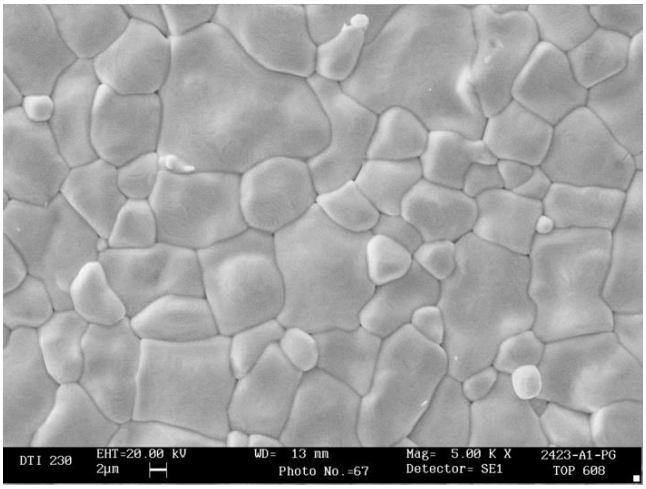
Ferroperm Piezoceramics

Your Partner in Smart Solutions

DATA SHEET

Very hard PZT

Type Pz24



Microstructure of Pz24 at a magnification of 5000 times

01 Description

Pz24 is a hard PZT material with very low dielectric constant, a very low dielectric loss, and high piezoelectric voltage constant. The low dielectric constant of this material can simplify the driving electronics for transducers. It is therefore for example a more sensitive alternative to Lead Titanate for single element medical transducers. Because of this high voltage constant, Pz24 has also gained popularity in accelerometer special applications.

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

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

- Very low dielectric constant
- Very low dielectric loss
- High piezoelectric voltage constant

03 Applications

- Single element medical transducers
- Shear-type accelerometers
- Compression mode accelerometers
- High power transducers

04 Contact

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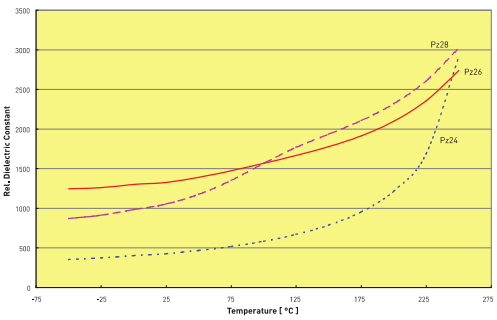
Hard relaxor type PZT, Type Pz24

05 Material properties

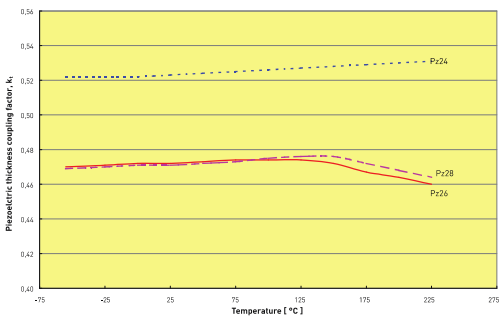
Electrical	Symbol	Pz24
Relative dielectric permittivity at 1 kHz	K_{33T}	400
Dielectric dissipation factor at 1 kHz	tanδ	2×10^{-3}
Curie temperature	$T_C >$	330 °C
Recommended working range	<	230 °C
Electromechanical		
Coupling factors	k_p	0.50
	k_t	0.52
Piezoelectric charge coefficient	d_{33}	190 pC/N
	g_{33}	54 x 10-3 Vm/N
Mechanical		
Mechanical Quality Factor	$Q_{m,p}$	>1000
Density	ρ	7.70 g/cm3

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



Temperature dependence of the free dielectric constant of Pz24 in comparison with other hard PZT materials from Ferroperm.



Temperature dependence of the piezoelectric thickness coupling factor for Pz24 in comparison with other hard PZT materials from Ferroperm.

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