Ferroperm Piezoceramics

Your Partner in Smart Solutions

DATA SHEET

# High temperature piezoceramic

## Type Pz48

## 01 Description

Pz48 is a material with extremely high Curie point and a working temperature of up to 650 °C.
The composition belongs to the bismuth titanate family and is lead-free. It has a low dielectric constant, low dielectric loss and stable properties up to very high temperatures.

**Repeatable performance**

The main focus through our entire production process is to provide materials and components with the highest possible reproducibility of properties and parameters and to obtain the lowest aging rates in the industry.

Our materials have a variation of ±5% for all parameters. This reduces the requirements for impedance matching, frequency tuning and dimensioning of the housing meaning fewer rejects and lower costs.

**Customised solutions**

We have more than 60 years of experience in the production of advanced piezoelectric ceramics. Our team has extensive expertise in customising designs to match the customer's needs.

Please contact us to discuss your requirements in further detail.

## 02 Key features and benefits

- High Curie temperature
- Low dielectric loss

- Lowest batch to batch variation in the industry
- Stable material with consistent performance
- Customised or standard designs

## 03 Applications

- High temperature accelerometers
- High temperature flow meters
- High temperature pressure sensors

## 04 Contact

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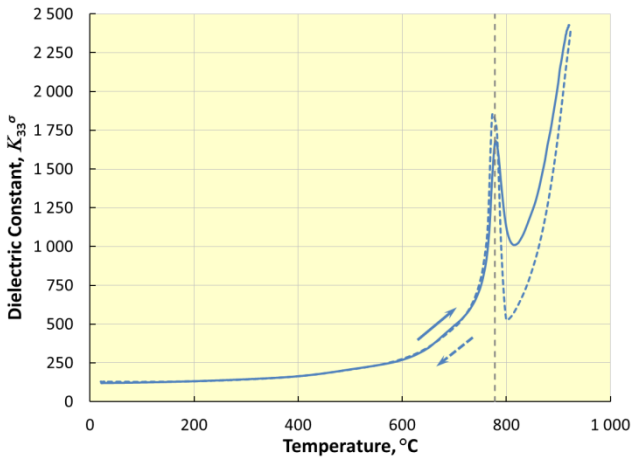
# High temperature piezoceramic, Type Pz48

## 05 Material properties

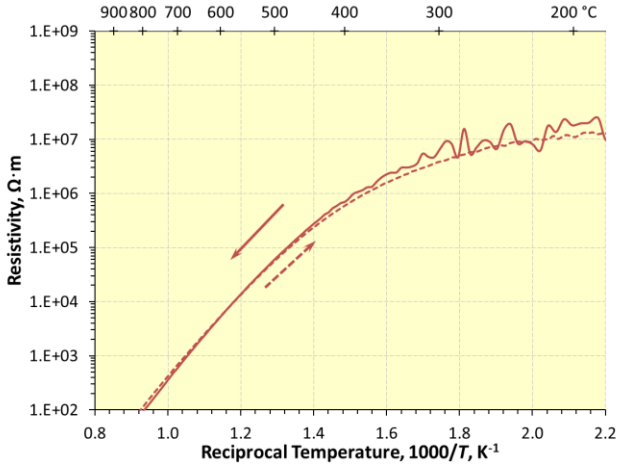
| Electrical | Symbol | Pz48 |
|---|---|---|
| Relative dielectric permittivity at 1 kHz | $K_{33}^{\sigma}$ | 125 |
| Dielectric dissipation factor at 1 kHz | tan $\delta$ | 2 x $10^{-3}$ |
| Curie temperature | $T_C$ > | 770 °C |
| Recommended working range | $T_{op}$ < | 600-650 °C |
| **Electromechanical** | | |
| Coupling factors | $k_p$ | 0.08 |
| | $k_t$ | 0.20 |
| Piezoelectric charge coefficient | $d_{33}$ | 18 pC/N |
| **Mechanical** | | |
| Mechanical Quality Factor | $Q_{m,p}$ | > 1000 |
| Density | $\rho$ | 6.80 g/cm$^3$ |

Note: Due to continuous process improvement, specifications are subject to change without notice.
Please be aware that extreme dimensions and geometries can lead to exaggeration in tolerances in all materials.

## 06 Technical performance




Free dielectric constant measured at 10 kHz for Pz48 as a function of temperature. The Curie point is above 770°C




Resistivity as a function of temperature. Above 500 °C an Arrhenius-type behaviour is seen.