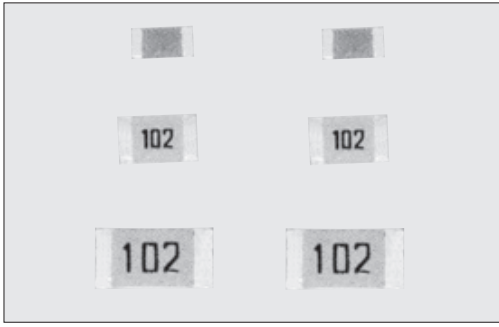


NTC THERMISTORS



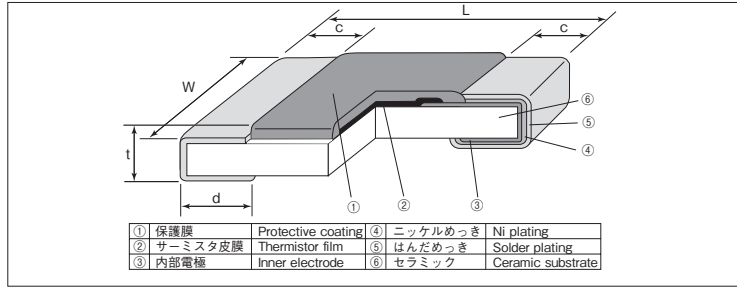
温度センサ
Thermal Sensors

NT73 角形チップサーミスタ NTC Flat Chip Thermistors



外表色：ピンク Coating color : Pink

■構造図 Construction



■外形寸法 Dimensions

| 形名 Type (Inch Size Code) | 寸法 Dimensions (mm) | | | | | Weight (g) (1000pcs) |
|-----------------------------|--------------------|----------|---------|-------------------------------------|-------------------------------------|-------------------------|
| | L±0.2 | W | c | d | t | |
| 1J (0603) | 1.6 | 0.8±0.1 | 0.3±0.1 | 0.3±0.1 | 0.5±0.1 | 2.54 |
| 2A (0805) | 2.0 | 1.25±0.1 | 0.4±0.2 | 0.3 ^{+0.2} _{-0.1} | 0.5 ^{+0.2} _{-0.1} | 4.87 |
| 2B (1206) | 3.2 | 1.6±0.2 | 0.5±0.3 | 0.4 ^{+0.2} _{-0.1} | 0.6±0.1 | 10.12 |

■特長 Features

- 面実装タイプの厚膜NTCチップサーミスタです。
- 積層タイプに比べ厚さが(1608・2012サイズで0.5mm、3216サイズで0.6mm)薄くなります。
- 機械的強度が高く実装性に優れています。
- 電極部がはんだめっきで実装性に優れています。
- リフロー、フローはんだ付けに対応します。
- 端子鉛フリー品は、欧州RoHS対応品です。電極、抵抗、ガラスに含まれる鉛ガラスは欧州RoHSの適用除外です。
- SMD type thick film NTC chip thermistors.
- Thinner (0.5mm in 1608, 2012 sizes, 0.6mm in 3216 size) than the multilayer type.
- Excellent mountability due to its higher mechanical strength.
- Excellent mountability due to its solder plating at the terminal section.
- Suitable for both flow and reflow solderings.
- Products with lead free termination meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.

■品名構成 Type Designation

例 Examples

| NT73 | 2A | T | TD | 103 | K | 3800 | J |
|--------------------|----------------------------------|---|--|--------------------------------|-----------------------------------|--------------------------------|-----------------------------------|
| 品種 Product Code | 定格電力 Power Rating | 端子表面材質 Termination Surface Material | 二次加工 Taping | 公称抵抗値 Nominal Resistance | 抵抗値許容差 Resistance Tolerance | 公称B定数 Nominal B Constant | B定数許容差 B Constant Tolerance |
| | 1J:5.0mW 2A:5.0mW 2B:5.0mW | T:Sn (L:Sn/Pb) | TD:4mm pitch punch paper BK:Bulk | 3digits | J:±5% K:±10% L:±15% | | H:±3% J:±5% K:±10% |

端子表面材質は鉛フリーめっき品が標準となります。

環境負荷物質含有についてEU-RoHS以外の物質に対するご要望がある場合にはお問合せ下さい。テーピングの詳細については巻末のAPPENDIX Cを参照して下さい。

The terminal surface material lead free is standard.

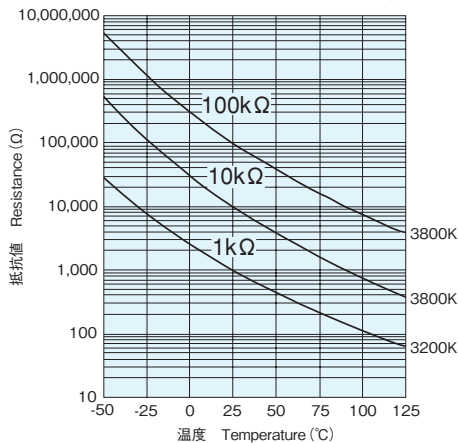
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

For further information on taping, please refer to APPENDIX C on the back pages.

■参考規格 Reference Standards

IEC 60115-1 JIS C 5201-8 JIS C 2570

■抵抗-温度特性 Resistance-Temperature Characteristic



(代表値 Typical)

| 抵抗値 (at 25°C) Resistance | 1kΩ | 5kΩ | 10kΩ | 100kΩ | 10kΩ |
|-------------------------------|--------|---------|---------|--------|---------|
| B定数 (25°C/75°C) B Constant | 3200K | 3500K | 3700K | 3800K | 4100K |
| 温度 Temp. (°C)/ 単位 Unit | Ω | kΩ | kΩ | kΩ | kΩ |
| -55 | 38770 | 273.24 | 638.23 | 7692.5 | 1203.1 |
| -50 | 28840 | 197.67 | 465.81 | 5414.6 | 820.76 |
| -45 | 21706 | 144.85 | 343.25 | 3864.5 | 568.09 |
| -40 | 16517 | 107.43 | 255.22 | 2794.3 | 398.57 |
| -35 | 12698 | 80.577 | 191.37 | 2045.2 | 283.20 |
| -30 | 9857.0 | 61.077 | 144.64 | 1514.1 | 203.64 |
| -25 | 7721.2 | 46.759 | 110.13 | 1133.0 | 148.07 |
| -20 | 6100.5 | 36.137 | 83.710 | 856.49 | 108.37 |
| -15 | 4858.7 | 28.173 | 64.190 | 653.63 | 80.182 |
| -10 | 3899.0 | 22.147 | 49.640 | 503.31 | 59.943 |
| -5 | 3151.3 | 17.546 | 38.680 | 390.86 | 45.252 |
| 0 | 2564.2 | 14.004 | 30.370 | 305.97 | 34.478 |
| 5 | 2099.9 | 11.256 | 23.970 | 241.34 | 26.473 |
| 10 | 1730.0 | 9.1063 | 19.070 | 191.73 | 20.506 |
| 15 | 1433.5 | 7.4135 | 15.270 | 153.36 | 16.016 |
| 20 | 1194.2 | 6.0712 | 12.320 | 123.46 | 12.608 |
| 25 | 1000.0 | 5.0000 | 10.000 | 100.00 | 10.000 |
| 30 | 841.48 | 4.1398 | 8.1700 | 81.470 | 7.9880 |
| 35 | 711.39 | 3.4451 | 6.7100 | 66.739 | 6.4242 |
| 40 | 604.07 | 2.8809 | 5.5500 | 54.959 | 5.1999 |
| 45 | 515.10 | 2.4202 | 4.6100 | 45.484 | 4.2349 |
| 50 | 441.00 | 2.0421 | 3.8500 | 37.823 | 3.4692 |
| 55 | 379.00 | 1.7302 | 3.2300 | 31.594 | 2.8585 |
| 60 | 326.90 | 1.4718 | 2.7200 | 26.506 | 2.3682 |
| 65 | 282.95 | 1.2568 | 2.3100 | 22.330 | 1.9721 |
| 70 | 245.72 | 1.0771 | 1.9700 | 18.886 | 1.6504 |
| 75 | 214.08 | 0.92637 | 1.6800 | 16.035 | 1.3877 |
| 80 | 187.08 | 0.79937 | 1.4500 | 13.663 | 1.1724 |
| 85 | 163.96 | 0.69199 | 1.2500 | 11.682 | 0.99491 |
| 90 | 144.11 | 0.60087 | 1.0800 | 10.022 | 0.84926 |
| 95 | 127.00 | 0.52329 | 0.94000 | 8.6257 | 0.72802 |
| 100 | 112.21 | 0.45701 | 0.82000 | 7.4466 | 0.62662 |
| 105 | 99.377 | 0.40016 | 0.72000 | 6.4466 | 0.54156 |
| 110 | 88.224 | 0.35129 | 0.63000 | 5.5968 | 0.46982 |
| 115 | 78.501 | 0.30915 | 0.56000 | 4.8721 | 0.40906 |
| 120 | 70.004 | 0.27272 | 0.49000 | 4.2523 | 0.35741 |
| 125 | 62.558 | 0.24114 | 0.44000 | 3.7207 | 0.31332 |

本カタログに掲載の仕様は予告なく変更する場合があります。ご注文およびご使用前に納入仕様書で内容をご確認下さい。

車載機器、医療機器、航空機器など人命に関わったり、あるいは甚大な損害を引き起こす可能性のある機器へのご使用を検討される場合には、必ず事前にご相談下さい。

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Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

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■ 定格 Ratings

| 形状 Style | 抵抗値 Resistance (Ω) at 25°C | 抵抗値許容差 Resistance Tolerance | B定数 B Constant (K) at 25°C/75°C | B定数許容差 B Constant Tolerance | 定格電力 Power Rating (mW) | 使用温度範囲 Operating Temp. Range | テーピングと包装数/リール | | |
|-------------|---|--|---------------------------------------|-----------------------------------|------------------------------|------------------------------------|-------------------------------|------|---------------|
| | | | | | | | Taping & Qty/Reel (pcs) TD | | |
| 1J | 6.8k | J: $\pm 5\%$ K: $\pm 10\%$ | 3500 | K: $\pm 10\%$ | 5 | -55°C ~ +125°C | 5,000 | | |
| | 10k | | | J: $\pm 5\%$ | | | | | |
| | 15k | | | H: $\pm 3\%$ | | | | | |
| | 10k | | | | | | | | |
| | 20k | | 3800 | J: $\pm 5\%$ | | | | | |
| | 22k | | | | | | | | |
| | 30k | | | | | | | | |
| | 33k | | | | | | | | |
| | 47k | | | | | | | | |
| | 68k | | | | | | | | |
| | 100k | | | | | | | | |
| | 47k | | | | | | | 4100 | H: $\pm 3\%$ |
| | 1k | | | | | | | | |
| | 2k | | | | | | | 3200 | K: $\pm 10\%$ |
| 2.2k | | | | | | | | | |
| 2.4k | 3500 | K: $\pm 10\%$ | | | | | | | |
| 3.3k | | | | | | | | | |
| 4.7k | | | | | | | | | |
| 5k | | | | | | | | | |
| 10k | | | | | | | | | |
| 6.8k | | | 3800 | J: $\pm 5\%$ | | | | | |
| 10k | | | | | | | | | |
| 15k | | | | | | | | | |
| 20k | | | | | | | | | |
| 22k | | | | | | | | | |
| 30k | | | | | | | | | |
| 33k | | | | | | | | | |
| 47k | | | | | | | | | |
| 68k | | | | | | | | | |
| 100k | 4100 | H: $\pm 3\%$ | | | | | | | |
| 150k | | | | | | | | | |
| 50k | | | | | | | | | |
| 10k | | | | | | | | | |
| 15k | | | | | | | | | |
| 20k | | | | | | | | | |
| 22k | | | | | | | | | |
| 30k | | | | | | | | | |
| 33k | | | | | | | | | |
| 47k | | | | | | | | | |
| 68k | | | | | | | | | |
| 100k | | | | | | | | | |
| 150k | | | | | | | | | |
| 2A | 1k | J: $\pm 5\%$ K: $\pm 10\%$ L: $\pm 15\%$ | 3200 | K: $\pm 10\%$ | 5 | -55°C ~ +125°C | 5,000 | | |
| | 2.2k | | | | | | | | |
| | 3.3k | | | | | | | | |
| | 4.7k | | | | | | | | |
| | 6.8k | | 3500 | J: $\pm 5\%$ | | | | | |
| | 10k | | | | | | | | |
| | 15k | | | | | | | | |
| | 20k | | | | | | | | |
| | 22k | | | | | | | | |
| | 30k | | | | | | | | |
| | 33k | | | | | | | | |
| | 47k | | | | | | | | |
| | 68k | | | | | | | | |
| | 100k | | | | | | | 3800 | H: $\pm 3\%$ |
| 150k | | | | | | | | | |
| 10k | | | | | | | | | |
| 15k | | | | | | | | | |
| 20k | | | | | | | | | |
| 22k | | | | | | | | | |
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| 33k | | | | | | | | | |
| 47k | | | | | | | | | |
| 68k | | | | | | | | | |
| 100k | | | | | | | | | |
| 150k | | | | | | | | | |
| 2B | 1k | J: $\pm 5\%$ K: $\pm 10\%$ L: $\pm 15\%$ | 3200 | K: $\pm 10\%$ | 5 | -55°C ~ +125°C | 5,000 | | |
| | 2.2k | | | | | | | | |
| | 3.3k | | | | | | | | |
| | 4.7k | | | | | | | | |
| | 6.8k | | 3500 | J: $\pm 5\%$ | | | | | |
| | 10k | | | | | | | | |
| | 15k | | | | | | | | |
| | 20k | | | | | | | | |
| | 22k | | | | | | | | |
| | 30k | | | | | | | | |
| | 33k | | | | | | | | |
| | 47k | | | | | | | | |
| | 68k | | | | | | | | |
| | 100k | | | | | | | 3800 | H: $\pm 3\%$ |
| 150k | | | | | | | | | |

熱放散定数—大気中—(参考値) Thermal Dissipation Constant —In the atmosphere— (Reference)
 1J: 2.0mW/°C, 2A: 2.8mW/°C, 2B: 3.0mW/°C

■ 性能 Performance

| 試験項目 Test Items | 規格値 Performance Requirement $\Delta R \pm (\% + 0.05\Omega)$ | | 試験方法 Test Methods |
|--|---|--------------------------|---|
| | 保証値 Limit | 代表値 Typical | |
| 抵抗値 Resistance | 規定の許容差内 Within specified tolerance | — | 25°C |
| B定数 B Constant | 規定の許容差内 Within specified tolerance | — | +25°C / +75°C |
| はんだ耐熱性 Resistance to soldering heat | 1 2 : 1k Ω | 0.5 1.0 : 1k Ω | 260°C $\pm 5^\circ\text{C}$, 10s $\pm 1\text{s}$ |
| 温度急変 Rapid change of temperature | 3 | 1.3 | -55°C (30min.) / +125°C (30min.) 50 cycles |
| 耐湿負荷 Moisture resistance | 3 | 1.1 | 40°C $\pm 2^\circ\text{C}$, 90%~95%RH, 1000h |
| 定格負荷 Load life | 3 | 2.5 | 80°C $\pm 3^\circ\text{C}$, DC5mW, 1000h |
| 高温放置 (80°C) High temperature exposure | 3 | 1.6 | 80°C, 1000h |

本製品は80°Cを超える高温環境下において抵抗値ドリフトが汎用抵抗器より大きい傾向がありますので抵抗値ドリフトをご確認いただいた上でご使用いただけますようお願いいたします。
 また、本製品は特殊な皮膜を使っているため、静電気により皮膜が破壊され抵抗値変化を起す可能性がありますので静電気が掛からないようご注意ください。
 Confirming resistance drift is recommended since this product has a tendency to have bigger resistance change than general flat chip over 80°C.
 Please pay attention not to be applied ESD, it may cause of resistance change.

実力値(保証外) Actual Value (Out of guarantee)

| 試験項目 Test Items | 参考値 Reference | 試験方法 Test Methods |
|-----------------------------------|---------------|---|
| 高温放置 High temperature exposure | 7% | +125°C, 1000h |
| 静電気特性 ESD | 500V | 人体モデル, Human model, 100pF 1.5k Ω |

■ 使用上の注意 Precautions for Use

- この抵抗器は電力印加による自己発熱により、抵抗値が変化します。その為、自己発熱を考慮して御使用下さい。
- 部品のテーピング材料は、適正な静電気対策を施したものを使用しておりますが、実装に際して過度な乾燥環境である場合や、テーピング包装のまま長期振動を加えた直後にはトップテープに静電吸着して搭載障害を起こしたり、部品が静電気で破壊し、抵抗値変化する危険性がありますのでご注意ください。基板実装時におきましても、同様に過度な静電気が印加されないようご注意ください。
- The resistance value of this resistor changes by its self-heating by power applied. Therefore, it is recommended to use it by taking its self heat-generation into consideration.
- Though properly and electrostatically measured taping materials are used for the components, attention should be required because of some danger that the parts absorb on the top tapes to cause mounting failure and are destructed by static electricity to change the resistance under the extra dry conditions or after the packaged parts are given vibration for a long time. Similarly, care should be given not to apply the excessive static electricity when mounting the parts on the boards.

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