Common Mode SCR Coils, Standard Series

Electronic Components KEMET CHARGED.

Overview

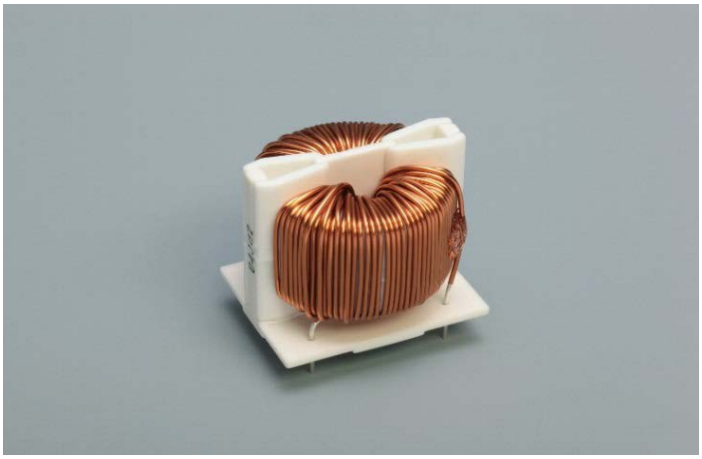
The KEMET SCR coils are common mode chokes with a wide variety of characteristics. These toroidal coils are designed with our proprietary high permeability ferrite S15H cores and are useful in various noise countermeasure fields.

Applications

- Audio-visual equipment
- Home appliances
- Power supplies

Benefits

- Proprietary S15H ferrite material
- High permeability
- High impedance
- Space saving due to high permeability material
- Operating temperature range from −25°C to +120°C
- UL 94 V–0 flame retardant rated base and cap



Part Number System

SCR-	020-	0R55	A	250	J	
Series	Rated Current (A)	Wire Diameter (mm)	Windings	Inductance (mH) Minimum	Terminal Base Type	Internal Control Code
SCR	xxx = xx.x A Examples: 050 = 5.0 A	R = Decimal point Examples: 0R55 = 0.55 mm 1R4 = 1.4 mm	A = Single	xxx = xx.xmH Examples: 015 = 1.5 mH 100 = 10 mH Note: With exceptions, see Table 1 for details.	J = Vertical type JH = Horizontal type	Blank P

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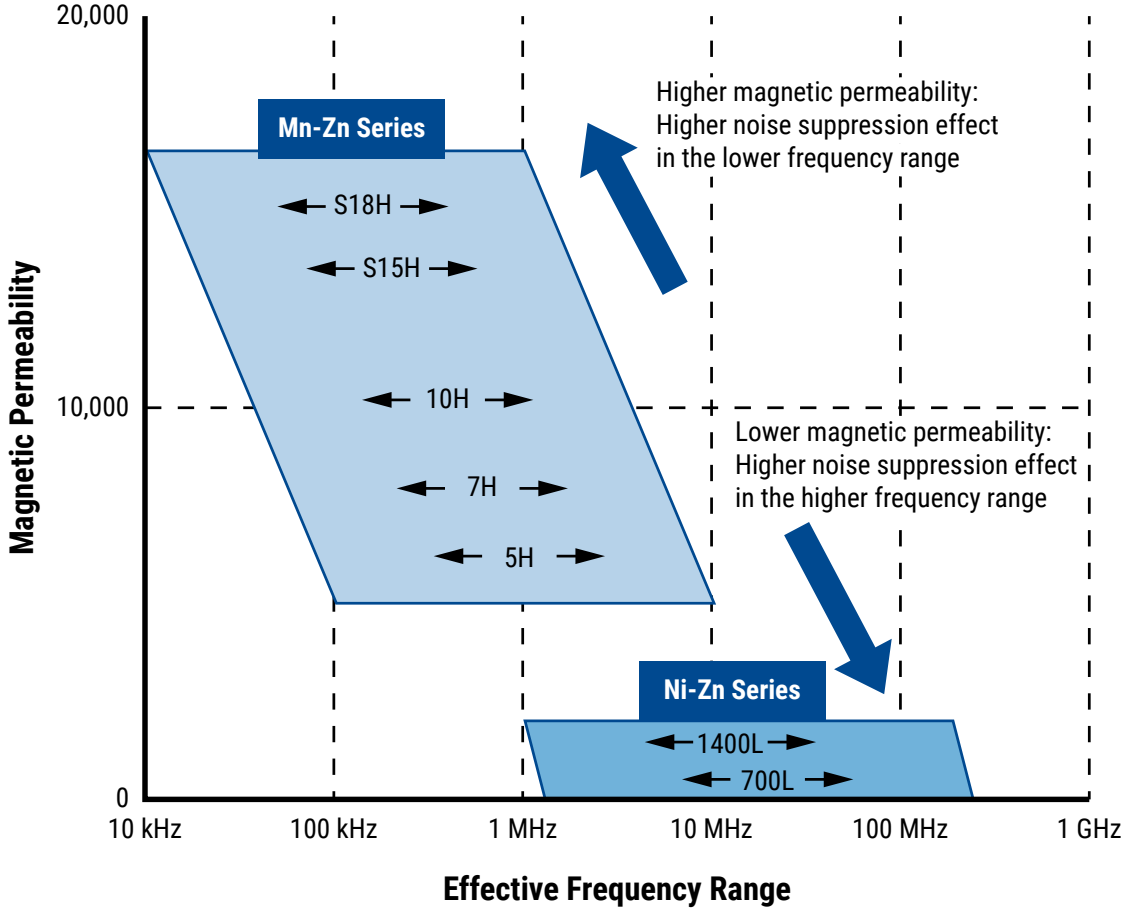
Magnetic Permeability of Ferrite Material

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

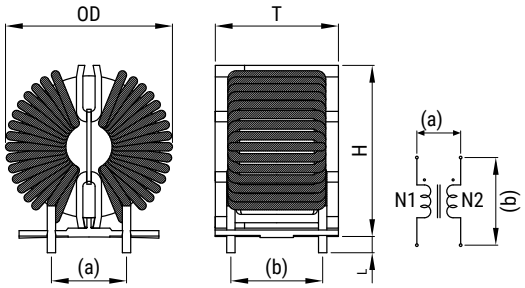
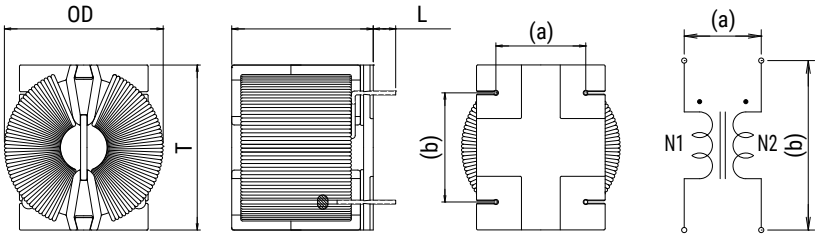


Figure 2



Part Name	Dimensions (mm)				Pin Pitch[1] (Reference)		Figure
	OD (Maximum)	T (Maximum)	H (Maximum)	L	a	b	
SCR-020-0R55A250J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-020-0R55A250JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-030-0R6A170J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-030-0R6A170JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-040-0R8A100J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-040-0R8A100JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-050-0R9A070J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-050-0R9A070JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-060-0R9A040J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-060-0R9A040JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-070-1R0A030J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-070-1R0A030JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-080-1R1A020J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-080-1R1A020JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-090-1R2A015J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-090-1R2A015JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-100-1R2A010J	29.0	23.0	29.0	4.0±1.0	18.0	16.0	Fig. 1
SCR-100-1R2A010JH	29.0	27.0	23.0	4.0±1.0	14.0	17.0	Fig. 2
SCR-150-1R4A006J-P	29.5	23.0	28.5	4.0±1.0	18.0	16.0	Fig. 1

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

Environmental Compliance

All KEMET AC line filters are RoHS Compliant.

Performance Characteristics

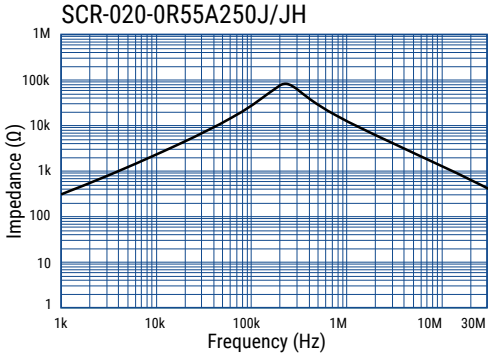
Item	Performance Characteristics
Rated Voltage	250 VAC/VDC
Withstanding Voltage	2,400 VAC (2 seconds, between lines)
Insulation Resistance	> 100 MΩ at 500 VDC (between lines)
Rated Current Range	2 – 15 A
Rated Inductance Range	0.6 - 25 mH minimum
Inductance Measurement Condition	10 kHz
Thermal Class	E (120°C)
Operating Temperature Range	−25°C to +120°C (include self temperature rise)

Table 1 – Ratings & Part Number Reference

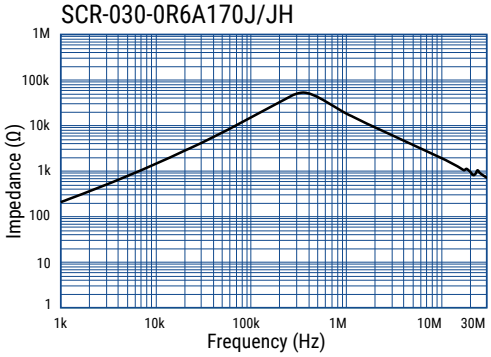
Part Number	Rated Current (A)	Inductance (mH) Minimum	DC Resistance/ Line (mΩ) Maximum	Temperature Rise (K) Maximum	Wire Diameter (mm)	Weight (g) Approximate
SCR-020-0R55A250J	2	25.0	200.0	55	0.55	23
SCR-020-0R55A250JH	2	25.0	200.0	55	0.55	23
SCR-030-0R6A170J	3	15.0	138.0	70	0.60	23
SCR-030-0R6A170JH	3	15.0	138.0	70	0.60	23
SCR-040-0R8A100J	4	10.0	66.0	62	0.80	27
SCR-040-0R8A100JH	4	10.0	66.0	62	0.80	27
SCR-050-0R9A070J	5	7.0	47.0	70	0.90	27
SCR-050-0R9A070JH	5	7.0	47.0	70	0.90	27
SCR-060-0R9A040J	6	4.0	32.6	65	0.90	24
SCR-060-0R9A040JH	6	4.0	32.6	65	0.90	24
SCR-070-1R0A030J	7	3.0	23.0	60	1.00	25
SCR-070-1R0A030JH	7	3.0	23.0	60	1.00	25
SCR-080-1R1A020J	8	2.0	15.9	55	1.10	25
SCR-080-1R1A020JH	8	2.0	15.9	55	1.10	25
SCR-090-1R2A015J	9	1.5	11.9	55	1.20	25
SCR-090-1R2A015JH	9	1.5	11.9	55	1.20	25
SCR-100-1R2A010J	10	1.0	9.6	55	1.20	25
SCR-100-1R2A010JH	10	1.0	9.6	55	1.20	25
SCR-150-1R4A006J-P	15	0.6	5.3	58	1.40	22.9

Frequency Characteristics

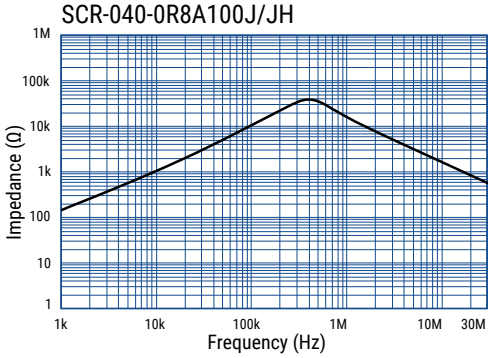
SCR-020-0R55A250J/JH



SCR-030-0R6A170J/JH



SCR-040-0R8A100J/JH



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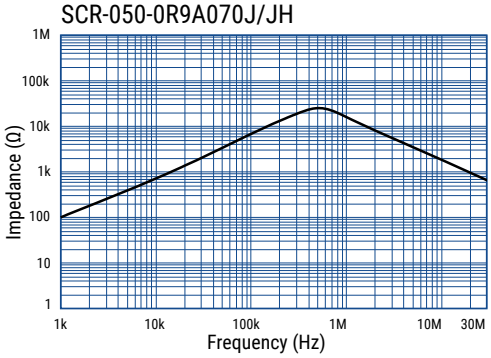

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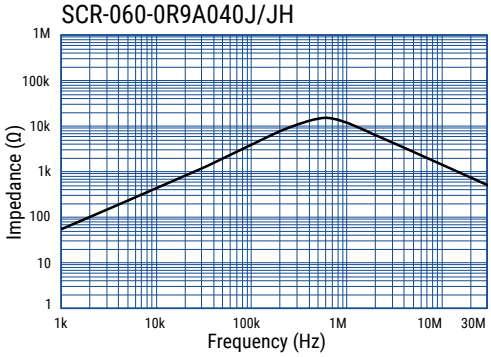

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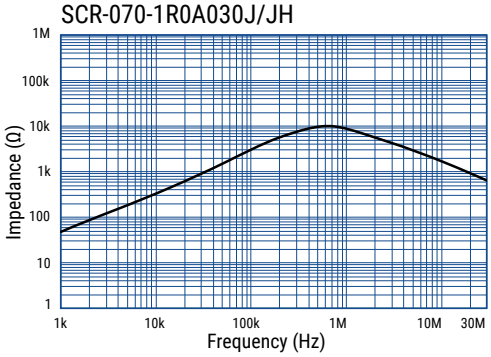

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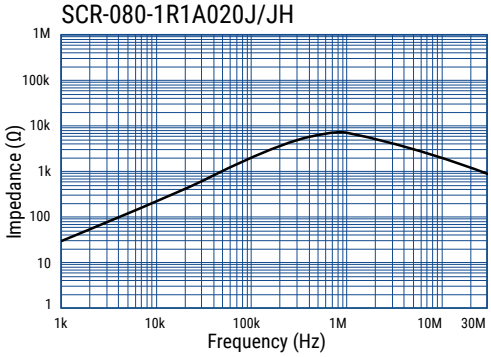
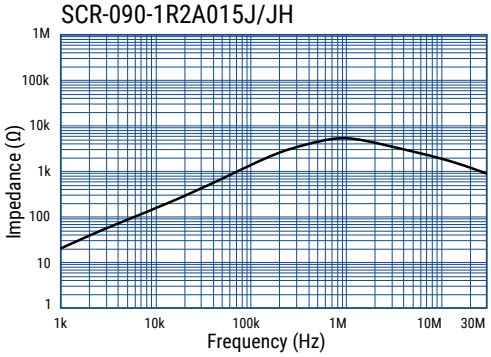
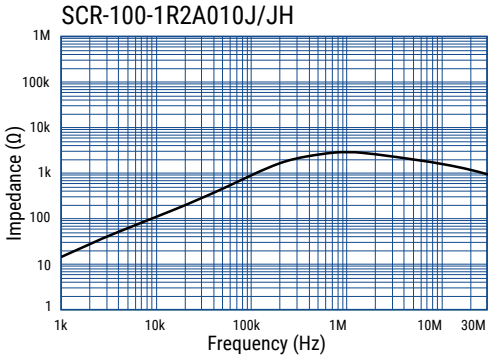
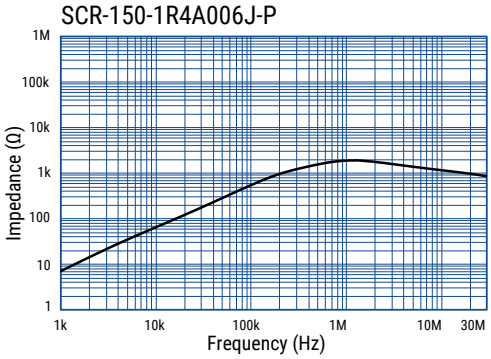


SCR-090-1R2A015J/JH



Frequency Characteristics cont.





Packaging

Type	Packaging Type	Pieces Per Box
SCR-J	Tray	240
SCR-JH		200

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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