. Similarly, sensing lines are always at risk of voltage transients, overtemperature, and overcurrent conditions.

Fuses are integral components for interrupting the flow of current under fault conditions. They come in a variety of materials and constructions, including surface-mount (SMD) and through-hole fuses. High voltage (HV) SMD fuses offer several benefits over through-hole designs in automotive applications. Their higher voltage ratings provide reliable protection in sections of the vehicle prone to higher fault currents. With packages measuring only a few millimeters, these fuses are small enough to fit into component-dense PCBs.

Reliable overcurrent protection with Eaton Bussmann solutions

Circuit protection elements are shrinking in size considerably to integrate into smaller or component-dense PCBs in modern automobiles. Nonetheless, automotive electronics should meet reliability and safety standards. Some recognized standards include the AEC-Q100 qualification for integrated circuits and AEC-Q200 for passive components. Leading automakers strive to meet these standards to differentiate their offerings in a highly competitive market. Eaton is a global leader in circuit protection for the automotive industry.

Eaton Bussmann™ series 1145HV and 1350HV fast-acting fuses provide reliable overcurrent protection in automotive electronic systems. Eaton 1145HVA fuse is an AEC-Q200 qualified version offering excellent performance and reliability in electronic systems throughout the vehicle. The 1145HV/1145HVA fuses are available in an 11 x 4.5 mm footprint, while the 1350HV comes in a 13 x 5.0 mm footprint. Applications include powertrains, DC-DC converters (up to 380 Vdc), and onboard EV battery systems.

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