

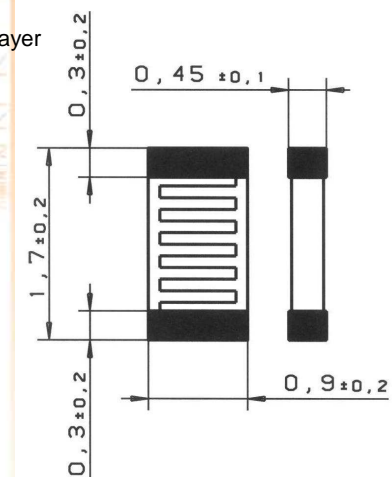
## Platinum Resistance Temperature Detector

## SMD 0603 (V)

The PRTD SMD 0603 is designed for automatic mounting in large volume applications on printed circuit boards where long time stability, interchangeability combined with low costs are important.

| Nominal Resistance R <sub>0</sub> | Tolerance<br>DIN EN 60751<br>1996-07 | Tolerance<br>DIN EN 60751<br>2009-05 | Order Number             |
|-----------------------------------|--------------------------------------|--------------------------------------|--------------------------|
| 1000 Ohm at 0°C                   | Class 2B<br>Class B                  | F 0.6<br>F 0.3                       | 32 207 637<br>32 207 638 |

|                                 |  |
|---------------------------------|--|
| <b>Specification</b>            | DIN EN 60751   |
| <b>Tolerance</b>                | Class B (R <sub>0</sub> : ±0.12%)<br>Class 2B (R <sub>0</sub> : ±0.24%)  |
| <b>Temperature range</b>        | -50°C to +150°C<br>(Application temperatures of +150°C are only possible with the use of expansion-matched circuit board material; up to +130°C with circuit board material not matched for expansion) |
| <b>Temperature coefficient</b>  | TCR = 3850 ppm/K   |
| <b>Soldering connection</b>     | End-termination galvanic tin plated with Ni- barrier layer   |
| <b>Long term stability</b>      | max R <sub>0</sub> -Drift 0,06% after 250h with 130°C  |
| <b>Environmental conditions</b> | unhoused for dry environments only   |
| <b>Insulation resistance</b>    | > 100 MΩ at 20°C;<br>> 2 MΩ at 150°C (glass cover)   |
| <b>Measuring current</b>        | 1000Ω: 0.1 up to 0.3mA<br>(self heating has to be considered)  |
| <b>Self heating</b>             | 0.8 K/mW at 0°C  |
| <b>Reaction time</b>            | Flowing water (v= 0.4m/s):<br>Air flow (v= 2m/s):  |
|                                 | t <sub>0.5</sub> < 0.1s<br>t <sub>0.9</sub> < 0.25s<br>t <sub>0.5</sub> < 2.5s<br>t <sub>0.9</sub> < 8 s   |
| <b>Processing instructions</b>  | face up-mounting: reflow soldering or wave soldering,<br>e. g. double wave ≤ 8s / 235°C  |
| <b>Storage life</b>             | Min. 9 months (in dry environment)   |
| <b>Packaging</b>                | „Face-up“ in blister reel, 4000 pcs  |
| <b>Note</b>                     | Other tolerances, values of resistance are available on request.   |



Please have a look for the Information about the tested soldering profile on the next page



We reserve the right to make alterations and technical data printed. All technical data serves as a guideline and does not guarantee particular properties to any products.

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### Solderability test of SMD type sensor elements

#### Assembly conditions

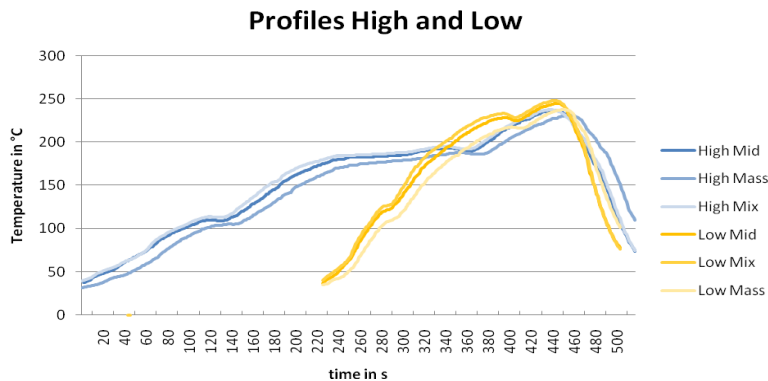
Layout of PCB: Benchmarker II 150µm (material FR4 35µm Cu, size 190.5 x 127 x 1.5mm)  
 Tested PCB surfaces: chem. Ag, Cu OSP, NiAu, chem. Sn  
 Solder Paste: F640 SA30C5-89 M30 (material SnAgCu 96.5/3.0/0.5)

#### Tested elements

Pt 1000 SMD- V 0603  
 Pt 1000 SMD- V 0805  
 Pt 1000 SMD- V 1206

#### Solder conditions

Profiles: High and Low  
 Atmosphere: Nitrogen and Air



|                   | Peak (max. temperature) |        | time above 217 °C in s |     |
|-------------------|-------------------------|--------|------------------------|-----|
|                   | High                    | Low    | High                   | Low |
| Mid <sup>1</sup>  | 237 °C                  | 245 °C | 60                     | 92  |
| Mass <sup>2</sup> | 231 °C                  | 238 °C | 49                     | 68  |
| Mix <sup>3</sup>  | 238 °C                  | 248 °C | 65                     | 103 |

- <sup>1</sup> Mid: Position of temperature sensor in the middle of the PCB  
<sup>2</sup> Mass: Position of temperature sensor at a big mass area on the PCB  
<sup>3</sup> Mix: Position of temperature sensors on right and left side on the PCB

Profile High: complete processing time 520 s  
 Profile Low : complete processing time 280 s

#### Result

All tested samples showed a sufficient wetting under the described profiles High and Low, based on a visual soldering point inspection.

All given data should not be construed as guaranteeing specific properties of the product or its suitability for a specific particular application. The data are an extract from a test report with status from July 2010.

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