

# CERAMIC WIRE WOUND INDUCTORS

AISC-0603

RoHS/RoHS II Compliant



1.80 x 1.12 x 1.02mm

## FEATURES:

- Ceramic construction assures the utmost thermal stability & high SRF
- Exceptionally high Q compared to non-wirewound inductors, especially at high frequencies
- Inductance options from 1.8nH to 560nH
- Epoxy coating protects wound wire

## APPLICATIONS:

- Widely applied in VCO, SAW circuit for GSM, and CDMA communications

## ELECTRICAL SPECIFICATIONS:

| Part Number<br>AISC-0603-<br>Inductance Code | Inductance | Tolerance        | Min.<br>Quality<br>Factor | L/Q Test<br>Freq. | Max. DC<br>Resistance | Max. Rated<br>Current | Min. Self-resonant<br>Frequency |
|--|------------|------------------|---------------------------|-------------------|-----------------------|-----------------------|---------------------------------|
| Units  | nH         | -                | -                         | MHz               | $\Omega$              | mA                    | MHz                             |
| Symbol                                       | L          | -                | Q                         | Freq.             | DCR                   | Ir                    | S.R.F                           |
| AISC-0603-R0018                              | 1.8        | C, S, D J, K     | 18                        | 250               | 0.043                 | 1000                  | > 6000                          |
| AISC-0603-R0027                              | 2.7        | C, S, D J, K     | 25                        | 250               | 0.043                 | 1000                  | > 6000                          |
| AISC-0603-R0033                              | 3.3        | C, S, D J, K     | 25                        | 250               | 0.059                 | 850                   | > 6000                          |
| AISC-0603-R0036                              | 3.6        | C, S, D J, K     | 25                        | 250               | 0.059                 | 850                   | > 6000                          |
| AISC-0603-R0039                              | 3.9        | C, S, D J, K     | 25                        | 250               | 0.059                 | 850                   | > 6000                          |
| AISC-0603-R0043                              | 4.3        | C, S, D J, K     | 25                        | 250               | 0.059                 | 850                   | > 6000                          |
| AISC-0603-R0047                              | 4.7        | C, S, D J, K     | 25                        | 250               | 0.065                 | 800                   | > 6000                          |
| AISC-0603-R0051                              | 5.1        | C, S, D J, K     | 21                        | 250               | 0.130                 | 600                   | > 6000                          |
| AISC-0603-R0062                              | 6.2        | C, S, D J, K     | 29                        | 250               | 0.095                 | 700                   | > 6000                          |
| AISC-0603-R0068                              | 6.8        | C, S, D, G, J, K | 29                        | 250               | 0.095                 | 700                   | > 6000                          |
| AISC-0603-R0075                              | 7.5        | C, S, D, G, J, K | 33                        | 250               | 0.095                 | 700                   | > 6000                          |
| AISC-0603-R0082                              | 8.2        | C, S, D, G, J, K | 31                        | 250               | 0.095                 | 700                   | > 6000                          |
| AISC-0603-R0087                              | 8.7        | C, S, D, G, J, K | 31                        | 250               | 0.095                 | 700                   | > 6000                          |
| AISC-0603-R0091                              | 9.1        | C, S, D, G, J, K | 30                        | 250               | 0.120                 | 620                   | 6000                            |
| AISC-0603-R0095                              | 9.5        | C, S, D, G, J, K | 26                        | 250               | 0.160                 | 540                   | 6000                            |
| AISC-0603-R010                               | 10         | C, S, D, G, J, K | 30                        | 250               | 0.130                 | 600                   | 6000                            |
| AISC-0603-R011                               | 11         | C, S, D, G, J, K | 35                        | 250               | 0.130                 | 600                   | 6000                            |
| AISC-0603-R012                               | 12         | C, S, D, G, J, K | 35                        | 250               | 0.130                 | 600                   | 6000                            |
| AISC-0603-R013                               | 13         | C, S, D, G, J, K | 35                        | 250               | 0.130                 | 600                   | 6000                            |
| AISC-0603-R015                               | 15         | C, S, D, G, J, K | 37                        | 250               | 0.150                 | 550                   | 6000                            |
| AISC-0603-R016                               | 16         | C, S, D, G, J, K | 37                        | 250               | 0.150                 | 550                   | 5500                            |
| AISC-0603-R018                               | 18         | C, S, D, G, J, K | 37                        | 250               | 0.150                 | 550                   | 5500                            |
| AISC-0603-R020                               | 20         | C, S, D, G, J, K | 37                        | 250               | 0.150                 | 550                   | 4900                            |
| AISC-0603-R022                               | 22         | C, S, D, G, J, K | 38                        | 250               | 0.190                 | 490                   | 4600                            |
| AISC-0603-R023                               | 23         | C, S, D, G, J, K | 40                        | 250               | 0.190                 | 490                   | 3800                            |
| AISC-0603-R024                               | 24         | C, S, D, G, J, K | 40                        | 250               | 0.190                 | 490                   | 3800                            |
| AISC-0603-R025                               | 25         | C, S, D, G, J, K | 40                        | 250               | 0.190                 | 490                   | 3700                            |
| AISC-0603-R027                               | 27         | C, S, D, G, J, K | 38                        | 250               | 0.190                 | 490                   | 3700                            |
| AISC-0603-R030                               | 30         | C, S, D, G, J, K | 38                        | 250               | 0.210                 | 470                   | 3300                            |
| AISC-0603-R033                               | 33         | C, S, D, G, J, K | 40                        | 250               | 0.210                 | 470                   | 3200                            |
| AISC-0603-R036                               | 36         | C, S, D, G, J, K | 40                        | 250               | 0.220                 | 460                   | 2900                            |
| AISC-0603-R039                               | 39         | C, S, D, G, J, K | 40                        | 250               | 0.220                 | 460                   | 2800                            |
| AISC-0603-R043                               | 43         | C, S, D, G, J, K | 40                        | 250               | 0.270                 | 400                   | 2700                            |
| AISC-0603-R047                               | 47         | C, S, D, G, J, K | 36                        | 200               | 0.270                 | 400                   | 2600                            |
| AISC-0603-R051                               | 51         | C, S, D, G, J, K | 35                        | 200               | 0.300                 | 390                   | 2400                            |
| AISC-0603-R056                               | 56         | C, S, D, G, J, K | 38                        | 200               | 0.350                 | 360                   | 2400                            |
| AISC-0603-R062                               | 62         | C, S, D, G, J, K | 36                        | 200               | 0.380                 | 350                   | 2300                            |



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1.80 x 1.12 x 1.02mm

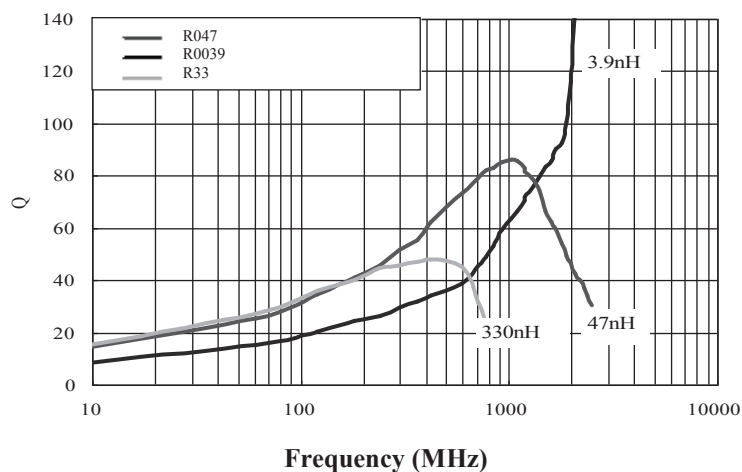
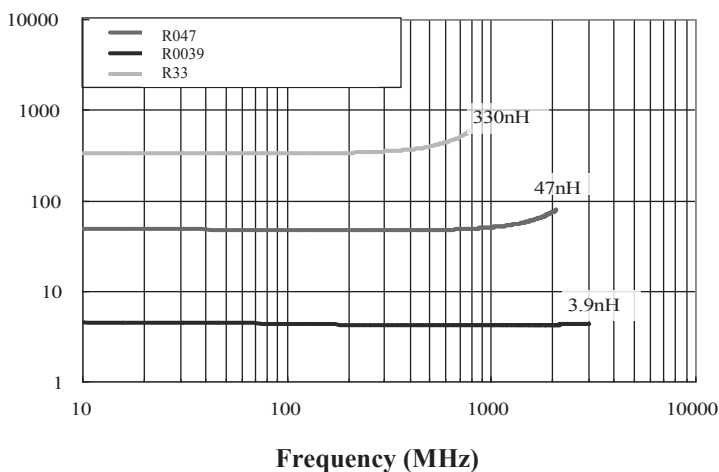
## ELECTRICAL SPECIFICATIONS (cont'd):

| Part Number<br>AISC-0603-<br>Inductance Code | Inductance | Tolerance        | Min.<br>Quality<br>Factor | L/Q Test<br>Freq. | Max. DC<br>Resistance | Max. Rated<br>Current | Min. Self-resonant<br>Frequency |
|--|------------|------------------|---------------------------|-------------------|-----------------------|-----------------------|---------------------------------|
| Units  | nH         | -                | -                         | MHz               | $\Omega$              | mA                    | MHz                             |
| Symbol                                       | L          | -                | Q                         | Freq.             | DCR                   | Ir                    | S.R.F                           |
| AISC-0603-R068                               | 68         | C, S, D, G, J, K | 36                        | 200               | 0.380                 | 350                   | 2200                            |
| AISC-0603-R072                               | 72         | C, S, D, G, J, K | 34                        | 150               | 0.430                 | 320                   | 2100                            |
| AISC-0603-R082                               | 82         | C, S, D, G, J, K | 34                        | 150               | 0.500                 | 300                   | 2000                            |
| AISC-0603-R091                               | 91         | C, S, D, G, J, K | 34                        | 150               | 0.520                 | 300                   | 1900                            |
| AISC-0603-R10                                | 100        | C, S, D, G, J, K | 31                        | 150               | 0.660                 | 260                   | 1800                            |
| AISC-0603-R11                                | 110        | C, S, D, G, J, K | 32                        | 150               | 0.730                 | 250                   | 1700                            |
| AISC-0603-R12                                | 120        | C, S, D, G, J, K | 32                        | 150               | 0.750                 | 240                   | 1600                            |
| AISC-0603-R15                                | 150        | C, S, D, G, J, K | 32                        | 150               | 1.120                 | 200                   | 1400                            |
| AISC-0603-R16                                | 160        | C, S, D, G, J, K | 32                        | 150               | 1.120                 | 200                   | 1400                            |
| AISC-0603-R18                                | 180        | C, S, D, G, J, K | 25                        | 100               | 1.380                 | 180                   | 1300                            |
| AISC-0603-R20                                | 200        | C, S, D, G, J, K | 25                        | 100               | 1.900                 | 150                   | 1250                            |
| AISC-0603-R22                                | 220        | C, S, D, G, J, K | 25                        | 100               | 2.100                 | 140                   | 1200                            |
| AISC-0603-R25                                | 250        | C, S, D, G, J, K | 25                        | 100               | 2.800                 | 120                   | 1100                            |
| AISC-0603-R27                                | 270        | C, S, D, G, J, K | 26                        | 100               | 3.000                 | 120                   | 960                             |
| AISC-0603-R33                                | 330        | C, S, D, G, J, K | 26                        | 100               | 4.200                 | 100                   | 800                             |
| AISC-0603-R39                                | 390        | C, S, D, G, J, K | 27                        | 100               | 4.500                 | 100                   | 800                             |
| AISC-0603-R42                                | 420        | C, S, D, G, J, K | 27                        | 100               | 5.400                 | 90                    | 800                             |
| AISC-0603-R47                                | 470        | C, S, D, G, J, K | 27                        | 100               | 5.700                 | 90                    | 700                             |
| AISC-0603-R56                                | 560        | C, S, D, G, J, K | 27                        | 100               | 8.100                 | 70                    | 650                             |

Definition of Rated Current (Ir): Ir is direct electric current as chip surface temperature rose just 20°C against chip initial surface temperature (Ta)

**Operating Temperature:** -40°C to +125°C

**Storage Temperature:** -10°C to +40°C, 70% RH max.



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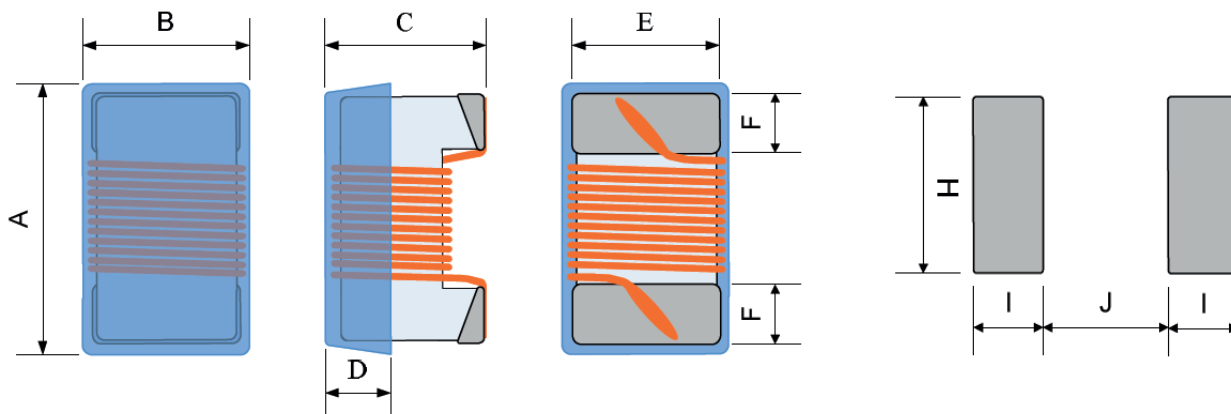
1.80 x 1.12 x 1.02mm

## OPTIONS AND PART IDENTIFICATION:

AISC-0603-   -

| Inductance Code           | Tolerance Code        | Packaging     |
|---------------------------|-----------------------|---------------|
| Please refer to the Table | C: $\pm 0.2\text{nH}$ | T: 3kpcs/reel |
|                           | S: $\pm 0.3\text{nH}$ |               |
|                           | D: $\pm 0.5\text{nH}$ |               |
|                           | G: $\pm 2\%$          |               |
|                           | J: $\pm 5\%$          |               |
|                           | K: $\pm 10\%$         |               |

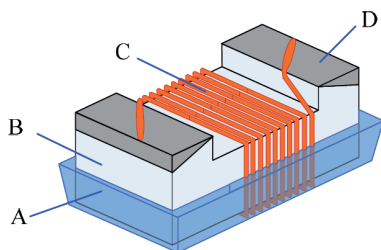
## MECHANICAL DIMENSIONS:



| A MAX. | B MAX. | C MAX. | D REF. | E REF. | F REF. | H REF. | I REF. | J REF. |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1.8    | 1.12   | 1.02   | 0.38   | 0.80   | 0.30   | 1.02   | 0.64   | 0.64   |

Dimension: mm

## MATERIALS:



| No. | Components | Material                                 |
|-----|------------|--|
| A   | Coating    | Ultraviolet epoxy resin                  |
| B   | Core       | Ceramic                                  |
| C   | Wire       | Polyurethane system enameled copper wire |
| D   | Electrodes | Ag-Pd with Ni and Au plating             |

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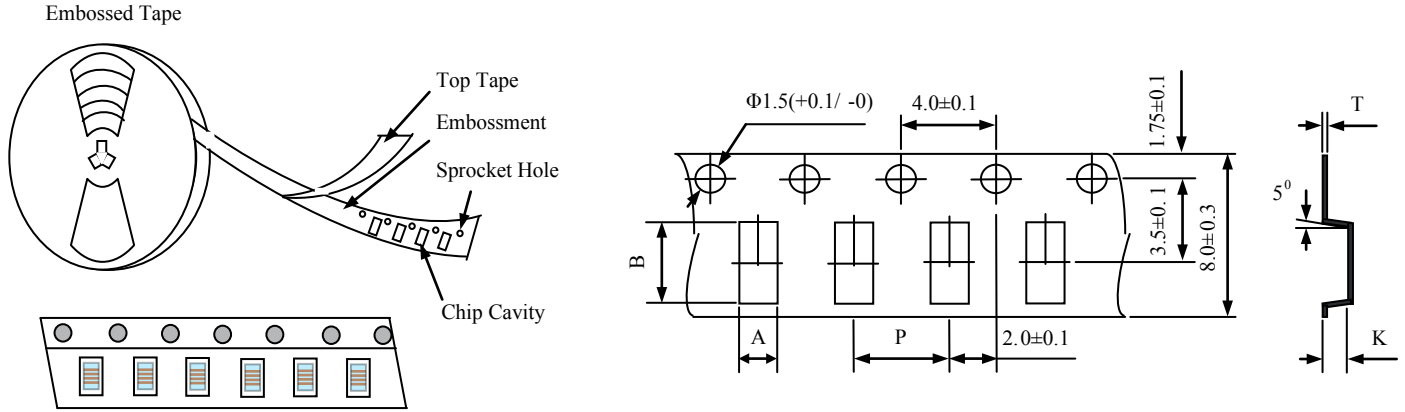
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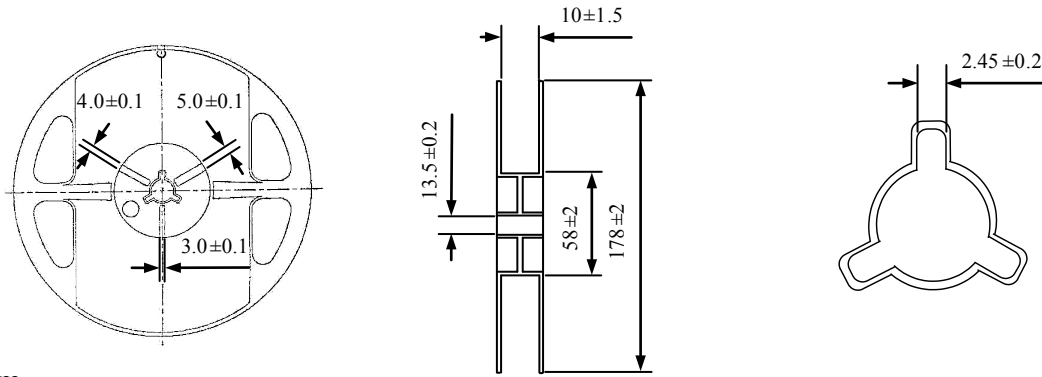
1.80 x 1.12 x 1.02mm

## PACKING:

T= tape and reel (3,000pcs/reel)

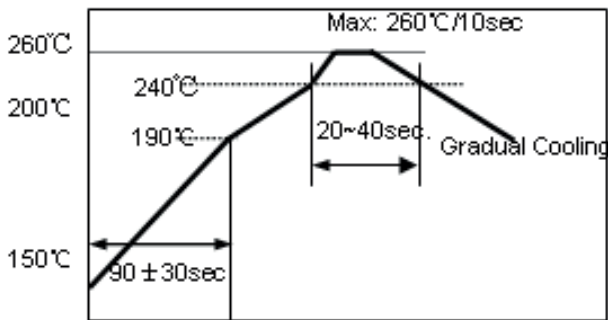


| A          | B          | P        | K Max      | T Max    |
|------------|------------|----------|------------|----------|
| 1.12 ±0.05 | 1.80 ±0.05 | 4.0 ±0.1 | 0.96 ±0.05 | 0.3 ±0.1 |



Dimension: mm

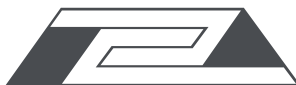
## REFLOW PROFILE:



- 1~2 °C/sec. Ramp
- Pre-heating: 150~190°C/90±30 sec.
- Time above 240°C: 20~40sec
- Peak temperature: 260°C Max./10sec.
- Solder paste: Sn/3.0Ag/0.5Cu
- Max.2 times for re-flowing

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