Common Mode SC Coils, Three-phase Series

Overview

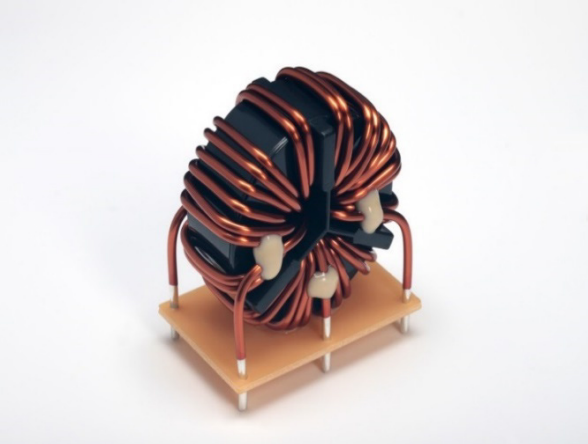
The KEMET SC coils are common mode chokes with a wide variety of characteristics. These toroidal coils are designed with our proprietary ferrite cores and are useful in various noise countermeasure fields.

Applications

- Audio-visual equipment
- Industrial equipment
- Home appliances
- Power supplies

Benefits

- Proprietary 5H, 7H, 10H and 700L ferrite material and equivalents
- Suitable for ≥ 150 kHz range
- High frequency (700L)
- Wide variety of sizes and specifications
- Operating temperature range from −40°C to +120°C
- UL 94 V–0 flame retardant rated base and cap



Part Number System

SC-	01-	S		07	J
Series	Rated Current (A)	Phase	Additional code	Inductance (mH) Minimum	Terminal Base Type
SC	0x = x A xx = xx A Examples: 01 = 1 A 10 = 10 A	S = Three-phase	Blank E = Class E D = Ni-Zn ferrite, high frequency Note: With exceptions, see Table 1 for details.	xx = x.x mH Examples: 07 = 0.7 mH 30 = 3.0 mH Note: With exceptions, see Table 1 for details.	J = Vertical type JH = Horizontal type

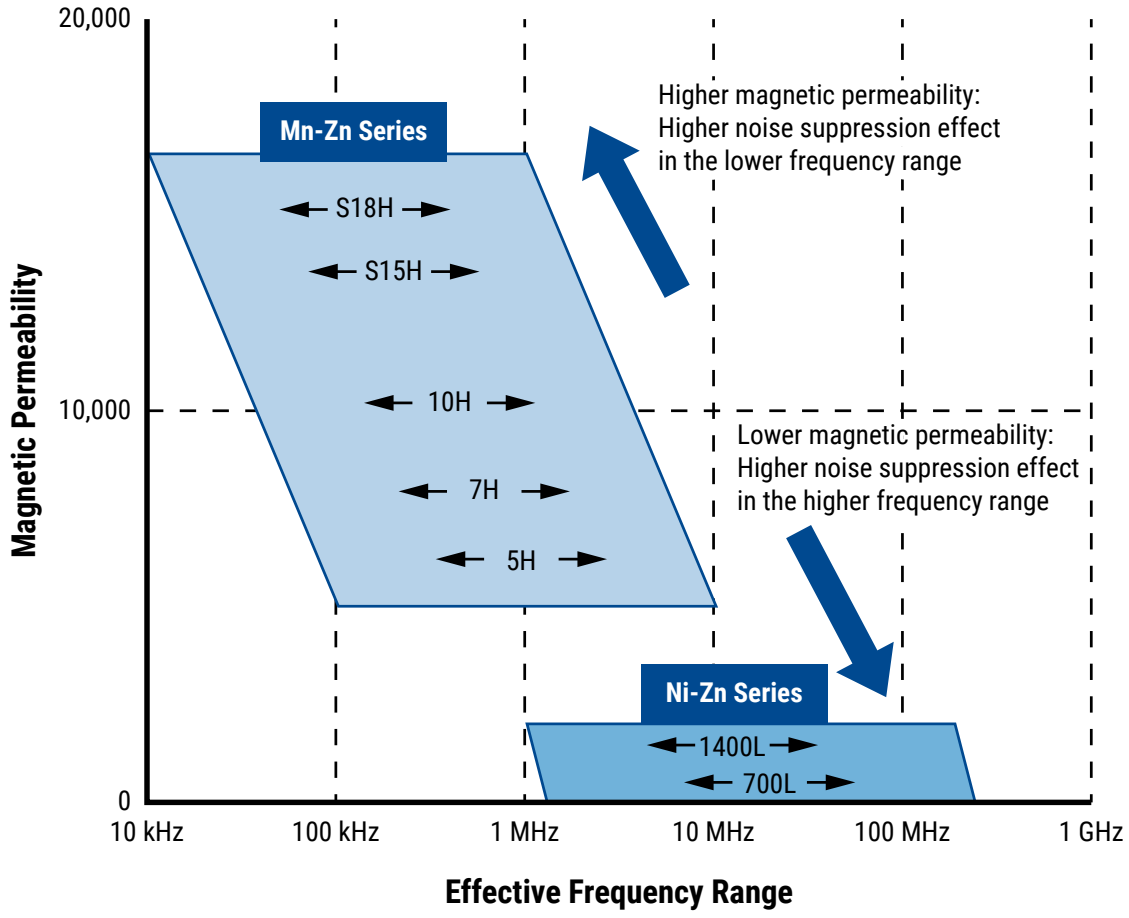
Magnetic Permeability of Ferrite Material

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

Figure 1

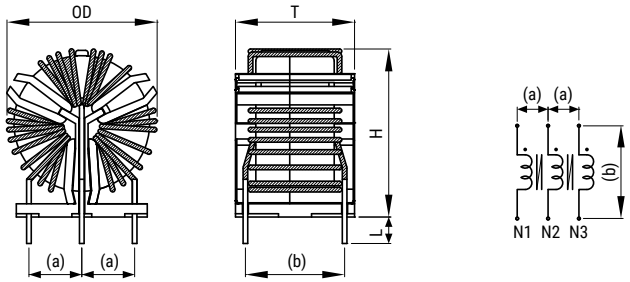


Figure 2

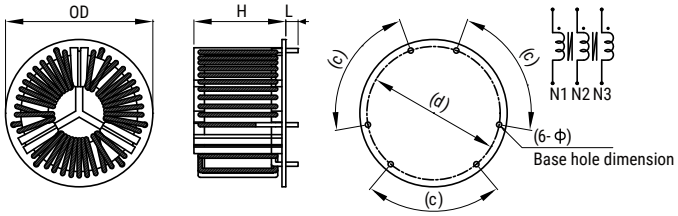


Figure 3

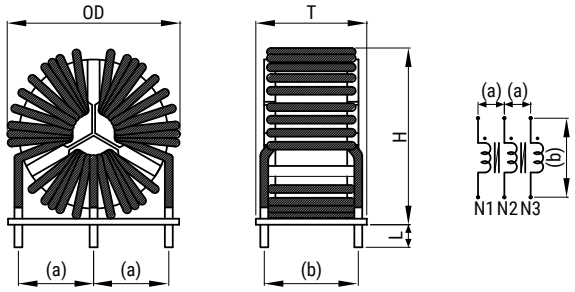
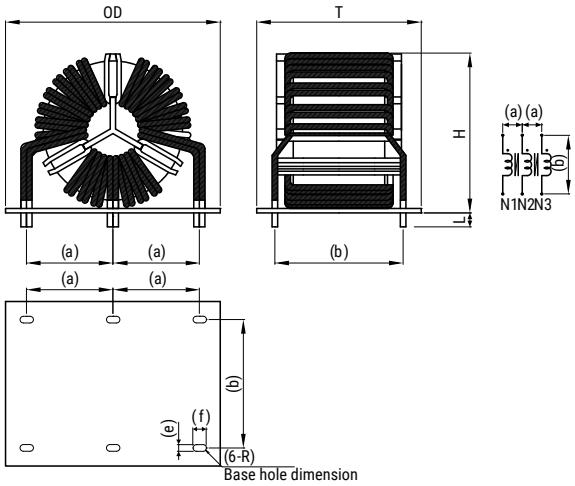


Figure 4



Part Name	Dimensions(mm)				Pin Pitch[1] (Reference)								Figure
	OD (Maximum)	T (Maximum)	H (Maximum)	L	a	b	c	d	φ	e	f	R	
SC-01-S07J	24.5	22.0	27.5	3.8±1.0	8.0	15.0	-	-	-	-	-	-	Fig. 1
SC-10-S30JH	42.0	-	27.0	3.5±1.0	-	-	80°	38.0	1.5	-	-	-	Fig. 2
SC-20-SE10J	49.0	30.0	51.0	5.0±1.0	20.0	25.0	-	-	-	-	-	-	Fig. 3
SC-35-SD040J	80.0	62.0	65.0	5.0±2.0	31.0	48.0	-	-	-	2.4	4.4	1.2	Fig. 4
SC-07-S045JH	42.0	-	27.0	3.0±0.5	-	-	80°	38.0	1.5	-	-	-	Fig. 2
SC-10-S016JH	50.0	-	28.0	3.0±0.5	-	-	80°	44.0	3.0	-	-	-	Fig. 2
SC-26-S010JH	50.0	-	28.0	3.0±0.5	-	-	80°	44.0	3.0	-	-	-	Fig. 2

[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 and 500 VAC/VDC
Withstanding Voltage[1]	2,400 VAC and 3,000 VAC (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 500 VDC (between lines)
Rated Current Range	1 – 35 A
Rated Inductance Range	0.04 – 3 mH minimum
Inductance Measurement Condition	10 kHz and 100 kHz
Thermal Class	E (120°C)
Operating Temperature Range	−40°C to +120°C (include self temperature rise)

[1] 3,000 VAC : SC-07-S045JH,SC-10-S016JH,SC-26-S010JH

Table 1 – Ratings & Part Number Reference

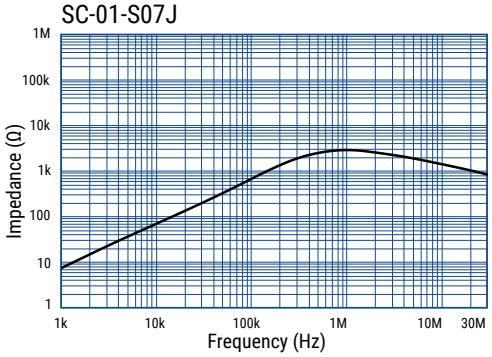
Part Number	Rated Voltage AC/DC (V)	Rated Current (A)	Inductance (mH) Minimum	DC Resistance/ Line (mΩ) Maximum	Temperature Rise (K) Maximum	Wire Diameter (mm)	Weight (g) Approximate
SC-01-S07J	250	1	0.7000 [1]	38.0	15	0.5	16.1
SC-10-S30JH	250	10	3.0000 [1]	25.0	120	1.1	72.0
SC-20-SE10J	250	20	0.9400 [1]	7.0	90	1.8	113.0
SC-35-SD040J	250	35	0.0400 [2]	2.0	55	2.0 x 2 Parallel	306.2
SC-07-S045JH	500	7	0.4410 [1]	13.0	25	1.2	65.0
SC-10-S016JH	500	10	0.1680 [1]	3.0	20	2.0	101.8
SC-26-S010JH	500	26	0.1015 [1]	1.5	40	2.3	101.0

[1] Inductance Measurement Condition: 10 kHz

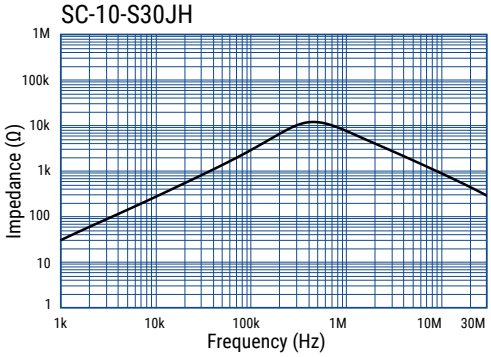
[2] Inductance Measurement Condition: 100 kHz

Frequency Characteristics

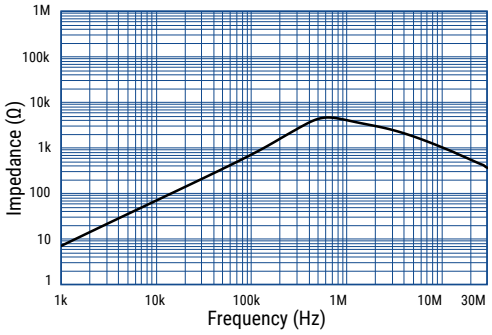
SC-01-S07J



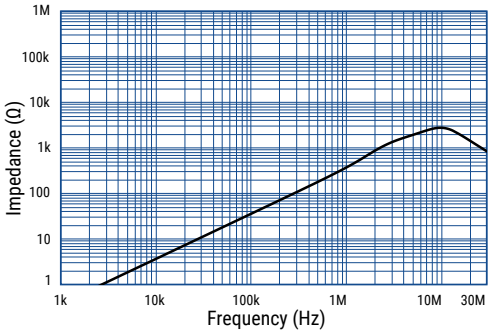
SC-10-S30JH



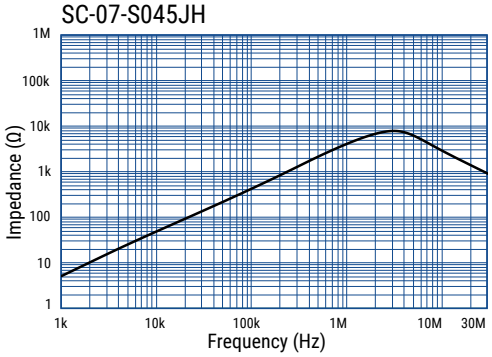
SC-20-SE10J



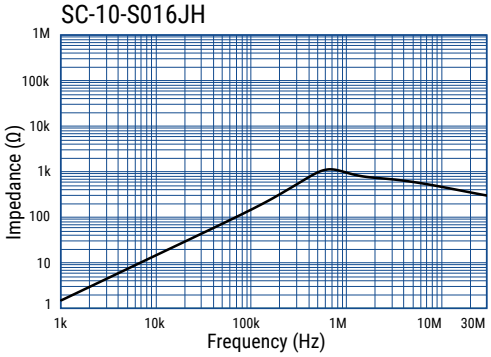
SC-35-SD040J



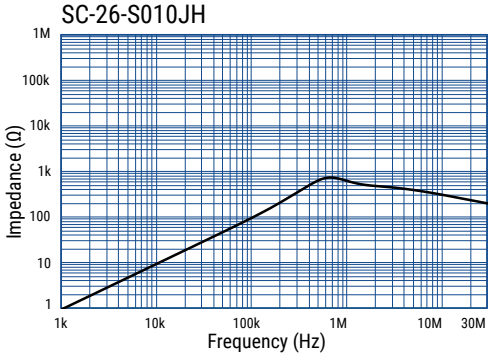
SC-07-S045JH



SC-10-S016JH



SC-26-S010JH



Packaging

Type	Packaging Type	Pieces Per Box
SC-01-S07J	Tray	200
SC-10-S30JH		80
SC-20-SE10J		60
SC-35-SD040J		18
SC-07-S045JH		80
SC-10-S016JH		60
SC-26-S010JH		

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.

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