SCF-X & SCT Single-Phase Common Mode Chokes

Reliable EMI Suppression for Industrial Power Systems



As power conversion systems continue to expand across industrial applications, EMI suppression has become a fundamental design requirement rather than an afterthought. From industrial inverters to power supplies, modern single-phase systems must meet strict EMC standards while maintaining compact form factors and efficient thermal performance.

The **SCF-X and SCT-X single-phase common mode chokes** are designed to address these challenges by combining broad EMI suppression capability, flexible material selection and robust construction optimized for industrial environments.

Designed for Industrial Single-Phase Applications

The SCF-X & SCT-X series targets conducted EMI suppression in a wide range of industrial and power conversion systems, including power supplies, converters, robotics, and HVAC equipment.

With a **rated voltage of up to 500 VAC/VDC** and a **current range from 1 A to 22 A**, the series supports typical single-phase power architectures used across industrial equipment.

A **broad inductance range from 0.07 mH up to 95.26 mH** enables designers to address EMI challenges across multiple frequency regions using a single product family, simplifying filter design and reducing development effort.

Material Flexibility for Optimized EMI Performance

One of the defining characteristics of the SCF-X & SCT-X family is the availability of two complementary core materials within the same platform:

- **SCF-X:** Nanocrystalline core for strong broadband EMI attenuation
- **SCT-X:** High-heat-resistant Mn-Zn ferrite (10HT) for cost-effective, targeted noise suppression

This dual-material approach allows designers to select between **performance-driven or cost-optimized solutions without redesigning the layout**, supporting faster design cycles and easier optimization.

Engineered for Robust Industrial Operation

Industrial environments demand stability under thermal and electrical stress. The SCF-X & SCT-X series is designed to operate across a **wide temperature range of -40°C to +130°C**, supporting reliable performance in demanding conditions.

Additional design features contribute to long-term reliability and system efficiency:

- **Low DC resistance** to reduce conduction losses
- **UL 94 V-0 rated base and cap** for enhanced safety compliance
- **Toroidal construction** for compact size and efficient integration into PCB designs

These characteristics ensure stable EMI performance without compromising overall system efficiency.

Simplifying EMI Filter Design

The SCF-X & SCT-X family is designed with system-level integration in mind.

- A **very wide inductance range combined with multiple core sizes and layouts** enables designers to select the right component for different current and frequency conditions using a consistent platform.
- With **multiple core sizes (12 mm, 17 mm, 23 mm and 31 mm) and a total of 116 partnumbers**, the series supports flexible design choices across various power levels and space constraints.

This reduces the need for custom solutions while allowing precise EMI tuning using standard, off-the-shelf components.

Aligned with Modern Industrial Power Trends

Applications such as industrial automation, power conditioners, robotics, and air conditioning systems increasingly require compact EMI solutions, efficient thermal behavior, reliable operation under continuous load and simplified EMC compliance.

The SCF-X & SCT-X series address these needs by combining **high integration capability, robust materials and broad EMI suppression performance** in a single platform.

Conclusion

The SCF-X and SCT-X single-phase common mode chokes are not positioned as generic EMI components. They are purpose-built solutions for industrial power systems, offering a combination of performance flexibility, material choice, and application-focused design.

By enabling both **broadband EMI suppression and cost-optimized filtering within a single family**, the series provides a practical and scalable approach to modern EMC challenges.

For engineers working on next-generation single-phase power systems, SCF-X & SCT-X deliver a technically sound and application-aligned EMI solution, grounded in proven materials and designed for real-world industrial environments.