TAIYO YUDEN

Use Case

TAIYO YUDEN Supercapacitors Ensure Reliable Power Delivery in Automotive Applications

Road rage, distracted driving, speeding, adverse weather conditions, and drunk driving are some causes of car accidents every year. According to US governmental research, one motor-related injury occurs every ten seconds in the United States. Data from the NHTSA also suggests that 10 million or more road accidents go unreported each year. Consequently, road safety is of utmost concern to authorities across the world.

Promoting Road Safety with Dashboard Cameras

Dashboard cameras or drive recorders have become increasingly popular over the last decade due to a wide range of benefits to vehicle owners, pedestrians, and overall road safety. A dashboard camera is an electronic device used to record video or audio footage within and around a vehicle while driving. Drive recorders attach to the dashboard of a car and utilize the front, side, and rear cameras to record footage as soon as the driver turns on the engine. Having this device installed offers greater security and awareness to drivers and prevents car insurance fraud by providing first-hand evidence in the event of an accident. Some dashboard cameras even come with in-built GPS that allows for remote tracking.

Supercpacaitors Offer More Reliability than Batteries for Road Safety

During a car accident, batteries supplying power to dashboard cameras may become damaged due to overheating (typically resulting in thermal runaway).

Electric double-layer capacitors (EDLCs), also known as supercapacitors, can serve as backup energy storage, keeping the device powered for several seconds to save captured video or audio data. EDLCs consist of a pair of electrochemical double-layer materials that offer up to 1000 times more energy storage than traditional capacitors owing to a much larger capacitive surface area. Unlike batteries, supercapacitors provide high-density power with insignificant degradation over thousands of charge-discharge cycles and no thermal runaway issues. EDLCs can be utilized as the sole energy storage (individually or in modules) or combined with batteries to reduce cell count.

TAIYO YUDEN Energy Storage Solutions for Dashboard Cameras

In automotive applications, EDLCs must perform reliably in a wide range of operating temperatures. TAIYO YUDEN LP Series EDLCs are immune to thermal runaway issues due to sharp temperature rise. With operating temperatures from -40 °C up to +85 °C, the LP EDLCs are significantly more reliable than EDLCs from other leading competitors. TAIYO YUDEN LP EDLCs offer 2.4 to 20 F of capacitance with a maximum working voltage of 2.7 V. These UL-certified products utilize the highest-grade materials and come in small packages for space savings in today's compact dashboard cameras, helping to keep the roads safe as pedestrian and driver safety - with the advent of autonomous vehicles and ever-crowding roadways - becomes more important than ever before.