

# Multilayer Chip High Q Inductor – HQ1005C Series

Operating Temp. : -55℃~+125℃



## FEATURES

- Monolithic structure for high reliability
- High self-resonant frequency
- Excellent solderability and high heat resistance
- High Q value correspond to wire wound inductor

## APPLICATIONS

- RF circuit in telecommunication and other Equipments
- Mobile phones such as GSM, CDMA, TD-LTE, FDD-LTE, PDC, 5GNR, etc.
- Bluetooth, W-LAN

## PRODUCT IDENTIFICATION

**HQ**

①

①

| Type |                      |
|------|----------------------|
| HQ   | Chip High Q Inductor |

**1005**

②

**C**

③

②

| External Dimensions (L×W) (mm) |         |
|--------------------------------|---------|
| 1005 [0402]                    | 1.0×0.5 |

**3N9**

④

**S**

⑤

③

| Material Code |   |
|---------------|---|
|               | C |

**T**

⑥

⑥

| Packing |             |
|---------|-------------|
| T       | Tape & Reel |

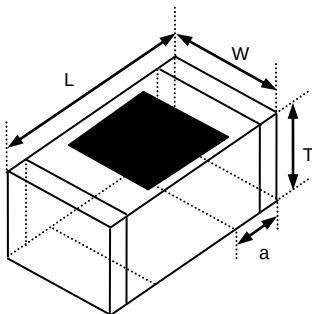
④

| Nominal Inductance |               |
|--------------------|---------------|
| Example            | Nominal Value |
| 3N9                | 3.9nH         |
| 10N                | 10nH          |
| ※N=nH              |               |

⑤

| Inductance Tolerance |        |
|----------------------|--------|
| B                    | ±0.1nH |
| C                    | ±0.2nH |
| S                    | ±0.3nH |
| G                    | ±2%    |
| H                    | ±3%    |
| J                    | ±5%    |

## SHAPE AND DIMENSIONS



Unit: mm [inch]

| Type             | L                         | W                         | T                         | a                         |
|------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| HQ1005<br>[0402] | 1.0±0.15<br>[0.039±0.006] | 0.6±0.15<br>[0.024±0.006] | 0.5±0.15<br>[0.020±0.006] | 0.25±0.1<br>[0.010±0.004] |

## SPECIFICATIONS

### HQ1005 TYPE

| Part Number  | Inductance | Min. Quality Factor | L, Q<br>Test Freq.<br>L/Q | Typical Q @ Freq.<br>(MHz) |     |     |      | Min. Self-resonance Frequency | Max. DC Resistance | Max. Rated Current | Thickness               |
|--------------|------------|---------------------|---------------------------|----------------------------|-----|-----|------|-------------------------------|--------------------|--------------------|-------------------------|
|              |            |                     |                           | 100                        | 250 | 900 | 1800 |                               |                    |                    |                         |
| Units        | nH         | -                   | MHz                       | -                          |     |     |      | MHz                           | $\Omega$           | mA                 | mm [inch]               |
| Symbol       | L          | Q                   | Freq                      | Q                          |     |     |      | S.R.F                         | DCR                | I <sub>r</sub>     | T                       |
| HQ1005C1N0□T | 1.0        | 20                  | 250                       | 13                         | 22  | 48  | 75   | 6000                          | 0.05               | 1000               | 0.5±0.15<br>[.020±.006] |
| HQ1005C1N2□T | 1.2        | 20                  | 250                       | 13                         | 22  | 48  | 75   | 6000                          | 0.05               | 1000               |                         |
| HQ1005C1N5□T | 1.5        | 20                  | 250                       | 13                         | 22  | 58  | 76   | 6000                          | 0.05               | 1000               |                         |
| HQ1005C1N8□T | 1.8        | 20                  | 250                       | 13                         | 22  | 49  | 78   | 6000                          | 0.07               | 800                |                         |
| HQ1005C2N0□T | 2.0        | 20                  | 250                       | 14                         | 23  | 49  | 82   | 6000                          | 0.07               | 800                |                         |
| HQ1005C2N2□T | 2.2        | 20                  | 250                       | 14                         | 23  | 49  | 82   | 6000                          | 0.07               | 800                |                         |
| HQ1005C2N4□T | 2.4        | 20                  | 250                       | 14                         | 23  | 47  | 78   | 6000                          | 0.07               | 800                |                         |
| HQ1005C2N5□T | 2.5        | 20                  | 250                       | 14                         | 23  | 47  | 78   | 6000                          | 0.07               | 800                |                         |
| HQ1005C2N7□T | 2.7        | 20                  | 250                       | 14                         | 23  | 48  | 82   | 6000                          | 0.09               | 700                |                         |
| HQ1005C2N9□T | 2.9        | 20                  | 250                       | 14                         | 23  | 48  | 82   | 6000                          | 0.09               | 700                |                         |
| HQ1005C3N0□T | 3.0        | 20                  | 250                       | 14                         | 23  | 50  | 84   | 6000                          | 0.09               | 700                |                         |
| HQ1005C3N3□T | 3.3        | 20                  | 250                       | 14                         | 24  | 52  | 90   | 6000                          | 0.09               | 700                |                         |
| HQ1005C3N6□T | 3.6        | 20                  | 250                       | 15                         | 24  | 55  | 95   | 6000                          | 0.10               | 700                |                         |
| HQ1005C3N9□T | 3.9        | 20                  | 250                       | 15                         | 25  | 50  | 89   | 6000                          | 0.10               | 700                |                         |
| HQ1005C4N1□T | 4.1        | 20                  | 250                       | 15                         | 25  | 49  | 86   | 6000                          | 0.12               | 650                |                         |
| HQ1005C4N3□T | 4.3        | 20                  | 250                       | 15                         | 25  | 49  | 86   | 6000                          | 0.13               | 600                |                         |
| HQ1005C4N7□T | 4.7        | 20                  | 250                       | 15                         | 26  | 50  | 88   | 6000                          | 0.13               | 600                |                         |
| HQ1005C5N1□T | 5.1        | 20                  | 250                       | 15                         | 26  | 49  | 84   | 5500                          | 0.13               | 600                |                         |
| HQ1005C5N6□T | 5.6        | 20                  | 250                       | 15                         | 27  | 50  | 84   | 5500                          | 0.13               | 600                |                         |
| HQ1005C5N8□T | 5.8        | 20                  | 250                       | 15                         | 27  | 50  | 82   | 5500                          | 0.13               | 600                |                         |
| HQ1005C6N2□T | 6.2        | 20                  | 250                       | 15                         | 27  | 50  | 80   | 5500                          | 0.14               | 550                |                         |
| HQ1005C6N8□T | 6.8        | 22                  | 250                       | 15                         | 27  | 55  | 89   | 5000                          | 0.15               | 550                |                         |
| HQ1005C7N3□T | 7.3        | 22                  | 250                       | 15                         | 27  | 54  | 90   | 5000                          | 0.16               | 550                |                         |
| HQ1005C7N5□T | 7.5        | 22                  | 250                       | 15                         | 27  | 54  | 90   | 5000                          | 0.16               | 550                |                         |
| HQ1005C8N2□T | 8.2        | 22                  | 250                       | 15                         | 27  | 56  | 84   | 5000                          | 0.16               | 550                |                         |
| HQ1005C8N7□T | 8.7        | 22                  | 250                       | 15                         | 27  | 53  | 80   | 5000                          | 0.17               | 500                |                         |
| HQ1005C9N1□T | 9.1        | 22                  | 250                       | 15                         | 27  | 53  | 79   | 4500                          | 0.18               | 500                |                         |
| HQ1005C9N5□T | 9.5        | 22                  | 250                       | 15                         | 27  | 52  | 77   | 4500                          | 0.18               | 500                |                         |
| HQ1005C10N□T | 10         | 22                  | 250                       | 16                         | 29  | 52  | 75   | 4500                          | 0.18               | 500                |                         |
| HQ1005C11N□T | 11         | 22                  | 250                       | 16                         | 28  | 52  | 71   | 4000                          | 0.20               | 500                |                         |
| HQ1005C12N□T | 12         | 22                  | 250                       | 16                         | 29  | 51  | 68   | 4000                          | 0.20               | 500                |                         |
| HQ1005C15N□T | 15         | 22                  | 250                       | 16                         | 29  | 50  | 60   | 4000                          | 0.22               | 430                |                         |

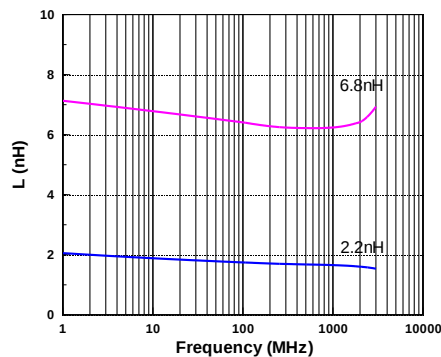
※□: Please specify the inductance tolerance. For  $L \leq 6.2\text{nH}$ , choose  $B=\pm 0.1\text{nH}$  or  $C=\pm 0.2\text{nH}$  or  $S=\pm 0.3\text{nH}$ ; For  $L > 6.2\text{nH}$ , choose  $G=\pm 2\%$  or  $H=\pm 3\%$  or  $J=\pm 5\%$ .

※: Please refer to "Measurement Notice For RF Inductors".

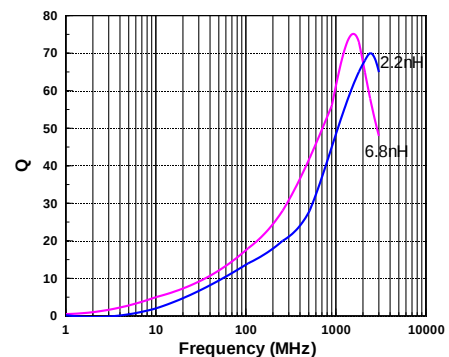
## TYPICAL ELECTRICAL CHARACTERISTICS

### HQ1005 TYPE

#### Inductance vs. Frequency Characteristics



#### Q vs. Frequency Characteristics



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