

# Inductors for Standard Circuits

## Wound/STD

Conformity to RoHS Directive

### NLV Series NLV32

#### FEATURES

- This is a renewed version of NL322522.
- The product has good heat durability that withstands lead-free compatible reflow soldering conditions.
- Lead-free material is used for the plating on the terminal.
- The electrical characteristics, reliability, shape and pad shape are the same as the previous NL series.
- The product uses metal terminals, which realize excellent connection reliability.
- Highly heat resistant thermoplastic resin is used to form the exterior package.
- From 0.01 $\mu$ H to 470 $\mu$ H, all of the products in the E-12 series are J( $\pm$ 5%) tolerance products.
- This product is in compliance with the RoHS Directive. Other products with specifications that do not include exemption regulations are also available.

#### APPLICATIONS

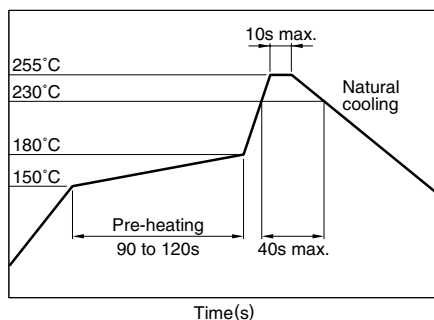
- Audio-visual equipment including TVs, VCRs and digital cameras.
- Electronic equipment used in communication infrastructures including xDSL and mobile base stations.
- Electronic equipment used in onboard automobile equipment including car audio and ECU systems.
- Other electronic equipment including HDDs and ODDs.

#### SPECIFICATIONS

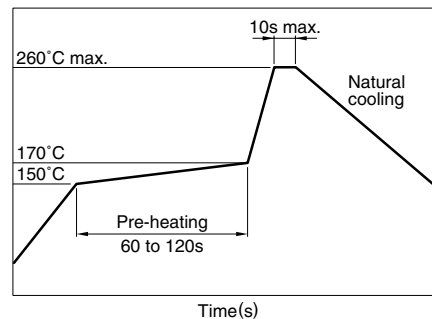
|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| Operating temperature range | -40 to +105°C<br>[Including self-temperature rise] |
| Storage temperature range   | -40 to +105°C                                      |

#### RECOMMENDED SOLDERING CONDITIONS

##### REFLOW SOLDERING



#### FLOW SOLDERING



#### IRON SOLDERING

|                              |                               |
|------------------------------|-------------------------------|
| Tip temperature              | 300 to 350°C                  |
| Heating time                 | 3 seconds/soldering           |
| Soldering rod specifications | Output: 30W Tip diameter: 1mm |

- Based on the above conditions, use a maximum product temperature of 260°C and a maximum accumulated heating time of 10 seconds as a guideline.
- Please contact us for details.

#### PRODUCT IDENTIFICATION

|     |     |     |     |     |      |
|-----|-----|-----|-----|-----|------|
| NLV | 32  | T-  | 2R2 | J   | - PF |
| (1) | (2) | (3) | (4) | (5) | (6)  |

(1) Series name

(2) Dimensions

|    |                       |
|----|-----------------------|
| 32 | 3.2×2.5×2.2mm (L×W×T) |
|----|-----------------------|

(3) Packaging style

|   |               |
|---|---------------|
| T | Taping (reel) |
|---|---------------|

(4) Inductance value

|     |              |
|-----|--------------|
| 010 | 0.01 $\mu$ H |
| R10 | 0.1 $\mu$ H  |
| 1R0 | 1 $\mu$ H    |
| 100 | 10 $\mu$ H   |
| 101 | 100 $\mu$ H  |

(5) Inductance tolerance

|   |          |
|---|----------|
| J | $\pm$ 5% |
|---|----------|

(6) Lead-free compatible product

|    |                                                           |
|----|-----------------------------------------------------------|
| PF | Conformity to RoHS directive, exemption regulations apply |
| EF | Conformity to RoHS directive                              |

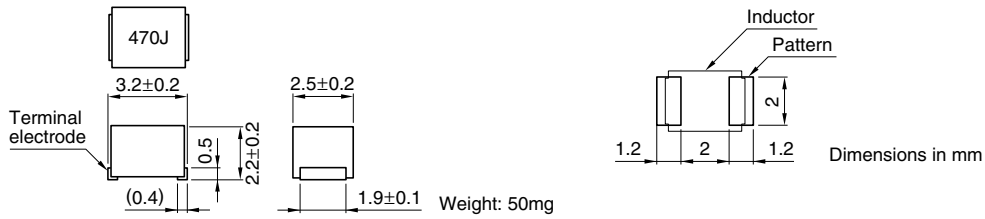
#### PACKAGING STYLE AND QUANTITIES

|                 |                  |
|-----------------|------------------|
| Packaging style | Quantity         |
| Taping          | 2000 pieces/reel |

• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

• All specifications are subject to change without notice.

## SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



## ELECTRICAL CHARACTERISTICS

| Inductance(μH) | Inductance tolerance | Q min. | Test frequency L,Q (MHz) | Self-resonant frequency (MHz)min. | DC resistance (Ω)max. | Rated current*1 (mA)max. | Part No.        |
|----------------|----------------------|--------|--------------------------|-----------------------------------|-----------------------|--------------------------|-----------------|
| 0.01           | ±5%                  | 15     | 100                      | 2500                              | 0.13                  | 450                      | NLV32T-010J-□*2 |
| 0.012          | ±5%                  | 17     | 100                      | 2300                              | 0.14                  | 450                      | NLV32T-012J-□   |
| 0.015          | ±5%                  | 19     | 100                      | 2100                              | 0.16                  | 450                      | NLV32T-015J-□   |
| 0.018          | ±5%                  | 21     | 100                      | 1900                              | 0.18                  | 450                      | NLV32T-018J-□   |
| 0.022          | ±5%                  | 23     | 100                      | 1700                              | 0.2                   | 450                      | NLV32T-022J-□   |
| 0.027          | ±5%                  | 23     | 100                      | 1500                              | 0.22                  | 450                      | NLV32T-027J-□   |
| 0.033          | ±5%                  | 25     | 100                      | 1400                              | 0.24                  | 450                      | NLV32T-033J-□   |
| 0.039          | ±5%                  | 25     | 100                      | 1300                              | 0.27                  | 450                      | NLV32T-039J-□   |
| 0.047          | ±5%                  | 26     | 100                      | 1200                              | 0.3                   | 450                      | NLV32T-047J-□   |
| 0.056          | ±5%                  | 26     | 100                      | 1100                              | 0.33                  | 450                      | NLV32T-056J-□   |
| 0.068          | ±5%                  | 27     | 100                      | 1000                              | 0.36                  | 450                      | NLV32T-068J-□   |
| 0.082          | ±5%                  | 27     | 100                      | 900                               | 0.4                   | 450                      | NLV32T-082J-□   |
| 0.1            | ±5%                  | 28     | 100                      | 700                               | 0.44                  | 450                      | NLV32T-R10J-□   |
| 0.12           | ±5%                  | 30     | 25.2                     | 500                               | 0.22                  | 450                      | NLV32T-R12J-□   |
| 0.15           | ±5%                  | 30     | 25.2                     | 450                               | 0.25                  | 450                      | NLV32T-R15J-□   |
| 0.18           | ±5%                  | 30     | 25.2                     | 400                               | 0.28                  | 450                      | NLV32T-R18J-□   |
| 0.22           | ±5%                  | 30     | 25.2                     | 350                               | 0.32                  | 450                      | NLV32T-R22J-□   |
| 0.27           | ±5%                  | 30     | 25.2                     | 320                               | 0.36                  | 450                      | NLV32T-R27J-□   |
| 0.33           | ±5%                  | 30     | 25.2                     | 300                               | 0.4                   | 450                      | NLV32T-R33J-□   |
| 0.39           | ±5%                  | 30     | 25.2                     | 250                               | 0.45                  | 450                      | NLV32T-R39J-□   |
| 0.47           | ±5%                  | 30     | 25.2                     | 220                               | 0.5                   | 450                      | NLV32T-R47J-□   |
| 0.56           | ±5%                  | 30     | 25.2                     | 180                               | 0.55                  | 450                      | NLV32T-R56J-□   |
| 0.68           | ±5%                  | 30     | 25.2                     | 160                               | 0.6                   | 450                      | NLV32T-R68J-□   |
| 0.82           | ±5%                  | 30     | 25.2                     | 140                               | 0.65                  | 450                      | NLV32T-R82J-□   |
| 1              | ±5%                  | 30     | 7.96                     | 120                               | 0.7                   | 400                      | NLV32T-1R0J-□   |
| 1.2            | ±5%                  | 30     | 7.96                     | 100                               | 0.75                  | 390                      | NLV32T-1R2J-□   |
| 1.5            | ±5%                  | 30     | 7.96                     | 85                                | 0.85                  | 370                      | NLV32T-1R5J-□   |
| 1.8            | ±5%                  | 30     | 7.96                     | 80                                | 0.9                   | 350                      | NLV32T-1R8J-□   |
| 2.2            | ±5%                  | 30     | 7.96                     | 75                                | 1                     | 320                      | NLV32T-2R2J-□   |
| 2.7            | ±5%                  | 30     | 7.96                     | 70                                | 1.1                   | 290                      | NLV32T-2R7J-□   |
| 3.3            | ±5%                  | 30     | 7.96                     | 60                                | 1.2                   | 260                      | NLV32T-3R3J-□   |
| 3.9            | ±5%                  | 30     | 7.96                     | 55                                | 1.3                   | 250                      | NLV32T-3R9J-□   |
| 4.7            | ±5%                  | 30     | 7.96                     | 50                                | 1.5                   | 220                      | NLV32T-4R7J-□   |
| 5.6            | ±5%                  | 30     | 7.96                     | 45                                | 1.6                   | 200                      | NLV32T-5R6J-□   |
| 6.8            | ±5%                  | 30     | 7.96                     | 40                                | 1.8                   | 180                      | NLV32T-6R8J-□   |
| 8.2            | ±5%                  | 30     | 7.96                     | 35                                | 2                     | 170                      | NLV32T-8R2J-□   |
| 10             | ±5%                  | 30     | 2.52                     | 30                                | 2.1                   | 150                      | NLV32T-100J-□   |
| 12             | ±5%                  | 30     | 2.52                     | 20                                | 2.5                   | 140                      | NLV32T-120J-□   |

\*1 Rated current: Value obtained when current flows and the temperature has risen to 20°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller.

\*2 □: Please specify lead-free compatible product, PF (Conformity to RoHS directive, exemption regulations apply) or EF (Conformity to RoHS directive)

• Test equipment L, Q: YHP4191A IMPEDANCE ANALYZER (16092A) [ $L \leq 0.1\mu\text{H}$ ]  
 YHP4194A IMPEDANCE ANALYZER (16085A+16093B+TDK TF-1) [ $L \geq 0.12\mu\text{H}$ ]  
 SRF:HP8753C NETWORK ANALYZER  
 Rdc:MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

## ELECTRICAL CHARACTERISTICS

| Inductance( $\mu\text{H}$ ) | Inductance tolerance | Q min. | Test frequency L,Q (MHz) | Self-resonant frequency (MHz)min. | DC resistance ( $\Omega$ )max. | Rated current*1 (mA)max. | Part No.        |
|-----------------------------|----------------------|--------|--------------------------|-----------------------------------|--------------------------------|--------------------------|-----------------|
| 15                          | $\pm 5\%$            | 30     | 2.52                     | 20                                | 2.8                            | 130                      | NLV32T-150J-□*2 |
| 18                          | $\pm 5\%$            | 30     | 2.52                     | 20                                | 3.3                            | 120                      | NLV32T-180J-□   |
| 22                          | $\pm 5\%$            | 30     | 2.52                     | 20                                | 3.7                            | 110                      | NLV32T-220J-□   |
| 27                          | $\pm 5\%$            | 30     | 2.52                     | 20                                | 5                              | 80                       | NLV32T-270J-□   |
| 33                          | $\pm 5\%$            | 30     | 2.52                     | 17                                | 5.6                            | 70                       | NLV32T-330J-□   |
| 39                          | $\pm 5\%$            | 30     | 2.52                     | 16                                | 6.4                            | 65                       | NLV32T-390J-□   |
| 47                          | $\pm 5\%$            | 30     | 2.52                     | 15                                | 7                              | 60                       | NLV32T-470J-□   |
| 56                          | $\pm 5\%$            | 30     | 2.52                     | 13                                | 8                              | 55                       | NLV32T-560J-□   |
| 68                          | $\pm 5\%$            | 30     | 2.52                     | 12                                | 9                              | 50                       | NLV32T-680J-□   |
| 82                          | $\pm 5\%$            | 30     | 2.52                     | 11                                | 10                             | 45                       | NLV32T-820J-□   |
| 100                         | $\pm 5\%$            | 20     | 0.796                    | 10                                | 10                             | 40                       | NLV32T-101J-□   |
| 120                         | $\pm 5\%$            | 20     | 0.796                    | 10                                | 11                             | 70                       | NLV32T-121J-□   |
| 150                         | $\pm 5\%$            | 20     | 0.796                    | 8                                 | 15                             | 65                       | NLV32T-151J-□   |
| 180                         | $\pm 5\%$            | 20     | 0.796                    | 7                                 | 17                             | 60                       | NLV32T-181J-□   |
| 220                         | $\pm 5\%$            | 20     | 0.796                    | 7                                 | 21                             | 50                       | NLV32T-221J-□   |
| 270                         | $\pm 5\%$            | 20     | 0.796                    | 6                                 | 28                             | 45                       | NLV32T-271J-□   |
| 330                         | $\pm 5\%$            | 20     | 0.796                    | 5                                 | 34                             | 40                       | NLV32T-331J-□   |
| 390                         | $\pm 5\%$            | 20     | 0.796                    | 5                                 | 36                             | 35                       | NLV32T-391J-□   |
| 470                         | $\pm 5\%$            | 20     | 0.796                    | 4                                 | 40                             | 25                       | NLV32T-471J-□   |

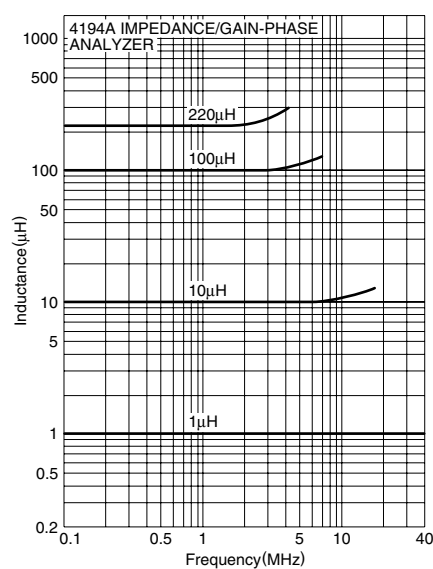
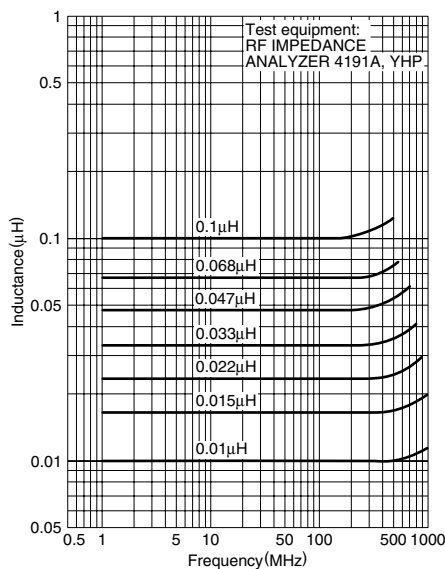
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## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. FREQUENCY CHARACTERISTICS



### INDUCTANCE CHANGE vs. DC

### SUPERPOSITION CHARACTERISTICS

