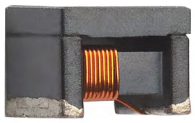
Use case
Eaton PCA1V/PCA2V PoC inductors for automotive camera systems



Eaton PoC inductors enhance signal integrity in automotive camera systems

Advanced driver assistance systems (ADAS) have become essential to modern-day vehicles. ADAS have revolutionized modern vehicles by improving drivability, safety, and comfort with advanced features like lane departure warnings, adaptive cruise control, and emergency braking. ADAS rely on camera systems to detect obstacles and monitor the driving environment accurately. With the increasing demand for such systems, there is a need for components that can handle the high power requirements while maintaining optimal signal integrity.

Power-over-Coax (PoC) technology enables power and data transmission over a coaxial cable, significantly reducing installation complexity and cost. PoC inductors play a crucial role in this technology by allowing efficient power transfer, improving signal quality, and enhancing EMI immunity. As technology evolves, using PoC inductors for power filtering will only increase.

PoC inductors provide an efficient solution to address the challenges faced with power filtering in automotive ADAS camera systems. Electromagnetic interference caused by AC signals in DC power circuits can be a significant issue in ADAS camera systems in automotive applications. This interference can lead to inaccurate data and system errors, ultimately compromising driver safety. PoC inductors can decouple AC signals from DC power circuits to reduce the number of components needed in the system. The improved signal integrity then results in better image quality and accuracy.

With excellent EMI suppression capabilities and the ability to handle high current levels, PoC inductors provide stable power to ADAS camera systems, ensuring reliable and efficient performance. PoC inductors also enable a space-efficient design for power filtering in ADAS systems. These components can be integrated directly into camera modules, saving space and reducing the need for external components. Their compact size makes them ideal for use in smaller vehicles or where space is limited.

Eaton's PCA is a family of automotive grade PoC (Power-over-Coax) inductors: PCA1V and PCA2V, both offering a wide range of high-current and SRF performance needed for broadband filtering in Power-over-Coax (PoC) applications.

The PCA PoC inductors enable ADAS cameras to capture more precise images and enhance camera performance, which in turn improves signal quality. Additionally, as these inductors are smaller and lighter than conventional power filtering components, they help simplify installation while reducing overall system size and weight.

Eaton's PCA1V and PCA2V are packaged in the popular compact 1210 (3225 metric) industry footprint utilizing less board space. The PCA inductor family's construction features precision coil winding for superior filtering characteristics in various PoC automotive applications and is tested per automotive AEC-Q200. These products are magnetically shielded for optimal EMI immunity and offer a wide operating temperature range from - 55 °C to + 150 °C.

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