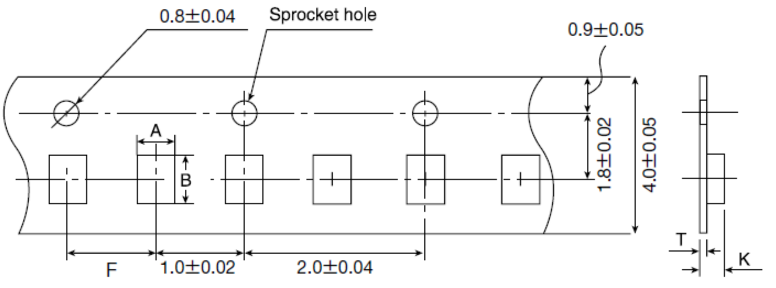
| Type | Thickness mm(inch) | Chip cavity | | Insertion Pitch | Tape Thickness | |
|---|---|---|---|---|---|---|
| | | A | B | F | K | T |
| CK2125(0805) | 1.25(0.049) | 1.5±0.2 (0.059±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 2.0 (0.079) | 0.3 (0.012) |
| CKS2125(0805) | 1.25(0.049) | 1.5±0.2 (0.059±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 2.0 (0.079) | 0.3 (0.012) |
| CKP2012(0805) | 0.9 (0.035) | 1.55±0.2 (0.061±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 1.3 (0.051) | 0.3 (0.012) |
| CKP2016(0806) | 0.9 (0.035) | 1.8±0.1 (0.071±0.004) | 2.2±0.1 (0.087±0.004) | 4.0±0.1 (0.157±0.004) | 1.3 (0.051) | 0.25 (0.01) |
| CKP2520(1008) | 0.7 (0.028) | 2.3±0.1 (0.091±0.004) | 2.8±0.1 (0.110±0.004) | 4.0±0.1 (0.157±0.004) | 1.4 (0.055) | 0.3 (0.012) |
| | 0.9 (0.035) | | | | 1.4 (0.055) | |
| | 1.1 (0.043) | | | | 1.7 (0.067) | |
| NM2012(0805) | 0.9 (0.035) | 1.55±0.2 (0.061±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 1.3 (0.051) | 0.3 (0.012) |
| NM2520(1008) | 0.9 (0.035) | 2.3±0.1 (0.091±0.004) | 2.8±0.1 (0.110±0.004) | 4.0±0.1 (0.157±0.004) | 1.4 (0.055) | 0.3 (0.012) |
| | 1.1 (0.043) | | | | 1.7 (0.067) | |
| LK2125(0805) | 1.25(0.049) | 1.5±0.2 (0.059±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 2.0 (0.079) | 0.3 (0.012) |
| HK2125(0805) | 0.85(0.033) | 1.5±0.2 (0.059±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 1.5 (0.059) | 0.3 (0.012) |
| | 1.0 (0.039) | | | | 2.0 (0.079) | |
| BK2125(0805) | 1.25(0.049) | 1.5±0.2 (0.059±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 2.0 (0.079) | 0.3 (0.012) |
| BK3216(1206) | 0.8(0.031) | 1.9±0.1 (0.075±0.004) | 3.5±0.1 (0.138±0.004) | 4.0±0.1 (0.157±0.004) | 1.4 (0.055) | 0.3 (0.012) |
| MCF0806(0302) | 0.4 (0.016) | 0.75±0.05 (0.030±0.002) | 0.95±0.05 (0.037±0.002) | 2.0±0.05 (0.079±0.002) | 0.55 (0.022) | 0.3 (0.012) |
| MCF1210(0504) | 0.55(0.022) | 1.15±0.05 (0.045±0.002) | 1.40±0.05 (0.055±0.002) | 4.0±0.1 (0.157±0.004) | 0.65 (0.026) | 0.3 (0.012) |
| MCF2010(0804) | 0.45(0.018) | 1.1±0.1 (0.043±0.004) | 2.3±0.1 (0.091±0.004) | 4.0±0.1 (0.157±0.004) | 0.85 (0.033) | 0.3 (0.012) |
| MCKK2012(0805) | 1.0 (0.039) | 1.55±0.2 (0.061±0.008) | 2.3±0.2 (0.091±0.008) | 4.0±0.1 (0.157±0.004) | 1.3 (0.051) | 0.25 (0.010) |

Unit : mm(inch)

● Embossed Tape (4mm wide)

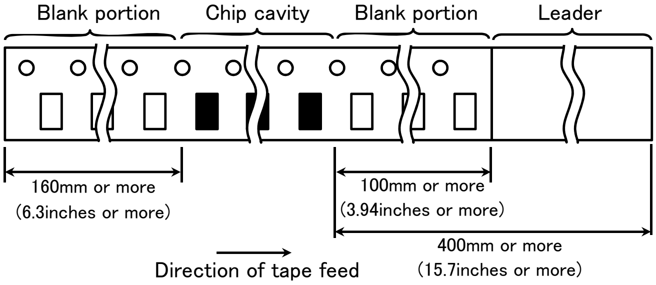



Unit : mm

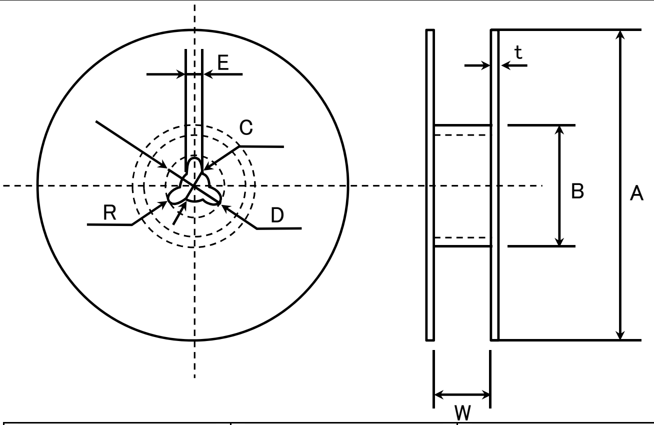
| Type | Thickness mm (inch) | Chip cavity | | Insertion Pitch | Tape Thickness | |
|---|---|---|---|---|---|---|
| | | A | B | F | K | T |
| HKQ0402 (01005) | 0.2 (0.008) | 0.23 | 0.43 | 1.0±0.02 | 0.5max. | 0.25max. |

Unit : mm

## ④LEADER AND BLANK PORTION




## ⑤Reel Size



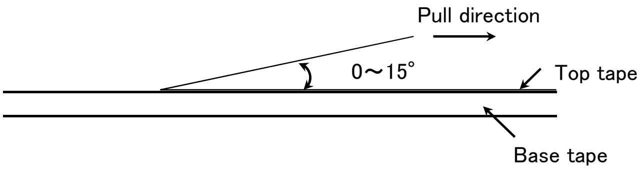

| A | B | C | D | E | R |
|---|---|---|---|---|---|
| $\phi$178±2.0 | $\phi$50 or more | $\phi$13.0±0.2 | $\phi$21.0±0.8 | 2.0±0.5 | 1.0 |

| | t | W |
|---|---|---|
| 4mm width tape | 1.5max. | 5±1.0 |
| 8mm width tape | 2.5max. | 10±1.5 |

(Unit : mm)

## ⑥Top tape strength

The top tape requires a peel-off force of 0.1～0.7N in the direction of the arrow as illustrated below.



# Multilayer chip inductors
# Multilayer chip inductors for high frequency, Multilayer chip bead inductors

## ■RELIABILITY DATA

| 1. Operating Temperature Range | | |
|---|---|---|
| Specified Value | BK1005 | －55～＋125℃ |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | －55～＋125℃ (Including self-generated heat) |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | －40～＋85℃ |
| | HK1005 | －55～＋125℃ |
| | HK1608 | －40～＋125℃ |
| | HK2125 | |

| 2. Storage Temperature Range | | |
|---|---|---|
| Specified Value | BK1005 | －55～＋125℃ |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | －55～＋125℃ |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | －40～＋85℃ |
| | HK1005 | －55～＋125℃ |
| | HK1608 | －40～＋125℃ |
| | HK2125 | |

| 3. Rated Current | | |
|---|---|---|
| Specified Value | BK1005 | 150～750mA DC |
| | BK1608 | 150～1500mA DC |
| | BK2125 | 200～1200mA DC |
| | BKP1005 | 0.8～2.4A DC |
| | BKP1608 | 1.0～3.0A DC |
| | BKP2125 | 1.5～4.0A DC |
| | LK1005 | 20～25mA DC |
| | HK1005 | 110～300mA DC (-55～+125℃)、200～900mA DC (-55～+85℃) |
| | HK1608 | 110～300mA DC (-40～+125℃)、150～300mA DC (-40～+85℃) |
| | HK2125 | 80～300mA DC (-40～+125℃)、300mA DC (-40～+85℃) |

Definition of rated current:
・In the BK Series, the rated current is the value of current at which the temperature of the element is increased within 20℃.
・In the BK Series P type the rated current is the value of current at which the temperature of the element is increased within 40℃.
・In the LK and HK Series, the rated current is either the DC value at which the internal L value is decreased within 5% with the application of DC bias, or the value of current at which the temperature of the element is increased within 20℃.

| 4. Impedance | | |
|---|---|---|
| Specified Value | BK1005 | 10～1800Ω ±25% |
| | BK1608 | 22～2500Ω ±25% |
| | BK2125 | 15～2500Ω ±25% |
| | BKP1005 | 10～330Ω ±5Ω(EM100), ±25%(Other) |
| | BKP1608 | 33～470Ω ±25% |
| | BKP2125 | 33～330Ω ±25% |
| | LK1005 | － |
| | HK1005 | |
| | HK1608 | |
| | HK2125 | |
| Test Methods and Remarks | BK1005Series, BKP1005Series<br>Measuring frequency : 100±1MHz<br>Measuring equipment : 4291A(or its equivalent)<br>Measuring jig : 16192A(or its equivalent), 16193A(or its equivalent)<br>BK1608・2125Series, BKP1608・2125Series<br>Measuring frequency : 100±1MHz<br>Measuring equipment : 4291A(or its equivalent), 4195A(or its equivalent)<br>Measuring jig : 16092A(or its equivalent) or 16192A(or its equivalent)/HW | |

| 5. Inductance | | |
|---|---|---|
| Specified Value | BK1005 | — |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | 0.12～2.2μH: ±10 or ±20% |
| | HK1005 | 1.0～6.2nH: ±0.3nH 6.8～270nH: ±5% |
| | HK1608 | 1.0～5.6nH: ±0.3nH 6.8～470nH: ±5% |
| | HK2125 | 1.5～5.6nH: ±0.3nH 6.8～470nH: ±5% |
| Test Methods and Remarks | LK Series<br>Measuring frequency : 10～25MHz(LK1005)<br>Measuring equipment /jig : ・4291A＋16193A(or its equivalent)/LK1005<br>Measuring current : ・1mA rms(0.047～4.7μH)<br>HK Series<br>Measuring frequency : 100MHz(HK1005)<br>Measuring frequency : 50/100MHz(HK1608・HK2125)<br>Measuring equipment /jig : ・4291A＋16193A(or its equivalent)/HK1005<br>・4291A＋16092A ＋ in-house made jig(or its equivalent)/HK1608・HK2125 | |

| 6. Q | | |
|---|---|---|
| Specified Value | BK1005 | — |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | 10～20 min. |
| | HK1005 | 8 min. |
| | HK1608 | 8～12 min. |
| | HK2125 | 10～18 min. |
| Test Methods and Remarks | LK Series<br>Measuring frequency : 10～25MHz(LK1005)<br>Measuring equipment /jig : ・4291A＋16193A(or its equivalent)/LK1005<br>Measuring current : ・1mA rms(0.047～4.7μH)<br>HK Series<br>Measuring frequency : 100MHz(HK1005)<br>Measuring frequency : 50/100MHz(HK1608・HK2125)<br>Measuring equipment /jig : ・4291A＋16193A(or its equivalent)/HK1005<br>・4291A＋16092A ＋ in-house made jig(or its equivalent)/HK1608, HK2125 | |

| 7. DC Resistance | | |
|---|---|---|
| Specified Value | BK1005 | 0.03～0.90Ω max. |
| | BK1608 | 0.05～1.10Ω max. |
| | BK2125 | 0.05～0.75Ω max. |
| | BKP1005 | 0.0273～0.220Ω max. |
| | BKP1608 | 0.025～0.18Ω max. |
| | BKP2125 | 0.020～0.075Ω max. |
| | LK1005 | 0.41～1.16Ω max. |
| | HK1005 | 0.08～4.8Ω max. |
| | HK1608 | 0.05～2.6Ω max. |
| | HK2125 | 0.10～1.5Ω max. |
| Test Methods and Remarks | Measuring equipment: VOAC-7412, VOAC-7512, VOAC-7521(made by Iwasaki Tsushinki) | |

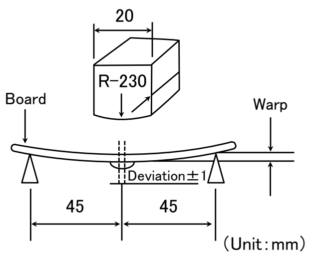
## 8. Self Resonance Frequency (SRF)

| | | |
|---|---|---|
| Specified Value | BK1005 | — |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | 40～180MHz min. |
| | HK1005 | 400～10000MHz min. |
| | HK1608 | 300～10000MHz min. |
| | HK2125 | 200～4000MHz min. |
| Test Methods and Remarks | LK Series<br>Measuring equipment : 4195A (or its equivalent)<br>Measuring jig : 41951＋16092A (or its equivalent)<br>HK Series :<br>Measuring equipment : 8719C (or its equivalent)・8753D (or its equivalent)/HK2125 | |

## 9. Temperature Characteristic

| | | |
|---|---|---|
| Specified Value | BK1005 | — |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | |
| | HK1005 | Inductance change: Within ±10% |
| | HK1608 | |
| | HK2125 | |
| Test Methods and Remarks | HK Series:<br>Temperature range : −30～＋85℃<br>Reference temperature : ＋20℃ | |

## 10. Resistance to Flexure of Substrate

| | | |
|---|---|---|
| Specified Value | BK1005 | No mechanical damage. |
| | BK1608 | |
| | BK2125 | |
| | BKP1005 | |
| | BKP1608 | |
| | BKP2125 | |
| | LK1005 | |
| | HK1005 | |
| | HK1608 | |
| | HK2125 | |
| Test Methods and Remarks | Warp : 2mm (BK Series 、BKP、LK、HK Series)<br>Testing board : glass epoxy-resin substrate<br>Thickness : 0.8mm<br> | |

## 11. Solderability

| | | |
|---|---|---|
| Specified Value | BKH1005<br>BK1608<br>BK2125<br>BKP1005<br>BKP1608<br>BKP2125<br>LK1005<br>HK1005<br>HK1608<br>HK2125 | At least 75% of terminal electrode is covered by new solder. |
| Test Methods and Remarks | Solder temperature :230±5℃ (JIS Z 3282 H60A or H63A)<br>Solder temperature :245±3℃ (Sn/3.0Ag/0.5Cu)<br>Duration :4±1 sec. | |

## 12. Resistance to Soldering

| | | |
|---|---|---|
| Specified Value | BK1005<br>BK1608<br>BK2125<br>BKP1005<br>BKP1608<br>BKP2125 | Appearance:No significant abnormality<br>Impedance change:Within ±30% |
| | LK1005 | No mechanical damage.<br>Remaining terminal electrode:70% min.<br>Inductance change: Within ±15% |
| | HK1005<br>HK1608<br>HK2125 | No mechanical damage.<br>Remaining terminal electrode:70% min.<br>Inductance change: Within ±5% |
| Test Methods and Remarks | Solder temperature :260±5℃<br>Duration :10±0.5 sec.<br>Preheating temperature :150 to 180℃<br>Preheating time :3 min.<br>Flux :Immersion into methanol solution with colophony for 3 to 5 sec.<br>Recovery :2 to 3 hrs of recovery under the standard condition after the test.(See Note 1) | |

## 13. Thermal Shock

| | | |
|---|---|---|
| Specified Value | BK1005<br>BK1608<br>BK2125<br>BKP1005<br>BKP1608<br>BKP2125 | Appearance:No significant abnormality<br>Impedance change: Within ±30% |
| | LK1005 | No mechanical damage.<br>Inductance change: Within ±10% Q change: Within ±30% |
| | HK1005<br>HK1608<br>HK2125 | No mechanical damage.<br>Inductance change: Within ±10% Q change: Within ±20% |

Test Methods and Remarks

BK、BKP、HK Series

Conditions for 1 cycle

| Step | temperature(℃) | time(min.) |
|---|---|---|
| 1 | -40℃ +0/−3 | 30±3 |
| 2 | Room temperature | 2~3 |
| 3 | +125℃ +3/−0 | 30±3 |
| 4 | Room temperature | 2~3 |

Number of cycles:1000

Recovery:2 to 3 hrs of recovery under the standard condition after the test.(See Note 1)

LK Series

Conditions for 1 cycle

| Step | temperature(℃) | time(min.) |
|---|---|---|
| 1 | -40℃ +0/−3 | 30±3 |
| 2 | Room temperature | 2~3 |
| 3 | +85℃ +3/−0 | 30±3 |
| 4 | Room temperature | 2~3 |

Number of cycles:1000

Recovery:2 to 3 hrs of recovery under the standard condition after the test.(See Note 1)

(Note 1) When there are questions concerning measurement result;measurement shall be made after 48±2 hrs of recovery under the standard condition.

| 14. Damp Heat( Steady state) | | |
|---|---|---|
| Specified Value | BK1005<br>BK1608<br>BK2125<br>BKP1005<br>BKP1608<br>BKP2125 | Appearance:No significant abnormality<br>Impedance change: Within ±30% |
| | LK1005 | No mechanical damage.<br>Inductance change: Within ±10% Q change: Within ±30% |
| | HK1005<br>HK1608<br>HK2125 | No mechanical damage.<br>Inductance change: Within ±10% Q change: Within ±20% |
| Test Methods and Remarks | BK、BKP Series:<br>Temperature :85±2℃<br>Humidity :80 to 85%RH<br>Duration :1000+24/−0 hrs<br>Recovery :2 to 3 hrs of recovery under the standard condition after the removal from test chamber.(See Note 1)<br>LK、HK Series:<br>Temperature :85±2℃<br>Humidity :80 to 85%RH<br>Duration :1000±12 hrs<br>Recovery :2 to 3 hrs of recovery under the standard condition after the removal from test chamber.(See Note 1) | |

| 15. Loading under Damp Heat | | |
|---|---|---|
| Specified Value | BK1005<br>BK1608<br>BK2125<br>BKP1005<br>BKP1608<br>BKP2125 | Appearance:No significant abnormality<br>Impedance change: Within ±30% |
| | LK1005 | No mechanical damage.<br>Inductance change: Within ±10% Q change: Within ±30% |
| | HK1005<br>HK1608<br>HK2125 | No mechanical damage.<br>Inductance change: Within ±10% Q change: Within ±20% |
| Test Methods and Remarks | BK、BKP Series:<br>Temperature :85±2℃<br>Humidity :80 to 85%RH<br>Applied current :Rated current<br>Duration :1000+24/−0 hrs<br>Recovery :2 to 3 hrs of recovery under the standard condition after the removal from test chamber.(See Note 1)<br>LK、HK Series:<br>Temperature :85±2℃<br>Humidity :80 to 85%RH<br>Applied current :Rated current<br>Duration :1000±12 hrs<br>Recovery :2 to 3 hrs of recovery under the standard condition after the removal from test chamber.(See Note 1) | |

Note on standard condition: "standard condition" referred to herein is defined as follows:
5 to 35℃ of temperature, 45 to 85% relative humidity, and 86 to 106kPa of air pressure.
When there are questions concerning measurement results:
In order to provide correlation data, the test shall be conducted under condition of 20±2℃ of temperature, 60 to 70% relative humidity, and 86 to 106kPa of air pressure.
Unless otherwise specified, all the tests are conducted under the "standard condition."
(Note 1) Measurement shall be made after 48±2 hrs of recovery under the standard condition.

| 16. Loading at High Temperature | | |
|---|---|---|
| Specified Value | BK1005<br>BK1608<br>BK2125<br>BKP1005<br>BKP1608<br>BKP2125 | Appearance：No significant abnormality<br>Impedance change： Within ±30% |
| | LK1005 | No mechanical damage.<br>Inductance change： Within ±10% Q change： Within ±30% |
| | HK1005<br>HK1608<br>HK2125 | No mechanical damage.<br>Inductance change： Within ±10% Q change： Within ±20% |
| Test Methods and Remarks | BK、BKP Series：<br>Temperature : 125±3℃(BK Series)<br>: 85±3℃(BKP Series)<br>Applied current ：Rated current<br>Duration ：1000＋24/－0 hrs<br>Recovery ：2 to 3 hrs of recovery under the standard condition after the removal from test chamber. (See Note 1)<br><br>LK、HK Series：<br>Temperature : 85±2℃(LK1005)<br>: 85±2℃(HK1005： operating temperature range－55～＋85℃)<br>: 85±2℃(HK1608、HK2125： operating temperature range－40～＋85℃)<br>: 125±2℃(HK1005：operating temperature range－55～＋125℃)<br>: 125±2℃(HK1608、HK2125：operating temperature range－40～＋125℃)<br>Applied current ：Rated current<br>Duration ：1000±12 hrs<br>Recovery ：2 to 3 hrs of recovery under the standard condition after the test.(See Note 1) | |

Note on standard condition: "standard condition" referred to herein is defined as follows:
5 to 35℃ of temperature, 45 to 85% relative humidity, and 86 to 106kPa of air pressure.
When there are questions concerning measurement results:
In order to provide correlation data, the test shall be conducted under condition of 20±2℃ of temperature, 60 to 70% relative humidity, and 86 to 106kPa of air pressure. Unless otherwise specified, all the tests are conducted under the "standard condition."
(Note 1) Measurement shall be made after 48±2 hrs of recovery under the standard condition.