

Pz12X (Lead-Free)

NBT-BT Piezoceramic Material

Description

Pz12X is a lead-free piezoceramic formulation based on the sodium bismuth titanate-barium titanate system (NBT-BT). It is a variant of our Pz12 formulation, featuring a greater mechanical quality factor and thickness electromechanical coupling at the expense of temperature capability.

Key Features and Benefits

- Lead-Free Product
- Candidate for Replacing Hard-Doped PZT

Ideal Applications

- Underwater Transmitters
- Therapeutic Medical Ultrasound
- Ultrasonic Cleaning, Cutting and Welding

Property	Symbol	Unit	Value
Relative Free Dielectric Constant (1 kHz)	K_{33}^g	-	813
Dielectric Dissipation Factor (1 kHz)	$\tan\delta$	-	0.032
Depoling Temperature	T_d	°C	85
Recommended Operating Range	$T <$	°C	60
Density	ρ	g/cm ³	5.78
Mechanical Quality Factors	Q_{mp}	-	205
	Q_{mt}	-	195
Coupling Coefficients	k_p	-	0.32
	k_t	-	0.47
Piezoelectric Charge Coefficient (Displacement Coefficient)	d_{33}	pC/N	152
Frequency Constants	N_p	Hz·m	2620
	N_t	Hz·m	2370
Acoustic Impedance	Z_a	MRayl	30