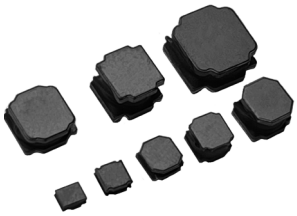
Use case
Eaton SDCx semi-shielded inductors



Semi-shielded power inductors provide great value and high performance in consumer applications

The widespread and increasing use of portable devices and consumer electronics brings greater levels of convenience and improves the quality of life of billions of users across the globe. From smartphones and computers to monitors, wearables, and washing machines, consumer applications are more sophisticated and streamlined than ever before. However, every technological innovation comes with additional technical challenges for designers and manufacturers.

Technical challenges in consumer electronics

Electromagnetic waves are increasing, which is one significant drawback to the use of electronic consumer products. EMI, or electrical noise, is more prevalent due to a rising number of devices working in close proximity. EMI is a phenomenon where electromagnetic fields or disturbances impair the normal operation of electronic equipment. DC-DC converters, such as buck, boost, and buck-boost used for voltage regulation in consumer products, also contribute some disturbance in electric circuits due to high-frequency switching and variances in current or voltage levels.

Passive components, such as inductors, capacitors, and ferrite beads integrated into PCBs can provide magnetic filtering to shield sensitive electronics from the harmful effects of electrical noise. Engineers designing voltage regulators for consumer products also face the challenges of achieving lower power consumption under various load conditions, shrinking design footprints, and the flexibility to expand into multiple products or future platforms. These requirements are driving the need for high power density magnetic products for a broad range of applications.

Eaton inductor solutions for consumer applications

Eaton's SDC is a complete line of semi-shielded drum core power inductors with high-performance characteristics. The SDCx consists of 2 families, SDCL (low-profile) and the SDCH (high-profile). Eaton's SDC power inductors offer an excellent balance of cost and performance in consumer applications using a semi-shielded drum core construction rather than complete ferrite shielding. These products provide an ideal solution for greater design flexibility and higher power density at lower costs, supporting today's fast-moving industry for consumer products. Eaton's SDCx power inductors offer higher current ratings (Isat and Irms) and low direct current resistance (DCR) in a robust magnetic construction for superior EMI immunity.

Eaton SDCL/SDCH inductors are ideal for use in a wide range of operating temperatures from -40 °C to +125 °C. The SDCL family offers inductances from 0.33 uH to 470 uH, while SDCH has inductance values ranging from 1.0 uH to 1000 uH (1 mH). Consumer applications for Eaton's power inductors include high-tech consumer products, PCs, wearables, home appliances, LED/LCDs, and other battery-powered devices.

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