Common Mode SC Coils, SC-JH Series, Terminal Base Type

Overview

The KEMET SC-JH 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, 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 -25°C to +105°C or +120°C
- UL 94 V–2 or V–0 flame retardant rated base and cap



Part Number System

SC-		10-		20	JH	
Series	Dimension Code (See Dimensions)	Rated Current (A)	Thermal Class	Inductance (mH) Minimum	Terminal Base Type	Internal Control Code
SC	Blank 22	x0 = x0 A xx = xx A Examples: 10 = 10 A 15 = 15 A	Blank E = Class E Note: With exceptions, see Table 1 for details.	x0 = x mH xx = x.x mH xxx = x.xx mH Examples: 20 = 2 mH 15 = 1.5 mH 200 = 2.00 mH Note: With exceptions, see Table 1 for details.	JH Note: JR is the same terminal base type as JH	Blank P

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Magnetic Permeability of Ferrite Material

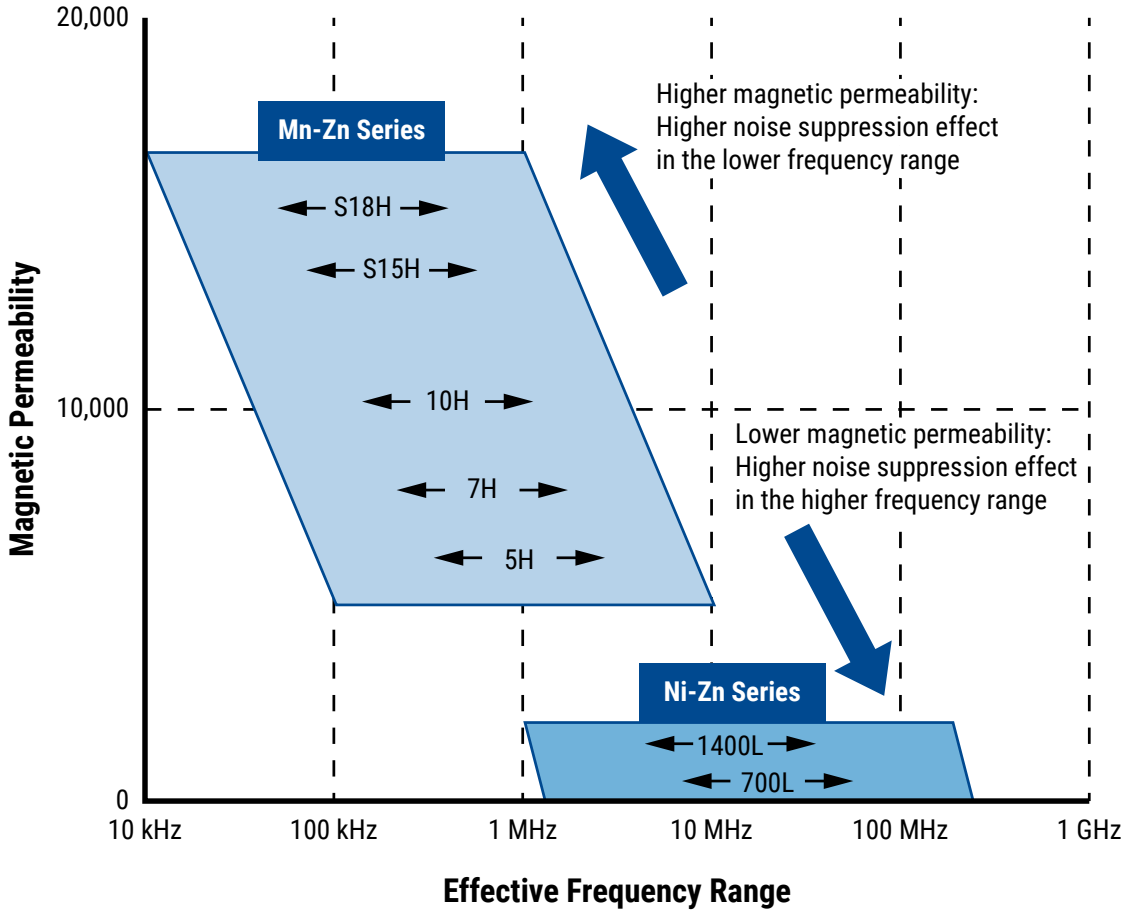
In order to achieve most efficient noise reduction, it is important to select the material according to the target frequency band. Depending on its magnetic permeability, a particular ferrite material will be effective in a certain frequency band. A schematic representation of the relationship between 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

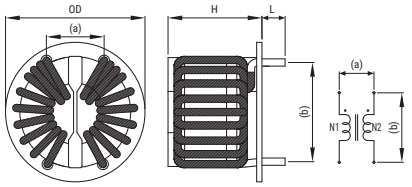


Figure 2

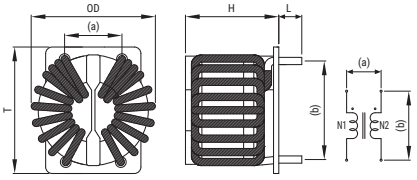


Figure 3

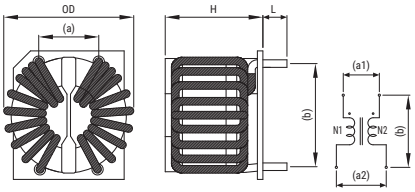


Figure 4

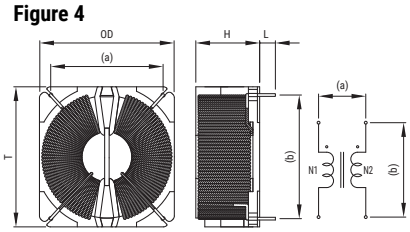


Figure 5

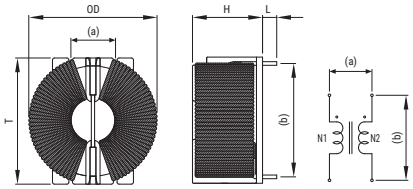


Figure 6

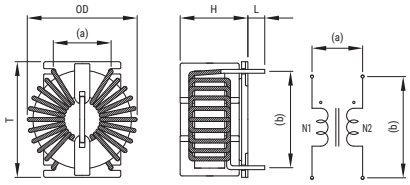
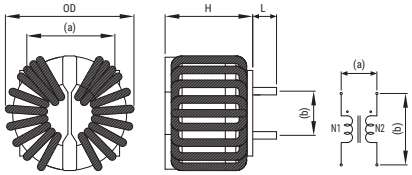


Figure 7



Part Name	Dimensions (mm)				Pin Pitch[1] (Reference)		Figure
	OD (Maximum)	T (Maximum)	H (Maximum)	L	a	b	
SC-030-E110JH-P	31.0	32.0	15.0	3.5±1.0	25	27.5	Fig. 4
SC-030-E150JH-P	31.0	32.0	14.5	3.5±1.0	25	27.5	Fig. 4
SC-040-E063JH-P	31.0	32.0	15.0	3.5±1.0	25	27.5	Fig. 4
SC-040-E092JH-P	31.0	32.0	15.0	3.5±1.0	25	27.5	Fig. 4
SC22-05-30JH	29.0	31.0	23.0	5.0±2.0	14	22	Fig. 2
SC-05-E45JH	25.0	23.0	21.0	3.5±1.0	a1:10, a2:14	19	Fig. 3
SC-05-492JH	34.0	32.5	18.0	3.5±1.0	11	28	Fig. 5
SC22-05-70JH	28.0	-	19.5	5.0±2.0	20	14	Fig. 7
SC-05-700JH	34.0	33.0	18.0	3.5±1.0	11	28	Fig. 5
SC-05-812JH	34.0	32.5	18.0	3.5±1.0	11	28	Fig. 5
SC-06-182JH	35.0	32.5	18.0	3.5±1.0	11	28	Fig. 5
SC-06-E200JH	25.0	25.0	20.5	3.5±1.0	10	19	Fig. 2
SC-06-382JH	35.0	32.5	18.0	3.5±1.0	11	28	Fig. 5
SC-06-462JH	35.0	32.5	18.0	3.5±1.0	11	28	Fig. 5
SC22-06-70JH	28.0	-	19.5	5.0±2.0	20	14	Fig. 7
SC-07-E030JH-P	24.0	24.5	15.0	3.5±1.0	12	20	Fig. 6
SC-07-276JH	35.0	32.5	18.0	3.5±1.0	11	28	Fig. 5
SC-07-E042JH	34.0	-	27.0	4.5±1.0	11	28	Fig. 1
SC-09-E075JH	24.0	24.5	15.0	3.5±1.0	12	20	Fig. 6
SC-09-209JH	34.0	32.0	18.5	3.5±1.0	11	28	Fig. 5

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

Dimensions – Millimeters cont.

Figure 1

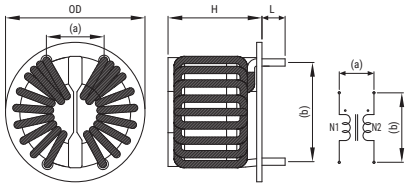


Figure 2

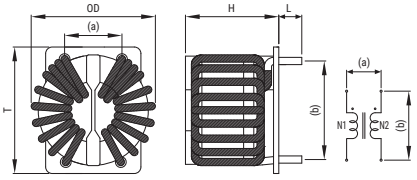


Figure 3

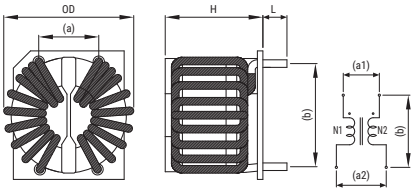


Figure 4

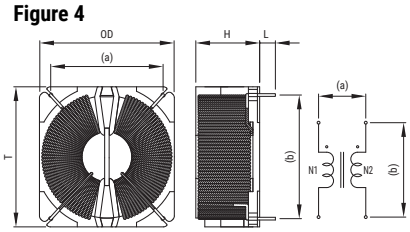


Figure 5

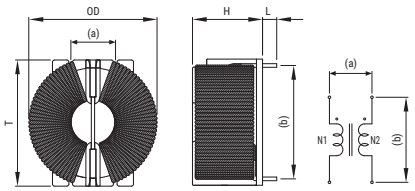


Figure 6

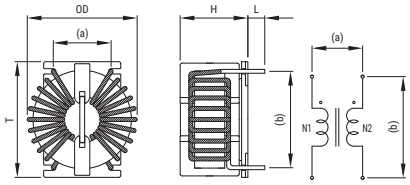
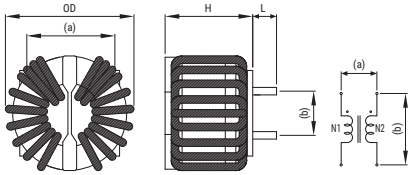


Figure 7



Part Name	Dimensions (mm)				Pin Pitch[1] (Reference)		Figure
	OD (Maximum)	T (Maximum)	H (Maximum)	L	a	b	
SC-10-20JH	42.0	41.0	30.0	5.0±2.0	17	30	Fig. 2
SC-10-55JH	51.0	-	34.0	5.0±2.0	26	30	Fig. 1
SC-10-E80JH	53.0	-	35.0	4.5±1.5	26	30	Fig. 1
SC-12-15JH	42.0	41.0	30.0	5.0±2.0	17	30	Fig. 2
SC-12-100JH	65.0	-	40.0	5.0±2.0	35	44	Fig. 1
SC-14-15JH	42.0	41.0	28.0	5.0±2.0	17	30	Fig. 2
SC-15-05JH	44.0	41.0	32.0	5.0±2.0	17	30	Fig. 2
SC-15-10JH	44.0	41.0	32.0	5.0±2.0	17	30	Fig. 2
SC-15-12JH	44.0	41.0	32.0	5.0±2.0	17	30	Fig. 2
SC-15-20JH	51.0	-	34.0	5.0±2.0	26	30	Fig. 1
SC-15-35JH	51.0	-	34.0	5.0±2.0	15	35	Fig. 1
SC-15-E50JH	42.0	41.0	30.0	5.0±2.0	17	30	Fig. 2
SC-17-E27JH	44.0	41.0	32.0	5.0±1.0	17	30	Fig. 2
SC-18-15JH	51.0	-	34.0	5.0±2.0	26	30	Fig. 1
SC-18-E15JH	51.0	-	34.0	5.0±2.0	26	30	Fig. 1
SC-20-10JH	51.0	-	34.0	5.0±2.0	15	35	Fig. 1
SC-20-10JR	51.0	-	34.0	5.0±2.0	15	35	Fig. 1
SC-20-20JH	51.0	-	34.0	5.0±2.0	26	30	Fig. 1
SC-20-E20JH	51.0	-	34.0	5.0±2.0	26	30	Fig. 1
SC-30-12JH	65.0	-	40.0	4.6±1.5	55	20	Fig. 1

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

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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 Range	3 – 30 A
Rated Inductance Range	0.03 – 15 mH minimum
Inductance Measurement Condition	1 kHz, 10 kHz, and 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 (A)	Inductance (mH) Minimum	DC Resistance/ Line (mΩ) Maximum	Temperature Rise (K) Maximum	Wire Diameter (mm)	Thermal Class	Weight (g) Approximate
SC-030-E110JH-P	3	10.99 [3]	42.0	60	0.70	E (120°C)	26.5
SC-030-E150JH-P	3	15.00 [2]	160.0	80	0.60	E (120°C)	22.0
SC-040-E063JH-P	4	6.30 [2]	58.8	56	0.80	E (120°C)	25.0
SC-040-E092JH-P	4	9.17 [2]	79.2	67	0.75	E (120°C)	26.5
SC22-05-30JH	5	3.00 [2]	60.0	60	0.80	E (120°C)	23.4
SC-05-E45JH	5	4.50 [3]	50.0	85	0.70	E (120°C)	19.0
SC-05-492JH	5	4.90 [2]	45.0	65	0.90	E (120°C)	30.0
SC22-05-70JH	5	7.00 [2]	60.0	85	0.80	E (120°C)	27.0
SC-05-700JH	5	7.00 [2]	55.0	75	0.90	E (120°C)	29.7
SC-05-812JH	5	8.10 [2]	65.0	75	0.90	E (120°C)	34.0
SC-06-182JH	6	1.80 [2]	30.0	40	1.10	E (120°C)	26.0
SC-06-E200JH	6	2.00 [2]	21.5	55	0.90	E (120°C)	19.0
SC-06-382JH	6	3.80 [2]	40.0	65	1.00	E (120°C)	29.0
SC-06-462JH	6	4.60 [2]	45.0	110	1.00	E (120°C)	31.0
SC22-06-70JH	6	7.00 [2]	70.0	75	0.90	E (120°C)	21.1
SC-07-E030JH-P	7	0.03 [3]	20.0	60	0.80	E (120°C)	15.0
SC-07-276JH	7	2.76 [2]	24.0	65	1.10	E (120°C)	32.0
SC-07-E042JH	7	4.20 [3]	42.0	65	1.10	E (120°C)	53.0
SC-09-E075JH	9	0.75 [2]	9.0	60	1.10	E (120°C)	13.0
SC-09-209JH	9	2.09 [2]	17.4	74	1.20	E (120°C)	31.0
SC-10-20JH	10	2.00 [3]	22.0	45	1.40	A (105°C)	72.0
SC-10-55JH	10	5.50 [1]	30.0	65	1.40	A (105°C)	112.3
SC-10-E80JH	10	8.00 [2]	40.0	75	1.40	E (120°C)	118.8
SC-12-15JH	12	1.50 [3]	18.0	45	1.50	A (105°C)	71.0
SC-12-100JH	12	10.00 [3]	32.0	78	1.60	A (105°C)	190.0
SC-14-15JH	14	1.50 [3]	14.0	55	1.60	A (105°C)	78.6
SC-15-05JH	15	0.50 [3]	8.0	40	1.70	A (105°C)	65.3
SC-15-10JH	15	1.00 [3]	12.0	50	1.70	A (105°C)	73.0
SC-15-12JH	15	1.20 [2]	12.0	55	1.70	A (105°C)	73.0
SC-15-20JH	15	2.00 [3]	12.0	45	1.80	A (105°C)	115.0
SC-15-35JH	15	3.50 [1]	20.0	80	1.60	A (105°C)	114.3
SC-15-E50JH	15	5.20 [2]	19.3	85	1.50	E (120°C)	83.8
SC-17-E27JH	17	2.75 [3]	14.0	110	1.60	E (120°C)	83.1
SC-18-15JH	18	1.50 [3]	10.0	55	1.90	A (105°C)	117.0
SC-18-E15JH	18	1.50 [3]	10.0	55	1.90	E (120°C)	114.0
SC-20-10JH	20	1.00 [3]	8.0	50	2.00	A (105°C)	110.0
SC-20-10JR	20	1.00 [3]	8.0	50	2.00	A (105°C)	109.0
SC-20-20JH	20	2.00 [3]	10.0	80	1.90	A (105°C)	114.1
SC-20-E20JH	20	2.00 [3]	10.0	80	1.90	E (120°C)	119.4
SC-30-12JH	30	1.20 [3]	6.0	40	2.60	A (105°C)	188.0

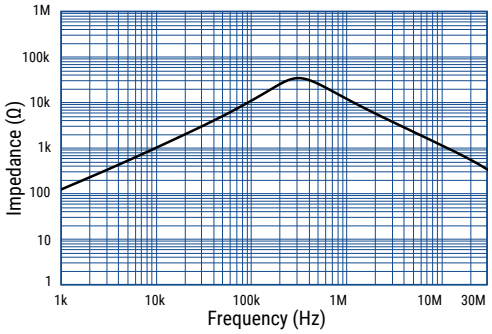
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[2] *Inductance Measurement Condition: 10 kHz*

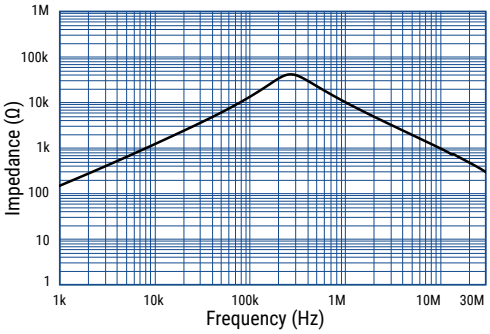
[3] *Inductance Measurement Condition: 100 kHz*

Frequency Characteristics

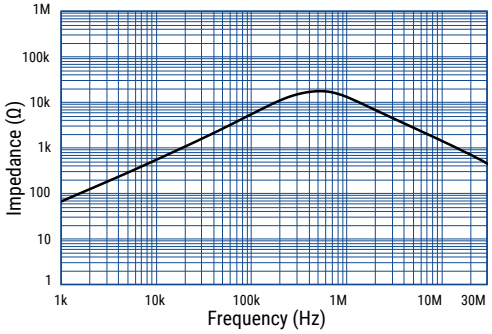
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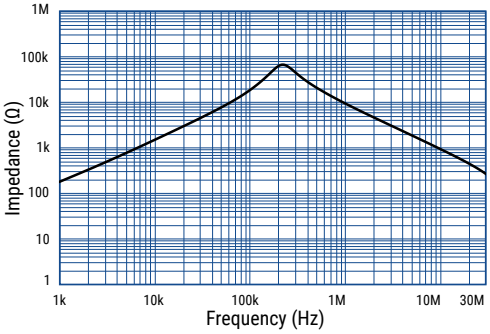
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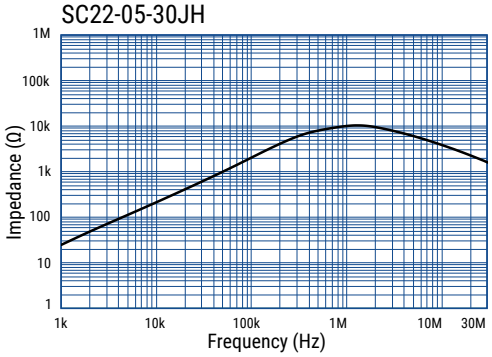
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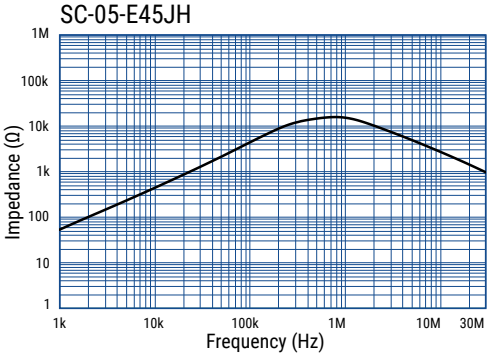
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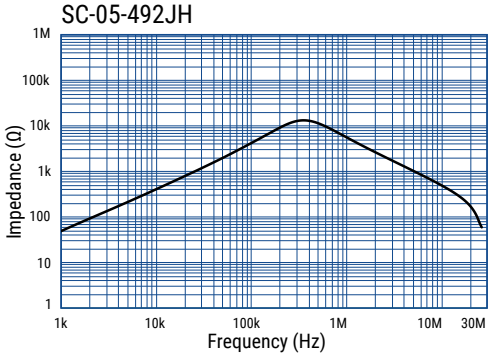
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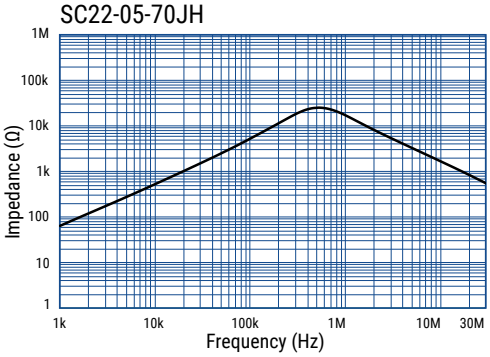
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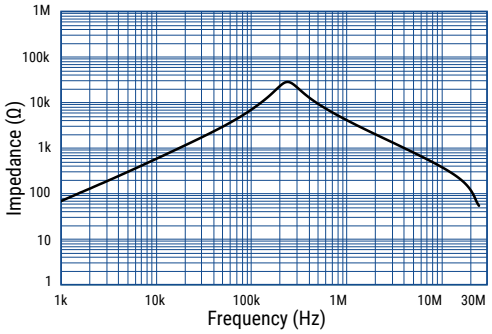


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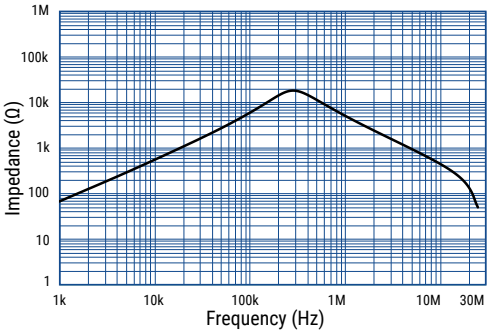


Frequency Characteristics cont.

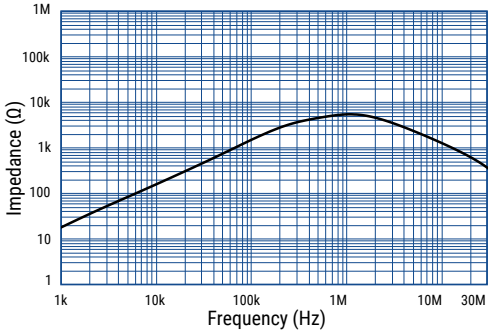
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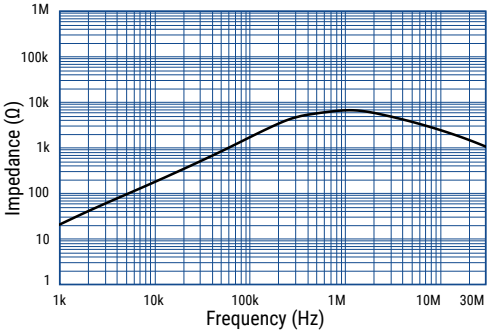
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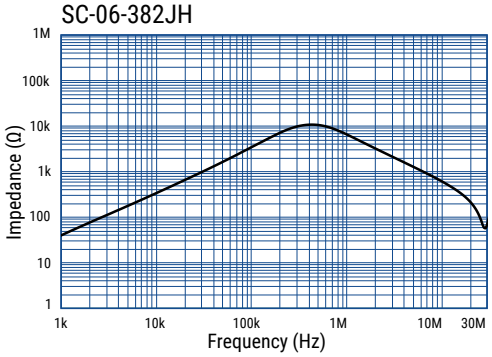
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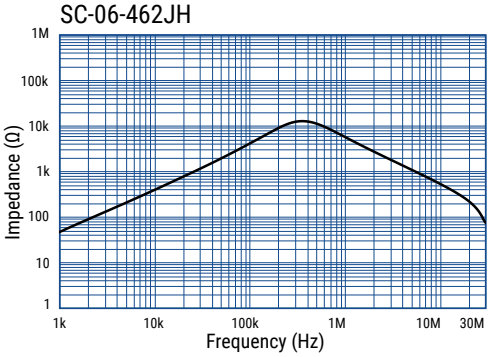
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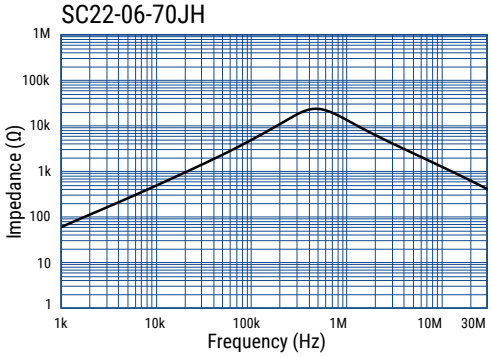
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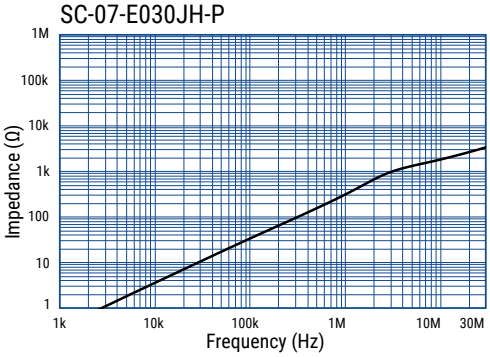
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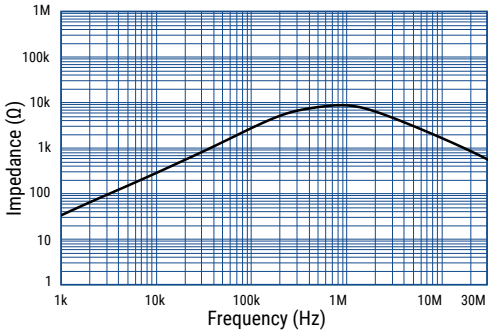


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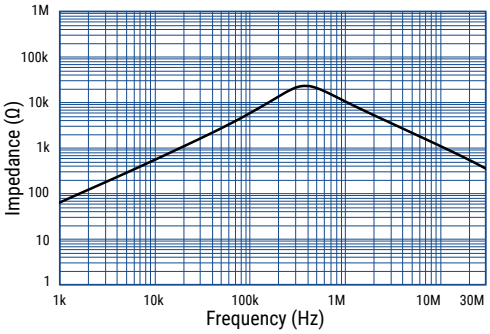


Frequency Characteristics cont.

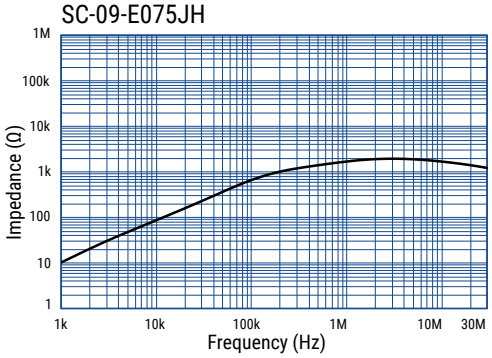
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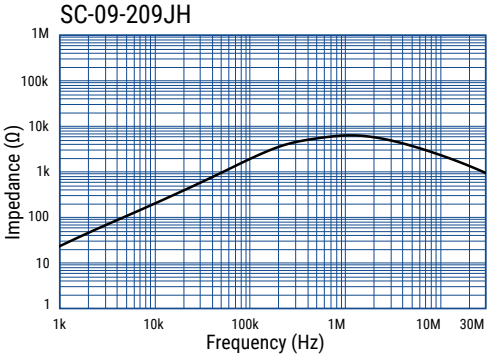
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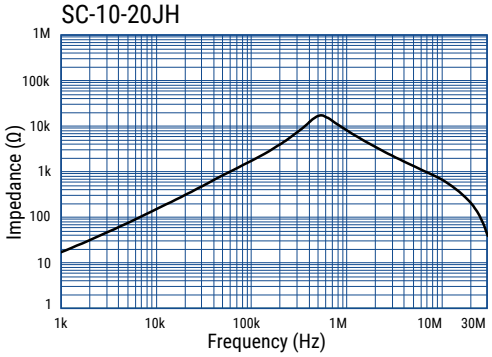
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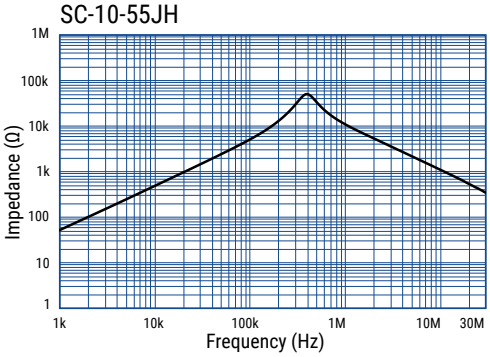
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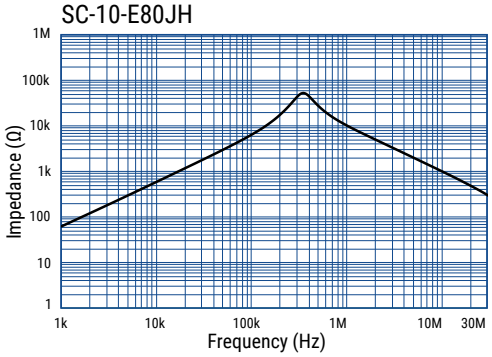
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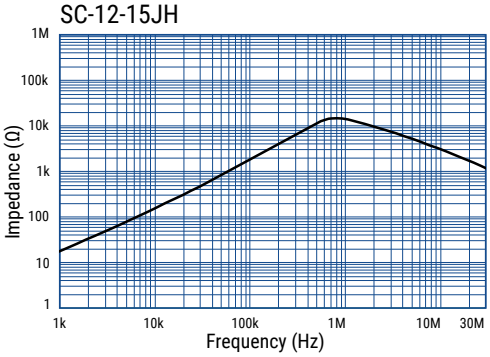
SC-10-55JH



SC-10-E80JH

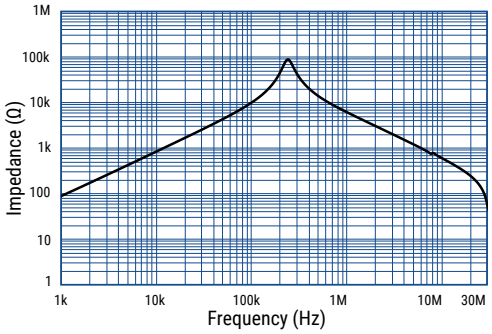


SC-12-15JH

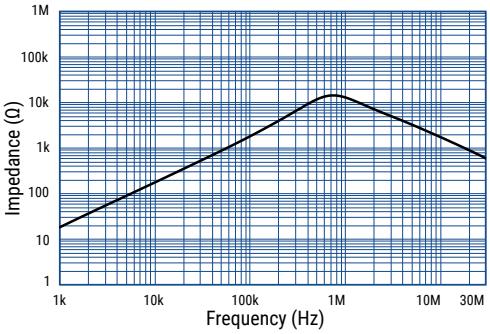


Frequency Characteristics cont.

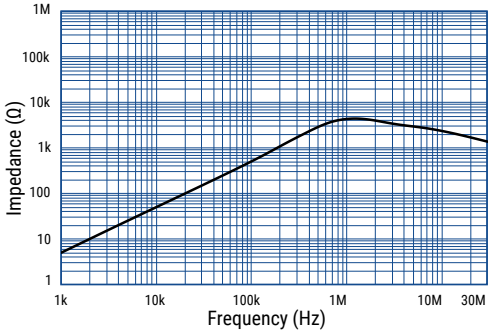
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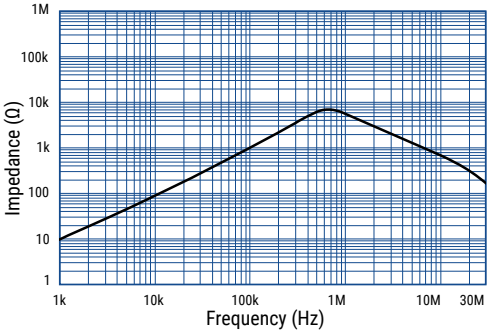
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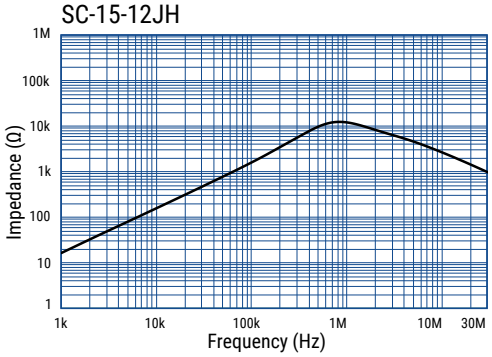
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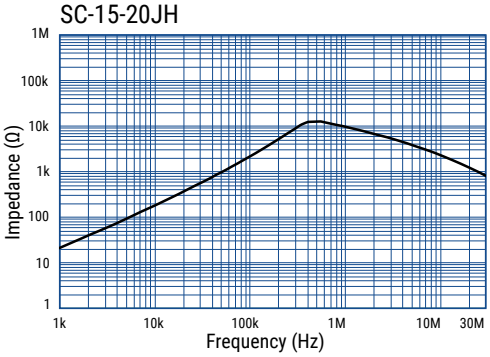
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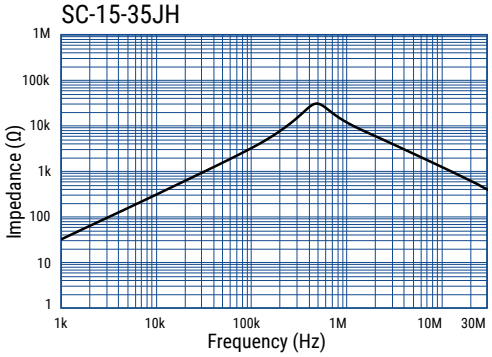
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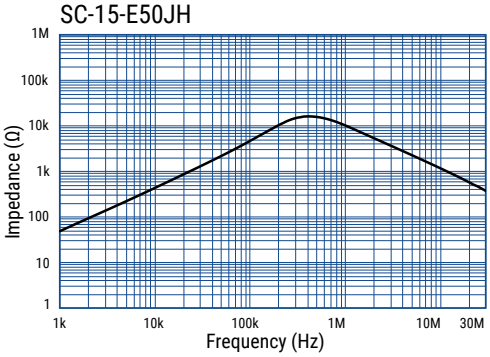
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SC-15-35JH

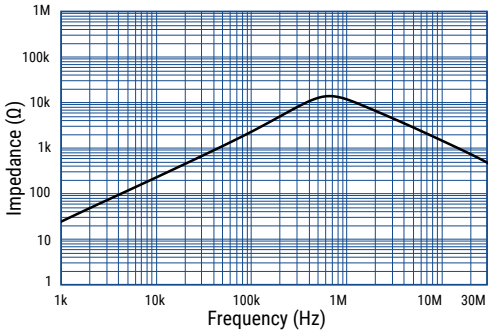


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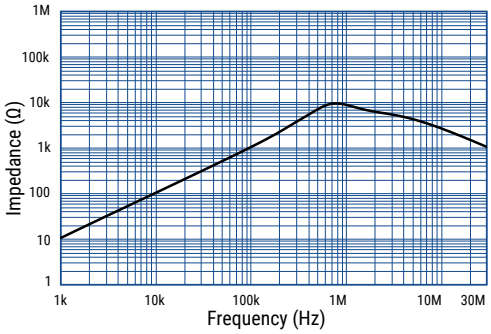


Frequency Characteristics cont.

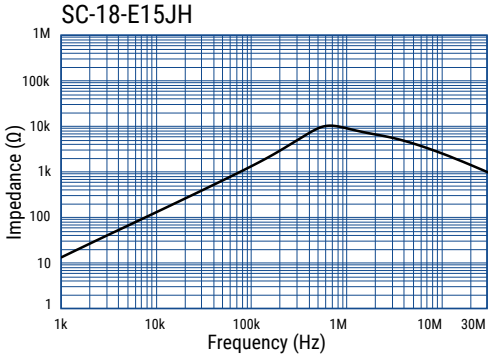
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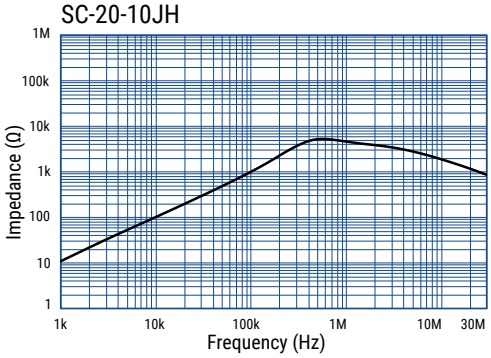
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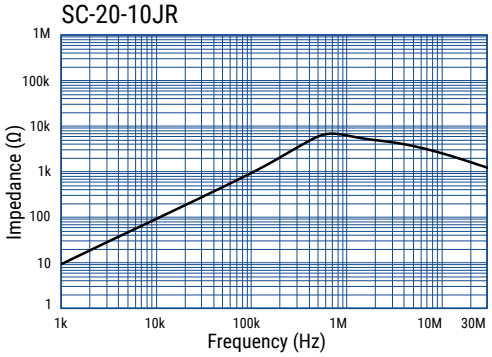
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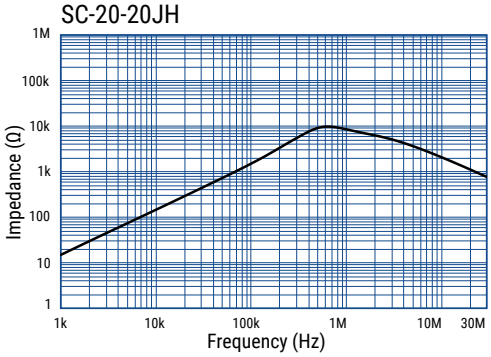
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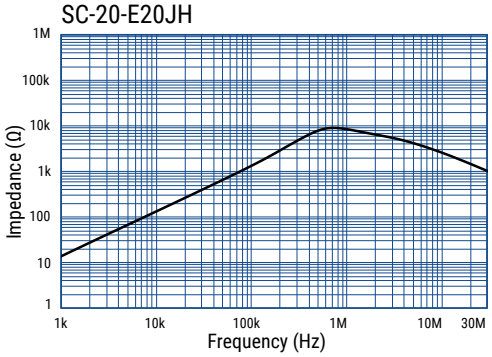
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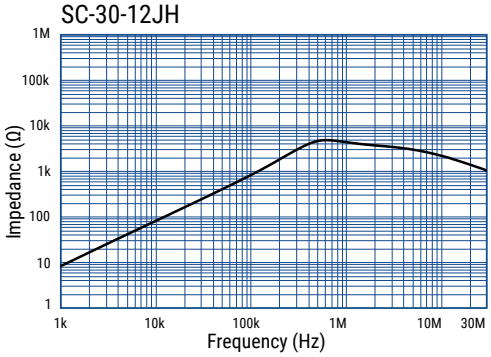
SC-20-20JH



SC-20-E20JH



SC-30-12JH



Packaging

Type	Packaging Type	Pieces Per Box
SC-030-E110JH-P	Tray	180
SC-030-E150JH-P		
SC-040-E063JH-P		
SC-040-E092JH-P		
SC22-05-30JH		250
SC-05-E45JH		200
SC-05-492JH		180
SC22-05-70JH		200
SC-05-700JH		180
SC-05-812JH		
SC-06-182JH		
SC-06-E200JH		200
SC-06-382JH		180
SC-06-462JH		
SC22-06-70JH		250
SC-07-E030JH-P		
SC-07-276JH		180
SC-07-E042JH		150
SC-09-E075JH		250
SC-09-209JH		180

Type	Packaging Type	Pieces Per Box
SC-10-20JH	Tray	100
SC-10-55JH		
SC-10-E80JH		
SC-12-15JH		
SC-12-100JH		45
SC-14-15JH		100
SC-15-05JH		
SC-15-10JH		
SC-15-12JH		
SC-15-20JH		
SC-15-35JH		
SC-15-E50JH		
SC-17-E27JH		
SC-18-15JH		
SC-18-E15JH		
SC-20-10JH		
SC-20-10JR		
SC-20-20JH		
SC-20-E20JH		48
SC-30-12JH		60

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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