# SPECIFICATION FOR APPROVAL

RoHs

CUSTOMER

CUSTOMER'S DWG NO. REVISION NO.

CUSTOMER'S PART NO.

TECSTAR'S PART NO. TL160808-5R6K

QUANTITY PCS

ITEM DATE SEP/03/2009

| | " √ " | CUSTOMER'S SIGNATURE | NOTE |
|---|---|---|---|
| FULL APPROVED | | | |
| CONDITONAL APPROVED | | | |
| REJECTED | | | |

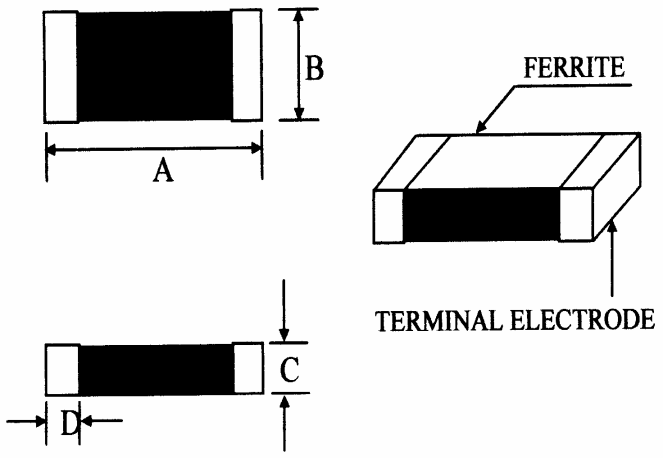

## TECSTAR TECHNOLOGY CO., LTD.

NO. 820-1 Kou Shih Rd. Yang Mei Chen
Taoyuan Hsien, Taiwan, R.O.C.
TEL：886-3-4788701
FAX：886-3-4788702
www tecstar.com.tw

# SPECIFICATION FOR APPROVAL

| CUSTOMER: | CUSTOMER'S P/N: |
|---|---|
| VENDOR'S P/N: TL160808-5R6K | |

DIMENSION:(m/m)




| | | |
|---|---|---|
| A | 1.6 ± 0.2 | m/m |
| B | 0.8 ± 0.2 | m/m |
| C | 0.8 ± 0.2 | m/m |
| D | 0.3 ± 0.2 | m/m |
| E | | m/m |
| F | | m/m |
| G | | m/m |
| H | | m/m |
| I | | m/m |
| J | | m/m |
| K | | m/m |
| L | | m/m |
| M | | m/m |
| N | | m/m |
| O | | m/m |

ELECTRICAL REQUIREMENTS

| | | | | | |
|---|---|---|---|---|---|
| L | 5.6 | ± 10% | μH | TEST FREQ. | 4MHz/100mV |
| Q | 35 | | MIN. | TEST FREQ. | 4MHz/100mV |
| Srf | 22 | MHz | MIN. | TEST FREQ. | MHz |
| Rdc | 1.55 | OHM. | MAX. | TEST FREQ. | MHz |
| Idc | 5 | mA | MAX. | TEST FREQ. | MHz |
| | | | | | |
| | | | | | |

**TEST INSTRUMENTS**

- ●HP 4338A MILLIOHMMETER
- ○HP 4195A NETWORK/SPECTRUM ANALYZER
- ○HP 4284A BIAS CURRENT SOURCE
- ○HP 4285A PRECISION LCR METER
- ○HP 4286A PRECISION LCR METER
- ●HP 4291B RF IMPEDANCE /MATERIAL ANALYZER
- ○HP 6632A DC POWER SUPPLY

| DRAWN BY | CHECKED BY | APPROVED BY |
|---|---|---|
| Juli Wang | John Chuang | Lionel Lin |

# TEST DATA

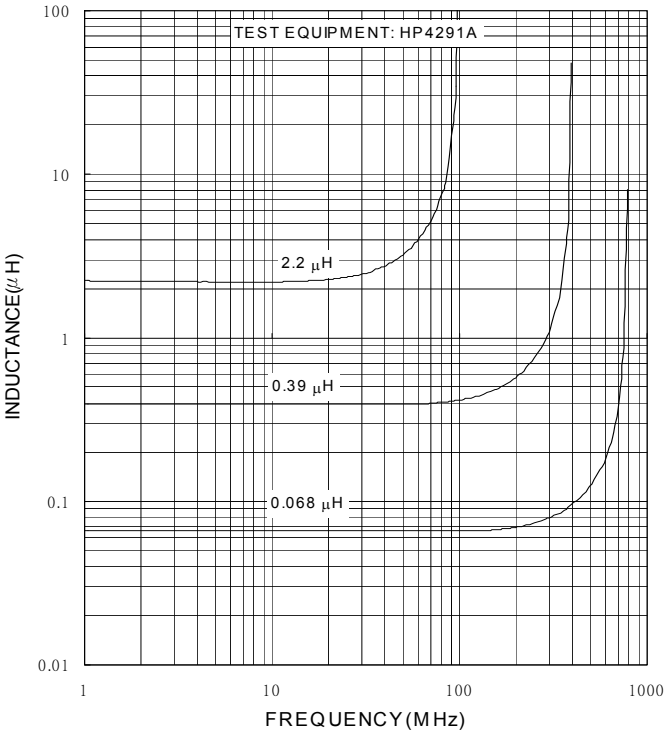
| CUSTOMER: | | | | | | | |
|---|---|---|---|---|---|---|---|
| CUSTOMER'S P/N: | | | | | | SERIES NO: | TL3021 |
| VENDOR'S P/N: | | TL160808-5R6K | | | | DATE: | 03-SEP-2009 |
| MEAS | A | B | C | D | L | Q | Rdc |
| ITEM | (m/m) | (m/m) | (m/m) | (m/m) | ($\mu$H) | | ($\Omega$) |
| SPEC | 1.6 ± 0.2 | 0.8 ± 0.2 | 0.8 ± 0.2 | 0.3 ± 0.2 | 5.6 ± 10% | 35 MIN. | 1.55 MAX. |
| TEST FREQ. | | | | | 4MHz | 4MHz | |
| 1 | 1.02 | 0.82 | 0.80 | 0.30 | 5.40 | 56.2 | 1.057 |
| 2 | 1.00 | 0.84 | 0.82 | 0.33 | 5.58 | 57.7 | 1.096 |
| 3 | 1.04 | 0.81 | 0.84 | 0.29 | 5.66 | 59.8 | 1.100 |
| 4 | 1.01 | 0.81 | 0.81 | 0.32 | 5.41 | 58.7 | 1.064 |
| 5 | 1.03 | 0.82 | 0.82 | 0.30 | 5.71 | 60.2 | 1.028 |
| 6 | 1.02 | 0.83 | 0.80 | 0.33 | 5.39 | 59.3 | 1.099 |
| 7 | 1.00 | 0.81 | 0.83 | 0.28 | 5.49 | 57.4 | 1.028 |
| 8 | 1.02 | 0.82 | 0.81 | 0.32 | 5.77 | 56.5 | 1.043 |
| 9 | 1.01 | 0.81 | 0.82 | 0.30 | 5.47 | 59.2 | 1.073 |
| 10 | 1.03 | 0.84 | 0.81 | 0.33 | 5.71 | 57.1 | 1.080 |
| AVG. | 1.02 | 0.82 | 0.82 | 0.31 | 5.56 | 58.2 | 1.067 |
| R | 0.04 | 0.03 | 0.03 | 0.05 | 0.38 | 4.0 | 0.072 |

| DRAWN BY | CHECKED BY | APPROVED BY |
|---|---|---|
| Juli Wang | John Chuang | Lionel Lin |

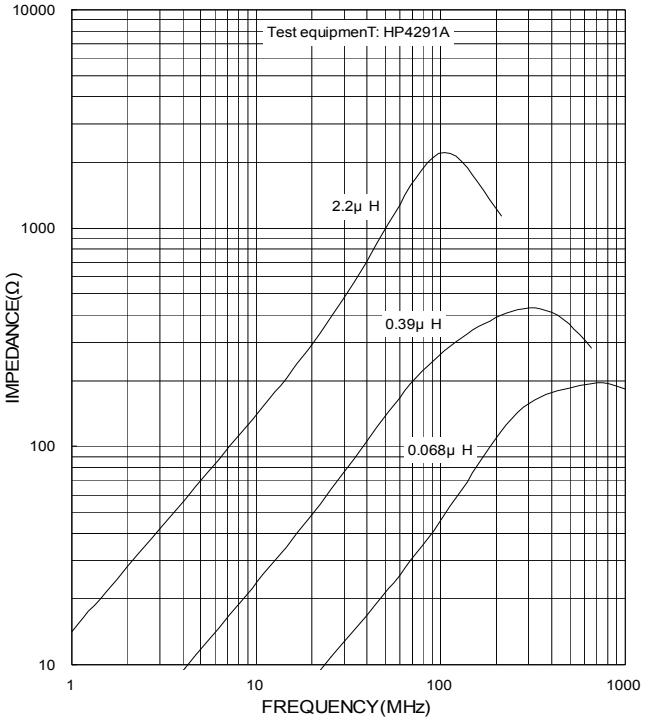
# TYPICAL ELECTRICAL CHARACTERISTICS CURVE

TL160808 Type

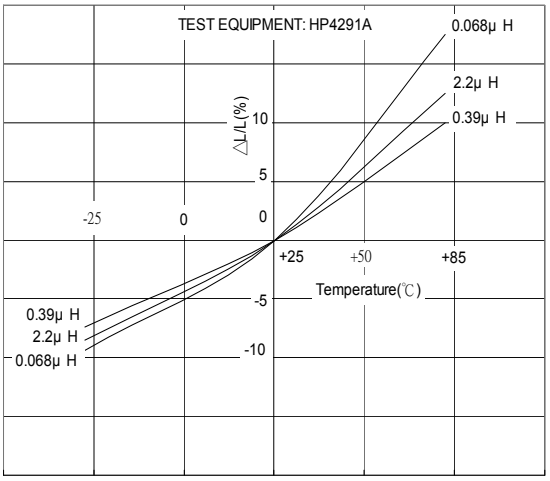
Inductance VS. Frequency



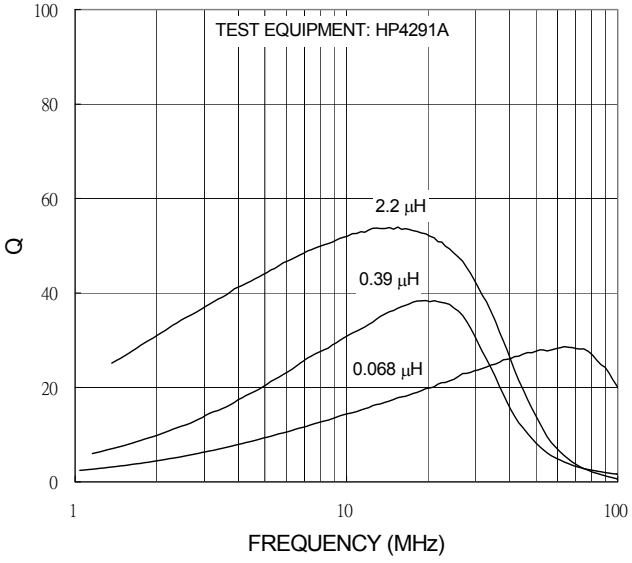

Impedance VS. Frequency



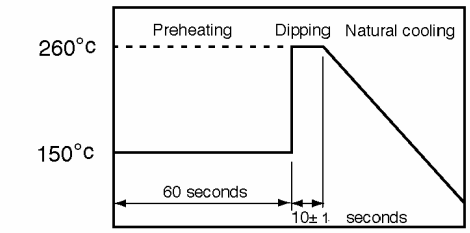
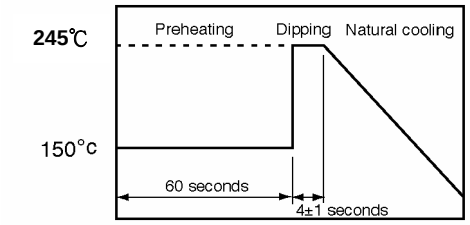

Inductance VS. Temperature




Q VS. Frequency



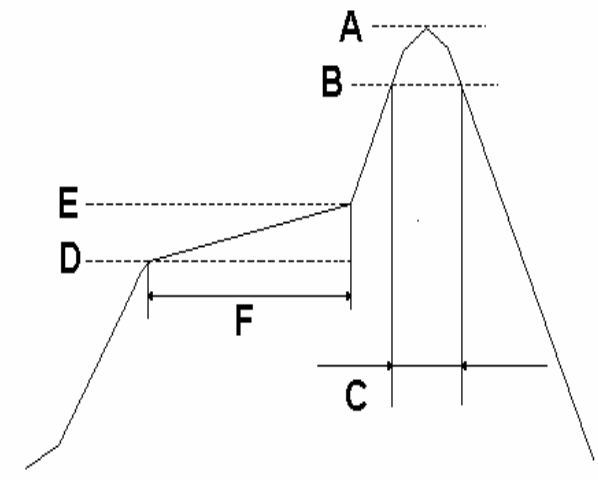
# RELIABILITY TEST

| Item | Performance | Test condition |
|---|---|---|
| Operating temperature range | -55 °C to + 125 °C | |
| Storage temperature and umidity ranges | 40 °C MAX., 70% RH MAX. | |
| Soldering heat resistance | The chip shall not be cracks.<br>More than 75% of terminal electrode shall be covered with solder. | Preheat: 150 °C, 60 seconds<br>Solder temperature : 260 ± 5 °C<br>Flux: Rosin<br>Dip time: 10 ± 1 seconds<br>  |
| Solderability | More than 90% of the terminal electrode shall be covered with new solder. | Preheat: 150 °C, 60 seconds<br>Solder temperature: 245 ± 5 °C<br>Flux: Rosin<br>Dip time: 4 ± 1 seconds<br>  |

## Recommended Soldering Conditions

(REFLOW TEMPERATURE PROFILE) Lead-Free

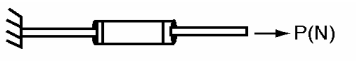
| | |
|---|---|
| A | *260 ± 5℃* |
| B | *230 ± 5℃* |
| C | *30 ± 10 sec* |
| D | *150℃* |
| E | *180℃* |
| F | *90 ± 30sec* |



# RELIABILITY TEST

**Terminal strength**

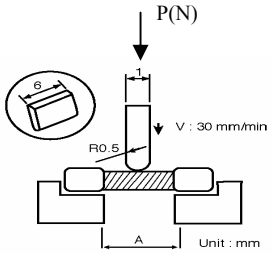
The terminal electrode and the body shall not be damaged by the forces applied on the right conditions.




| Type | P (kgf) | Time (s) |
|---|---|---|
| T□100505 | 0.3 | |
| T□160808 | 0.5 | |
| T□201209 | 0.6 | |
| T□201212 | 0.8 | |
| T□321611 | 1.0 | |
| T□322513 | 1.0 | 30 ± 5 |
| T□451616 | 1.0 | |
| T□453215 | 1.5 | |
| TA3216M4 | 0.5 | |

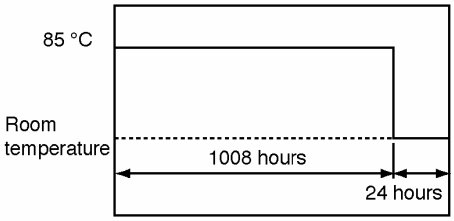
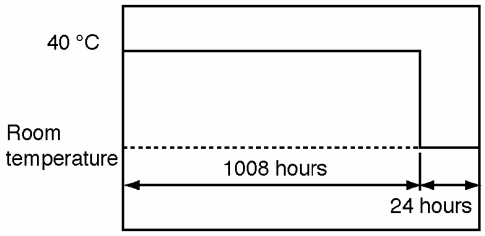
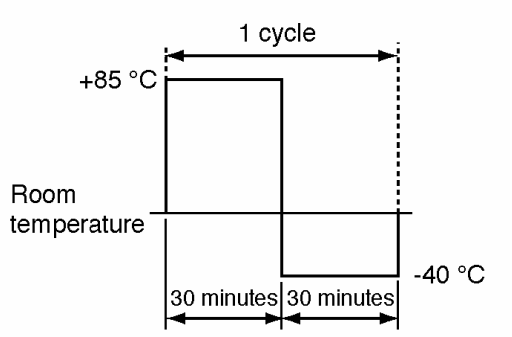
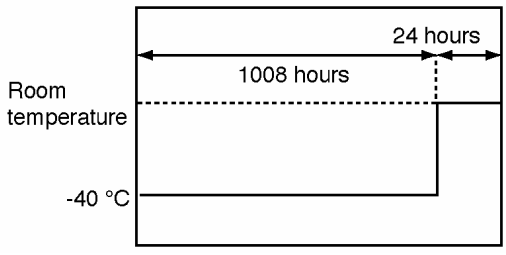
**Bending strength**

The body shall not be damaged by the forces applied on the right conditions.



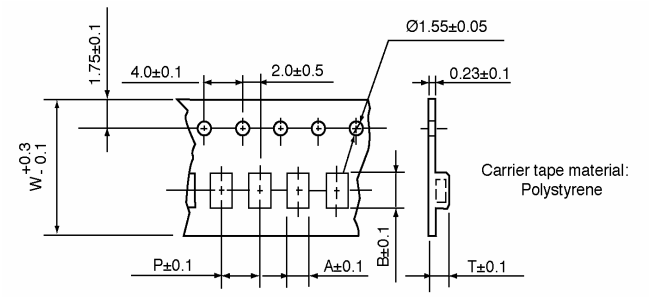

| Type | A (mm) | P (kgf) |
|---|---|---|
| T□160808 | 1.0 | 0.5 |
| T□201209 | 1.4 | 1.0 |
| T□201212 | 1.4 | 1.2 |
| T□321611 | 2.0 | 2.0 |
| T□322513 | 2.0 | 2.5 |
| T□451616 | 2.5 | 2.5 |
| T□453215 | 2.7 | 2.5 |
| TA3216M4 | 1.4 | 1.0 |

# RELIABILITY TEST

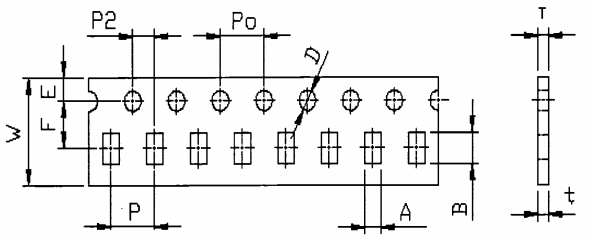
| Item | Performance | Test condition |
|---|---|---|
| High temperature resistance | Appearance : Ferrite shall not be damaged.<br>Inductance : Within±10% of the initial value. Q: Within±30% of the initial value. | Temperature: 85±2℃<br>Testing time: 1008±12 hours<br>Measurement: After placing for 24 hours min<br>  |
| Humidity resistance | Appearance: Ferrite shall not be damaged.<br>Inductance: Within±10% of the initial value<br>Q: Within±30 % of the initial value. | Humidity: 90 to 95% RH<br>Temperature: 40±2℃<br>Testing time: 1008±12 hours<br>Measurement: After placing for 24 hours min<br>  |
| Thermal Shock | Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed.<br>Inductance: Within±10% of the initial value<br>Q: Within±30% of the initial value. | Temperature: -40℃, +85℃, kept stabilized for 30 minutes each<br>Cycle: 100 cycles<br>Measurement: After placing for 24 hours min<br>  |
| Low temperature storage life test | Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed.<br>Inductance: Within±10% of the initial value. Q: Within±30% of the initial value. | Temperature: -40±2℃<br>Testing time: 1008±12 hours<br>Measurement: After placing for 24 hours min<br>  |

# PACKAGING

- Tape dimensions and packaging quantities



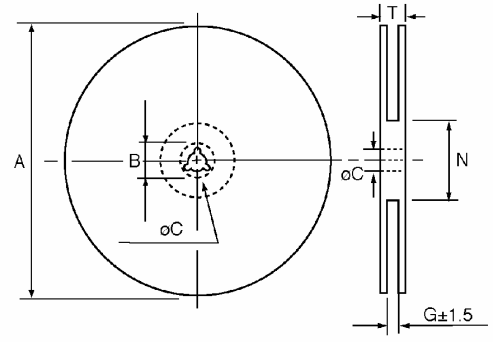

Carrier tape material: paper




| material: Paper ( Dimensions in mm) | | | | | | |
|---|---|---|---|---|---|---|
| TYPE | A | B | W | P | T | CHIPS / REEL |
| 100505 | 0.62 | 1.12 | 8 | 2 | 0.60 | 10000 |
| 160808 | 1.10 | 1.90 | 8 | 4 | 0.95 | 4000 |
| 201209 | 1.50 | 2.30 | 8 | 4 | 0.95 | 4000 |
| material: Polystyrene ( Dimensions in mm) | | | | | | |
| TYPE | A | B | W | P | T | CHIPS / REEL |
| 160808 | 1.01 | 1.80 | 8 | 4 | 1.02 | 4000 |
| 201209 | 1.42 | 2.25 | 8 | 4 | 1.04 | 4000 |
| 201212 | 1.50 | 2.35 | 8 | 4 | 1.45 | 2000 |
| 321611 | 1.88 | 3.50 | 8 | 4 | 1.27 | 3000 |

- Reel dimensions

Material:Paper, Plastic




Dimensions in mm

| TYPE | 8mm | 12mm |
|---|---|---|
| A | 178±2 | 178±2 |
| B | 21.0±0.8 | 21.0±0.8 |
| C | 13.0±0.8 | 13.0±0.8 |
| G | 10.0 | 14.0 |
| N | 75 | 75 |
| T | 12.5 | 16.5 |