PSA 佳邦科技股份有限公司
INPAQ TECHNOLOGY CO., LTD.

# WCA2520CP Series
# Data Sheet

| | |
|---|---|
| Product Name | WCA2520CP Series |
| Series | Chip Inductor |
| Size | EIAJ 2520 |
| Version | A0 |

1. SCOPE

1.1. Ceramic core wire wound construction.

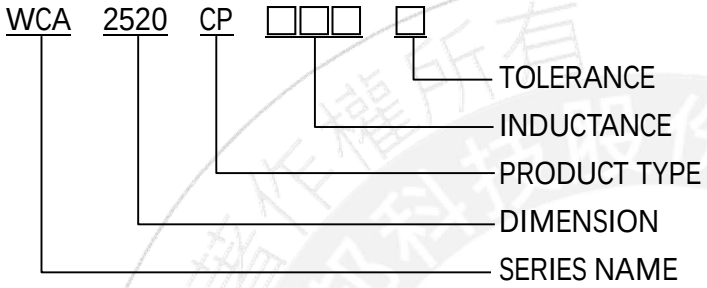
1.2. Wide range of inductance can be selected.

1.3. Inductance values from 10 to 15000 nH.

1.4. Exceptional Q and high SRF special for high frequency applications.

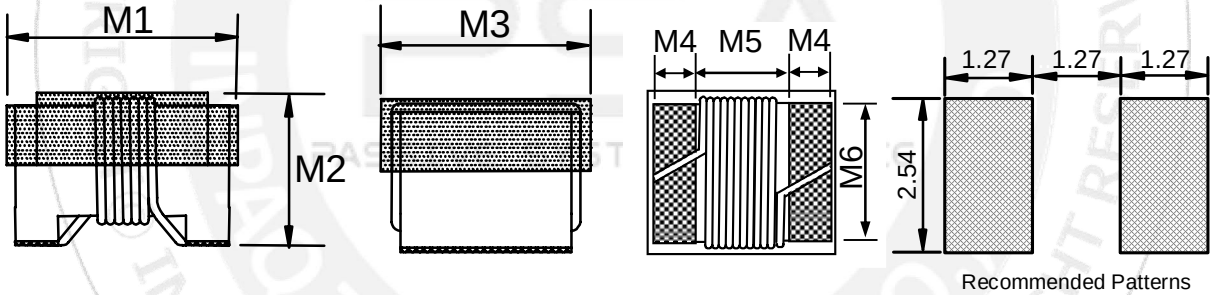
1.5. High reliability tests comply with AEC-Q200.

2. PART NUMBER IDENTIFICATION




3. MECHANICAL DIMENSION

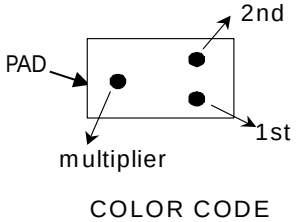
UNIT:mm




Recommended Patterns

| Series | M1 | M2 | | M3 | M4 | M5 | M6 |
|---|---|---|---|---|---|---|---|
| WCA2520CP | 2.92 MAX. | 5N6~R91 | 2.02 MAX. | 2.79 MAX. | 0.50±0.1 | 1.43±0.1 | 2.00±0.1 |
| | | 1R0~150 | 2.10 MAX. | | | | |

4. MARKING




COLOR CODE

Marking Direction: PAD on the left and right sides, color code 1st and 2nd on the right, color code 3 multiplier on the left.

Example: WCA2520CP10N□

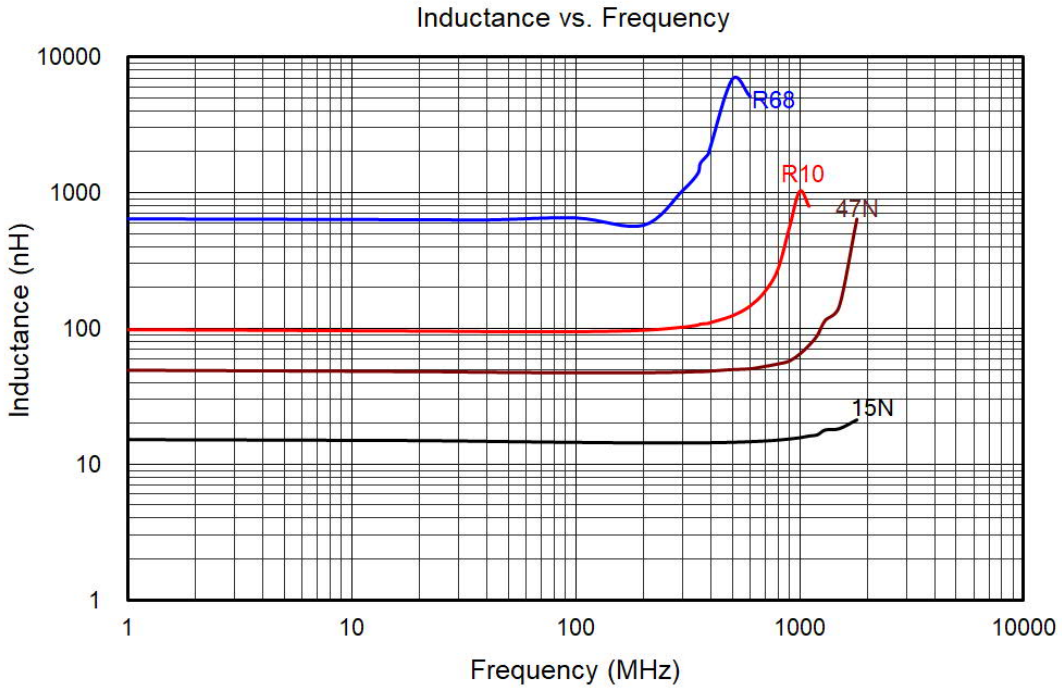
MARKING: Dots 1st and 2nd indicate the inductance in nano Henries.
(DOTS 1st: BROWN，DOTS 2nd: BLACK)
Dots 3 indicates number of zeroes to be added.
(DOTS 3multiplier: BLACK)

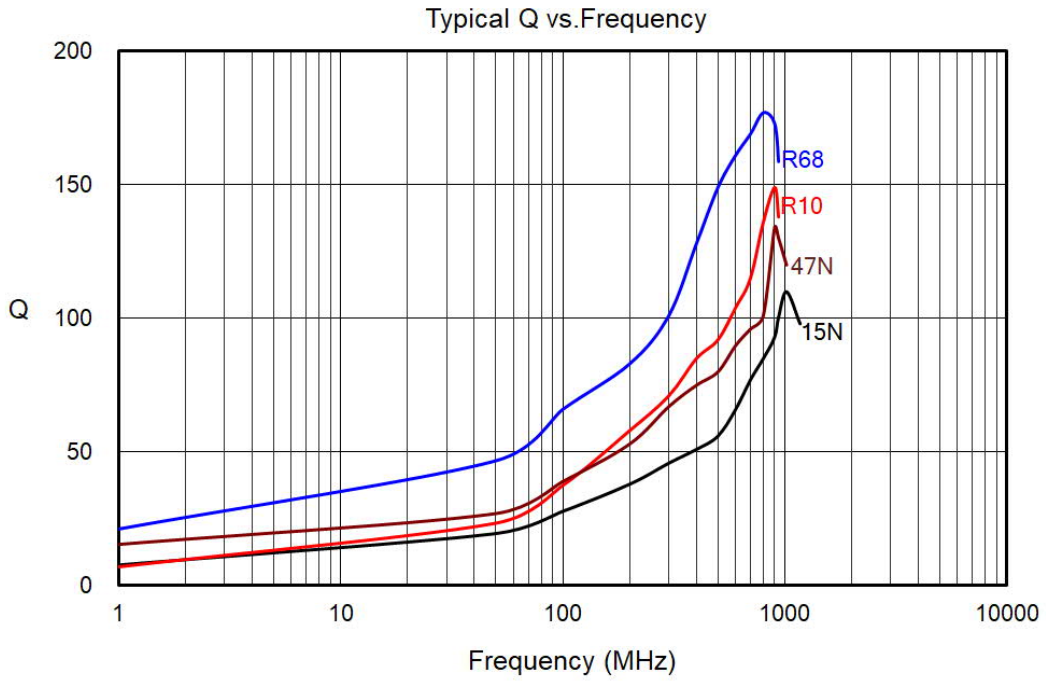
MARK COLOR CODE IN COMPOSITE ELECTRICAL SPECIFICATION.

## 5. ELECTRICAL SPECIFICATION

| Part number | Inductance (nH) | Test Frequency (MHz) | Inductance Tolerance | Q MIN. | Test Frequency (MHz) | SRF (MHz) MIN. | DC Resistance (Ω) MAX. | Irms (mA) | COLOR CODE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1st | 2nd | multiplier |
| WCA2520CP10N□ | 10 | 50 | K, J | 50 | 500 | 4100 | 0.08 | 1000 | Brown | Black | Black |
| WCA2520CP12N□ | 12 | 50 | K, J | 50 | 500 | 3300 | 0.09 | 1000 | Brown | Red | Black |
| WCA2520CP15N□ | 15 | 50 | K, J | 50 | 500 | 2500 | 0.10 | 1000 | Brown | Green | Black |
| WCA2520CP18N□ | 18 | 50 | K , J , G | 50 | 350 | 2500 | 0.11 | 1000 | Brown | Gray | Black |
| WCA2520CP22N□ | 22 | 50 | K , J , G | 55 | 350 | 2400 | 0.12 | 1000 | Red | Red | Black |
| WCA2520CP24N□ | 24 | 50 | K , J , G | 50 | 350 | 1900 | 0.13 | 1000 | Red | Yellow | Black |
| WCA2520CP27N□ | 27 | 50 | K , J , G | 55 | 350 | 1600 | 0.13 | 1000 | Red | Violet | Black |
| WCA2520CP33N□ | 33 | 50 | K , J , G | 60 | 350 | 1600 | 0.14 | 1000 | Orange | Orange | Black |
| WCA2520CP36N□ | 36 | 50 | K , J , G | 60 | 350 | 1600 | 0.15 | 1000 | Orange | Blue | Black |
| WCA2520CP39N□ | 39 | 50 | K , J , G | 60 | 350 | 1500 | 0.15 | 1000 | Orange | White | Black |
| WCA2520CP47N□ | 47 | 50 | K , J , G | 65 | 350 | 1500 | 0.16 | 1000 | Yellow | Violet | Black |
| WCA2520CP56N□ | 56 | 50 | K , J , G | 65 | 350 | 1300 | 0.18 | 1000 | Green | Blue | Black |
| WCA2520CP68N□ | 68 | 50 | K , J , G | 65 | 350 | 1300 | 0.20 | 1000 | Blue | Gray | Black |
| WCA2520CP82N□ | 82 | 50 | K , J , G | 60 | 350 | 1000 | 0.22 | 1000 | Gray | Red | Black |
| WCA2520CPR10□ | 100 | 25 | K , J , G | 60 | 350 | 1000 | 0.56 | 800 | Brown | Black | Brown |
| WCA2520CPR12□ | 120 | 25 | K , J , G | 60 | 350 | 950 | 0.63 | 800 | Brown | Red | Brown |
| WCA2520CPR15□ | 150 | 25 | K , J , G | 45 | 100 | 850 | 0.70 | 800 | Brown | Green | Brown |
| WCA2520CPR18□ | 180 | 25 | K , J , G | 45 | 100 | 750 | 0.77 | 750 | Brown | Gray | Brown |
| WCA2520CPR20□ | 200 | 25 | K , J , G | 50 | 100 | 750 | 0.81 | 500 | Red | Black | Brown |
| WCA2520CPR22□ | 220 | 25 | K , J , G | 45 | 100 | 700 | 0.84 | 720 | Red | Red | Brown |
| WCA2520CPR24□ | 240 | 25 | K , J , G | 50 | 100 | 650 | 0.84 | 500 | Red | Yellow | Brown |
| WCA2520CPR27□ | 270 | 25 | K , J , G | 45 | 100 | 600 | 0.91 | 690 | Red | Violet | Brown |
| WCA2520CPR30□ | 300 | 25 | K , J , G | 45 | 100 | 500 | 1.05 | 660 | Orange | Black | Brown |
| WCA2520CPR33□ | 330 | 25 | K , J , G | 45 | 100 | 570 | 1.05 | 660 | Orange | Orange | Brown |
| WCA2520CPR36□ | 360 | 25 | K , J , G | 45 | 100 | 530 | 1.05 | 660 | Orange | Blue | Brown |
| WCA2520CPR39□ | 390 | 25 | K , J , G | 45 | 100 | 500 | 1.12 | 630 | Orange | White | Brown |
| WCA2520CPR43□ | 430 | 25 | K , J , G | 45 | 100 | 480 | 1.19 | 600 | Yellow | Orange | Brown |
| WCA2520CPR47□ | 470 | 25 | K , J , G | 45 | 100 | 450 | 1.19 | 600 | Yellow | Violet | Brown |
| WCA2520CPR56□ | 560 | 25 | K , J , G | 45 | 100 | 415 | 1.33 | 580 | Green | Blue | Brown |
| WCA2520CPR62□ | 620 | 25 | K , J , G | 45 | 100 | 375 | 1.40 | 560 | Blue | Red | Brown |
| WCA2520CPR68□ | 680 | 25 | K , J , G | 45 | 100 | 375 | 1.47 | 540 | Blue | Gray | Brown |
| WCA2520CPR75□ | 750 | 25 | K , J , G | 45 | 100 | 360 | 1.54 | 520 | Violet | Green | Brown |
| WCA2520CPR82□ | 820 | 25 | K , J , G | 45 | 100 | 350 | 1.61 | 500 | Gray | Red | Brown |
| WCA2520CPR91□ | 910 | 25 | K , J , G | 35 | 50 | 320 | 1.68 | 480 | White | Brown | Brown |
| WCA2520CP1R0□ | 1000 | 25 | K , J , G | 35 | 50 | 290 | 1.75 | 460 | Brown | Black | Red |
| WCA2520CP1R2□ | 1200 | 7.9 | K , J , G | 35 | 50 | 250 | 2.0 | 310 | Brown | Red | Red |
| WCA2520CP1R5□ | 1500 | 7.9 | K , J , G | 28 | 50 | 200 | 2.3 | 330 | Brown | Green | Red |
| WCA2520CP1R8□ | 1800 | 7.9 | K , J , G | 28 | 50 | 160 | 2.6 | 300 | Brown | Gray | Red |
| WCA2520CP2R0□ | 2000 | 7.9 | K , J , G | 25 | 50 | 160 | 2.8 | 280 | Red | Black | Red |
| WCA2520CP2R2□ | 2200 | 7.9 | K , J , G | 28 | 50 | 160 | 2.8 | 280 | Red | Red | Red |
| WCA2520CP2R7□ | 2700 | 7.9 | K , J , G | 22 | 25 | 140 | 3.2 | 290 | Red | Violet | Red |
| WCA2520CP3R3□ | 3300 | 7.9 | K , J , G | 22 | 25 | 110 | 3.4 | 290 | Orange | Orange | Red |
| WCA2520CP3R9□ | 3900 | 7.9 | K , J , G | 20 | 25 | 100 | 3.6 | 260 | Orange | White | Red |
| WCA2520CP4R7□ | 4700 | 7.9 | K , J , G | 20 | 25 | 90 | 4.0 | 260 | Yellow | Violet | Red |
| WCA2520CP5R6□ | 5600 | 7.9 | K,J | 16 | 7.96 | 20 | 4.5 | 240 | Green | Blue | Red |
| WCA2520CP8R2□ | 8200 | 7.9 | K , J , G | 15 | 7.96 | 25 | 6.0 | 170 | Gary | Red | Red |
| WCA2520CP100□ | 10000 | 2.52 | K , J | 15 | 7.96 | 20 | 9.0 | 150 | Brown | Black | Orange |
| WCA2520CP120□ | 12000 | 2.52 | K , J | 15 | 7.96 | 18 | 10.5 | 130 | Brown | Red | Orange |
| WCA2520CP150□ | 15000 | 2.52 | K , J | 15 | 7.96 | 15 | 11.5 | 120 | Brown | Green | Orange |

## 6. ELECTRICAL CURVE

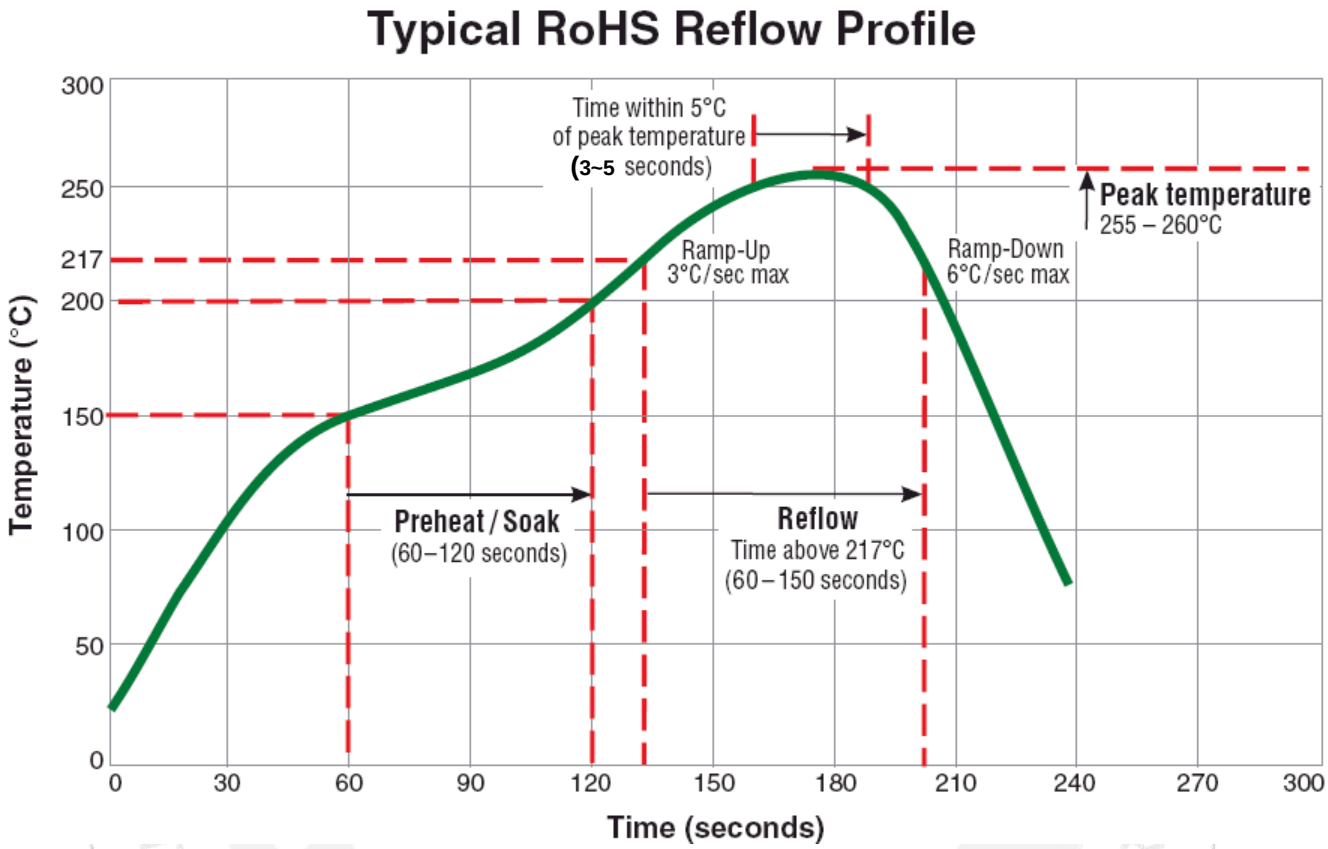


## 7. RELIABILITY PERFORMANCE

| Test Item | Accept criteria | Test Condition | Standard Source |
|---|---|---|---|
| High Temperature Exposure (Storage) | 1.Change from an initial value L:within±5%<br>2.no visible damage. | 1000 hrs. at rated operating temperature (e.g. 125°C part can be stored for 1000 hrs. @ 125°C. Same applies for 105°C and 85°C. Unpowered. Measurement at 24±4 hours after test conclusion. | AEC-Q200 RevD Table 5 |
| Temperature Cycling | 1.Change from an initial value L:within±5%<br>2.no visible damage. | 1000 cycles (-40°C to +125°C). Note: If 85°C part or 105°C part the 1000 cycles will be at that temperature. Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time. | AEC-Q200 RevD Table 5 |
| Biased Humidity | 1.Change from an initial value L:within±5%<br>2.no visible damage. | 1000 hours 85°C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion. | AEC-Q200 RevD Table 5 |
| Operational Life | 1.Change from an initial value L:within±5%<br>2.no visible damage. | 1000 hrs. @ 105°C. If 85°C or 125°C part will be tested at that temperature. Measurement at 24±4 hours after test conclusion. | AEC-Q200 RevD Table 5 |
| Mechanical Shock | 1.Change from an initial value L:within±5%<br>2.no visible damage. | Peak Value: 100g's, Duration: 6ms, Waveform: Half-sine Velocity Change: 12.3ft/sec. | MIL-STD-202 Method 213 Condition C |
| Vibration | 1.Change from an initial value L:within±5%<br>2.no visible damage. | 5g's for 20 minutes, 12 cycles each of 3 orientations.<br>Note: Use 8"X5" PCB, .031" thick, 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz. | AEC-Q200 RevD Table 5 |
| Resistance to Soldering Heat | 1.no visible damage. | Condition K: Reflow temp:250±5℃,<br>Peak time: 30±5sec, Temp ramp: 1°C/s-4°C/s;<br>time above 183°C, 90 s - 120 s, Cycles: 3. | MIL-STD-202 Method 210 |
| ESD | 1.Change from an initial value L:within±5%<br>2.no visible damage. | Passive Component Human Body Model (HBM) direct contact discharge 8KV. | AEC-Q200-002 Or ISO/DIS10605 |
| Solder ability | 1. Lead must have 95% above coverage. | SMD: a) Method B, 4hrs@155℃ dry heat, @235℃ | AEC-Q200 RevD Table 5 |
| Flammability | 1.Meet UL-94 V0 or V1 request | V-0 or V-1 Acceptable. | UL-94 |
| Board Flex | 1.Change from an initial value L:within±5%<br>2.no visible damage. | 100mmX40mm board mechanical means to apply a force which will bend the board (D) x = 2 mm minimum, applied forces shall be 60 (+ 5) Sec. | AEC-Q200-005 |
| Terminal Strenh (SMD) | 1.Component can't drop<br>2.no visible damage. | 1.8Kg force, applied for 60 second. | AEC-Q200-006 |

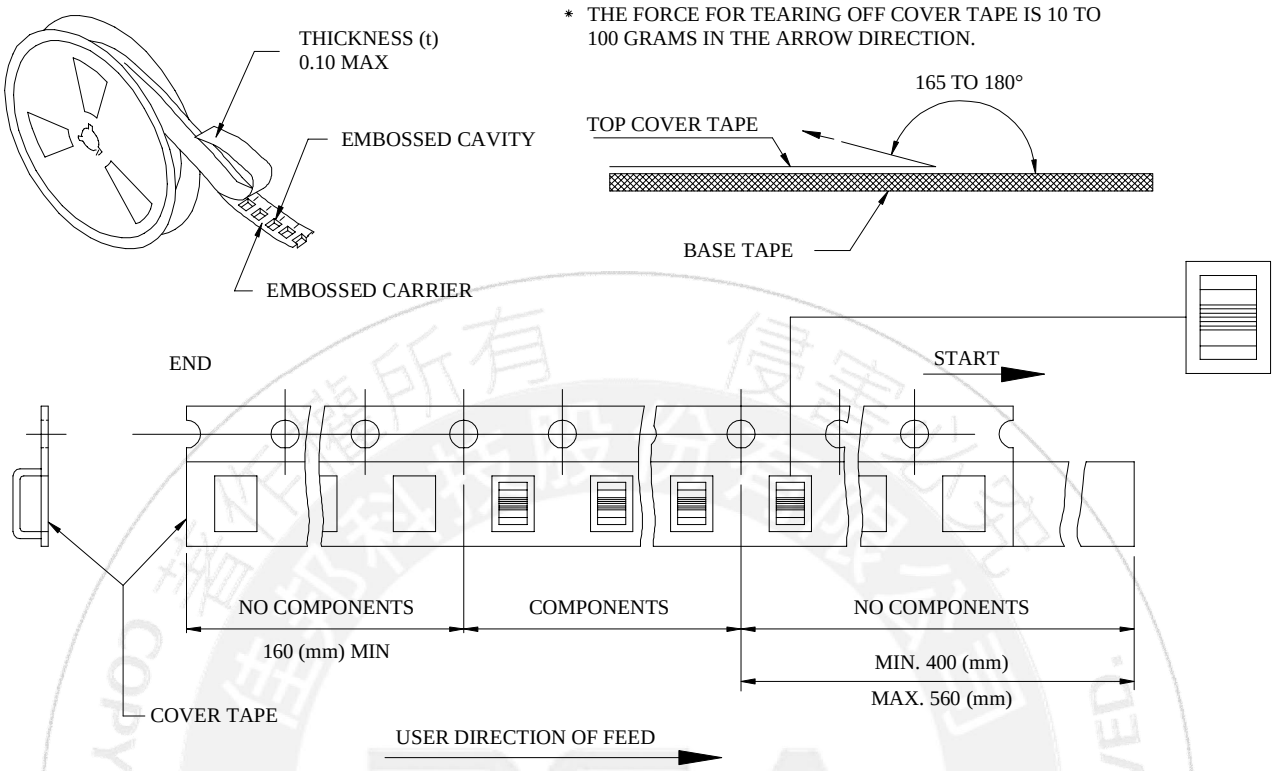
8. REFLOW CHART




9. NOTE

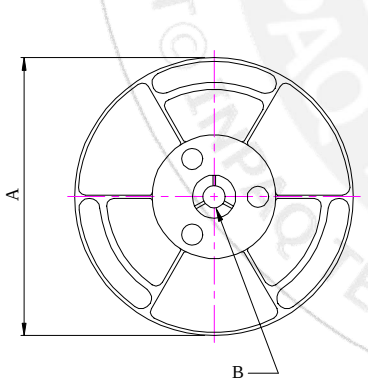
- TOLERANCE：J = ±10%、J = ±5%、G = ±2%
- INDUCTANCE AND Q MEASURED AN KEYSIGHT 4991B OR EQUIVALENT.
- SRF MEASURED USING AN KEYSIGHT 5071C NETWORK ANALYZER AND A INPAQ TEST FIXTURE OR EQUIVALENT.
- DC RESISTANCE MESASURED USING A MICRO-OHM METER.
- CURRENT THAT CAUSES A 15°C TEMPERATURE RISE FROM 25°C AMBIENT.
- ELECTRICAL SPECIFICATIONS AT 25°C.
- OPERATING TEMPERATURE RANGE : -40°C TO +125°C.
- STORAGE TEMPERATURE RANGE:COMPONENT: –40°C TO +125°C.
  TAPE AND REEL PACKAGING: –40°C TO +80°C.
- MEAN TIME BETWEEN FAILURES (MTBF) 1 BILLION HOURS.
- MOISTURE SENSITIVITY LEVEL (MSL) 1 (UNLIMITED FLOOR LIFE AT < 30°C / 85% RELATIVE HUMIDITY).
- GRAPHIC IS ONLY FOR DIMENSIONALLY APPLICATION.
- THIS IS A RoHS AND REACH COMPLLIANT PRODUCT WHOSE RELATED DOCUMENTSS ARE AVAILABLE ON REQUEST.

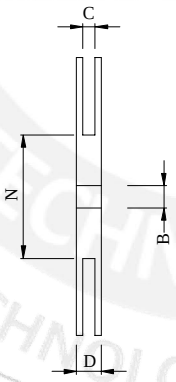
## 10. PACKING



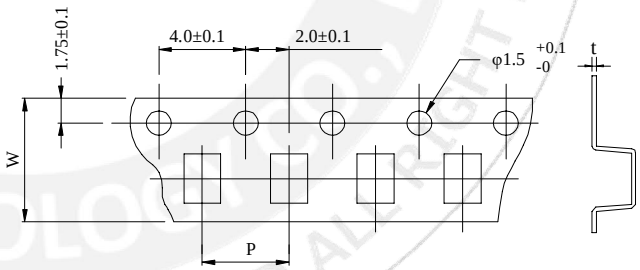

### ■ CARRIER TAPE REELS (mm)

MATERIAL: PLASTIC




### ■ DIMENSIONS OF CARRIER TAPE (mm)




UNIT: mm

| | A | B | C | D | N | P | W | t |
|---|---|---|---|---|---|---|---|---|
| DIM. | 178 | 13.0 | 8.4 | 12.5 | 50 | 4.0 | 8.0 | 0.25 |
| TOL. | ±2.0 | ±0.8 | +1.0–0 | MAX | MIN | ±0.1 | ±0.2 | ±0.05 |

Quantity : 2,000 Pcs/Reel