

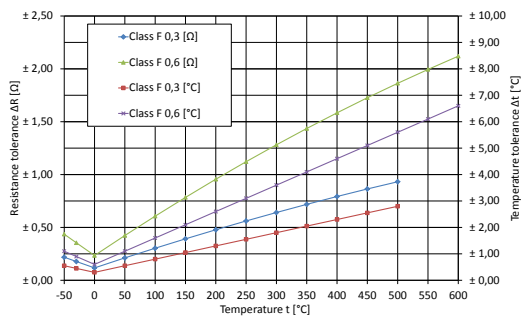
Technical Data

| | | |
|---|--|-------------------|
| Resistance at 0°C | 100 Ω | |
| Temperature coefficient (0°C up to 100°C) | $3.85 \cdot 10^{-3} \text{ K}^{-1}$ | |
| Tolerance classes according to DIN EN 60751 | F 0,3 (-50°C - +500°C) F 0,6 (-50°C - +600°C) | |
| Operating temperature range depending on lead material: | | |
| AgPd5 | -50 °C up to +400 °C | |
| Pt | -50 °C up to +600 °C | |
| Measurement current (DC) at 25 °C | 1.0 mA | |
| Maximal permissible peak current (DC) at 25 °C | 3.0 mA | |
| Insulation resistance | > 10 MΩ | |
| Self-heating at 0 °C | < 0.5 K / mW | |
| Thermal response time | | |
| Flowing water (v = 0.2 m/s) | $T_{0.5} = 0.07\text{s}$, $T_{0.9} = 0.3\text{s}$ | |
| Flowing air (v = 1 m/s) | $T_{0.5} = 6\text{s}$, $T_{0.9} = 20\text{s}$ | |
| Resistance value [Ω] at | | |
| Temperature | Tolerance class | |
| | F 0,3 [Ω] | F 0,6 [Ω] |
| 0 °C | 100 ± 0.12 | 100 ± 0.24 |
| +100 °C | 138.51 ± 0.3 | 138.51 ± 0.61 |

| | | |
|--|--|-----------|
| R_t measuring point | 2 mm from wire end | |
| Maximal Resistance change at UCT 250 h | < 0.1 % | |
| Operating conditions | Unprotected application only in dry environments without any contamination | |
| Technology | Chip - advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer), assembled in a sealed ceramics tube | |
| Conformity | 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS) | |
| Dimensions [mm] | | |
| | | |
| Leads | AgPd5 | Pt |
| l [mm] | 15 ± 1 | 7 ± 1 |
| Ø d [mm] | 0,25 | 0,2 |

Functional performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances of FMR 2103 (Please note - the operating temperature range depends on lead material!)

Temperature range from -50 °C up to 0 °C:

$$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2 + C \cdot (t - 100) \cdot t^3)$$

Temperature range from 0°C up to +600°C:

$$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2)$$

Tolerance classes:

Class F 0,3 (-50°C - +500°C): $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Class F 0,6: (-50°C - +600°C): $\Delta t = \pm (0.6 + 0.01 \cdot |t|)$

Whereby:

R_t ... Resistance [Ω] at temperature t

R_0 ... Resistance [Ω] at 0 °C

t ... Temperature [°C]

Δt ... Permissible temperature deviation at t [°C]

$$A = 3.9083 \cdot 10^{-3} \text{ } ^\circ\text{C}^{-1}$$

$$B = -5.775 \cdot 10^{-7} \text{ } ^\circ\text{C}^{-2}$$

$$C = -4.183 \cdot 10^{-12} \text{ } ^\circ\text{C}^{-4}$$

Fields of application

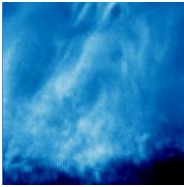
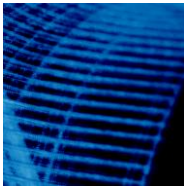
- Industrial electronics
- Building automation
- Automotive electronics
- Energy and environmental engineering
- Safety and medical engineering

Ordering example

| Construction | Class of accuracy | Leads (Ø d x l [mm] lead material) | Operating temperature range [°C] |
|---------------|-------------------|------------------------------------|----------------------------------|
| FMR 2103 ctss | F 0,3 | 0.25x15 AgPd5 | -50/+400 |
| FMR 2103 ctss | F 0,6 | 0.2x7 Pt | -50/+600 |

1) Class of accuracy according to DIN EN 60751

Other classes of accuracy and wire lengths are available on request.



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