

CeramTec Sonox® P51 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® P51 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-P51-Piezoceramic.php

Physical Properties	Metric	English	Comments
Density	7.82 g/cc	0.283 lb/in ³	

Electrical Properties	Metric	English	Comments
Curie Temperature	200 °C	392 °F	Tc
Dielectric Constant	1265	1265	e33 S/e?
	1290	1290	e11 S/e?
	3050	3050	e11 T/e?
	3100	3100	e33 T/e?
Dissipation Factor	0.016	0.016	tand
Piezoelectric Longitudinal Coupling Factor, k33	0.75	0.75	
Piezoelectric Transverse Voltage Coefficient, d31, 10 ⁻¹² m/V	-260	-260	
Piezoelectric Shear Charge Coefficient, d15, 10 ⁻¹² m/V	730	730	
Piezoelectric Longitudinal Voltage Coefficient, g33, 10 ⁻³ V-m/N	20	20	
Piezoelectric Planar Coupling Factor, kp	0.67	0.67	
Piezoelectric Mechanical Q	100	100	
Piezoelectric Shear Coupling Factor, k15	0.76	0.76	
Piezoelectric Longitudinal Charge Coefficient, d33, 10 ⁻¹² m/V	640	640	

Piezoelectric Transverse Coupling Electrical Properties	0.39 Metric	0.39 English	Comments
Descriptive Properties		Value	Comments
Aging Rates (%/decade)		-0.5	Ck
		1.1	Cf
		-2	Ce
Elastic Compliance (10 ⁻¹² m ² /N)		15.6	s11 ^E
		19.6	s33 ^E
Elastic Rigidity (10 ¹⁰ N/m ²)		15	c33 ^D
		6.2	c55 ^D
Frequency Constants (kHz·mm)		1280	N3
		1430	N1
		1930	Nt
		2000	Np
Piezoelectric Coupling Coefficient, kt		0.51	
Piezoelectric Voltage Coefficient, e33 (C/m ²)		20.9	

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