

# Multilayer Chip Ceramic Inductor – SDCL-D Series

Operating Temp. : -55°C~+125°C



## FEATURES

- Monolithic structure for high reliability
- High self-resonant frequency
- Excellent solderability and high heat resistance

## APPLICATIONS

- RF circuit in telecommunication and other equipments

## PRODUCT IDENTIFICATION

**SDCL**

①

①

| Type |                       |
|------|-----------------------|
| SDCL | Chip Ceramic Inductor |

**1608**

②

**C**

③

| External Dimensions (L×W) (mm) |         |
|--------------------------------|---------|
| 1005 [0402]                    | 1.0×0.5 |
| 1608 [0603]                    | 1.6×0.8 |

**10N**

④

④

| Nominal Inductance      |               |
|-------------------------|---------------|
| Example                 | Nominal Value |
| 3N9                     | 3.9nH         |
| 10N                     | 10nH          |
| R10                     | 100nH         |
| ※R= decimal point, N=nH |               |

**J**

⑤

⑤

| Inductance Tolerance |        |
|----------------------|--------|
| B                    | ±0.1nH |
| C                    | ±0.2nH |
| S                    | ±0.3nH |
| H                    | ±3%    |
| J                    | ±5%    |
| K                    | ±10%   |

**T**

⑥

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

⑥

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

⑦

| Internal Code |  |
|---------------|--|
| D             |  |

⑧

| Hazardous Substance Free Products |  |
|-----------------------------------|--|
| F                                 |  |

## SHAPE AND DIMENSIONS

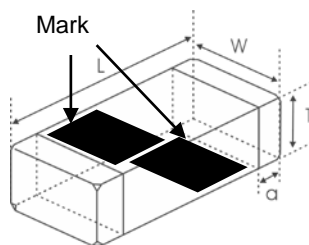


Fig.1

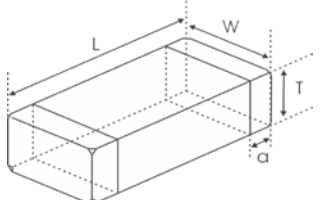


Fig.2

Unit: mm [inch]

| Type               | L                        | W                       | T                       | a                       | ≤10nH | ≥12nH |
|--------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------|-------|
| SDCL1005<br>[0402] | 1.0±0.15<br>[.039±.006]  | 0.5±0.15<br>[.020±.006] | 0.5±0.15<br>[.020±.006] | 0.25±0.1<br>[.010±.004] | Fig.1 | Fig.2 |
| SDCL1608<br>[0603] | 1.6±0.15<br>[.063±.006]  | 0.8±0.15<br>[.031±.006] | 0.8±0.15<br>[.031±.006] | 0.3±0.2<br>[.012±.008]  | Fig.2 | Fig.2 |
|                    | 1.65±0.15<br>[.065±.006] |                         |                         |                         |       |       |

# SPECIFICATIONS

## SDCL1005-D Series

| Part Number      | Inductance | Min. Quality Factor | L,Q Test Freq. L/Q | Typical Q @ Freq. (MHz) |     |      | Min. Self-resonant Frequency | Max. DC Resistance | Max. Rated Current |
|------------------|------------|---------------------|--------------------|-------------------------|-----|------|------------------------------|--------------------|--------------------|
|                  |            |                     |                    | 100                     | 800 | 1000 |                              |                    |                    |
| Units            | nH         | -                   | MHz                | -                       |     |      | MHz                          | $\Omega$           | mA                 |
| Symbol           | L          | Q                   | Freq               | Q                       |     |      | S.R.F                        | DCR                | I <sub>r</sub>     |
| SDCL1005C0N6□TDF | 0.6        | 4                   | 100                | 6                       | 35  | 41   | 10000                        | 0.10               | 800                |
| SDCL1005C1N0□TDF | 1.0        | 8                   | 100                | 11                      | 34  | 36   | 10000                        | 0.10               | 400                |
| SDCL1005C1N1□TDF | 1.1        | 8                   | 100                | 11                      | 34  | 36   | 10000                        | 0.10               | 400                |
| SDCL1005C1N2□TDF | 1.2        | 8                   | 100                | 11                      | 34  | 36   | 10000                        | 0.10               | 400                |
| SDCL1005C1N3□TDF | 1.3        | 8                   | 100                | 11                      | 34  | 36   | 10000                        | 0.10               | 400                |
| SDCL1005C1N5□TDF | 1.5        | 8                   | 100                | 11                      | 34  | 36   | 6000                         | 0.10               | 300                |
| SDCL1005C1N6□TDF | 1.6        | 8                   | 100                | 11                      | 32  | 35   | 6000                         | 0.10               | 300                |
| SDCL1005C1N8□TDF | 1.8        | 8                   | 100                | 11                      | 30  | 34   | 6000                         | 0.10               | 300                |
| SDCL1005C2N0□TDF | 2.0        | 8                   | 100                | 10                      | 29  | 33   | 6000                         | 0.20               | 300                |
| SDCL1005C2N2□TDF | 2.2        | 8                   | 100                | 10                      | 29  | 33   | 6000                         | 0.20               | 300                |
| SDCL1005C2N4□TDF | 2.4        | 8                   | 100                | 10                      | 29  | 32   | 6000                         | 0.20               | 300                |
| SDCL1005C2N7□TDF | 2.7        | 8                   | 100                | 10                      | 29  | 32   | 6000                         | 0.20               | 300                |
| SDCL1005C3N0□TDF | 3.0        | 8                   | 100                | 10                      | 29  | 32   | 6000                         | 0.20               | 300                |
| SDCL1005C3N3□TDF | 3.3        | 8                   | 100                | 10                      | 29  | 32   | 6000                         | 0.20               | 300                |
| SDCL1005C3N6□TDF | 3.6        | 8                   | 100                | 10                      | 28  | 31   | 4000                         | 0.20               | 300                |
| SDCL1005C3N9□TDF | 3.9        | 8                   | 100                | 10                      | 28  | 31   | 4000                         | 0.20               | 300                |
| SDCL1005C4N3□TDF | 4.3        | 8                   | 100                | 10                      | 28  | 31   | 4000                         | 0.20               | 300                |
| SDCL1005C4N7□TDF | 4.7        | 8                   | 100                | 10                      | 28  | 31   | 4000                         | 0.20               | 300                |
| SDCL1005C5N1□TDF | 5.1        | 8                   | 100                | 10                      | 28  | 30   | 4000                         | 0.30               | 300                |
| SDCL1005C5N6□TDF | 5.6        | 8                   | 100                | 10                      | 28  | 30   | 4000                         | 0.30               | 300                |
| SDCL1005C6N2□TDF | 6.2        | 8                   | 100                | 10                      | 27  | 30   | 3900                         | 0.30               | 300                |
| SDCL1005C6N8□TDF | 6.8        | 8                   | 100                | 10                      | 27  | 30   | 3900                         | 0.30               | 300                |
| SDCL1005C7N5□TDF | 7.5        | 8                   | 100                | 10                      | 27  | 30   | 3700                         | 0.40               | 300                |
| SDCL1005C8N2□TDF | 8.2        | 8                   | 100                | 10                      | 27  | 30   | 3600                         | 0.40               | 300                |
| SDCL1005C9N1□TDF | 9.1        | 8                   | 100                | 10                      | 27  | 30   | 3400                         | 0.40               | 300                |
| SDCL1005C10N□TDF | 10         | 8                   | 100                | 10                      | 27  | 30   | 3200                         | 0.40               | 300                |
| SDCL1005C12N□TDF | 12         | 8                   | 100                | 10                      | 26  | 29   | 2700                         | 0.50               | 300                |
| SDCL1005C15N□TDF | 15         | 8                   | 100                | 10                      | 26  | 28   | 2300                         | 0.50               | 300                |
| SDCL1005C18N□TDF | 18         | 8                   | 100                | 10                      | 25  | 27   | 2100                         | 0.60               | 300                |
| SDCL1005C20N□TDF | 20         | 8                   | 100                | 10                      | 25  | 26   | 2000                         | 0.60               | 300                |
| SDCL1005C22N□TDF | 22         | 8                   | 100                | 10                      | 25  | 25   | 1900                         | 0.60               | 300                |
| SDCL1005C27N□TDF | 27         | 8                   | 100                | 10                      | 25  | 23   | 1600                         | 0.70               | 300                |
| SDCL1005C33N□TDF | 33         | 8                   | 100                | 10                      | 22  | 22   | 1300                         | 0.80               | 200                |
| SDCL1005C39N□TDF | 39         | 8                   | 100                | 10                      | 22  | 19   | 1200                         | 1.00               | 200                |
| SDCL1005C43N□TDF | 43         | 8                   | 100                | 10                      | 21  | 16   | 1100                         | 1.10               | 200                |
| SDCL1005C47N□TDF | 47         | 8                   | 100                | 10                      | 21  | 16   | 1000                         | 1.10               | 200                |
| SDCL1005C56N□TDF | 56         | 8                   | 100                | 10                      | 18  | 13   | 750                          | 1.20               | 200                |
| SDCL1005C68N□TDF | 68         | 8                   | 100                | 10                      | 18  | 9    | 750                          | 1.40               | 180                |
| SDCL1005C82N□TDF | 82         | 8                   | 100                | 10                      | 13  | -    | 750                          | 2.40               | 150                |
| SDCL1005CR10□TDF | 100        | 8                   | 100                | 10                      | 12  | -    | 700                          | 2.60               | 150                |
| SDCL1005CR12□TDF | 120        | 8                   | 100                | 10                      | -   | -    | 600                          | 2.80               | 150                |
| SDCL1005CR15□TDF | 150        | 8                   | 100                | 10                      | -   | -    | 550                          | 3.20               | 100                |
| SDCL1005CR18□TDF | 180        | 8                   | 100                | 10                      | -   | -    | 500                          | 3.70               | 100                |
| SDCL1005CR22□TDF | 220        | 8                   | 100                | 12                      | -   | -    | 450                          | 4.00               | 100                |
| SDCL1005CR27□TDF | 270        | 8                   | 100                | 12                      | -   | -    | 400                          | 4.50               | 100                |
| SDCL1005CR30□TDF | 300        | 8                   | 100                | 12                      | -   | -    | 400                          | 4.50               | 100                |
| SDCL1005CR33□TDF | 330        | 6                   | 50                 | 8                       | -   | -    | 350                          | 7.00               | 50                 |
| SDCL1005CR36□TDF | 360        | 6                   | 50                 | 8                       | -   | -    | 300                          | 7.50               | 50                 |

※ □: Please specify the inductance tolerance. For L≤6.2nH, choose B=±0.1nH, C=±0.2nH or S=±0.3nH; For L>6.2nH, choose H=±3%, J=±5% or K=±10%.

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

# SPECIFICATIONS

## SDCL1608-D Series

| Part Number       | Inductance | Min. Quality Factor | L,Q Test Freq. L/Q | Typical Q @ Freq. (MHz) |     |      | Min. Self-resonant Frequency | Max. DC Resistance | Max. Rated Current |
|-------------------|------------|---------------------|--------------------|-------------------------|-----|------|------------------------------|--------------------|--------------------|
|                   |            |                     |                    | 100                     | 800 | 1000 |                              |                    |                    |
| Units             | nH         | -                   | MHz                | -                       |     |      | MHz                          | $\Omega$           | mA                 |
| Symbol            | L          | Q                   | Freq               | Q                       |     |      | S.R.F                        | DCR                | I <sub>r</sub>     |
| SDCL1608C1N0□TDF  | 1.0        | 8                   | 100                | 13                      | 70  | 80   | 10000                        | 0.05               | 500                |
| SDCL1608C1N2□TDF  | 1.2        | 8                   | 100                | 13                      | 60  | 70   | 10000                        | 0.05               | 500                |
| SDCL1608C1N5□TDF  | 1.5        | 8                   | 100                | 13                      | 47  | 68   | 6000                         | 0.10               | 500                |
| SDCL1608C1N8□TDF  | 1.8        | 8                   | 100                | 13                      | 45  | 61   | 6000                         | 0.10               | 500                |
| SDCL1608C2N2□TDF  | 2.2        | 8                   | 100                | 13                      | 45  | 60   | 6000                         | 0.10               | 500                |
| SDCL1608C2N7□TDF  | 2.7        | 10                  | 100                | 13                      | 44  | 55   | 6000                         | 0.12               | 500                |
| SDCL1608C3N3□TDF  | 3.3        | 10                  | 100                | 13                      | 43  | 50   | 6000                         | 0.15               | 500                |
| SDCL1608C3N9□TDF  | 3.9        | 10                  | 100                | 13                      | 43  | 50   | 6000                         | 0.16               | 500                |
| SDCL1608C4N7□TDF  | 4.7        | 10                  | 100                | 13                      | 43  | 50   | 6000                         | 0.20               | 500                |
| SDCL1608C5N6□TDF  | 5.6        | 10                  | 100                | 14                      | 42  | 48   | 5000                         | 0.25               | 500                |
| SDCL1608C6N8□TDF  | 6.8        | 10                  | 100                | 14                      | 43  | 50   | 5000                         | 0.30               | 500                |
| SDCL1608C8N2□TDF  | 8.2        | 10                  | 100                | 14                      | 43  | 48   | 4500                         | 0.35               | 500                |
| SDCL1608C10N□TDF  | 10         | 12                  | 100                | 15                      | 45  | 50   | 3500                         | 0.40               | 300                |
| SDCL1608C12N□TDF  | 12         | 12                  | 100                | 18                      | 48  | 50   | 3000                         | 0.45               | 300                |
| SDCL1608C15N□TDF  | 15         | 12                  | 100                | 18                      | 48  | 50   | 2300                         | 0.50               | 300                |
| SDCL1608C18N□TDF  | 18         | 12                  | 100                | 16                      | 48  | 51   | 2200                         | 0.55               | 300                |
| SDCL1608C22N□TDF  | 22         | 12                  | 100                | 16                      | 45  | 48   | 2000                         | 0.60               | 300                |
| SDCL1608C27N□TDF  | 27         | 12                  | 100                | 16                      | 45  | 45   | 1700                         | 0.65               | 300                |
| SDCL1608C33N□TDF  | 33         | 12                  | 100                | 16                      | 45  | 41   | 1500                         | 0.70               | 300                |
| SDCL1608C39N□TDF  | 39         | 12                  | 100                | 17                      | 40  | 48   | 1400                         | 0.70               | 300                |
| SDCL1608C47N□TDF  | 47         | 12                  | 100                | 17                      | 35  | 35   | 1200                         | 0.70               | 300                |
| SDCL1608C56N□TDF  | 56         | 12                  | 100                | 17                      | 35  | 30   | 1100                         | 0.75               | 300                |
| SDCL1608C68N□TDF  | 68         | 12                  | 100                | 17                      | 30  | 20   | 900                          | 0.85               | 300                |
| SDCL1608C82N□TDF  | 82         | 8                   | 100                | 15                      | 22  | -    | 800                          | 1.00               | 300                |
| SDCL1608CR10□TDF  | 100        | 8                   | 100                | 15                      | 16  | -    | 700                          | 1.20               | 300                |
| SDCL1608CR12□TDF* | 120        | 8                   | 50                 | 15                      | -   | -    | 600                          | 1.40               | 200                |
| SDCL1608CR15□TDF* | 150        | 8                   | 50                 | 15                      | -   | -    | 500                          | 1.60               | 200                |
| SDCL1608CR18□TDF* | 180        | 8                   | 50                 | 15                      | -   | -    | 400                          | 1.90               | 200                |
| SDCL1608CR22□TDF* | 220        | 8                   | 50                 | 15                      | -   | -    | 350                          | 2.40               | 200                |
| SDCL1608CR27□TDF* | 270        | 8                   | 50                 | 16                      | -   | -    | 350                          | 2.60               | 150                |
| SDCL1608CR33□TDF* | 330        | 8                   | 50                 | 16                      | -   | -    | 350                          | 2.80               | 150                |
| SDCL1608CR39□TDF* | 390        | 8                   | 50                 | 16                      | -   | -    | 300                          | 3.20               | 150                |
| SDCL1608CR43□TDF* | 430        | 8                   | 50                 | 16                      | -   | -    | 280                          | 3.40               | 150                |
| SDCL1608CR47□TDF* | 470        | 8                   | 50                 | 15                      | -   | -    | 250                          | 3.60               | 150                |
| SDCL1608CR56□TDF* | 560        | 8                   | 50                 | 15                      | -   | -    | 250                          | 4.00               | 100                |
| SDCL1608CR68□TDF* | 680        | 8                   | 50                 | 15                      | -   | -    | 250                          | 4.50               | 100                |

※ □: Please specify the inductance tolerance. For  $L \leq 6.2\text{nH}$ , choose  $B = \pm 0.1\text{nH}$ ,  $C = \pm 0.2\text{nH}$  or  $S = \pm 0.3\text{nH}$ ; For  $L > 6.2\text{nH}$ , choose  $H = \pm 3\%$ ,  $J = \pm 5\%$  or  $K = \pm 10\%$ .

※ \*: The length:  $1.65 \pm 0.15\text{mm}$ , for others:  $1.60 \pm 0.15\text{mm}$

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

# TYPICAL ELECTRICAL CHARACTERISTICS

## SDCL1005-D Series

### Inductance vs. Frequency Characteristics



### Q vs. Frequency Characteristics



## SDCL1608-D Series

### Inductance vs. Frequency Characteristics



### Q vs. Frequency Characteristics



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