

CeramTec Sonox® P53 Piezoceramic

Category : Ceramic , Oxide , Piezoelectric

Material Notes:

Piezoceramic devices are used to convert mechanical features such as pressure or acceleration into voltages, or conversely, to convert a voltage into mechanical motion or oscillation. Piezoceramics require very little energy and their shape potential is almost unlimited. Such properties allow this material to be used in wide-ranging apparatus and mechanical engineering applications. Sonox® P53 is a highly sensitive material characterized by dielectric constants in the 1000 to 4000 range and low Q factors that are < 100. It is used in a wide range of sensor applications, as well as for actuators.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-Sonox-P53-Piezoceramic.php

Physical Properties	Metric	English	Comments
Density	7.83 g/cc	0.283 lb/in ³	

Electrical Properties	Metric	English	Comments
Curie Temperature	215 °C	419 °F	Tc
Dielectric Constant	1625	1625	e33 S/e?
	1670	1670	e11 S/e?
	3580	3580	e11 T/e?
	3800	3800	e33 T/e?
Dissipation Factor	0.016	0.016	tand
Piezoelectric Longitudinal Coupling Factor, k33	0.74	0.74	
Piezoelectric Transverse Voltage Coefficient, d31, 10 ⁻¹² m/V	-275	-275	
Piezoelectric Shear Charge Coefficient, d15, 10 ⁻¹² m/V	770	770	
Piezoelectric Longitudinal Voltage Coefficient, g33, 10 ⁻³ V-m/N	20.2	20.2	
Piezoelectric Planar Coupling Factor, kp	0.65	0.65	
Piezoelectric Mechanical Q	75	75	
Piezoelectric Shear Coupling Factor, k15	0.73	0.73	
Piezoelectric Longitudinal Charge Coefficient, d33, 10 ⁻¹² m/V	680	680	

Piezoelectric Transverse Coupling Electrical Properties	0.38 Metric	0.38 English	Comments
Descriptive Properties		Value	Comments
Aging Rates (%/decade)		0.1	Cf
		-0.1	Ck
		-0.8	Ce
Elastic Compliance (10 ⁻¹² m ² /N)		15.8	s11 ^E
		22.9	s33 ^E
Elastic Rigidity (10 ¹⁰ N/m ²)		15.2	c33 ^D
		6.1	c55 ^D
Frequency Constants (kHz·mm)		1190	N3
		1420	N1
		1885	Nt
		1960	Np
Piezoelectric Coupling Coefficient, kt		0.51	
Piezoelectric Voltage Coefficient, e33 (C/m ²)		23.8	

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