

YAGEO CORPORATION

Lead-Free & RoHs Compliance!!

SPECIFICATION FOR APPROVAL

CUSTOMER : _____
CUSTOMER P/N : _____
OUR DWG No : _____
QUANTITY : _____ Pcs. DATE : 2010/01/18
ITEM : SCD0403T-220M-N

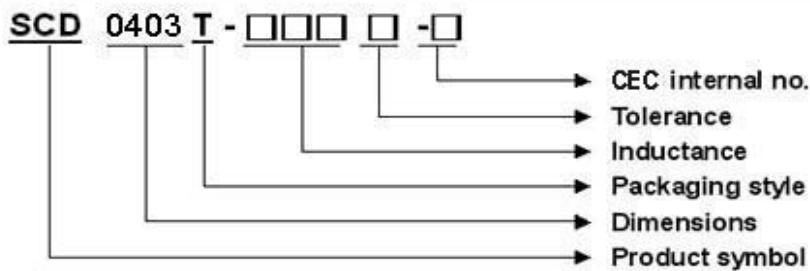
| SPECIFICATION ACCEPTED BY: | |
|-------------------------------|--|
| COMPONENT ENGINEER | |
| ELECTRICAL ENGINEER | |
| MECHANICAL ENGINEER | |
| APPROVED | |
| REJECTED | |

| | | |
|-------------------|--------------------|---------------------|
| DRAWN BY Laura | CHECKED BY Ling | APPROVED BY Eric |
|-------------------|--------------------|---------------------|

SCD0403T Series Specification

1 Scope: This specification applies to SMD POWER CHOKE

2 Part Numbering: Product Identification

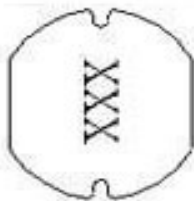


3 Rating:

Operating Temperature: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$

Storage Temperature: Under 25°C , **Humidity** < 75% RH

4 Marking:



Ex : SCD□□□□T-100M-N

Marking : 100

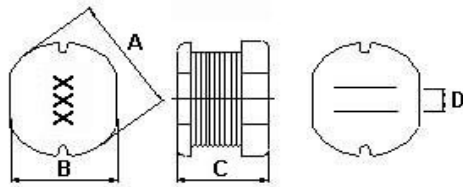
Marking color : Black

5 Standard Testing Condition

| | Unless otherwise specified | In case of doubt |
|-------------|----------------------------------|------------------|
| Temperature | Ordinary Temperature(15 to 35°C) | 20±2°C |
| Humidity | Ordinary Humidity(25 to 85% RH) | 60 to 70 % RH |

SCD0403T Series Specification

6 Configuration and Dimensions:



Dimensions in mm

| TYPE | SCD0403 |
|------|---------|
| A | 4.5±0.3 |
| B | 4.0±0.3 |
| C | 3.2±0.3 |
| D | 1.2 |

7 ELECTRICAL CHARACTERISTICS :

| Part No. | Inductance (uH) | Test Freq. | RDC (Ω)Max. | IDC (A) | Tolerance (±%) |
|-----------------|-----------------|--------------|-------------|---------|----------------|
| SCD0403T-1R0□-N | 1 | 7.96 MHz,1 V | 0.033 | 3.8 | 10,15,20 |
| SCD0403T-1R2□-N | 1.2 | 7.96 MHz,1 V | 0.035 | 3.5 | 20 |
| SCD0403T-1R4□-N | 1.4 | 7.96 MHz,1 V | 0.038 | 3.3 | 20 |
| SCD0403T-1R8□-N | 1.8 | 7.96 MHz,1 V | 0.042 | 2.91 | 20 |
| SCD0403T-2R2□-N | 2.2 | 7.96 MHz,1 V | 0.047 | 2.6 | 10,15,20 |
| SCD0403T-2R7□-N | 2.7 | 7.96 MHz,1 V | 0.052 | 2.43 | 20 |
| SCD0403T-3R3□-N | 3.3 | 7.96 MHz,1 V | 0.058 | 2.15 | 20 |
| SCD0403T-3R9□-N | 3.9 | 7.96 MHz,1 V | 0.076 | 1.98 | 20 |
| SCD0403T-4R7□-N | 4.7 | 7.96 MHz,1 V | 0.094 | 1.7 | 10,15,20 |
| SCD0403T-5R6□-N | 5.6 | 7.96 MHz,1 V | 0.101 | 1.6 | 10,15,20 |
| SCD0403T-6R2□-N | 6.2 | 7.96 MHz,1 V | 0.11 | 1.5 | 20 |
| SCD0403T-6R8□-N | 6.8 | 7.96 MHz,1 V | 0.117 | 1.41 | 10,15,20 |
| SCD0403T-8R2□-N | 8.2 | 7.96 MHz,1 V | 0.132 | 1.26 | 10,15,20 |
| SCD0403T-100□-N | 10 | 2.52 MHz,1 V | 0.182 | 1.15 | 10,15,20 |
| SCD0403T-120□-N | 12 | 2.52 MHz,1 V | 0.21 | 1.05 | 20 |
| SCD0403T-150□-N | 15 | 2.52 MHz,1 V | 0.235 | 0.92 | 10,15,20 |
| SCD0403T-180□-N | 18 | 2.52 MHz,1 V | 0.338 | 0.84 | 20 |
| SCD0403T-220□-N | 22 | 2.52 MHz,1 V | 0.378 | 0.76 | 10,15,20 |
| SCD0403T-270□-N | 27 | 2.52 MHz,1 V | 0.522 | 0.71 | 20 |
| SCD0403T-330□-N | 33 | 2.52 MHz,1 V | 0.54 | 0.64 | 10,15,20 |
| SCD0403T-390□-N | 39 | 2.52 MHz,1 V | 0.587 | 0.59 | 10,15,20 |
| SCD0403T-470□-N | 47 | 2.52 MHz,1 V | 0.844 | 0.54 | 10,15,20 |
| SCD0403T-560□-N | 56 | 2.52 MHz,1 V | 0.937 | 0.5 | 10,15,20 |
| SCD0403T-680□-N | 68 | 2.52 MHz,1 V | 1.117 | 0.46 | 10,15,20 |
| SCD0403T-101□-N | 100 | 1KHz,1 V | 2 | 0.4 | 10,15,20 |

NOTE: □-tolerance K=±10% / =±15% / M=±20%

1. Operating temperature range – 4 0 °C ~ 8 5 °C

2. This indicates the value of current when the inductance is 10% lower than its initial value at

D.C superposition of D.C current when at Δt=40°C whichever is lower.

"-N" FOR COMPLETELY LEAD FREE TYPE(INCLUDING FERRITE BODY & SOLDER)

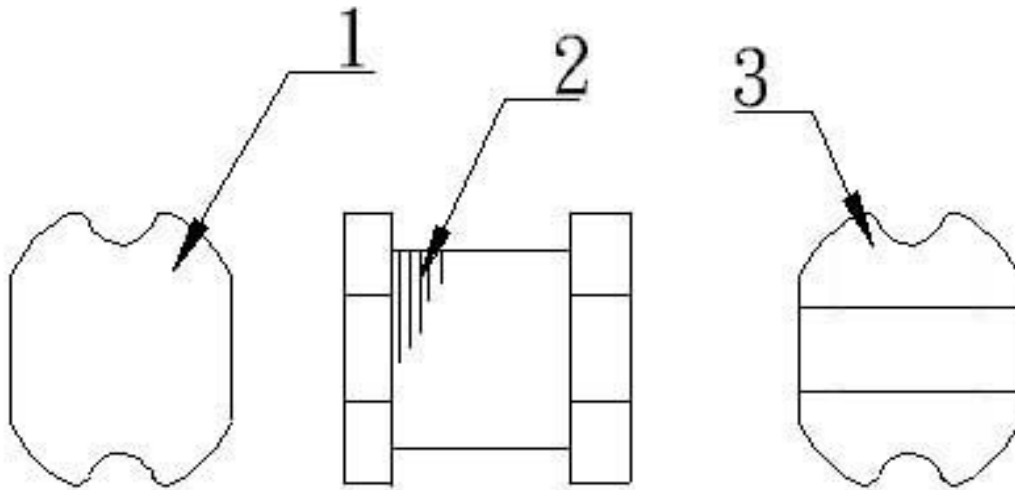
SCD0403T Series Specification

| Part No. | Inductance (μ H) | Test Freq. | RDC (Ω)Max. | IDC (A) | Tolerance (\pm %) |
|-----------------|--------------------------|------------|-------------------------|------------|-------------------------|
| SCD0403T-121□-N | 120 | 1KHz,1 V | 1.8 | 0.38 | 10,15,20 |
| SCD0403T-151□-N | 150 | 1KHz,1 V | 2.8 | 0.3 | 10,15,20 |
| SCD0403T-181□-N | 180 | 1KHz,1 V | 3.2 | 0.25 | 10,15,20 |
| SCD0403T-221□-N | 220 | 1KHz,1 V | 4 | 0.15 | 10,15,20 |
| SCD0403T-331□-N | 330 | 1 KHz,1 V | 5.85 | 0.21 | 10,15,20 |

SCD0403T Series Specification

8 SCD0403T Series

8.1 Construction:



8.2 Material List:

| ITEM | PART | DESCRIPTION | SUPPLIES |
|------|----------|----------------|----------|
| 1 | CORE | FERRITE | CHILISIN |
| 2 | WIRE | MAGNET WIRE | |
| 3 | TERMINAL | Sn/Ag3.0/Cu0.5 | Dyfenco |

SCD0403T Series Specification

9 Reliability Of Ferrite Wire Wound Power Inductor

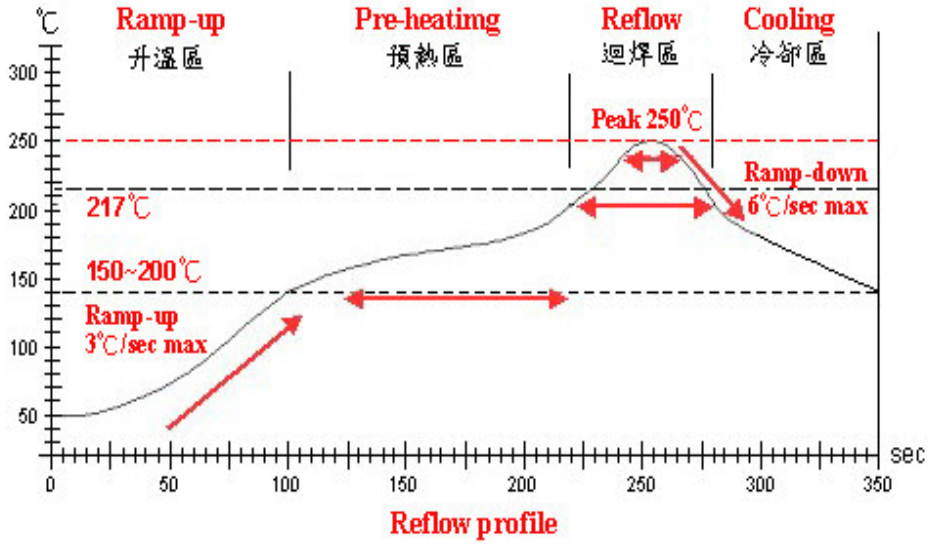
1-1.Mechanical Performance

| No | Item | Specification | Test Method |
|-------|------------------------------|---|---|
| 1-1-1 | Vibration | Appearance: No damage Inductance: within $\pm 10\%$ of initial value | Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs |
| 1-1-2 | Resistance to Soldering Heat | Appearance: No damage | Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 \pm 5°C Immersion Time: 10 \pm 1sec |
| 1-1-3 | Solder ability | The electrodes shall be at least 90% covered with new solder coating | Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245 \pm 5°C Immersion Time: 4 \pm 1sec |
| 1-1-4 | Resistance to solvent | There must be no change in appearance or obliteration of marking. | Inductors must withstand 6 minutes of alcohol or water. |

1-2.Environmental Performance

| No | Item | Specification | Test Method | | | | | | | | | | | | | | | |
|-------|---------------------|---|---|------|------------------|------------|---|-------------|----|---|------------|---|---|------------|----|---|------------|---|
| 1-2-1 | Temperature Shock | Appearance: No damage Inductance: within $\pm 10\%$ of initial value | 10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to -55 °C 30 minutes exposure to 125 °C 15 seconds maximum transition between temperatures | | | | | | | | | | | | | | | |
| 1-2-2 | Temperature Cycle | | One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25\pm3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25\pm2</td> <td>3</td> </tr> <tr> <td>3</td> <td>85\pm3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25\pm2</td> <td>3</td> </tr> </tbody> </table> | Step | Temperature (°C) | Time (min) | 1 | -25 \pm 3 | 30 | 2 | 25 \pm 2 | 3 | 3 | 85 \pm 3 | 30 | 4 | 25 \pm 2 | 3 |
| Step | Temperature (°C) | Time (min) | | | | | | | | | | | | | | | | |
| 1 | -25 \pm 3 | 30 | | | | | | | | | | | | | | | | |
| 2 | 25 \pm 2 | 3 | | | | | | | | | | | | | | | | |
| 3 | 85 \pm 3 | 30 | | | | | | | | | | | | | | | | |
| 4 | 25 \pm 2 | 3 | | | | | | | | | | | | | | | | |
| 1-2-3 | Humidity Resistance | | Temperature: 40 \pm 2°C Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | |
| 1-2-4 | Heat Life | | Temperature: 85 \pm 3°C Relative Humidity: 20% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | |
| 1-2-5 | Cold Resistance | | Temperature: -25 \pm 3°C Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | |

SCD0403T Series Specification



Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

| 管制項目 Item. | 升温區 Ramp-up | 預熱區 Pre-heating | 迴焊區 Reflow | Peak Temp | 冷卻區 Cooling |
|---------------------|----------------|--------------------|---------------|-------------|--------------------|
| 溫度範圍 Temp.scope | R.T. ~ 150°C | 150°C ~ 200°C | 217°C | 250±5°C | Peak Temp. ~ 150°C |
| 標準時間 Time spec. | — | 60 ~ 180 sec | 60 ~ 150sec | 20 ~ 40 sec | — |
| 實際時間 Time result | — | 60 ~ 95sec | 75 ~ 95 sec | 20 ~ 35 sec | — |

SCD0403T Series Specification

10 TEST DATA FOR PREPRODUCTION SAMPLES

QF-1419

DESCRIPTION: SCD0403T-220M-N

| MEAS. Item | L (uH) | RDC (Ω) | IDC (A) | A m/m | B m/m | C m/m | | | | | |
|------------|---------------|------------------|---------|-------|---------|-------|---------|--|--|--|--|
| Spec | Customer | 22±20% | | | | | | | | | |
| | Suggest | | 0.378+0 | 0.76 | 4.5±0.3 | 4±0.3 | 3.2±0.3 | | | | |
| Test Freq. | 2.52MHz 1V | | | | | | | | | | |
| 1 | 22.2 | 0.288 | OK | 4.39 | 4.18 | 3.27 | | | | | |
| 2 | 22.7 | 0.296 | OK | 4.42 | 4.15 | 3.23 | | | | | |
| 3 | 22.8 | 0.286 | OK | 4.39 | 4.12 | 3.35 | | | | | |
| 4 | 22.3 | 0.291 | OK | 4.5 | 4.18 | 3.28 | | | | | |
| 5 | 22.4 | 0.295 | OK | 4.56 | 4.08 | 3.22 | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | | |
| X | 22.48 | 0.2912 | | 4.452 | 4.142 | 3.27 | | | | | |
| R | 0.6 | 0.01 | | 0.17 | 0.1 | 0.13 | | | | | |
| CUSTOMER | | | | | | | | | | | |
| SAMPLE | | | | | | | | | | | |

TEST INSTRUMENT:

L:HP4192A / HP4285A
 RDC:CHEN HWA 502
 IDC: HP4284A+HP42841A

APPEARANCE AND DIMENSIONS :

SPEC : MEET ITEM 6.
 TEST METHOD : VISUAL INSPECTION AND MEASURED WITH SILDE CALIPERS.

TESTING CONDITIONS :

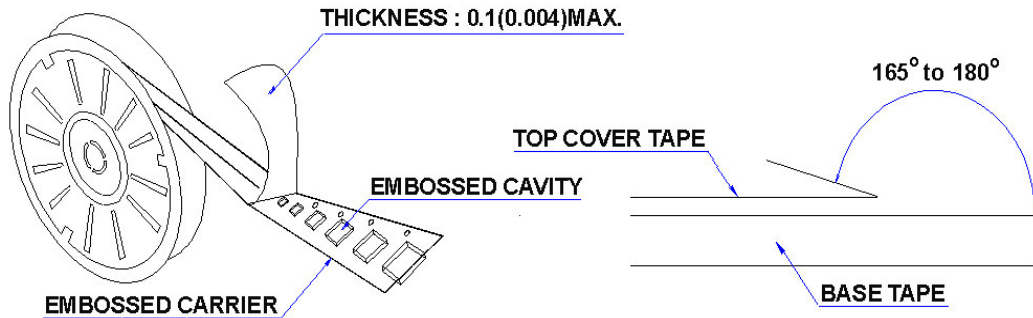
| | Unless otherwise specified | In case of doubt |
|-------------|-----------------------------------|------------------|
| Temperature | Ordinary Temperature (15 to 35°C) | 20 ± 2 °C |
| Humidity | Ordinary Humidity (25 to 85 %RH) | 60 to 70 %RH |

SCD0403T Series Specification

11 PACKAGING

11.1 Packaging -Cover tape

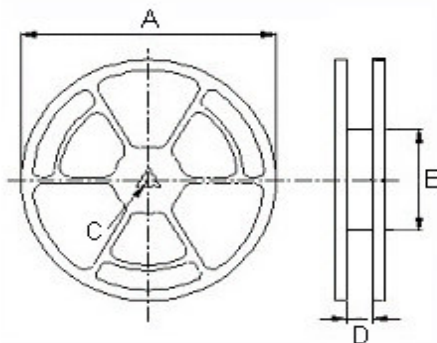
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



11.2 Packaging Quantity

| TYPE | BULK | PCS/REEL |
|---------|------|----------|
| SCD0403 | ✓ | 2000 |
| SCD0504 | ✓ | 1500 |
| SCD0703 | ✓ | 1000 |
| SCD0705 | ✓ | 700 |
| SCD1004 | ✓ | 700 |
| SCD1005 | ✓ | 700 |

11.3 Reel Dimensions



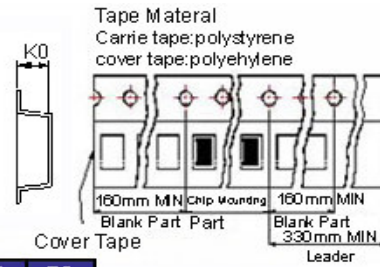
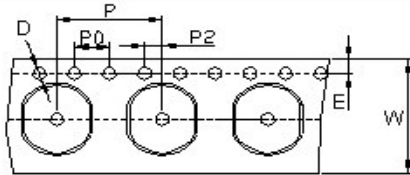
Reel Dimension : m/m

| TYPE | A | B | C | D |
|---------|-----|-----|----|------|
| SCD0403 | 330 | 100 | 13 | 13.4 |
| SCD0504 | 330 | 100 | 13 | 17.4 |
| SCD0703 | 330 | 100 | 13 | 17.4 |
| SCD0705 | 330 | 100 | 13 | 17.4 |
| SCD1004 | 330 | 100 | 13 | 24.4 |
| SCD1005 | 330 | 100 | 13 | 24.4 |

SCD0403T Series Specification

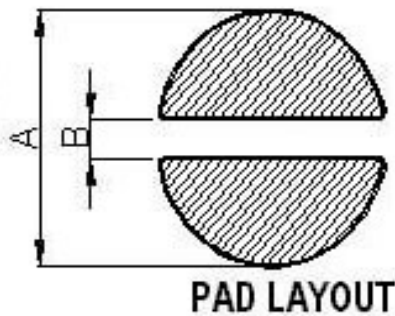
11 PACKAGING

11.4 Tape Dimensions in mm



| TYPE | K0 | D | E | W | P | P0 | P2 |
|---------|------|------|------|----|----|----|----|
| SCD0403 | 3.10 | 1.55 | 1.75 | 12 | 8 | 4 | 2 |
| SCD0504 | 4.80 | 1.55 | 1.75 | 16 | 8 | 4 | 2 |
| SCD0703 | 3.80 | 1.55 | 1.75 | 16 | 12 | 4 | 2 |
| SCD0705 | 5.20 | 1.55 | 1.75 | 16 | 12 | 4 | 2 |
| SCD1004 | 5.80 | 1.55 | 1.75 | 24 | 12 | 4 | 2 |
| SCD1005 | 5.80 | 1.55 | 1.75 | 24 | 12 | 4 | 2 |

12 Recommended Pattern



Dimensions in mm

| TYPE | A(in/mm) | B(in/mm) |
|---------|-----------|-----------|
| SCD0403 | 0.22/5.5 | 0.047/1.2 |
| SCD0504 | 0.268/6.8 | 0.051/1.3 |
| SCD0703 | 0.346/8.8 | 0.083/2.1 |
| SCD0705 | 0.346/8.8 | 0.083/2.1 |
| SCD1004 | 0.433/11 | 0.083/2.1 |
| SCD1005 | 0.433/11 | 0.083/2.1 |

13 Note:

1. Please make sure that your product is has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)

SCD0403T Series Specification

14 Curve:

