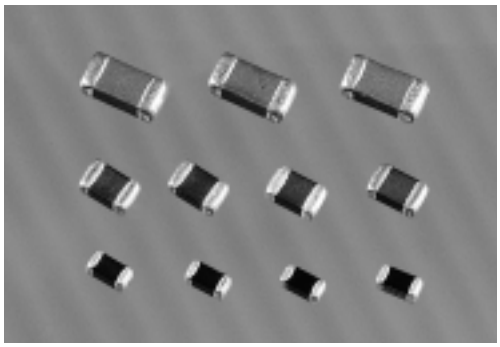
# CIL Series
## Ordinary Type



It has ferrite and 100% Ag as internal conductors, the CIL Series has excellent Q characteristics and eliminate crosstalk.

### FEATURES

- Magnetic shielding eliminates crosstalk, thus permitting higher mounting densities.
- Excellent solderability and high heat resistance for either flow or reflow soldering.
- Monolithic structure for high reliability.

### APPLICATIONS

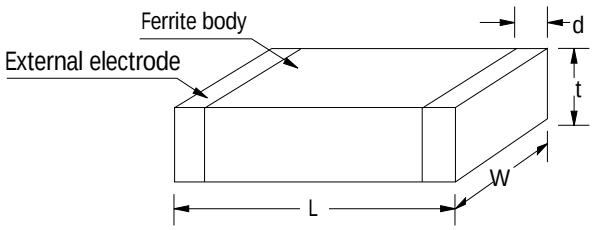
- Resonance circuits, PLL circuits, Noise suppression etc.

### PART NUMBERING

| CI | L | 21 | ○ | 5R6 | K | N | E |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |

(1) CHIP INDUCTOR
(2) L:Ordinary type
(3) Dimensions
(4) Material code(N, J, Y, S)
(5) Inductance(R10:0.1μH ; 5R6:5.6μH ; 100:10μH)
(6) Tolerance(K:±10% ; M:±20%)
(7) Thickness option(N:Standard ; A:Thinner than standard ; B:Thicker than standard)
(8) Packaging style(C:paper tape, 7" reel ; E:embossed tape, 7" reel)

### DIMENSIONS




Unit : mm

| Type | EIA Code | L | W | t | d |
|---|---|---|---|---|---|
| 10 | 0603 | 1.6±0.15 | 0.8±0.15 | 0.8±0.15 | 0.3±0.2 |
| 21 | 0805 | 2.0±0.2 | 1.25±0.2 | 0.85±0.2<br>1.25±0.2 | 0.5+0.2,-0.3 |
| 31 | 1206 | 3.2±0.2 | 1.6±0.2 | 0.6±0.2<br>1.1±0.2 | 0.5+0.2,-0.3 |

## CIL 1608(0603) TYPE

| Part No. (1608 type) | Product's Thickness (mm) | Inductance (μH) | Q min | L, Q test frequency (MHZ) | SRF (MHZ), min | DC resistance (Ω),max | Rated current (mA),max |
|---|---|---|---|---|---|---|---|
| CIL 10N 47N□ | 0.80±0.15 | 0.047±20%, 10% | 10 | 50 | 260 | 0.30 | 50 |
| CIL 10N 68N□ | 0.80±0.15 | 0.068±20%, 10% | 10 | 50 | 250 | 0.30 | 50 |
| CIL 10N 82N□ | 0.80±0.15 | 0.082±20%, 10% | 10 | 50 | 245 | 0.30 | 50 |
| CIL 10N R10□ | 0.80±0.15 | 0.10±20%, 10% | 15 | 25 | 240 | 0.50 | 50 |
| CIL 10N R12□ | 0.80±0.15 | 0.12±20%, 10% | 15 | 25 | 205 | 0.50 | 50 |
| CIL 10N R15□ | 0.80±0.15 | 0.15±20%, 10% | 15 | 25 | 180 | 0.60 | 50 |
| CIL 10N R18□ | 0.80±0.15 | 0.18±20%, 10% | 15 | 25 | 165 | 0.60 | 50 |
| CIL 10N R22□ | 0.80±0.15 | 0.22±20%, 10% | 15 | 25 | 150 | 0.80 | 50 |
| CIL 10N R27□ | 0.80±0.15 | 0.27±20%, 10% | 15 | 25 | 136 | 0.80 | 50 |
| CIL 10N R33□ | 0.80±0.15 | 0.33±20%, 10% | 15 | 25 | 125 | 0.85 | 35 |
| CIL 10N R39□ | 0.80±0.15 | 0.39±20%, 10% | 15 | 25 | 110 | 1.00 | 35 |
| CIL 10N R47□ | 0.80±0.15 | 0.47±20%, 10% | 15 | 25 | 105 | 1.35 | 35 |
| CIL 10N R56□ | 0.80±0.15 | 0.56±20%, 10% | 15 | 25 | 95 | 1.55 | 35 |
| CIL 10N R68□ | 0.80±0.15 | 0.68±20%, 10% | 15 | 25 | 80 | 1.70 | 35 |
| CIL 10N R82□ | 0.80±0.15 | 0.82±20%, 10% | 15 | 25 | 75 | 2.10 | 35 |
| CIL 10J 1R0 □ | 0.80±0.15 | 1.0±20%, 10% | 35 | 10 | 70 | 0.60 | 25 |
| CIL 10J 1R2□ | 0.80±0.15 | 1.2±20%, 10% | 35 | 10 | 60 | 0.80 | 25 |
| CIL 10J 1R5□ | 0.80±0.15 | 1.5±20%, 10% | 35 | 10 | 55 | 0.80 | 25 |
| CIL 10J 1R8□ | 0.80±0.15 | 1.8±20%, 10% | 35 | 10 | 50 | 0.95 | 25 |
| CIL 10J 2R2□ | 0.80±0.15 | 2.2±20%, 10% | 35 | 10 | 45 | 1.15 | 15 |
| CIL 10J 2R7□ | 0.80±0.15 | 2.7±20%, 10% | 35 | 10 | 40 | 1.35 | 15 |
| CIL 10J 3R3□ | 0.80±0.15 | 3.3±20%, 10% | 35 | 10 | 38 | 1.55 | 15 |
| CIL 10J 3R9□ | 0.80±0.15 | 3.9±20%, 10% | 35 | 10 | 36 | 1.70 | 15 |
| CIL 10J 4R7□ | 0.80±0.15 | 4.7±20%, 10% | 35 | 10 | 33 | 2.10 | 15 |
| CIL 10Y 5R6□ | 0.80±0.15 | 5.6±20%, 10% | 35 | 4 | 22 | 1.55 | 5 |
| CIL 10Y 6R8□ | 0.80±0.15 | 6.8±20%, 10% | 35 | 4 | 20 | 1.70 | 5 |
| CIL 10Y 8R2□ | 0.80±0.15 | 8.2±20%, 10% | 35 | 4 | 18 | 2.10 | 5 |
| CIL 10Y 100□ | 0.80±0.15 | 10.0±20%, 10% | 35 | 2 | 17 | 2.55 | 3 |
| CIL 10Y 120□ | 0.80±0.15 | 12.0±20%, 10% | 35 | 2 | 15 | 2.75 | 3 |
| CIL 10S 150□ | 0.80±0.15 | 15.0±20% | 20 | 1 | 14 | 1.70 | 1 |
| CIL 10S 180□ | 0.80±0.15 | 18.0±20% | 20 | 1 | 13 | 1.85 | 1 |
| CIL 10S 220□ | 0.80±0.15 | 22.0±20% | 20 | 1 | 11 | 2.10 | 1 |
| CIL 10S 270□ | 0.80±0.15 | 27.0±20% | 20 | 1 | 10 | 2.75 | 1 |
| CIL 10S 330□ | 0.80±0.15 | 33.0±20% | 20 | 0.4 | 9 | 2.95 | 1 |

□: Tolerance (K: ±10%, M: ±20%)
※Test equipment: HP4291A + HP16193A

## CIL 2012(0805) TYPE

| Part No. (2012 type) | Product's Thickness (mm) | Inductance (μH) | Q min | L, Q test frequency (MHZ) | SRF (MHZ), min | DC resistance (Ω),max | Rated current (mA),max |
|---|---|---|---|---|---|---|---|
| CIL 21N 47N□ | 0.85±0.2 | 0.047±20%, 10% | 15 | 50 | 320 | 0.20 | 300 |
| CIL 21N 68N□ | 0.85±0.2 | 0.068±20%, 10% | 15 | 50 | 280 | 0.20 | 300 |
| CIL 21N 82N□ | 0.85±0.2 | 0.082±20%, 10% | 15 | 50 | 255 | 0.20 | 300 |
| CIL 21N R10□ | 0.85±0.2 | 0.10±20%, 10% | 20 | 25 | 235 | 0.30 | 250 |
| CIL 21N R12□ | 0.85±0.2 | 0.12±20%, 10% | 20 | 25 | 220 | 0.30 | 250 |
| CIL 21N R15□ | 0.85±0.2 | 0.15±20%, 10% | 20 | 25 | 200 | 0.40 | 250 |
| CIL 21N R18□ | 0.85±0.2 | 0.18±20%, 10% | 20 | 25 | 185 | 0.40 | 250 |
| CIL 21N R22□ | 0.85±0.2 | 0.22±20%, 10% | 20 | 25 | 170 | 0.50 | 250 |
| CIL 21N R27□ | 0.85±0.2 | 0.27±20%, 10% | 20 | 25 | 150 | 0.50 | 250 |
| CIL 21N R33□ | 0.85±0.2 | 0.33±20%, 10% | 20 | 25 | 145 | 0.55 | 250 |
| CIL 21N R39□ | 0.85±0.2 | 0.39±20%, 10% | 25 | 25 | 135 | 0.65 | 200 |
| CIL 21N R47□ | 1.25±0.2 | 0.47±20%, 10% | 25 | 25 | 125 | 0.65 | 200 |
| CIL 21N R56□ | 1.25±0.2 | 0.56±20%, 10% | 25 | 25 | 115 | 0.75 | 150 |
| CIL 21N R68□ | 1.25±0.2 | 0.68±20%, 10% | 25 | 25 | 105 | 0.80 | 150 |
| CIL 21N R82□ | 1.25±0.2 | 0.82±20%, 10% | 25 | 25 | 100 | 1.00 | 150 |
| CIL 21J 1R0 □ | 0.85±0.2 | 1.0±20%, 10% | 45 | 10 | 75 | 0.40 | 50 |
| CIL 21J 1R2 □ | 0.85±0.2 | 1.2±20%, 10% | 45 | 10 | 65 | 0.50 | 50 |
| CIL 21J 1R5 □ | 0.85±0.2 | 1.5±20%, 10% | 45 | 10 | 60 | 0.50 | 50 |
| CIL 21J 1R8 □ | 0.85±0.2 | 1.8±20%, 10% | 45 | 10 | 55 | 0.60 | 50 |
| CIL 21J 2R2 □ | 0.85±0.2 | 2.2±20%, 10% | 45 | 10 | 50 | 0.65 | 30 |
| CIL 21J 2R7 □ | 1.25±0.2 | 2.7±20%, 10% | 45 | 10 | 45 | 0.75 | 30 |
| CIL 21J 3R3 □ | 1.25±0.2 | 3.3±20%, 10% | 45 | 10 | 41 | 0.80 | 30 |
| CIL 21J 3R9 □ | 1.25±0.2 | 3.9±20%, 10% | 45 | 10 | 38 | 0.90 | 30 |
| CIL 21J 4R7 □ | 1.25±0.2 | 4.7±20%, 10% | 45 | 10 | 35 | 1.00 | 30 |
| CIL 21Y 5R6□ | 1.25±0.2 | 5.6±20%, 10% | 50 | 4 | 32 | 0.90 | 15 |
| CIL 21Y 6R8□ | 1.25±0.2 | 6.8±20%, 10% | 50 | 4 | 29 | 1.00 | 15 |
| CIL 21Y 8R2□ | 1.25±0.2 | 8.2±20%, 10% | 50 | 4 | 26 | 1.10 | 15 |
| CIL 21Y 100□ | 1.25±0.2 | 10.0±20%, 10% | 50 | 2 | 24 | 1.15 | 15 |
| CIL 21Y 120□ | 1.25±0.2 | 12.0±20%, 10% | 50 | 2 | 22 | 1.25 | 15 |
| CIL 21S 150 □ | 1.25±0.2 | 15.0±20% | 30 | 1 | 19 | 0.80 | 5 |
| CIL 21S 180 □ | 1.25±0.2 | 18.0±20% | 30 | 1 | 18 | 0.90 | 5 |
| CIL 21S 220 □ | 1.25±0.2 | 22.0±20% | 30 | 1 | 16 | 1.10 | 5 |
| CIL 21S 270□ | 1.25±0.2 | 27.0±20% | 30 | 1 | 14 | 1.15 | 5 |
| CIL 21S 330□ | 1.25±0.2 | 33.0±20% | 30 | 0.4 | 13 | 1.25 | 5 |

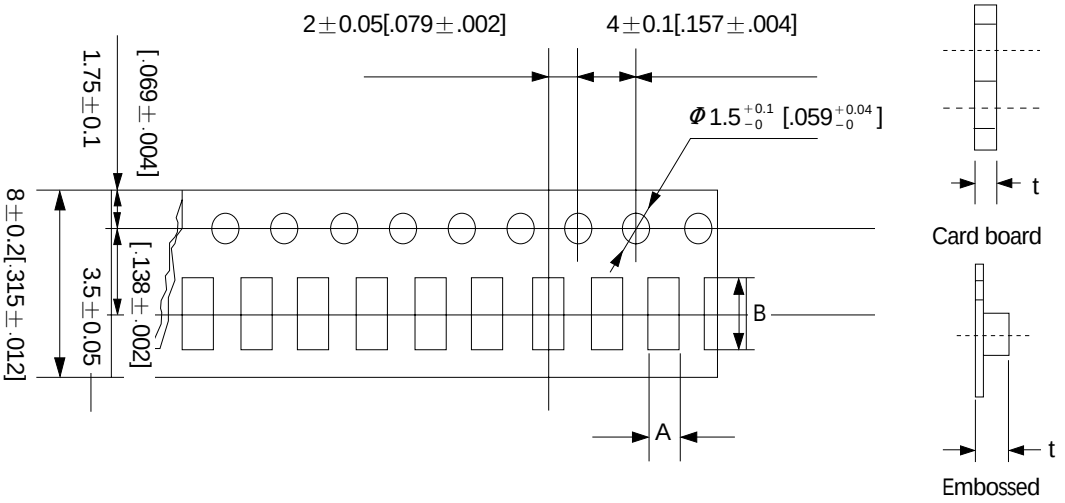
□: Tolerance (K: ±10%, M: ±20%)
※Test equipment: HP4291A + HP16193A

## CIL 3216(1206) TYPE

| Part No. (3216 type) | Product's Thickness (mm) | Inductance (μH) | Q min | L, Q test frequency (MHZ) | SRF (MHZ), min | DC resistance (Ω),max | Rated current (mA),max |
|---|---|---|---|---|---|---|---|
| CIL 31N 47N□ | 0.6±0.2 | 0.047±20%, 10% | 20 | 50 | 320 | 0.15 | 300 |
| CIL 31N 68N□ | 0.6±0.2 | 0.068±20%, 10% | 20 | 50 | 280 | 0.25 | 300 |
| CIL 31N R10□ | 0.6±0.2 | 0.10±20%, 10% | 20 | 25 | 235 | 0.25 | 250 |
| CIL 31N R12□ | 0.6±0.2 | 0.12±20%, 10% | 20 | 25 | 220 | 0.30 | 250 |
| CIL 31N R15□ | 0.6±0.2 | 0.15±20%, 10% | 20 | 25 | 200 | 0.30 | 250 |
| CIL 31N R18□ | 0.6±0.2 | 0.18±20%, 10% | 20 | 25 | 185 | 0.40 | 250 |
| CIL 31N R22□ | 0.6±0.2 | 0.22±20%, 10% | 20 | 25 | 170 | 0.40 | 250 |
| CIL 31N R27□ | 0.6±0.2 | 0.27±20%, 10% | 20 | 25 | 150 | 0.50 | 250 |
| CIL 31N R33□ | 0.6±0.2 | 0.33±20%, 10% | 20 | 25 | 145 | 0.60 | 250 |
| CIL 31N R39□ | 1.1±0.2 | 0.39±20%, 10% | 25 | 25 | 135 | 0.50 | 200 |
| CIL 31N R47□ | 1.1±0.2 | 0.47±20%, 10% | 25 | 25 | 125 | 0.60 | 200 |
| CIL 31N R56□ | 1.1±0.2 | 0.56±20%, 10% | 25 | 25 | 115 | 0.70 | 150 |
| CIL 31N R68□ | 1.1±0.2 | 0.68±20%, 10% | 25 | 25 | 105 | 0.80 | 150 |
| CIL 31N R82□ | 1.1±0.2 | 0.82±20%, 10% | 25 | 25 | 100 | 0.90 | 150 |
| CIL 31J 1R0 □ | 0.6±0.2 | 1.0±20%, 10% | 45 | 10 | 75 | 0.40 | 100 |
| CIL 31J 1R2□ | 0.6±0.2 | 1.2±20%, 10% | 45 | 10 | 65 | 0.50 | 100 |
| CIL 31J 1R5□ | 1.1±0.2 | 1.5±20%, 10% | 45 | 10 | 60 | 0.50 | 50 |
| CIL 31J 1R8□ | 1.1±0.2 | 1.8±20%, 10% | 45 | 10 | 55 | 0.50 | 50 |
| CIL 31J 2R2□ | 1.1±0.2 | 2.2±20%, 10% | 45 | 10 | 50 | 0.60 | 50 |
| CIL 31J 2R7□ | 1.1±0.2 | 2.7±20%, 10% | 45 | 10 | 45 | 0.60 | 50 |
| CIL 31J 3R3□ | 1.1±0.2 | 3.3±20%, 10% | 45 | 10 | 41 | 0.70 | 50 |
| CIL 31J 3R9□ | 1.1±0.2 | 3.9±20%, 10% | 45 | 10 | 38 | 0.80 | 50 |
| CIL 31J 4R7□ | 1.1±0.2 | 4.7±20%, 10% | 45 | 10 | 35 | 0.90 | 50 |
| CIL 31Y 5R6□ | 1.1±0.2 | 5.6±20%, 10% | 50 | 4 | 32 | 0.70 | 25 |
| CIL 31Y 6R8□ | 1.1±0.2 | 6.8±20%, 10% | 50 | 4 | 29 | 0.80 | 25 |
| CIL 31Y 8R2□ | 1.1±0.2 | 8.2±20%, 10% | 50 | 4 | 26 | 0.90 | 25 |
| CIL 31Y 100□ | 1.1±0.2 | 10.0±20%, 10% | 50 | 2 | 24 | 1.00 | 25 |
| CIL 31Y 120□ | 1.1±0.2 | 12.0±20%, 10% | 50 | 2 | 22 | 1.05 | 15 |
| CIL 31S 150 □ | 1.1±0.2 | 15.0±20% | 35 | 1 | 19 | 0.70 | 5 |
| CIL 31S 180 □ | 1.1±0.2 | 18.0±20% | 35 | 1 | 18 | 0.70 | 5 |
| CIL 31S 220 □ | 1.1±0.2 | 22.0±20% | 35 | 1 | 16 | 0.90 | 5 |
| CIL 31S 270□ | 1.1±0.2 | 27.0±20% | 35 | 1 | 14 | 0.90 | 5 |
| CIL 31S 330□ | 1.1±0.2 | 33.0±20% | 35 | 0.4 | 13 | 1.05 | 5 |

□: Tolerance (K: ±10%, M: ±20%)
※Test equipment: HP4291A + HP16193A

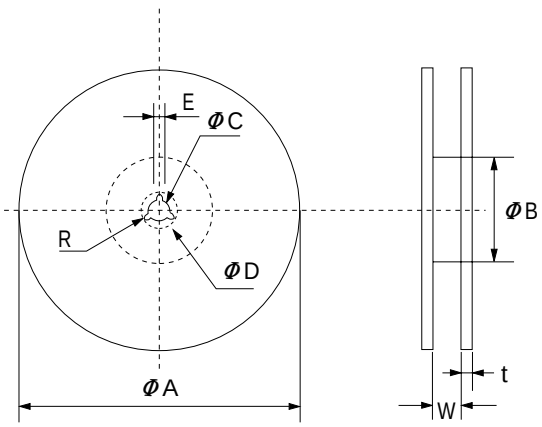
## PACKAGING




Unit: mm

| Type | Tape | A | B | tmax | T | quantity/reel |
|---|---|---|---|---|---|---|
| 10 | Card | 1.1±0.2 [.043±.008] | 1.9±0.2 [.075±.008] | 1.5 [.059] | 0.8±0.15 [.031±.006] | 4,000 |
| 21 | Embossed | 1.5±0.2 [.059±.008] | 2.3±0.2 [.091±.008] | 1.5 [.059] | 0.85 [.033] | 4,000 |
| | | | | 2.0 [.079] | 1.25 [.033] | 2,000 |
| 31 | Embossed | 2.0±0.2 [.079±.008] | 3.6±0.2 [.142±.008] | 1.1 [.043] | 0.6 [.024] | 4,000 |
| | | | | 2.0 [.079] | 1.1 [.043] | 3,000 |

T: chip's thickness

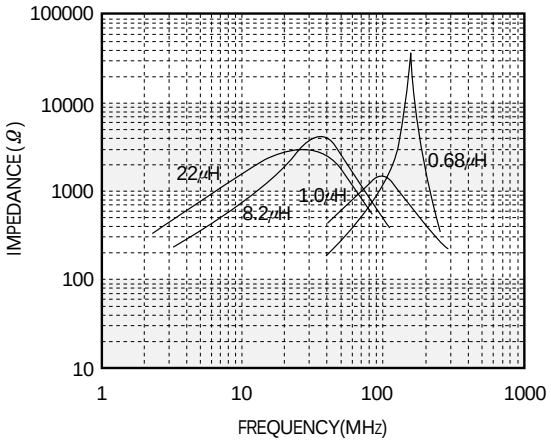



Unit: mm

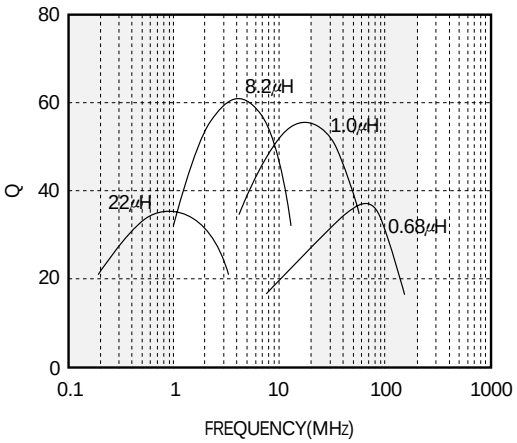
| A | B | C | D | E | W | t | R |
|---|---|---|---|---|---|---|---|
| Φ178±2 | Φ50±1.0 | Φ13±0.5 | Φ21±0.8 | 2±0.5 | 10.0±1.0 | 1.2±0.5 | 1.0 |

## 1608 TYPE

### ■IMPEDANCE CHARACTERISTICS




### ■Q CHARACTERISTICS

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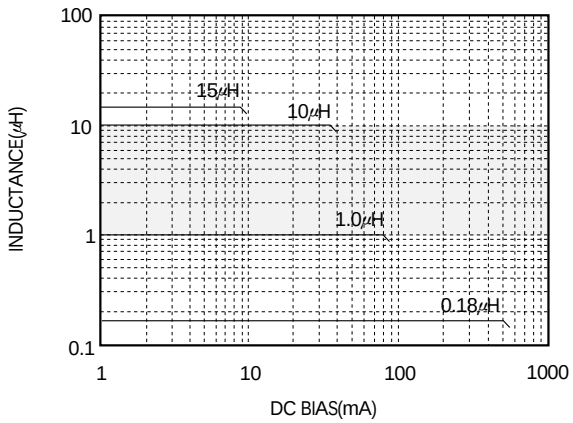


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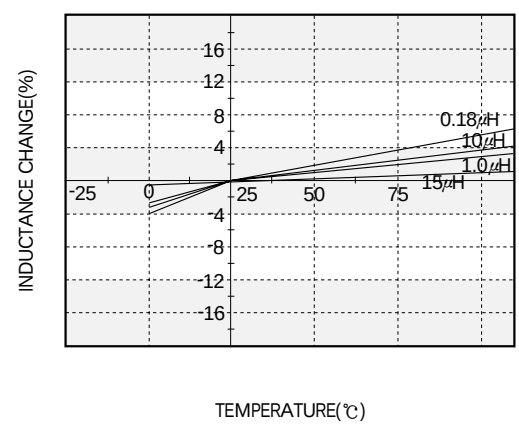
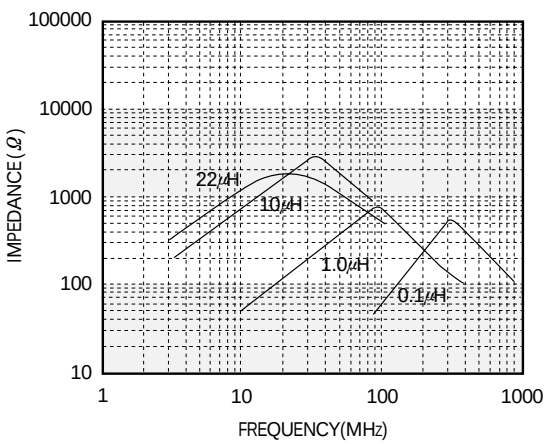
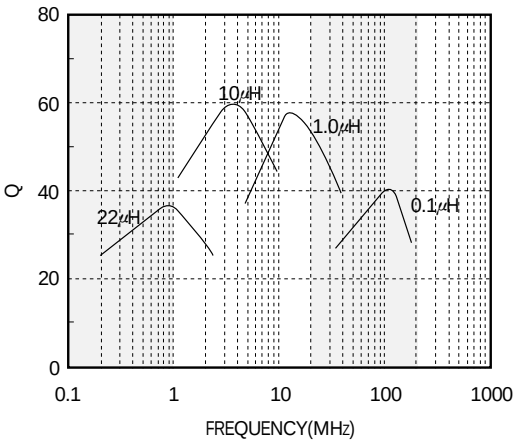



## 2012 TYPE

### ■IMPEDANCE CHARACTERISTICS




### ■Q CHARACTERISTICS



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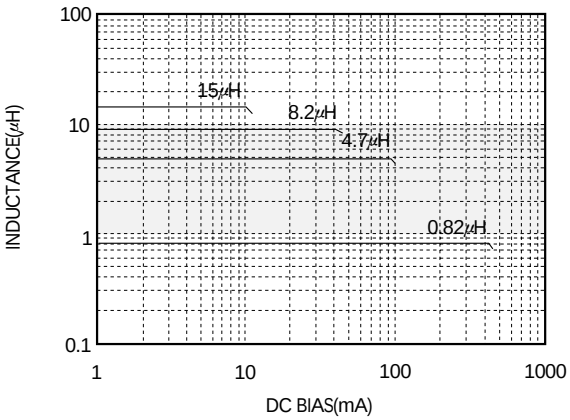
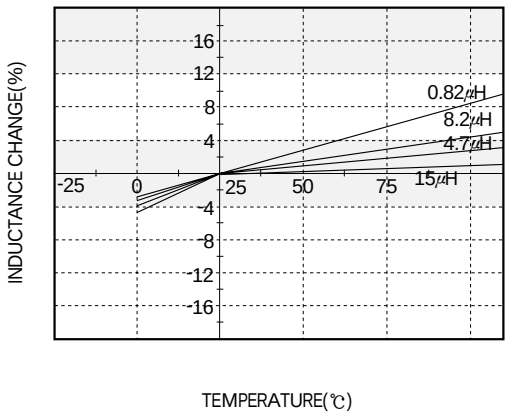
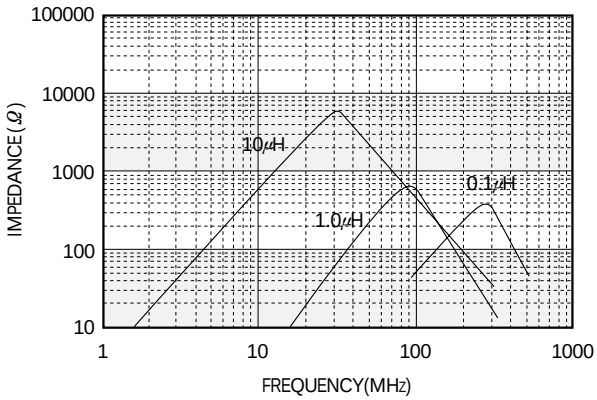



## ■TEMPERATURE CHARACTERISTICS

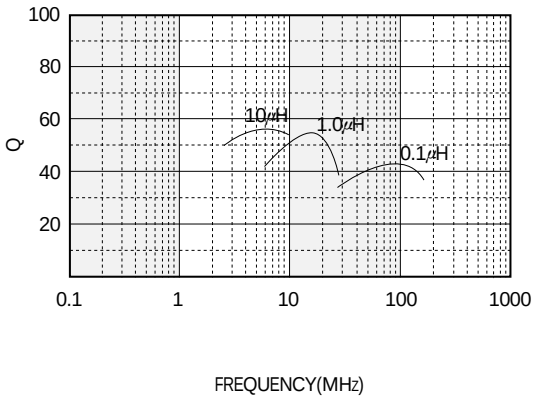



## 3216 TYPE

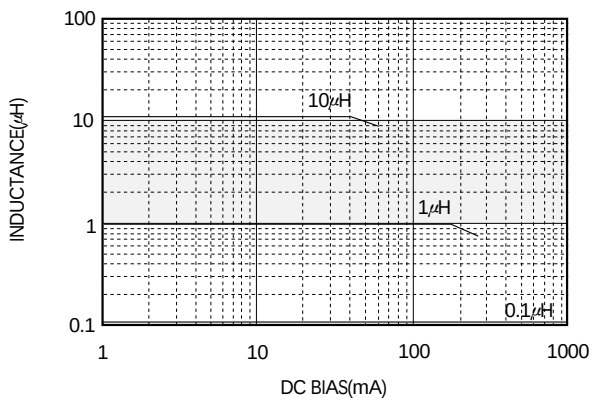
## ■IMPEDANCE CHARACTERISTICS




## ■Q CHARACTERISTICS




## ■DC BIAS CHARACTERISTICS




## ■TEMPERATURE CHARACTERISTICS