

## Overview

The KEMET SC-J 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 5H and 7H ferrite materials and equivalents
- Suitable for  $\geq 150$  kHz range
- Wide variety of sizes and specifications
- Excellent for noise countermeasure
- Operating temperature range from  $-25^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$  or  $+120^{\circ}\text{C}$
- UL94 V-0 flame retardant rated cap



## Part Number System

SC-	10-	20	J
Series	Rated Current AC (A)	Inductance (mH) Minimum	Terminal Base Type
SC-	0x = x A x0 = x0 A xx = xx A  Examples: 02 = 2 A 10 = 10 A 15 = 15 A  Note: Code 05 can equal 5 A as well as 4 A	x0 = x mH xx = x.x mH 0x = 0.x mH  Examples: 20 = 2 mH 15 = 1.5 mH 05 = 0.5 mH	J

## 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.

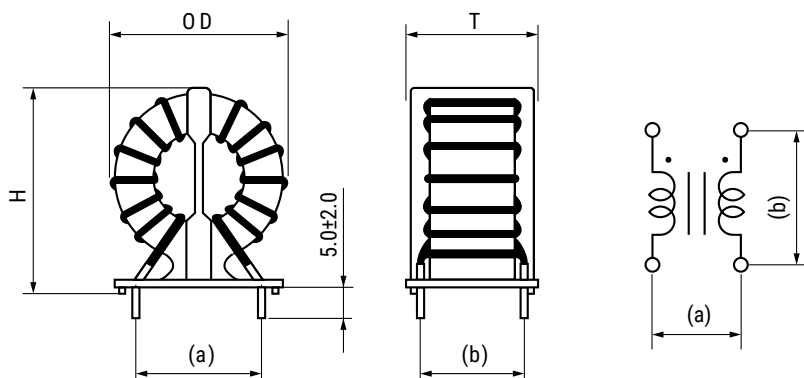
The effective frequency range varies depending on core shape, size and number of windings. This frequency dependence of the magnetic permeability as shown in the figure serves for reference purposes only and it should be tested on the actual device to determine its effectiveness.

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



Part Number	Dimensions (mm)				
	OD (Maximum)	T (Maximum)	H (Maximum)	a	b
SC-02-10J	25	20	27	10	15
SC-02-20J	25	20	27	10	15
SC-02-30J	25	20	27	10	15
SC-02-50J	25	20	27	10	15
SC-05-10J	25	20	27	10	15
SC-05-20J	34	23	33	18	16
SC-05-30J	34	23	33	18	16
SC-05-50J	34	23	33	18	16
SC-05-80J	34	23	33	18	16
SC-10-10J	34	23	33	12	17
SC-10-20J	42	29	44	18	22
SC-10-30J	34	24	33	18	16
SC-12-15J	42	29	44	18	22
SC-15-05J	34	23	33	18	16
SC-15-10J	44	30	44	18	22
SC-18-05J	44	30	44	18	22

## Environmental Compliance

All KEMET AC line filters are RoHS Compliant.



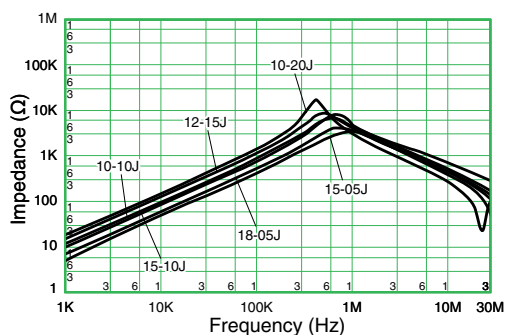
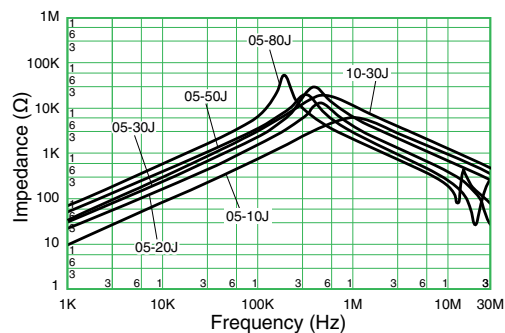
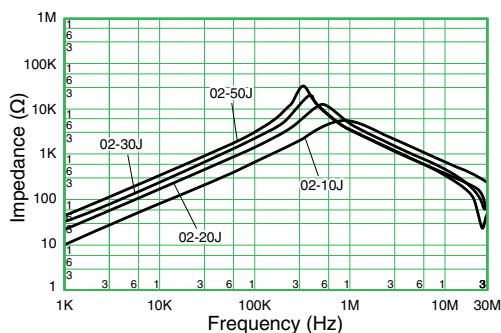
## Performance Characteristics

Item	Performance Characteristics
Rated Voltage	250 VAC/VDC
Withstanding Voltage	2400 V (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 500 VDC (between lines)
Rated Current AC Range	2 – 18 A
Rated Inductance Range	0.5 – 8.0 mH minimum
Inductance Measurement Condition	100 kHz
Thermal Class	A (105°C) and E (120°C)
Operating Temperature Range	-25°C to +105°C (include self temperature rise) and -25°C to +120°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)	Thermal Class	Weight (g) Approximate
SC-02-10J	2	1.0	100	40	0.6	E (120°C)	15
SC-02-20J	2	2.0	110	40	0.6	E (120°C)	15
SC-02-30J	2	3.0	110	40	0.6	E (120°C)	16
SC-02-50J	2	5.0	120	40	0.6	E (120°C)	20
SC-05-10J	5	1.0	50	40	0.8	E (120°C)	20
SC-05-20J	5	2.0	70	40	0.8	E (120°C)	25
SC-05-30J	5	3.0	70	55	0.8	E (120°C)	30
SC-05-50J	4	5.0	80	60	0.8	E (120°C)	32
SC-05-80J	4	8.0	90	60	0.8	E (120°C)	42
SC-10-10J	10	1.0	20	40	1.3	A (105°C)	42
SC-10-20J	10	2.0	22	50	1.4	A (105°C)	70
SC-10-30J	10	3.0	30	75	1.2	E (120°C)	65
SC-12-15J	12	1.5	18	50	1.5	A (105°C)	70
SC-15-05J	15	0.5	8	60	1.5	E (120°C)	40
SC-15-10J	15	1.0	12	55	1.7	A (105°C)	75
SC-18-05J	18	0.5	7	50	1.8	A (105°C)	60

## Frequency Characteristics



## Packaging

Type	Packaging Type	Pieces Per Box	
SC-02-10J	Tray	400	
SC-02-20J			
SC-02-30J			
SC-02-50J			
SC-05-10J		200	
SC-05-20J			
SC-05-30J			
SC-05-50J			
SC-05-80J			
SC-10-10J			160
SC-10-20J			200
SC-10-30J			160
SC-12-15J			200
SC-15-05J			160
SC-15-10J	160		
SC-18-05J	160		

## 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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## 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.

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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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