

# FCB-0603 Series

## Ferrite Chip Beads

Signal Transformer is introducing an entirely new family to its portfolio of passive devices with the ferrite chip beads with the release of the second of three series, FCB-0603/0603A. Height profiles of 0.8 mm, small footprints of 2.00 mm x 1.25 mm and broad range of inductance and maximum resistance values, make them idea for a wide range of applications.



A ferrite bead is a passive device (also known as ferrite chokes, blocks, cores, rings, EMI filters, or chokes) that filters high frequency noise energy over a broad frequency range. Its technical purpose in a circuit as a low pass filter, meaning it allows only low frequencies while blocking others. They are used to absorb high frequency noise (over its intended frequency range) and dissipates the noise energy in the form of heat to filter out the unwanted signal (noise). This leads to improved signal quality and overall circuit improvement.

### General Features

- A Series designed for typical current applications
- P Series intended for high current applications
  - Suitable for filtering noise for high power applications
- Multilayer inductor with ferrite core
- Compact size
- Low Profile
- Automated process

### Specifications

- Impedance: 10  $\Omega$  to 1500  $\Omega$
- Rated Current: 0.3 A to 6.0 A
- DC Resistance: 0.01  $\Omega$  to 0.60  $\Omega$
- Operating Temperature Range: -55°C to +125°C (Including coil self-temperature rise)
- Storage Temperature Range (component): -40°C to +125°C

### Applications

- Notebook computers / Tablets
- Digital Cameras
- Mobile phones
- Remote controls
- Game Machines
- Monitors
- Motherboards

## PRODUCT IDENTIFICATION

**FCB - 0603 A - 121 A**

**Type / Product Series**  
**FCB** = Ferrite Chip Beads

**EIA Code**  
**0603** = 1.6 x 0.8 x 0.8 mm

**Material**  
 No code = Standard ratio of material  
**A** = Revised ratio of material

**Impedance \***  
**121** = 120 Ω

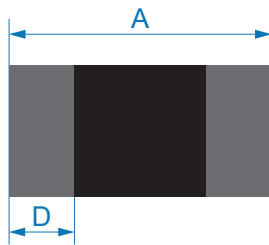
**Identification Code**  
**A** = General purpose  
**P** = High current applications

\* Note: Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, the third figure expresses the number of zeros which follow the two figures.

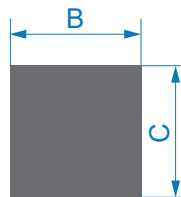
## MECHANICAL SPECIFICATIONS

Dimensions are in mm.

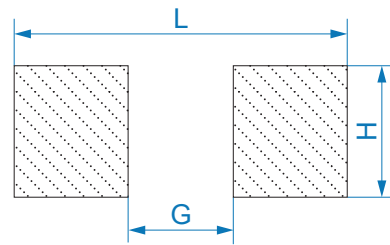
SERIES	A	B	C	D	G	H	L
FCB-0603	1.6 ± 0.2	0.8 ± 0.2	0.8 ± 0.2	0.3 ± 0.2	0.7~0.7	0.6~0.8	1.8~2.0



TOP VIEW



SIDE VIEW



PAD LAYOUT

**Custom versions available upon request.**



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## ELECTRICAL SPECIFICATIONS

Electrical specifications for all part numbers measured at 25°C unless stated otherwise.

### FCB-0603-XXXX SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance ( $\pm$ %)	Frequency (MHz)	DCR Max. ( $\Omega$ )	Rated Current <sup>1</sup> Max. (mA)
FCB-0603-300A	30	25	100	0.10	400
FCB-0603-101A	100	25	100	0.20	400
FCB-0603-121A	120	25	100	0.25	400
FCB-0603-151A	150	25	100	0.25	300
FCB-0603-181A	180	25	100	0.30	300
FCB-0603-221A	220	25	100	0.30	300
FCB-0603-301A	300	25	100	0.40	300
FCB-0603-501A	500	25	100	0.50	300
FCB-0603-601A	600	25	100	0.50	300
FCB-0603-102A	1000	25	100	0.60	300
FCB-0603-122A	1200	25	100	0.60	300
FCB-0603-152A	1500	25	100	0.60	300

<sup>1</sup> Rate Current: Applied the current to coils, the temperature rise shall not be more than 30 °C.

- Test equipment**  
**Z:** by Agilent E4991A RF impedance analyzer with HP16197A test  
**DCR:** measured on Chroma 16502 micro-ohm meter or equivalent

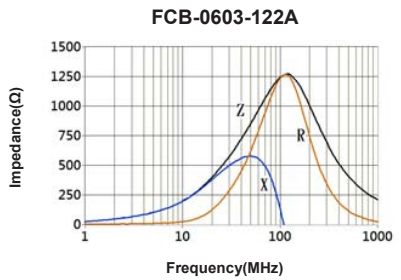
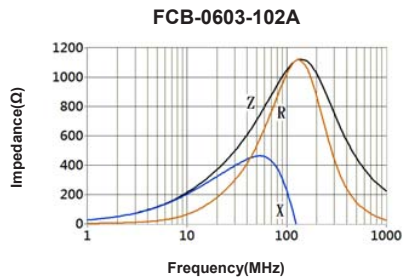
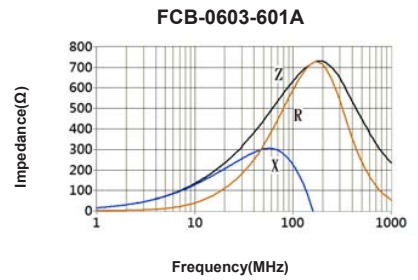
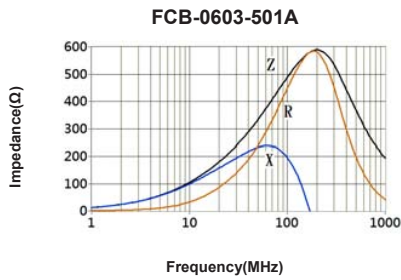
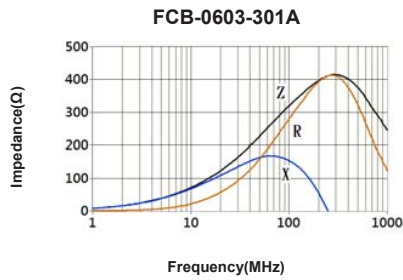
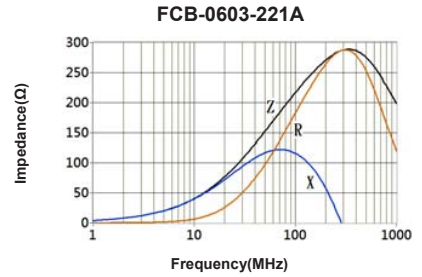
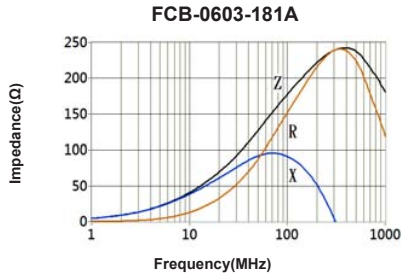
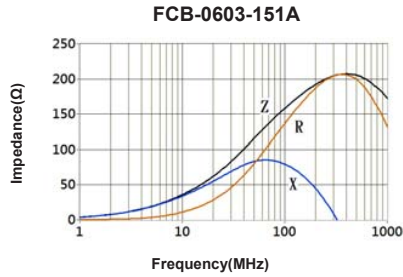
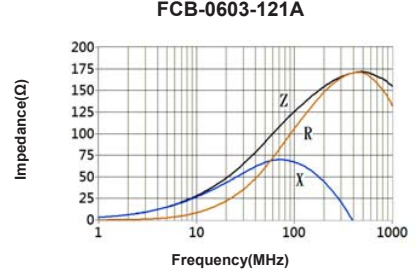
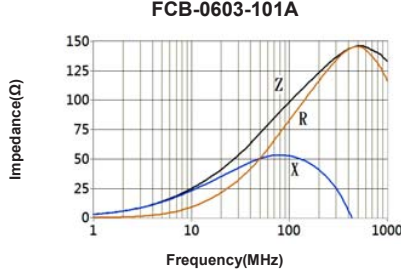
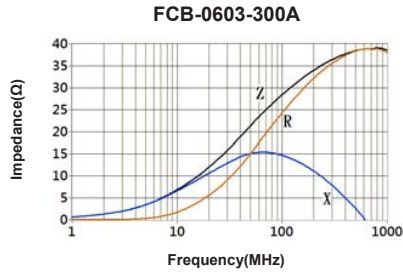
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## TYPICAL PERFORMANCE CURVES



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Part Number	Impedance ( $\Omega$ )	Tolerance ( $\pm$ %)	Frequency (MHz)	DCR Max. ( $\Omega$ )	Rated Current <sup>1</sup> Max. (mA)
FCB-0603-400P	40	25	100	0.035	3000
FCB-0603-800P	80	25	100	0.05	2500
FCB-0603-121P	120	25	100	0.08	2500
FCB-0603-151P	150	25	100	0.085	2000
FCB-0603-221P	220	25	100	0.10	2000
FCB-0603-301P	300	25	100	0.12	1500
FCB-0603-601P	600	25	100	0.20	1000
FCB-0603-102P	1000	25	100	0.25	800

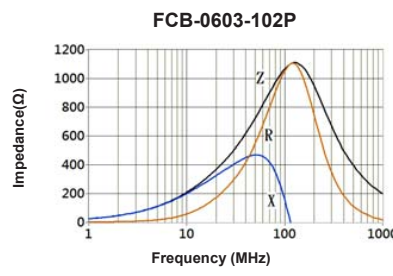
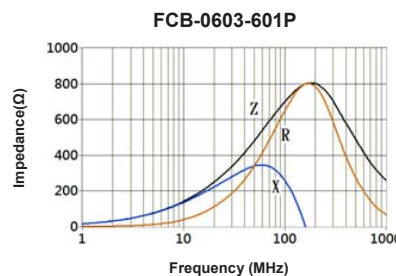
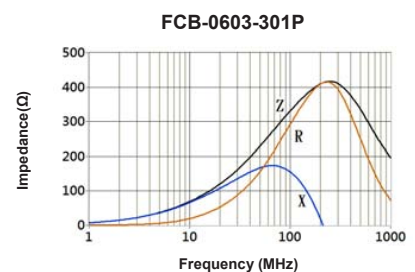
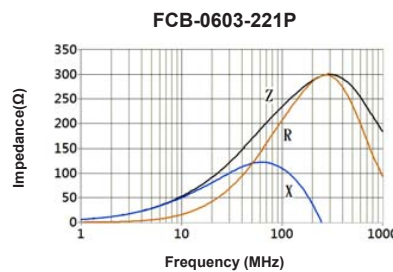
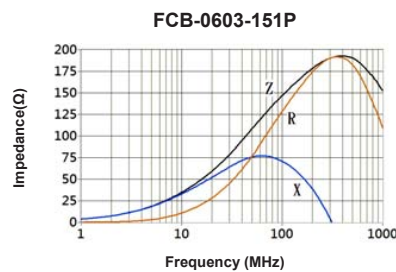
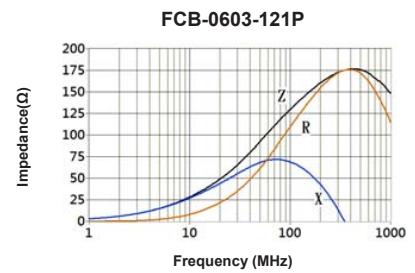
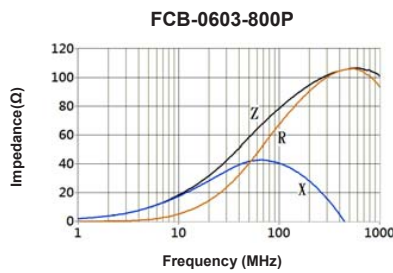
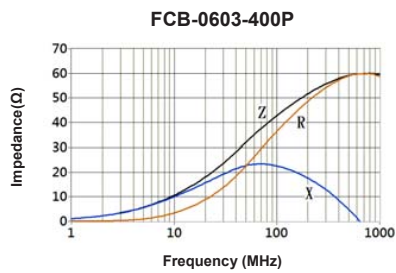
<sup>1</sup> Rate Current: Applied the current to coils, the temperature rise shall not be more than 30 °C.

### Test equipment

**Z:** by Agilent E4991A RF impedance analyzer with HP16197A test

**DCR:** measured on Chroma 16502 micro-ohm meter or equivalent

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## FCB-0603A-XXXX SERIES

Part Number	Impedance ( $\Omega$ )	Tolerance ( $\pm$ %)	Frequency (MHz)	DCR Max. ( $\Omega$ )	Rated Current <sup>1</sup> Max. (mA)
FCB-0603A-800P	80	25	100	0.04	3000
FCB-0603A-121P	120	25	100	0.04	3000
FCB-0603A-201P	200	25	100	0.05	2500
FCB-0603A-221P	220	25	100	0.08	2000
FCB-0603A-301P	300	25	100	0.08	2000
FCB-0603A-331P	330	25	100	0.08	2000
FCB-0603A-471P	470	25	100	0.10	2000
FCB-0603A-601P	600	25	100	0.10	2000

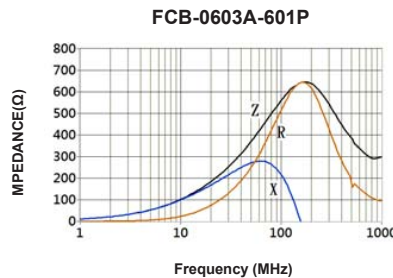
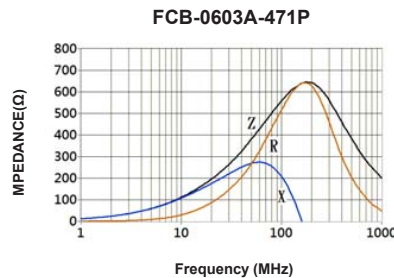
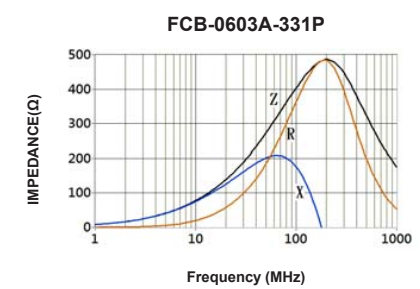
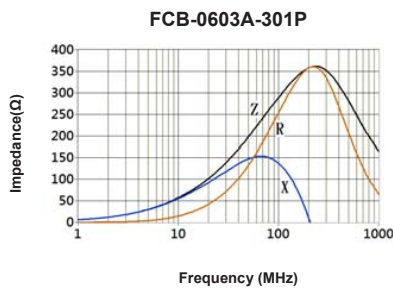
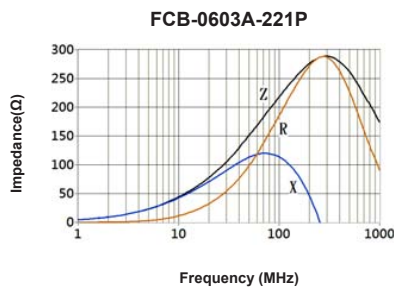
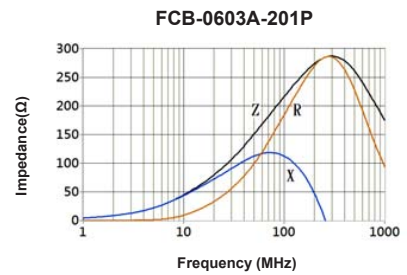
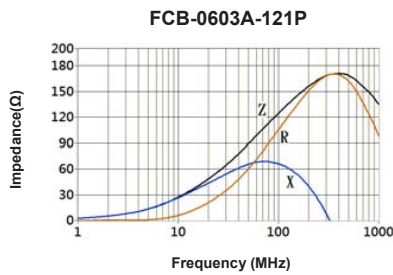
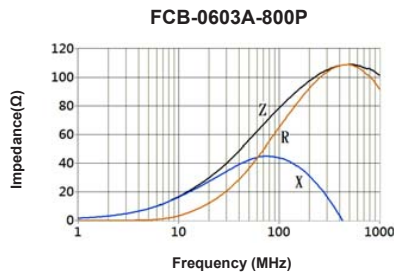
<sup>1</sup> Rate Current: Applied the current to coils, the temperature rise shall not be more than 30 °C.

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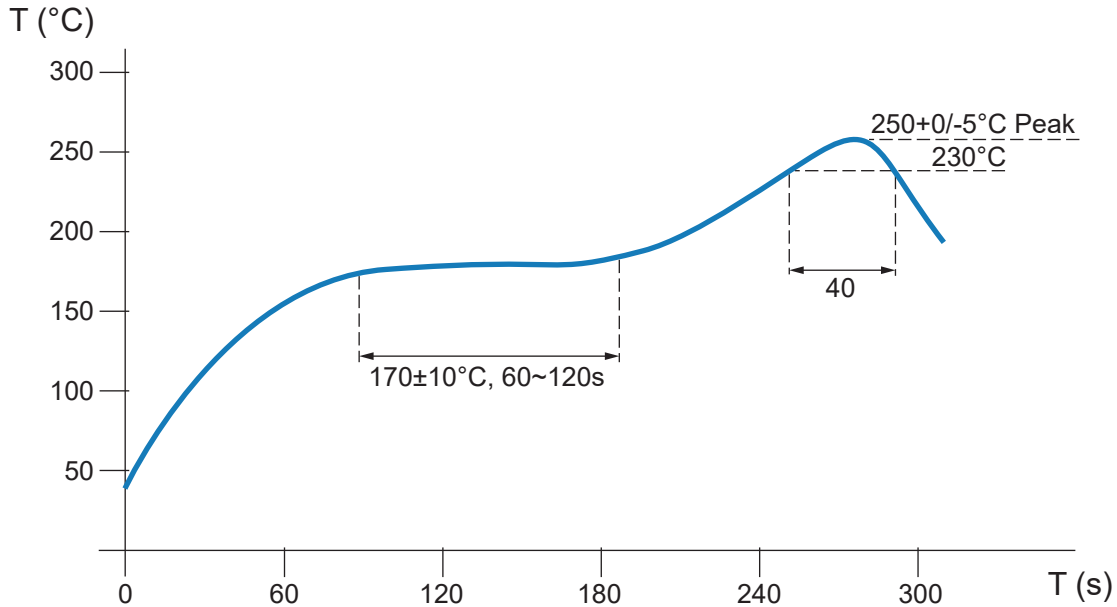
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## RECOMMENDED REFLOW SOLDERING CONDITIONS (SMT-TYP)



- **ADD**

The recommended reflow conditions as above graph, is set according to our soldering equipment.

Since various manufactures may have different reflow soldering equipment, products, process conditions, set methods, etc., when setting the reflow conditions, please adjust and confirm according to users' environment/equipment.

- **Notice**

- Solder reflow temperature:  $+250^{\circ}\text{C}$  max. for maximum 10 seconds
- It is not recommended to solder inductors by soldering iron
- Please contact us for details

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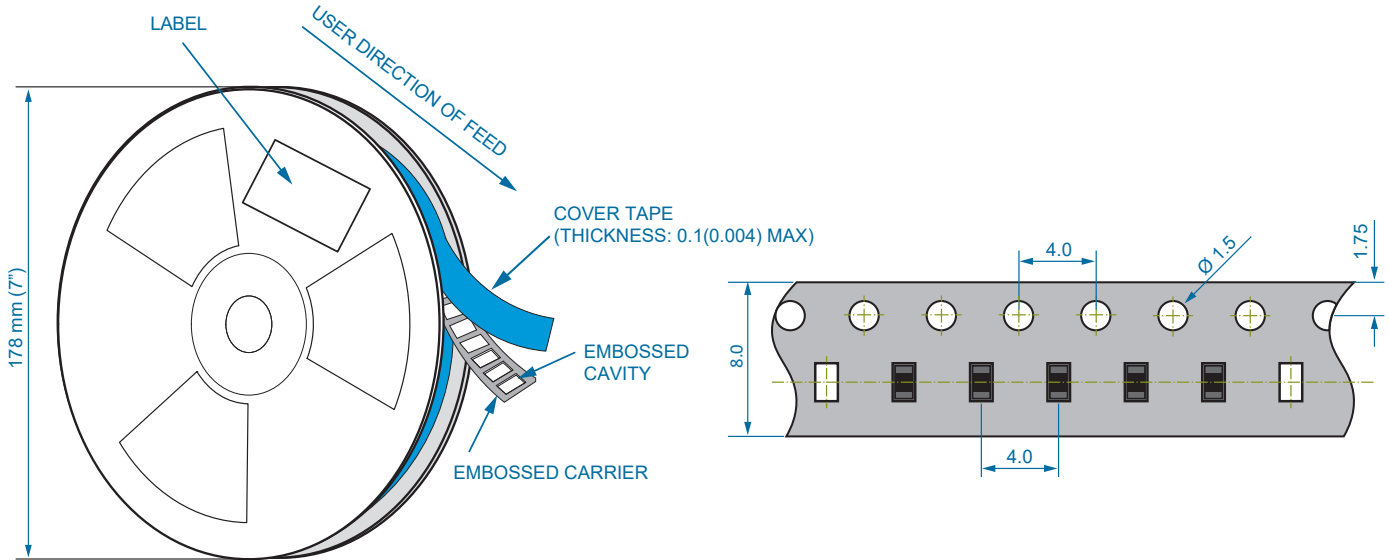
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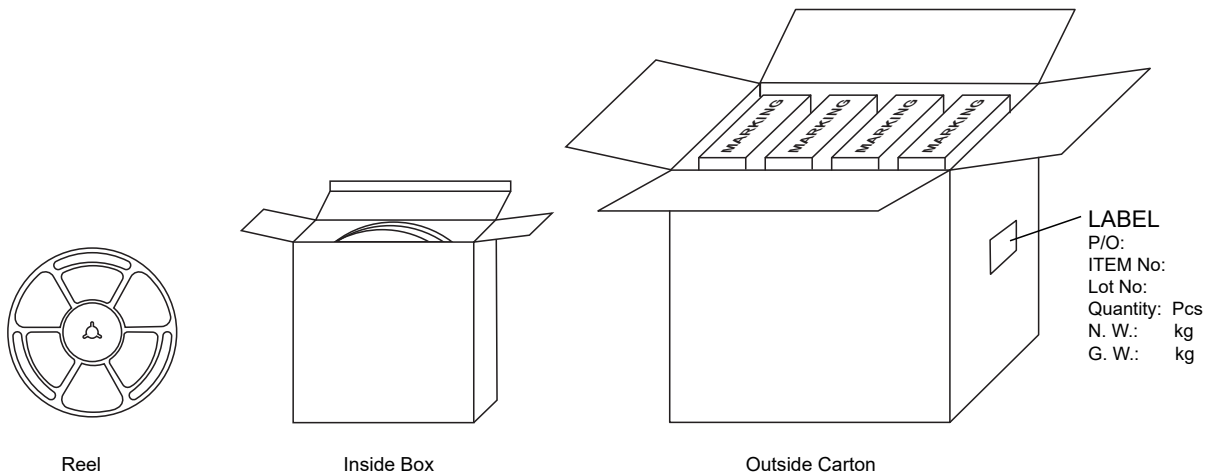
## TAPE & REEL SPECIFICATIONS

Dimension unit: mm



Taping specification: EIA -481 Compliant

## PACKAGING SPECIFICATIONS



Series	Packaging Quantity (pcs)		
	Reel	Inside box	Outside carton
FCB-0603	4000	20000	240000

- Storage Conditions**

- Temperature and humidity conditions < 35°C and < 35 - 65 %
- Recommendations: Inductors should be used within 6 months from the time of delivery
- Packaging material should be kept away from where chlorine and sulfur exist

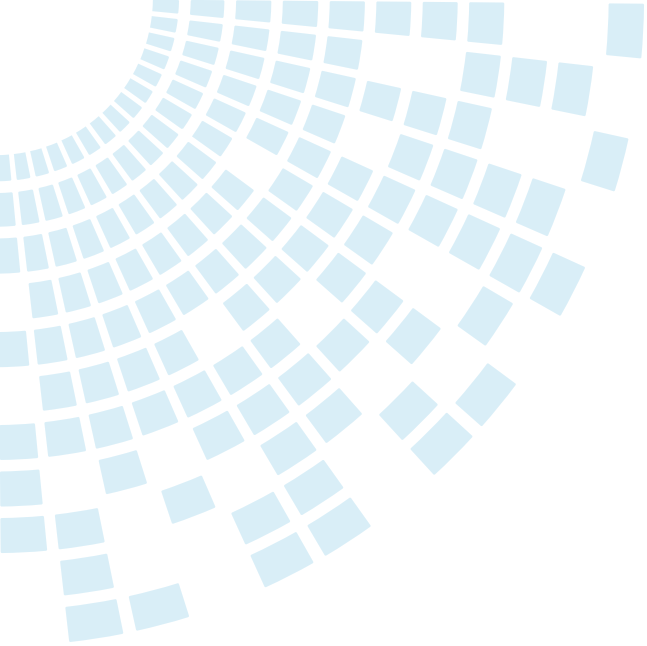
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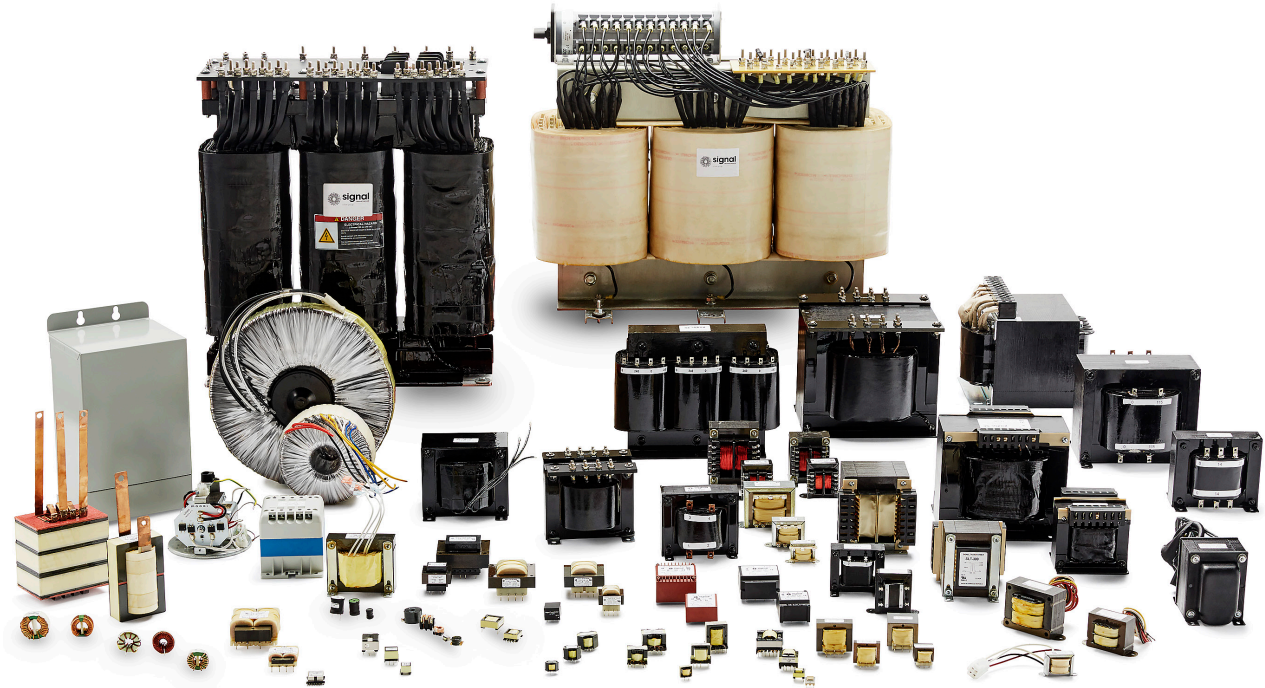
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## About Signal Transformer

Signal Transformer is known as the world's leader of wire wound magnetic solutions since 1959. With over 50 years of experience manufacturing transformers, chokes, inductors and custom or modified standard products. Signal offers not only the most comprehensive line of certified standard power conversion products, with our vast engineering, manufacturing and regulatory resources; Signal Transformer excels in the design and manufacturer of cost effective, specialized platforms.



**For more information,  
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