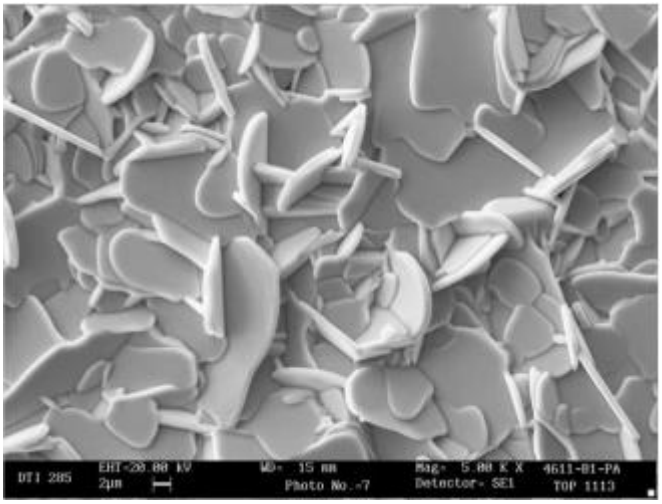
Ferroperm Piezoceramics

Your Partner in Smart Solutions

DATA SHEET

High temperature piezoceramic

Type Pz46



Microstructure of Pz46 at a magnification of 5000 times

01 Description

Pz46 is a material with very high Curie temperature and a working temperature of up to 550 °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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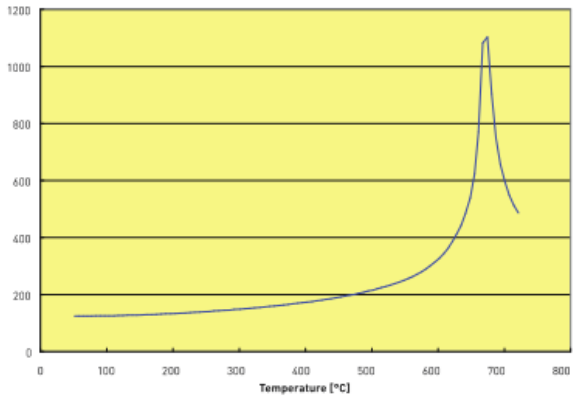
05 Material properties

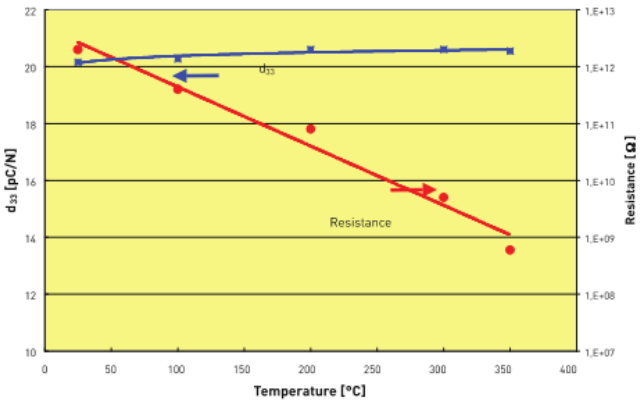
Electrical	Symbol	Pz46
Relative dielectric permittivity at 1 kHz	K_{33}^{σ}	115
Dielectric dissipation factor at 1 kHz	tan δ	4 x 10^{-3}
Curie temperature	T_C >	650 °C
Recommended working range	T_{op} <	500-550 °C
Electromechanical		
Coupling factors	k_p	0.03
	k_t	0.20
Piezoelectric charge coefficient	d_{33}	20 pC/N
Mechanical		
Mechanical Quality Factor	$Q_{m,t}$	> 1000
Density	ρ	6.40 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 for Pz46 as a function of temperature. The Curie point is above 650°C



Piezoelectric charge constant and an example of the resistance in a standard disc as a function of temperature. Very low temperature dependencies can be observed.