Use case
Eaton HFW series (high current flat wire inductor)

Eaton high current inductors offer performance stability in industrial automation and 5G applications

Engineers designing next-generation DC-DC converters must ensure low power consumption under various load conditions, low losses at higher switching frequencies, and greater platform flexibility to expand into multiple products or future platforms. These requirements are driving the need for high-current magnetics (inductors) that can offer higher power density for a broad range of applications. With advances in inductor technology and construction, a wide range of products are suitable for new-generation DC-DC converters and power filtering applications.

Adequate magnetic shielding is also critical in electromagnetic interference (EMI) sensitive applications, such as 5G base stations and industrial automation applications. EMI is a common issue caused by a variety of factors including the operation of switched mode power supplies (SMPS), servo and variable frequency drives (VFDs), as well as high-frequency harmonics from nearby high power conversion present in many industrial power supply units. In 5G base stations, antennas situated near main equipment areas can cause EMI in secondary equipment. Without adequate filtering or suppression, EMI can cause equipment malfunction, affecting overall system performance, costly loss of productivity or even higher financial loss. Notably, due to the business-critical nature of communications, relevant infrastructure must have extremely high reliability.

High-current flat-wire inductors are very effective to control current flow and store energy. When a current shifts, a high current inductor provides consistent delivery of the current to electronic equipment. Using flat wire high current inductors, such as HFW, can help minimize inductor DCR and improve heat dissipation resulting in lower saturation heat loss throughout the power supply. They are ideal for use in the latest buck, boost converters and power filtering applications. Unlike molded-powder inductors, high-current flat-wire inductors are constructed using high-efficiency ferrite magnetic materials and preformed flat wire coils. This product offers better performance at higher frequencies. Their preformed flat wire design offers very low DCR and are available in a wide range of inductance values. These inductors also provide an optimal balance between standard package sizes, exceptional high power density, affordable cost, and a wide operating temperature range.

Eaton's HFW is a family of next generation high-current flat wire inductors. Engineers designing power circuits for LED lighting, automation equipment, and 5G base stations or repeaters can benefit using Eaton's high efficiency HFW inductors for having low DCR, higher saturation current, and lower heat loss throughout their circuit.

The HWF family of inductors offers high performance due to its robust ferrite core construction, self-leaded terminations with ultra-low DCR and high current carrying capability. These inductors are suitable for high current applications requiring high efficiency, low loss and performance stability. They are magnetically shielded for excellent EMI immunity and rated from - 40 °C to + 125 °C operating temperatures.

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