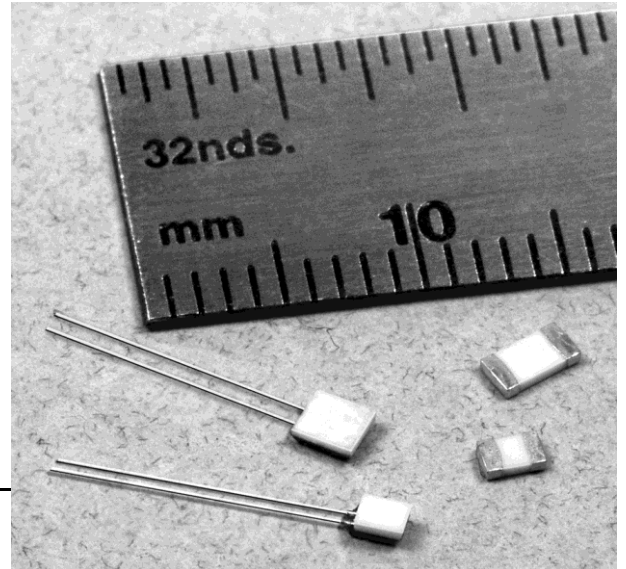


700 Series Platinum RTDs

Temperature Sensors



DESCRIPTION

The 700 Series Platinum RTD (Resistance Temperature Detector) is an economical, miniature temperature sensor. The series is available in two different package configurations, leaded and SMT (Surface Mount Technology). Two sizes are available for each configuration, with the SMT available in industry standard 0805 and 1206 packages.

The 700 Series has 100 Ω and 1000 Ω base resistances and is available in both the 3750 ppm/K and 3850 ppm/K temperature coefficients (375 and 385 alphas). The tolerances of the 700 Series meet DIN class A, DIN class B and DIN class 2B industry-standards.

The 700 Series is RoHS (Restriction of Hazardous Substances) compliant (EU Directive 2002/95/EC).

FEATURES

- Linear resistance vs temperature
- High accuracy
- Interchangeable
- Excellent stability
- Fast time response
- Wide temperature range
- RoHS compliant

POTENTIAL APPLICATIONS

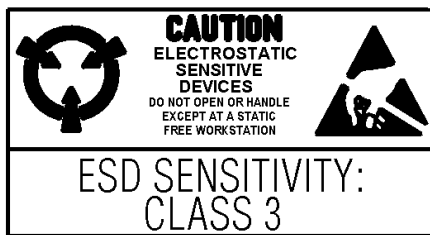
- HVAC (Heating Ventilation and Air Conditioning)
- Electronic assemblies
- Process control
- Appliances
- Automotive
- Instrumentation

700 Series Platinum RTDs

Table 1. Specifications

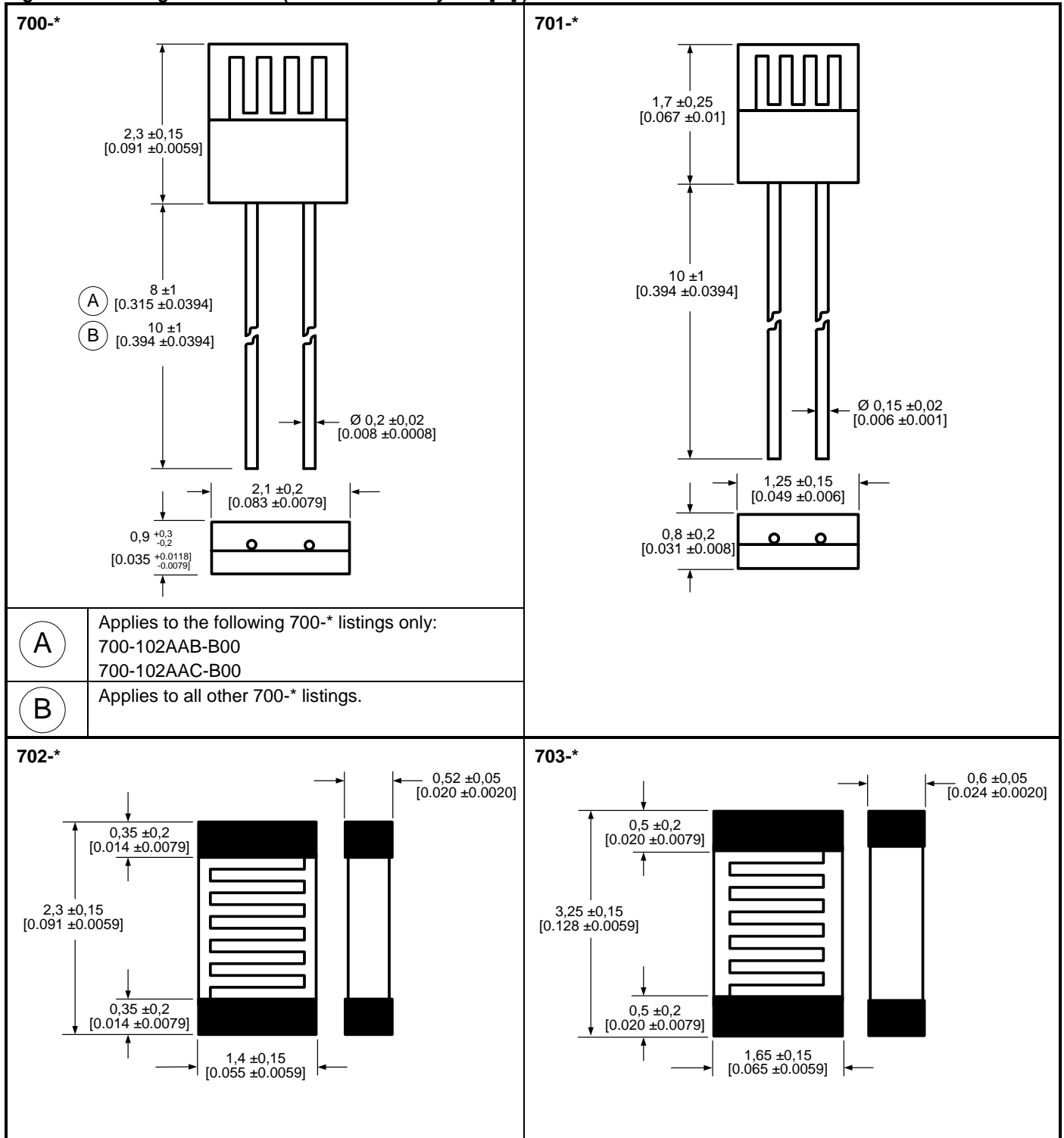
| | 700-* | 701-* |
|---------------------------------|--|---|
| Temperature range | Class B and 2B: -70 °C to 500 °C (continuous operation) Class A: -30 °C to 300 °C | Class B and 2B: -70 °C to 500 °C (continuous operation) Class A: -30 °C to 300 °C |
| Leads | Pt-clad Ni wire | Pt-clad Ni wire |
| Long-term stability | max. R ₀ drift 0.04% after 1000 h at 500 °C | max. R ₀ drift 0.04% after 1000 h at 500 °C |
| Vibration resistance | at least 40 g acceleration at 10 Hz to 2000 Hz, depends on installation | at least 40 g acceleration at 10 Hz to 2000 Hz, depends on installation |
| Shock resistance | at least 100 g acceleration with 8 ms half sine wave, depends on installation | at least 100 g acceleration with 8 ms half sine wave, depends on installation |
| Environmental conditions | unhoused for dry environments only | unhoused for dry environments only |
| Insulation resistance | >100 MΩ at 20 °C; >2 MΩ at 500 °C | >100 MΩ at 20 °C; >2 MΩ at 500 °C |
| Self heating | 0.4 K/mW at 0 °C | 0.6 K/mW at 0 °C |
| Response time | water current (v=0.4 m/s): t _{0.5} =0.05 s; t _{0.9} =0.15 s air stream (V=2 m/s): t _{0.5} =3.0 s; t _{0.9} =10.0 s | water current (v=0.4 m/s): t _{0.5} =0.04 s; t _{0.9} =0.12 s air stream (V=2 m/s): t _{0.5} =2.2 s; t _{0.9} =7.0 s |
| Measuring current | 100 Ω: 0.3 mA to 1.0 mA 1000 Ω: 0.1 mA to 0.3 mA | 100 Ω: 0.3 mA to 1.0 mA 1000 Ω: 0.1 mA to 0.3 mA |
| Packaging | anti-static plastic bag | anti-static plastic bag |

| | 702-* | 703-* |
|---------------------------------|---|--|
| Temperature range | Class B: -50 °C to 130 °C (continuous operation) | Class B: -50 °C to 130 °C (continuous operation) |
| Soldering connection | end-termination galvanic tin-plated with Ni barrier layer | end-termination galvanic tin-plated with Ni barrier layer |
| Long-term stability | max. R ₀ drift 0.06 % after 1000 h at 130 °C | max. R ₀ drift 0.06 % after 1000 h at 130 °C |
| Environmental conditions | unhoused for dry environments only | unhoused for dry environments only |
| Insulation resistance | >100 MΩ at 20 °C; >2 MΩ at 130 °C (glass covering) | >100 MΩ at 20 °C; >2 MΩ at 130 °C (glass covering) |
| Self heating | 0.8 K/mW at 0 °C | 0.4 K/mW at 0 °C |
| Response time | water current (v=0.4 m/s): t _{0.5} =0.10 s; t _{0.9} =0.25 s air stream (V = 2 m/s): t _{0.5} =2.5 s; t _{0.9} =8.0 s | water current (v=0.4 m/s): t _{0.5} =0.15 s; t _{0.9} =0.30 s air stream (V = 2 m/s): t _{0.5} =3.5 s; t _{0.9} =10.0 s |
| Measuring current | 100 Ω: 0.3 mA to 1.0 mA 1000 Ω: 0.1 mA to 0.3 mA | 100 Ω: 0.3 mA to 1.0 mA 1000 Ω: 0.1 mA to 0.3 mA |
| Processing instructions | face up mounting: reflow soldering or wave soldering, e.g. double wave ≤8 s/235 °C | face up mounting: reflow soldering or wave soldering, e.g. double wave ≤8 s/235 °C |
| Packaging | face-up in blister reel | face-up in blister reel |



Temperature Sensors

Figure 1. Mounting Dimensions (For reference only mm/[in].)



Order Guide

| Catalog Listing | Package Style and Size mm [in] | Nominal Resistance at 0 °C | Temp. Coefficient | Temp. Range (°C) | Tolerance | Termination |
|-----------------|--|----------------------------|-------------------|------------------|--|---|
| 700-101BAA-B00 | chip, 2,1 w x 2,3 l x 0,9 thk [0.083 w x 0.091 l x 0.035 thk] | 100 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class A (R ₀ : ±0.06 %) | bare Pt-clad Ni wire, adjacent leads |
| 700-101BAB-B00 | chip, 2,1 w x 2,3 l x 0,9 thk [0.083 w x 0.091 l x 0.035 thk] | 100 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class B (R ₀ : ±0.12 %) | bare Pt-clad Ni wire, adjacent leads |
| 700-102AAB-B00 | chip, 2,1 w x 2,3 l x 0,9 thk [0.083 w x 0.091 l x 0.035 thk] | 1000 Ω | 3750 ppm/K | -70 to 500 | DIN EN 60751, class B (R ₀ : ±0.12 %) | bare Pt-clad Ni wire, adjacent leads |
| 700-102AAC-B00 | chip, 2,1 w x 2,3 l x 0,9 thk [0.083 w x 0.091 l x 0.035 thk] | 1000 Ω | 3750 ppm/K | -70 to 500 | DIN EN 60751, class 2B (R ₀ : ±0.24 %) | bare Pt-clad Ni wire, adjacent leads |
| 700-102BAA-B00 | chip, 2,1 w x 2,3 l x 0,9 thk [0.083 w x 0.091 l x 0.035 thk] | 1000 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class A (R ₀ : ±0.06 %) | bare Pt-clad Ni wire, adjacent leads |
| 700-102BAB-B00 | chip, 2,1 w x 2,3 l x 0,9 thk [0.083 w x 0.091 l x 0.035 thk] | 1000 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class B (R ₀ : ±0.12 %) | bare Pt-clad Ni wire, adjacent leads |
| 701-101BAA-B00 | chip, 1,25 w x 1,7 l x 0,8 thk [0.049 w x 0.067 l x 0.031 thk] | 100 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class A (R ₀ : ±0.06 %) | bare Pt-clad Ni wire, adjacent leads |
| 701-101BAB-B00 | chip, 1,25 w x 1,7 l x 0,8 thk [0.049 w x 0.067 l x 0.031 thk] | 100 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class B (R ₀ : ±0.12 %) | bare Pt-clad Ni wire, adjacent leads |
| 701-102AAB-B00 | chip, 1,25 w x 1,7 l x 0,8 thk [0.049 w x 0.067 l x 0.031 thk] | 1000 Ω | 3750 ppm/K | -70 to 500 | DIN EN 60751, class B (R ₀ : ±0.12 %) | bare Pt-clad Ni wire, adjacent leads |
| 701-102BAB-B00 | chip, 1,25 w x 1,7 l x 0,8 thk [0.049 w x 0.067 l x 0.031 thk] | 1000 Ω | 3850 ppm/K | -70 to 500 | DIN EN 60751, class B (R ₀ : ±0.12 %) | bare Pt-clad Ni wire, adjacent leads |
| 702-101BBB-A00 | SMD 0805, 1,4 w x 2,3 l x 0,52 thk [0.055 w x 0.091 l x 0.020] | 100 Ω | 3850 ppm/K | -50 to 130 | DIN EN 60751, class B (R ₀ : ±0.12 %) | end termination, galvanic Sn-plated with Ni barrier layer |
| 702-102BBB-A00 | SMD 0805, 1,4 w x 2,3 l x 0,52 thk [0.055 w x 0.091 l x 0.020] | 1000 Ω | 3850 ppm/K | -50 to 130 | DIN EN 60751, class B (R ₀ : ±0.12 %) | end termination, galvanic Sn-plated with Ni barrier layer |
| 703-101BBB-A00 | SMD 1206, 1,65 w x 3,25 l x 0,6 thk [0.065 w x 0.128 l x 0.024] | 100 Ω | 3850 ppm/K | -50 to 130 | DIN EN 60751, class B (R ₀ : ±0.12 %) | end termination, galvanic Sn-plated with Ni barrier layer |
| 703-102BBB-A00 | SMD 1206, 1,65 w x 3,25 l x 0,6 thk [0.065 w x 0.128 l x 0.024] | 1000 Ω | 3850 ppm/K | -50 to 130 | DIN EN 60751, class B (R ₀ : ±0.12 %) | end termination, galvanic Sn-plated with Ni barrier layer |

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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