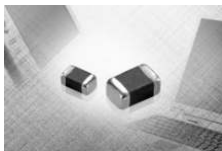


# General Chip Inductor

## CIL Series- CIL10 (1608/ EIA 0603)



CIL Series has ferrite body and 100% Ag internal conductor. Also, the CIL series Inductors have excellent Q characteristics and free of cross talk.

### FEATURES

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

### APPLICATION

- Resonance circuits, PLL circuits, Noise suppression, etc.

### SPECIFICATION

- Operating temperature range  $-40$  to  $+85^{\circ}\text{C}$
- Storage temperature range  $-10$  to  $+40^{\circ}\text{C}$

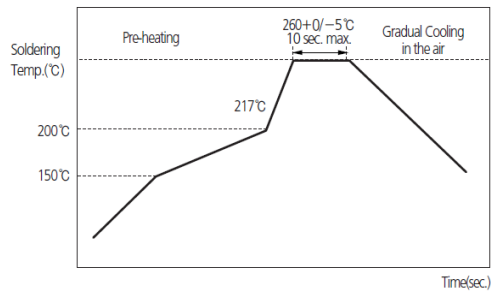
### PRODUCT IDENTIFICATION

|           |          |           |          |            |          |          |          |
|-----------|----------|-----------|----------|------------|----------|----------|----------|
| <u>CI</u> | <u>L</u> | <u>10</u> | <u>N</u> | <u>47N</u> | <u>K</u> | <u>N</u> | <u>C</u> |
| (1)       | (2)      | (3)       | (4)      | (5)        | (6)      | (7)      | (8)      |

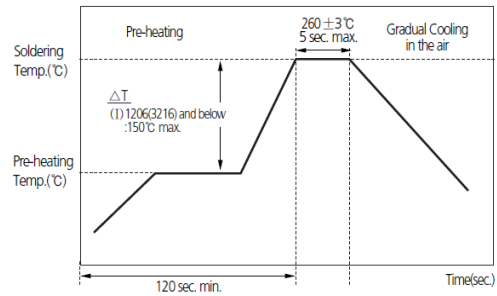
- (1) Chip Inductor
- (2) L:Ordinary type
- (3) Dimension
- (4) Material Code (N,J,Y,S)
- (5) Inductance(47N:0.047uH,2R2:2.2uH)
- (6) Tolerance(K: $\pm 10\%$ , M: $\pm 20\%$ )
- (7) Thickness option(N:Standard, A:Thinner than standard, B:Thicker than standard)
- (8) Packaging(C:paper tape, E:embossed tape)

## RECOMMENDED SOLDERING CONDITION

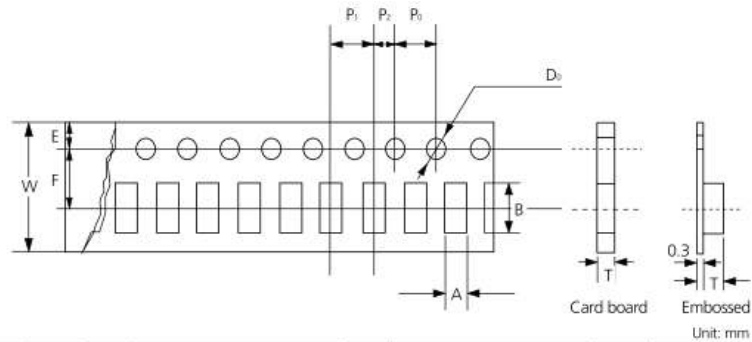
### REFLOW SOLDERING



### FLOW SOLDERING

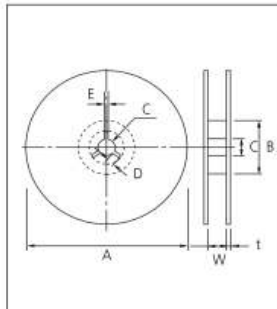


## PACKAGING



| Type                  | 03              | 05            | 10           | 21           |              |              | 22                 | 31            |              |              | 32           | 41                 | 43           |               |              |
|-----------------------|-----------------|---------------|--------------|--------------|--------------|--------------|--------------------|---------------|--------------|--------------|--------------|--------------------|--------------|---------------|--------------|
| Tape                  | Card            | Card          | Card         | Embossed     |              |              | Card               | Embossed      | Embossed     |              |              | Card               | Embossed     | Embossed      | Embossed     |
| Chip Thickness        | 0.3             | 0.5           | 0.8          | 0.85         | 1.0          | 1.25         | 0.85               | 1.2           | 0.6          | 0.8          | 1.1          | 0.85               | 1.3          | 1.6 (1.2)     | 1.5          |
| Chip Cavity           | A               | 0.40<br>±0.06 | 0.65<br>±0.1 | 1.0<br>±0.2  | 1.5<br>±0.2  | 1.5<br>±0.2  | 1.45<br>±0.1       | 2.39<br>±0.10 | 1.9<br>±0.2  | 1.9<br>±0.2  | 1.9<br>±0.2  | 2.0<br>±0.2        | 2.9<br>±0.2  | 1.9<br>±0.2   | 3.5<br>±0.2  |
|                       | B               | 0.70<br>±0.06 | 1.15<br>±0.1 | 1.8<br>±0.2  | 2.3<br>±0.2  | 2.3<br>±0.2  | 2.4<br>±0.2        | 2.79<br>±0.10 | 3.6<br>±0.2  | 3.6<br>±0.2  | 3.6<br>±0.2  | 3.6<br>±0.2        | 4.9<br>±0.2  | 4.9<br>±0.2   | 4.9<br>±0.2  |
| T max                 | 0.45            | 0.8           | 1.1          | 1.5          | 2.0          | 2.0          | 0.95<br>±0.1       | 1.80<br>±0.10 | 1.15         | 1.4          | 1.4          | 1.1                | 1.55         | 1.8           | 1.78         |
| W                     | 8<br>±0.2       | 8<br>±0.2     | 8<br>±0.2    | 8<br>±0.2    | 8<br>±0.2    | 8<br>±0.2    | 8.0<br>±0.3        | 8.0<br>±0.3   | 8<br>±0.2    | 8<br>±0.2    | 8<br>±0.2    | 8<br>±0.2          | 8<br>±0.2    | 12<br>±0.2    | 12<br>±0.2   |
| F                     | 3.5<br>±0.05    | 3.5<br>±0.05  | 3.5<br>±0.05 | 3.5<br>±0.05 | 3.5<br>±0.05 | 3.5<br>±0.05 | 3.5<br>±0.05       | 3.5<br>±0.05  | 3.5<br>±0.05 | 3.5<br>±0.05 | 3.5<br>±0.05 | 3.5<br>±0.05       | 3.5<br>±0.05 | 5.5<br>±0.05  | 5.5<br>±0.05 |
| E                     | 1.75<br>±0.1    | 1.75<br>±0.1  | 1.75<br>±0.1 | 1.75<br>±0.1 | 1.75<br>±0.1 | 1.75<br>±0.1 | 1.75<br>±0.1       | 1.75<br>±0.1  | 1.75<br>±0.1 | 1.75<br>±0.1 | 1.75<br>±0.1 | 1.75<br>±0.1       | 1.75<br>±0.1 | 1.75<br>±0.1  | 1.75<br>±0.1 |
| P <sub>1</sub>        | 2<br>±0.05      | 2<br>±0.05    | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1        | 4.0<br>±0.1   | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1        | 4.0<br>±0.1  | 8.0<br>±0.1   | 8.0<br>±0.1  |
| P <sub>2</sub>        | 2<br>±0.1       | 2<br>±0.1     | 2<br>±0.1    | 2<br>±0.1    | 2<br>±0.1    | 2<br>±0.1    | 2.0<br>±0.05       | 2.0<br>±0.05  | 2<br>±0.1    | 2<br>±0.1    | 2<br>±0.1    | 2<br>±0.1          | 2<br>±0.1    | 2<br>±0.1     | 2<br>±0.1    |
| P <sub>0</sub>        | 4.0<br>±0.1     | 4.0<br>±0.1   | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1        | 4.0<br>±0.1   | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1  | 4.0<br>±0.1        | 4.0<br>±0.1  | 4.0<br>±0.1   | 4.0<br>±0.1  |
| D <sub>0</sub>        | Ø1.5<br>±0.1    | Ø1.5<br>±0.1  | Ø1.5<br>±0.1 | Ø1.5<br>±0.1 | Ø1.5<br>±0.1 | Ø1.5<br>±0.1 | Ø1.5<br>±0.1<br>ϕ0 | Ø1.5<br>±0.1  | Ø1.5<br>±0.1 | Ø1.5<br>±0.1 | Ø1.5<br>±0.1 | Ø1.5<br>±0.1<br>ϕ0 | Ø1.5<br>±0.1 | Ø1.5<br>±0.1  | Ø1.5<br>±0.1 |
| Quantity / Reel (PCS) | 10,000 (15,000) | 10,000        | 4,000        | 4,000        | 3,000        | 2,000        | 4,000              | 2,000         | 4,000        | 3,000        | 3,000        | 4,000              | 2,500        | 2,000 (3,000) | 1,000        |

• Reel dimensions

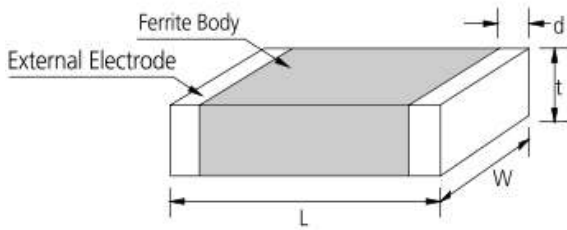


| Symbol   | Tape Width | A         | B        | C       | D     |
|----------|------------|-----------|----------|---------|-------|
| 7" Reel  | 8mm        | Ø180+0/-3 | Ø60+1/-0 | Ø13±0.3 | 4±0.2 |
|          | 12mm       | Ø180+0/-3 | Ø60+1/-0 | Ø13±0.3 | 4±0.2 |
| 10" Reel | 8mm        | Ø258+0/-3 | Ø80+1/-0 | Ø13±0.3 | 4±0.2 |
|          | 12mm       | Ø258+0/-3 | Ø80+1/-0 | Ø13±0.3 | 4±0.2 |
| 13" Reel | 8mm        | Ø330±2.0  | Ø80±1.0  | Ø13±0.3 | 4±0.2 |
|          | 12mm       | Ø330±2.0  | Ø80±1.0  | Ø13±0.3 | 4±0.2 |
| Symbol   | Tape Width | E         | W        | t       |       |
| 7" Reel  | 8mm        | 2.0±0.5   | 9±0.5    | 1.2±0.2 |       |
|          | 12mm       | 2.0±0.5   | 13±0.5   | 1.2±0.2 |       |
| 10" Reel | 8mm        | 2.0±0.5   | 9±0.5    | 1.8±0.2 |       |
|          | 12mm       | 2.0±0.5   | 13±0.5   | 1.8±0.2 |       |
| 13" Reel | 8mm        | 2.0±0.5   | 9±0.5    | 2.2±0.2 |       |
|          | 12mm       | 2.0±0.5   | 13±0.5   | 2.2±0.2 |       |

# General Chip Inductor

## 1. Model :CIL1608 Type

## 2. Dimension



| Type | Dimension [mm] |          |          |         |
|------|----------------|----------|----------|---------|
|      | L              | W        | t        | d       |
| 10   | 1.6±0.15       | 0.8±0.15 | 0.8±0.15 | 0.3±0.2 |

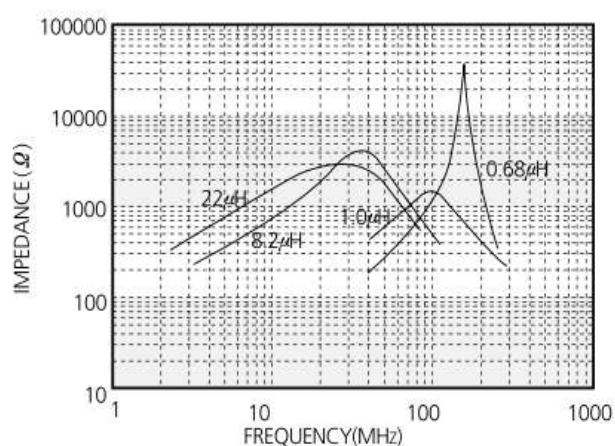
## 3. Description

| Part No.  | Thickness (mm) | Inductance (nH) | Q (Min.) | L,Q test frequency (MHz) | SRF (MHz) Min. | DC resistance (Ω) Max. | Rated current (mA) Max. |
|-----------|----------------|-----------------|----------|--------------------------|----------------|------------------------|-------------------------|
| CIL10N47N | 0.80±0.15      | 0.047±20%,10%   | 10       | 50                       | 260            | 0.30                   | 50                      |
| CIL10N56N | 0.80±0.15      | 0.056±20%,10%   | 10       | 50                       | 260            | 0.30                   | 50                      |
| CIL10N68N | 0.80±0.15      | 0.068±20%,10%   | 10       | 50                       | 250            | 0.30                   | 50                      |
| CIL10N82N | 0.80±0.15      | 0.082±20%,10%   | 10       | 50                       | 245            | 0.30                   | 50                      |
| CIL10NR10 | 0.80±0.15      | 0.10±20%,10%    | 15       | 25                       | 240            | 0.50                   | 50                      |
| CIL10NR12 | 0.80±0.15      | 0.12±20%,10%    | 15       | 25                       | 205            | 0.50                   | 50                      |
| CIL10NR15 | 0.80±0.15      | 0.15±20%,10%    | 15       | 25                       | 180            | 0.60                   | 50                      |
| CIL10NR18 | 0.80±0.15      | 0.18±20%,10%    | 15       | 25                       | 165            | 0.60                   | 50                      |
| CIL10NR22 | 0.80±0.15      | 0.22±20%,10%    | 15       | 25                       | 150            | 0.80                   | 50                      |
| CIL10NR27 | 0.80±0.15      | 0.27±20%,10%    | 15       | 25                       | 136            | 0.80                   | 50                      |
| CIL10NR33 | 0.80±0.15      | 0.33±20%,10%    | 15       | 25                       | 125            | 0.85                   | 35                      |
| CIL10NR39 | 0.80±0.15      | 0.39±20%,10%    | 15       | 25                       | 110            | 1.00                   | 35                      |
| CIL10NR47 | 0.80±0.15      | 0.47±20%,10%    | 15       | 25                       | 105            | 1.35                   | 35                      |
| CIL10NR56 | 0.80±0.15      | 0.56±20%,10%    | 15       | 25                       | 95             | 1.55                   | 35                      |
| CIL10NR68 | 0.80±0.15      | 0.68±20%,10%    | 15       | 25                       | 80             | 1.70                   | 35                      |
| CIL10NR82 | 0.80±0.15      | 0.82±20%,10%    | 15       | 25                       | 75             | 2.10                   | 35                      |
| CIL10J1R0 | 0.80±0.15      | 1.0±20%,10%     | 35       | 10                       | 70             | 0.60                   | 25                      |
| CIL10J1R2 | 0.80±0.15      | 1.2±20%,10%     | 35       | 10                       | 60             | 0.80                   | 25                      |
| CIL10J1R5 | 0.80±0.15      | 1.5±20%,10%     | 35       | 10                       | 55             | 0.80                   | 25                      |
| CIL10J1R8 | 0.80±0.15      | 1.8±20%,10%     | 35       | 10                       | 50             | 0.95                   | 25                      |
| CIL10J2R2 | 0.80±0.15      | 2.2±20%,10%     | 35       | 10                       | 45             | 1.15                   | 15                      |
| CIL10J2R7 | 0.80±0.15      | 2.7±20%,10%     | 35       | 10                       | 40             | 1.35                   | 15                      |

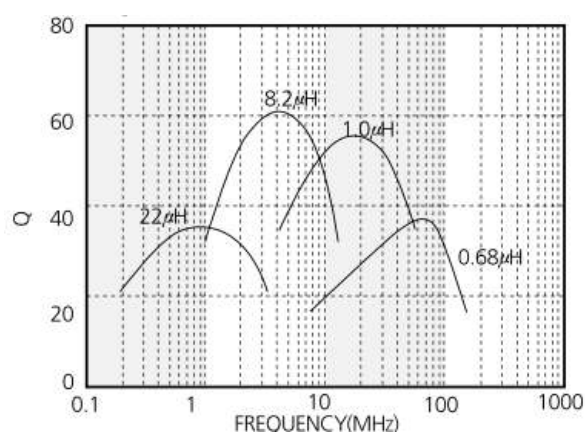
|           |           |              |    |     |    |      |    |
|-----------|-----------|--------------|----|-----|----|------|----|
| CIL10J3R3 | 0.80±0.15 | 3.3±20%,10%  | 35 | 10  | 38 | 1.55 | 15 |
| CIL10J3R9 | 0.80±0.15 | 3.9±20%,10%  | 35 | 10  | 36 | 1.70 | 15 |
| CIL10J4R7 | 0.80±0.15 | 4.7±20%,10%  | 35 | 10  | 33 | 2.10 | 15 |
| CIL10Y5R6 | 0.80±0.15 | 5.6±20%,10%  | 35 | 4   | 22 | 1.55 | 5  |
| CIL10Y6R8 | 0.80±0.15 | 6.8±20%,10%  | 35 | 4   | 20 | 1.70 | 5  |
| CIL10Y8R2 | 0.80±0.15 | 8.2±20%,10%  | 35 | 4   | 18 | 2.10 | 5  |
| CIL10Y100 | 0.80±0.15 | 10.0±20%,10% | 35 | 2   | 17 | 2.55 | 5  |
| CIL10Y120 | 0.80±0.15 | 12.0±20%,10% | 35 | 2   | 15 | 2.75 | 5  |
| CIL10S150 | 0.80±0.15 | 15.0±20%,10% | 20 | 1   | 14 | 1.70 | 1  |
| CIL10S180 | 0.80±0.15 | 18.0±20%,10% | 20 | 1   | 13 | 1.85 | 1  |
| CIL10S220 | 0.80±0.15 | 22.0±20%,10% | 20 | 1   | 11 | 2.10 | 1  |
| CIL10S270 | 0.80±0.15 | 27.0±20%,10% | 20 | 1   | 10 | 2.75 | 1  |
| CIL10S330 | 0.80±0.15 | 33.0±20%,10% | 20 | 0.4 | 9  | 2.95 | 1  |

#### 4.Characteristics data

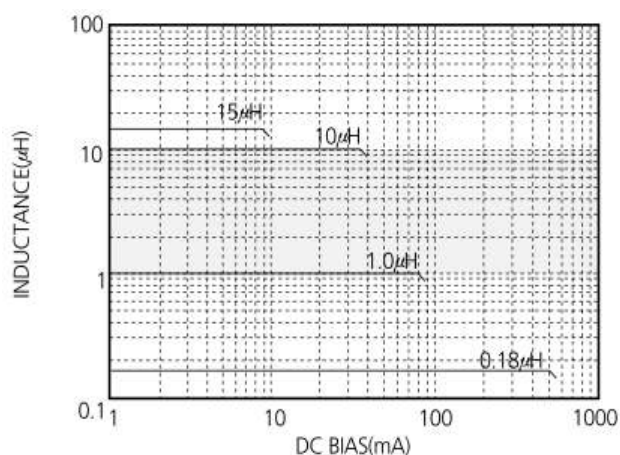
##### (1) Impedance Characteristics



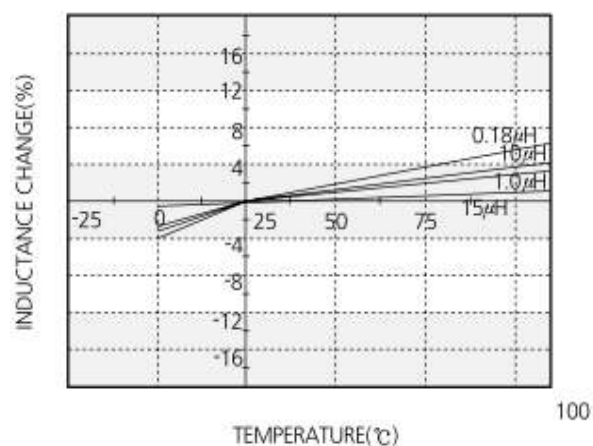
##### (2) Q Characteristics



##### (3) DC Bias Characteristics



##### (4) Temperature Characteristics



■ NOTICE :All specifications are subject to change without previous notice. Please contact with product representatives or engineers to check specifications.