

Common Mode SCF Coils, SCF Series, High Inductance Type

Overview

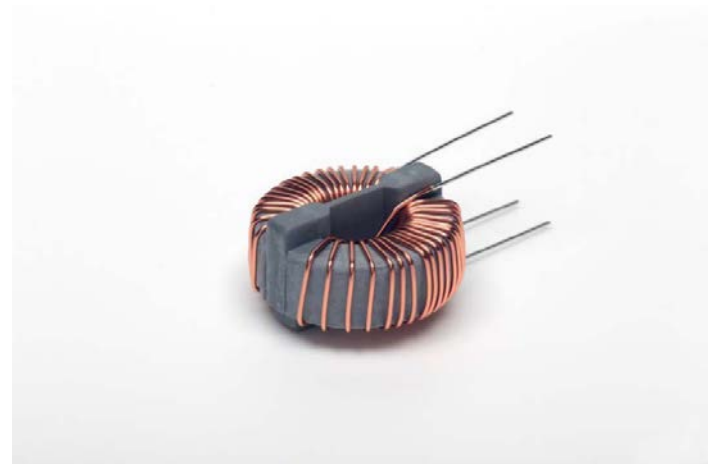
The KEMET SC-D coils are common mode chokes with a wide variety of characteristics. These toroidal coils are designed with our proprietary ferrite cores and are useful in various noise countermeasure fields.

Applications

- Audio-visual equipment
- Home appliances
- Power supplies

Benefits

- Proprietary 700L ferrite material and equivalents
- High frequency
- Wide variety of sizes and specifications
- Operating temperature range from -25°C to $+105^{\circ}\text{C}$
- UL94 V-2 flame retardant rated cap



Part Number System

SC-	10-	D	50
Series	Rated Current AC (A)	Core Type	Inductance (μH) Minimum
SC-	0x- = x A xx- = xx A Examples: 05 = 5 A 10 = 10 A	D = Ni-Zn ferrite, high frequency	xxx = xxx μH 0xx = xx μH Examples: 100 = 100 μH 060 = 60 μH

Magnetic Permeability of Ferrite Material

In order to achieve most efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material will be effective in a certain frequency band. A schematic representation of the relationship between the magnetic permeability of each material and the corresponding effective band range is shown in Figure 1. Materials with higher magnetic permeability are effective in the lower frequency range, while those with lower magnetic permeability are effective in the higher frequency range. Thus, Mn-Zn products are mainly used for reducing conduction noise, while Ni-Zn products are commonly used for radiation noise countermeasures.

The effective frequency range varies depending on core shape, size and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only and it should be tested on the actual device to determine its effectiveness.

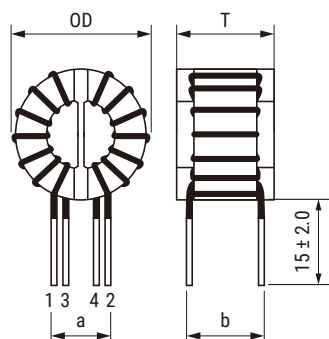
S18H, S15H, 10H, 7H, 5H, 1400L and 700L are KEMET's proprietary ferrite material names. Other materials can also be available on request.

Figure 1 - Relationship between the magnetic permeability of each material and its effective frequency range

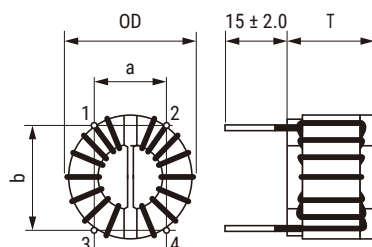


Dimensions – Millimeters

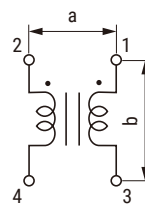
Vertical Type (≤ 5 A)



Horizontal Type (≥ 8 A)



Mounting Pitch



Part Number	Dimensions (mm)		Pin Pitch ¹ (Reference)	
	OD (Maximum)	T (Maximum)	a	b
SC-02-D100	23	13	10	13
SC-03-D050	23	13	10	13
SC-04-D050	25	19	10	19
SC-05-D030	25	19	10	19
SC-08-D060	34	23	22	21
SC-10-D050	34	23	22	21
SC-15-D030	34	23	22	21
SC-20-D010	34	23	22	21

¹ Pin pitch listed above for reference only. Values not guaranteed.

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.



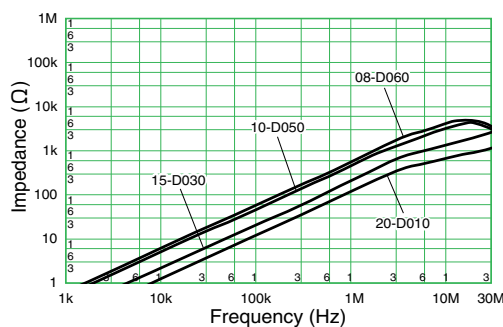
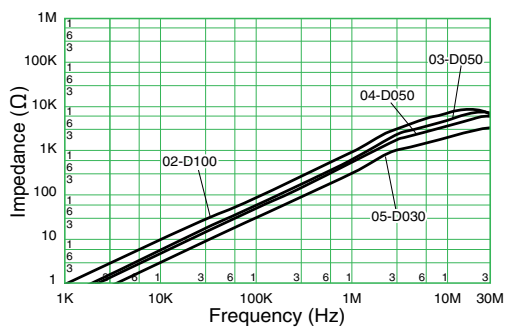
Performance Characteristics

Item	Performance Characteristics
Rated Voltage	250 VAC/VDC
Withstanding Voltage	2,400 V (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 500 VDC (between lines)
Rated Current AC Range	2 – 20 A
Rated Inductance Range	10 – 100 μH minimum
Inductance Measurement Condition	100 kHz
Thermal Class	A (105°C)
Operating Temperature Range	-25°C to +105°C (include self temperature rise)

Table 1 – Ratings & Part Number Reference

Part Number	Rated Current AC (A)	Inductance (mH) Minimum	DC Resistance/ Line (mΩ) Maximum	Temperature Rise (K) Maximum	Wire Diameter (mm)	Weight (g) Approximate
SC-02-D100	2	100	70	40	0.5	7
SC-03-D050	3	50	40	40	0.6	8
SC-04-D050	4	50	25	40	0.7	14
SC-05-D030	5	30	20	40	0.8	14
SC-08-D060	8	60	30	45	1.0	30
SC-10-D050	10	50	16	45	1.2	34
SC-15-D030	15	30	12	50	1.4	34
SC-20-D010	20	10	8	50	1.7	33

Frequency Characteristics



Packaging

Type	Packaging Type	Pieces Per Box
SC-02-D100	Tray	360
SC-03-D050		
SC-04-D050		300
SC-05-D030		
SC-08-D060		200
SC-10-D050		
SC-15-D030		
SC-20-D010		

Handling Precautions

Precautions for product storage

AC Line Filters should be stored in normal working environments. While the chokes themselves are quite robust in other environments, solderability will be degraded by exposure to high temperatures, high humidity, corrosive atmospheres, and long term storage.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine and sulfur bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts. Avoid storage near strong magnetic fields, as this might magnetize the product.

For optimized solderability, AC line filters stock should be used promptly and preferably within 6 months of receipt.

Product temperature rise values

The values listed for temperature rise are the result of self-heating in wires when the rated current (commercial frequency) is applied.

When using the product, check and evaluate the value of the core temperature rise under actual operating conditions.

Export Control

For customers in Japan

For products that are controlled items subject to the “Foreign Exchange and Foreign Trade Law” of Japan, the export license specified by the law is required for export.

For customers outside Japan

AC line filters should not be used or sold for the use in the development, production, stockpiling, or utilization of any conventional weapons, mass-destruction weapons (nuclear, chemical, biological weapons, or missiles), or any other weapons.

KEMET Electronics Corporation Sales Offices

For a complete list of our global sales offices, please visit www.kemet.com/sales.

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Although KEMET designs and manufactures its products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

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