

# LEADLESS INDUCTORS

## NLV SERIES

NLV25 TYPE

NLV32 TYPE

NLCV25 TYPE

NLCV32 TYPE

# TDK CORPORATION



## Features

This product supports for lead-free solder re-flow condition.

Lead-free materials are used to terminal plating

Electrical characteristics and reliability are same as current NL series.

This product use metal terminal, therefore it is high connection reliability.

Thermoplastic resin is used for outer material

## Product name

NLV32T-XXXJ-PF

NLV25T-XXXJ-PF

NLCV32T-XXXJ-PF

NLCV25T-XXXJ-PF

## Application

For universal inductance circuit use

AV components, Car-electronics, IT equipment, Car-electronics, etc.

## Specification

Series lineup

NLV32 TYPE[Normal type] :0.01 to 470uH /E-12 Series

NLV25 TYPE[More Small/Normal type] :0.01 to 100uH /E-12 Series

NLCV32 TYPE[Large Current type] :1 to 330uH /E-6 Series

NLCV25 TYPE[More Small/Large Current type] :1 to 33uH /E-6 Series

\*The details please refer to electrical characteristics page.

Temperature Characteristics

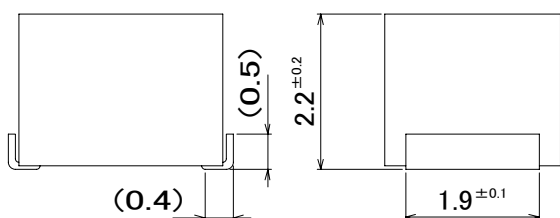
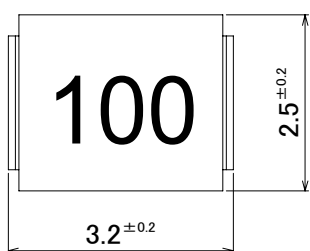
Storage temperature : -40degrees to +85degrees

Operating temperature : -40degrees to +85degrees

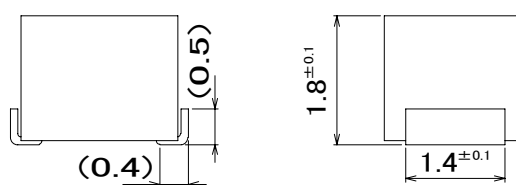
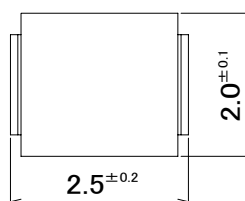
Self temperature rise : 20degrees MAX. (In maximum rating current load)

## Shape and dimensions

NLV32 TYPE  
NLCV32 TYPE

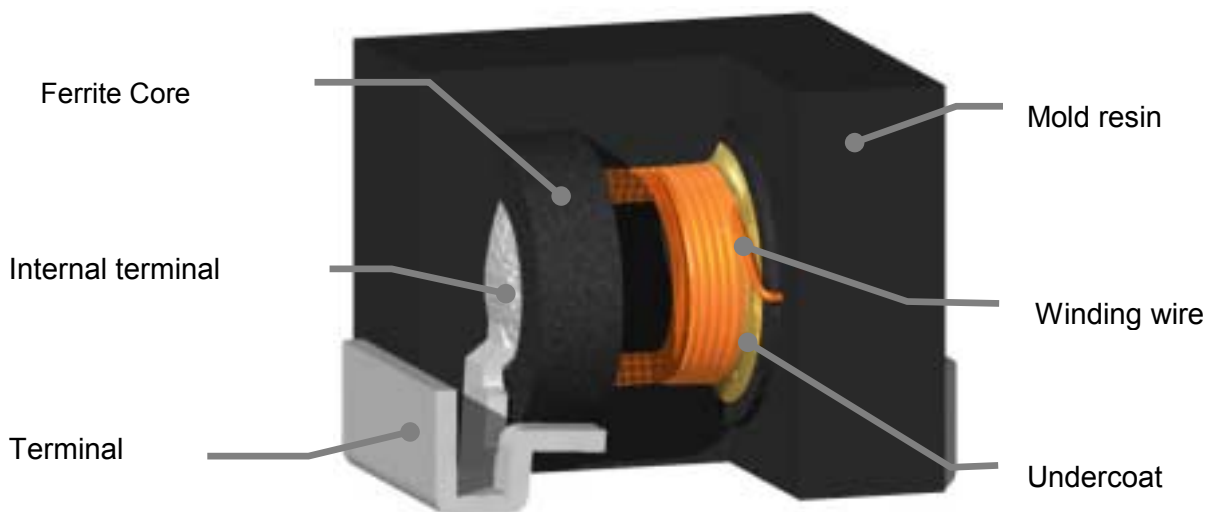


NLV25 TYPE  
NLCV25 TYPE



\*NLV25 type and a NLCV25 type increase with a mark-less design.

## Construction



## Electrical characteristics

### NLV32 TYPE [Normal type]

| TDK ITEM NAME  | L( $\mu$ H)<br>+5% | Q<br>Min. | TestFreq<br>(MHz) | SRF(MHz)<br>Min. | Rdc(ohm)<br>Max. | Idc(mA)<br>Max. |
|----------------|--------------------|-----------|-------------------|------------------|------------------|-----------------|
| NLV32T-010J-PF | 0.010              | 15        | 100               | 2500             | 0.13             | 450             |
| NLV32T-012J-PF | 0.012              | 17        | 100               | 2300             | 0.14             | 450             |
| NLV32T-015J-PF | 0.015              | 19        | 100               | 2100             | 0.16             | 450             |
| NLV32T-018J-PF | 0.018              | 21        | 100               | 1900             | 0.18             | 450             |
| NLV32T-022J-PF | 0.022              | 23        | 100               | 1700             | 0.20             | 450             |
| NLV32T-022J-PF | 0.027              | 23        | 100               | 1500             | 0.22             | 450             |
| NLV32T-033J-PF | 0.033              | 25        | 100               | 1400             | 0.24             | 450             |
| NLV32T-039J-PF | 0.039              | 25        | 100               | 1300             | 0.27             | 450             |
| NLV32T-047J-PF | 0.047              | 26        | 100               | 1200             | 0.30             | 450             |
| NLV32T-056J-PF | 0.056              | 26        | 100               | 1100             | 0.33             | 450             |
| NLV32T-068J-PF | 0.068              | 27        | 100               | 1000             | 0.36             | 450             |
| NLV32T-082J-PF | 0.082              | 27        | 100               | 900              | 0.40             | 450             |
| NLV32T-R10J-PF | 0.10               | 28        | 100               | 700              | 0.44             | 450             |
| NLV32T-R12J-PF | 0.12               | 30        | 25.2              | 500              | 0.22             | 450             |
| NLV32T-R15J-PF | 0.15               | 30        | 25.2              | 450              | 0.25             | 450             |
| NLV32T-R18J-PF | 0.18               | 30        | 25.2              | 400              | 0.28             | 450             |
| NLV32T-R22J-PF | 0.22               | 30        | 25.2              | 350              | 0.32             | 450             |
| NLV32T-R27J-PF | 0.27               | 30        | 25.2              | 320              | 0.36             | 450             |
| NLV32T-R33J-PF | 0.33               | 30        | 25.2              | 300              | 0.40             | 450             |
| NLV32T-R39J-PF | 0.39               | 30        | 25.2              | 250              | 0.45             | 450             |
| NLV32T-R47J-PF | 0.47               | 30        | 25.2              | 220              | 0.50             | 450             |
| NLV32T-R56J-PF | 0.56               | 30        | 25.2              | 180              | 0.55             | 450             |
| NLV32T-R68J-PF | 0.68               | 30        | 25.2              | 160              | 0.60             | 450             |
| NLV32T-R82J-PF | 0.82               | 30        | 25.2              | 140              | 0.65             | 450             |

### Test equipment

L,Q : HP4191A RF IMPEDANCE ANALYZER + 16092A + TF-2 (at 100MHz)  
       HP4194A IMPEDANCE ANALYZER + 16085A + 16093B + TF-1  
 SRF : HP8753C NETWORK ANAZYZER  
 Rdc : VP-2941A DIGITAL MILLIOHM METER MATSUSHITA

## Electrical characteristics

## NLV32 TYPE [Normal type]

| TDK ITEM NAME  | L( $\mu$ H)<br>+5% | Q<br>Min. | TestFreq<br>(MHz) | SRF(MHz)<br>Min. | Rdc(ohm)<br>Max. | Idc(mA)<br>Max. |
|----------------|--------------------|-----------|-------------------|------------------|------------------|-----------------|
| NLV32T-1R0J-PF | 1.0                | 30        | 7.96              | 120              | 0.70             | 400             |
| NLV32T-1R2J-PF | 1.2                | 30        | 7.96              | 100              | 0.75             | 390             |
| NLV32T-1R5J-PF | 1.5                | 30        | 7.96              | 85               | 0.85             | 370             |
| NLV32T-1R8J-PF | 1.8                | 30        | 7.96              | 80               | 0.90             | 350             |
| NLV32T-2R2J-PF | 2.2                | 30        | 7.96              | 75               | 1.00             | 320             |
| NLV32T-2R2J-PF | 2.7                | 30        | 7.96              | 70               | 1.10             | 290             |
| NLV32T-3R3J-PF | 3.3                | 30        | 7.96              | 60               | 1.20             | 260             |
| NLV32T-3R9J-PF | 3.9                | 30        | 7.96              | 55               | 1.30             | 250             |
| NLV32T-4R7J-PF | 4.7                | 30        | 7.96              | 50               | 1.50             | 220             |
| NLV32T-5R6J-PF | 5.6                | 30        | 7.96              | 45               | 1.60             | 200             |
| NLV32T-6R8J-PF | 6.8                | 30        | 7.96              | 40               | 1.80             | 180             |
| NLV32T-8R2J-PF | 8.2                | 30        | 7.96              | 35               | 2.00             | 170             |
| NLV32T-100J-PF | 10                 | 30        | 2.52              | 30               | 2.10             | 150             |
| NLV32T-120J-PF | 12                 | 30        | 2.52              | 20               | 2.50             | 140             |
| NLV32T-150J-PF | 15                 | 30        | 2.52              | 20               | 2.80             | 130             |
| NLV32T-180J-PF | 18                 | 30        | 2.52              | 20               | 3.30             | 120             |
| NLV32T-220J-PF | 22                 | 30        | 2.52              | 20               | 3.70             | 110             |
| NLV32T-270J-PF | 27                 | 30        | 2.52              | 20               | 5.00             | 80              |
| NLV32T-330J-PF | 33                 | 30        | 2.52              | 17               | 5.60             | 70              |
| NLV32T-390J-PF | 39                 | 30        | 2.52              | 16               | 6.40             | 65              |
| NLV32T-470J-PF | 47                 | 30        | 2.52              | 15               | 7.00             | 60              |
| NLV32T-560J-PF | 56                 | 30        | 2.52              | 13               | 8.00             | 55              |
| NLV32T-680J-PF | 68                 | 30        | 2.52              | 12               | 9.00             | 50              |
| NLV32T-820J-PF | 82                 | 30        | 2.52              | 11               | 10.00            | 45              |
| NLV32T-101J-PF | 100                | 20        | 0.796             | 10               | 10.00            | 40              |
| NLV32T-121J-PF | 120                | 20        | 0.796             | 10               | 11.00            | 70              |
| NLV32T-151J-PF | 150                | 20        | 0.796             | 8                | 15.00            | 65              |
| NLV32T-181J-PF | 180                | 20        | 0.796             | 7                | 17.00            | 60              |
| NLV32T-221J-PF | 220                | 20        | 0.796             | 7                | 21.00            | 50              |
| NLV32T-271J-PF | 270                | 20        | 0.796             | 6                | 28.00            | 45              |
| NLV32T-331J-PF | 330                | 20        | 0.796             | 5                | 34.00            | 40              |
| NLV32T-391J-PF | 390                | 20        | 0.796             | 5                | 36.00            | 35              |
| NLV32T-471J-PF | 470                | 20        | 0.796             | 4                | 40.00            | 25              |

## Test equipment

L,Q : HP4194A IMPEDANCE ANALYZER + 16085A + 16093B + TF-1

SRF : HP8753C NETWORK ANAZYZER

Rdc : VP-2941A DIGITAL MILLIOHM METER MATSUSHITA

## Electrical characteristics

## NLV25 TYPE [More Small / Normal type]

| TDK ITEM NAME  | L( $\mu$ H)<br>+5% | Q<br>Min. | TestFreq<br>(MHz) | SRF(MHz)<br>Min. | Rdc(ohm)<br>Max. | Idc(mA)<br>Max. |
|----------------|--------------------|-----------|-------------------|------------------|------------------|-----------------|
| NLV25T-010J-PF | 0.010              | 15        | 100               | 2150             | 0.26             | 530             |
| NLV25T-012J-PF | 0.012              | 15        | 100               | 2050             | 0.27             | 500             |
| NLV25T-015J-PF | 0.015              | 15        | 100               | 2000             | 0.29             | 480             |
| NLV25T-018J-PF | 0.018              | 15        | 100               | 1850             | 0.31             | 450             |
| NLV25T-022J-PF | 0.022              | 15        | 100               | 1650             | 0.37             | 420             |
| NLV25T-027J-PF | 0.027              | 15        | 100               | 1550             | 0.40             | 410             |
| NLV25T-033J-PF | 0.033              | 20        | 100               | 1450             | 0.42             | 400             |
| NLV25T-039J-PF | 0.039              | 20        | 100               | 1350             | 0.45             | 380             |
| NLV25T-047J-PF | 0.047              | 20        | 100               | 1200             | 0.50             | 360             |
| NLV25T-056J-PF | 0.056              | 20        | 100               | 1100             | 0.60             | 340             |
| NLV25T-068J-PF | 0.068              | 20        | 100               | 1050             | 0.65             | 320             |
| NLV25T-082J-PF | 0.082              | 20        | 100               | 900              | 0.75             | 300             |
| NLV25T-R10J-PF | 0.10               | 20        | 100               | 800              | 0.80             | 280             |
| NLV25T-R12J-PF | 0.12               | 30        | 25.2              | 700              | 0.30             | 550             |
| NLV25T-R15J-PF | 0.15               | 30        | 25.2              | 550              | 0.35             | 500             |
| NLV25T-R18J-PF | 0.18               | 30        | 25.2              | 500              | 0.40             | 460             |
| NLV25T-R22J-PF | 0.22               | 30        | 25.2              | 450              | 0.50             | 430             |
| NLV25T-R27J-PF | 0.27               | 30        | 25.2              | 425              | 0.55             | 420             |
| NLV25T-R33J-PF | 0.33               | 30        | 25.2              | 400              | 0.60             | 400             |
| NLV25T-R39J-PF | 0.39               | 30        | 25.2              | 375              | 0.65             | 375             |
| NLV25T-R47J-PF | 0.47               | 30        | 25.2              | 350              | 0.68             | 350             |
| NLV25T-R56J-PF | 0.56               | 30        | 25.2              | 325              | 0.75             | 325             |
| NLV25T-R68J-PF | 0.68               | 30        | 25.2              | 300              | 0.85             | 300             |
| NLV25T-R82J-PF | 0.82               | 30        | 25.2              | 260              | 1.00             | 260             |

## Test equipment

L,Q : HP4191A RF IMPEDANCE ANALYZER + 16092A + TF-2 (at 100MHz)

HP4194A IMPEDANCE ANALYZER + 16085A + 16093B + TF-1

SRF : HP8753C NETWORK ANAZYZER

Rdc : VP-2941A DIGITAL MILLIOHM METER MATSUSHITA

## Electrical characteristics

## NLV25 TYPE [More Small / Normal type]

| TDK ITEM NAME  | L( $\mu$ H)<br>+/-5% | Q<br>Min. | TestFreq<br>(MHz) | SRF(MHz)<br>Min. | Rdc(ohm)<br>Max. | Idc(mA)<br>Max. |
|----------------|----------------------|-----------|-------------------|------------------|------------------|-----------------|
| NLV25T-1R0J-PF | 1.0                  | 30        | 7.96              | 245              | 1.10             | 245             |
| NLV25T-1R2J-PF | 1.2                  | 30        | 7.96              | 230              | 1.20             | 230             |
| NLV25T-1R5J-PF | 1.5                  | 30        | 7.96              | 182              | 1.30             | 220             |
| NLV25T-1R8J-PF | 1.8                  | 30        | 7.96              | 135              | 1.45             | 210             |
| NLV25T-2R2J-PF | 2.2                  | 30        | 7.96              | 105              | 1.55             | 200             |
| NLV25T-2R2J-PF | 2.7                  | 30        | 7.96              | 70               | 1.70             | 195             |
| NLV25T-3R3J-PF | 3.3                  | 30        | 7.96              | 55               | 1.90             | 185             |
| NLV25T-3R9J-PF | 3.9                  | 30        | 7.96              | 48               | 2.10             | 180             |
| NLV25T-4R7J-PF | 4.7                  | 30        | 7.96              | 43               | 2.30             | 175             |
| NLV25T-5R6J-PF | 5.6                  | 25        | 7.96              | 42               | 2.50             | 170             |
| NLV25T-6R8J-PF | 6.8                  | 25        | 7.96              | 39               | 2.70             | 165             |
| NLV25T-8R2J-PF | 8.2                  | 25        | 7.96              | 36               | 3.05             | 160             |
| NLV25T-100J-PF | 10                   | 25        | 2.52              | 33               | 3.50             | 155             |
| NLV25T-120J-PF | 12                   | 25        | 2.52              | 30               | 3.80             | 150             |
| NLV25T-150J-PF | 15                   | 25        | 2.52              | 26               | 4.40             | 140             |
| NLV25T-180J-PF | 18                   | 25        | 2.52              | 24               | 4.80             | 130             |
| NLV25T-220J-PF | 22                   | 25        | 2.52              | 22               | 5.50             | 125             |
| NLV25T-270J-PF | 27                   | 25        | 2.52              | 21               | 6.30             | 115             |
| NLV25T-330J-PF | 33                   | 25        | 2.52              | 20               | 7.10             | 110             |
| NLV25T-390J-PF | 39                   | 20        | 2.52              | 18               | 9.50             | 90              |
| NLV25T-470J-PF | 47                   | 20        | 2.52              | 17               | 11.1             | 80              |
| NLV25T-560J-PF | 56                   | 20        | 2.52              | 16               | 12.1             | 75              |
| NLV25T-680J-PF | 68                   | 20        | 2.52              | 15               | 16.6             | 70              |
| NLV25T-820J-PF | 82                   | 20        | 2.52              | 13               | 19.0             | 66              |
| NLV25T-101J-PF | 100                  | 15        | 0.796             | 12               | 21.0             | 60              |

## Test equipment

L,Q : HP4194A IMPEDANCE ANALYZER + 16085A + 16093B + TF-1

SRF : HP8753C NETWORK ANAZYZER

Rdc : VP-2941A DIGITAL MILLIOHM METER MATSUSHITA

## Electrical characteristics

## NLCV32 TYPE [Large Current Type]

| TDK ITEM NAME   | L(uH)     | Q<br>Ref. | TestFreq<br>(MHz) | SRF(MHz)<br>Min. | Rdc(ohm)<br>± 30% | Idc(mA)<br>Max. |
|-----------------|-----------|-----------|-------------------|------------------|-------------------|-----------------|
| NLCV32T-1R0M-PF | 1.0 ± 20% | 10        | 7.96              | 100              | 0.08              | 850             |
| NLCV32T-1R5M-PF | 1.5 ± 20% | 10        | 7.96              | 80               | 0.11              | 700             |
| NLCV32T-2R2M-PF | 2.2 ± 20% | 10        | 7.96              | 68               | 0.13              | 600             |
| NLCV32T-3R3M-PF | 3.3 ± 20% | 10        | 7.96              | 54               | 0.16              | 500             |
| NLCV32T-4R7M-PF | 4.7 ± 20% | 15        | 7.96              | 46               | 0.20              | 430             |
| NLCV32T-6R8M-PF | 6.8 ± 20% | 15        | 7.96              | 38               | 0.27              | 360             |
| NLCV32T-100K-PF | 10 ± 10%  | 15        | 2.52              | 30               | 0.36              | 300             |
| NLCV32T-150K-PF | 15 ± 10%  | 15        | 2.52              | 26               | 0.56              | 250             |
| NLCV32T-220K-PF | 22 ± 10%  | 15        | 2.52              | 21               | 0.77              | 210             |
| NLCV32T-330K-PF | 33 ± 10%  | 15        | 2.52              | 17               | 1.10              | 170             |
| NLCV32T-470K-PF | 47 ± 10%  | 15        | 2.52              | 14               | 1.64              | 150             |
| NLCV32T-680K-PF | 68 ± 10%  | 15        | 2.52              | 12               | 2.80              | 120             |
| NLCV32T-101K-PF | 100 ± 10% | 15        | 0.796             | 10               | 3.70              | 100             |
| NLCV32T-151K-PF | 150 ± 10% | 20        | 0.796             | 8                | 6.10              | 85              |
| NLCV32T-221K-PF | 220 ± 10% | 20        | 0.796             | 7                | 8.40              | 70              |
| NLCV32T-331K-PF | 330 ± 10% | 20        | 0.796             | 6                | 12.3              | 60              |

## NLCV25 TYPE [More Small / Large Current Type]

| TDK ITEM NAME   | L(uH)     | Q<br>Ref. | TestFreq<br>(MHz) | SRF(MHz)<br>Min. | Rdc(ohm)<br>± 30% | Idc(mA)<br>Max. |
|-----------------|-----------|-----------|-------------------|------------------|-------------------|-----------------|
| NLCV25T-1R0M-PF | 1.0 ± 20% | 20        | 7.96              | 200              | 0.34              | 475             |
| NLCV25T-1R5M-PF | 1.5 ± 20% | 20        | 7.96              | 165              | 0.42              | 435             |
| NLCV25T-2R2M-PF | 2.2 ± 20% | 20        | 7.96              | 95               | 0.50              | 390             |
| NLCV25T-3R3M-PF | 3.3 ± 20% | 20        | 7.96              | 55               | 0.65              | 340             |
| NLCV25T-4R7M-PF | 4.7 ± 20% | 20        | 7.96              | 43               | 0.80              | 285             |
| NLCV25T-6R8M-PF | 6.8 ± 20% | 20        | 7.96              | 39               | 1.00              | 275             |
| NLCV25T-100K-PF | 10 ± 10%  | 30        | 2.52              | 32               | 1.69              | 210             |
| NLCV25T-150K-PF | 15 ± 10%  | 30        | 2.52              | 21               | 2.20              | 175             |
| NLCV25T-220K-PF | 22 ± 10%  | 30        | 2.52              | 18               | 2.80              | 160             |
| NLCV25T-330K-PF | 33 ± 10%  | 30        | 2.52              | 16               | 4.20              | 120             |

## Test equipment

L,Q : HP4194A IMPEDANCE ANALYZER + 16085A + 16093B + TF-1

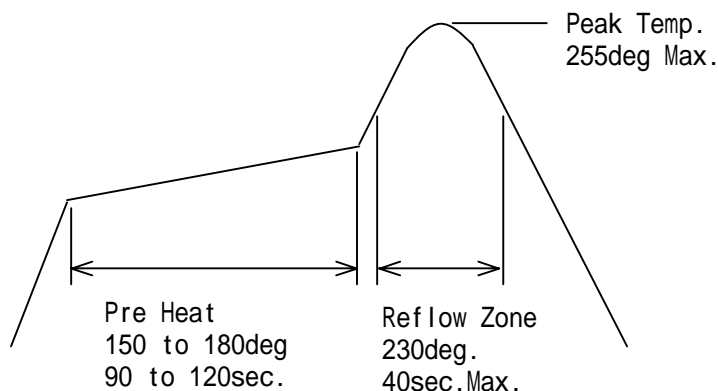
SRF : HP8753C NETWORK ANAZYZER

Rdc : VP-2941A DIGITAL MILLIOHM METER MATSUSHITA

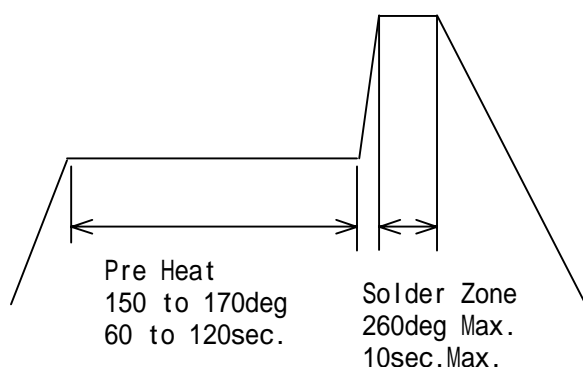


## Recommended soldering condition (for Pb free)

### \*Reflow Soldering



### \*Flow Soldering



### \*Iron Soldering

Heater temp. :300 deg. to 350 deg.

Heat time :3 sec./time

Iron design :about 30W /Diameter 0.1 mm

Component temperature is equal to or less than 260 degrees, and Heating time is equal to or less than total 10 seconds.