

Ceramic Materials

General characteristics

	PZT-4	PZT-5A	PZT-5H	PZT-8
Coupling Coefficients				
k_{33}	.700	.710	.750	.640
k_{31}	.330	.340	.390	.300
k_{15}	.710	.690	.680	.550
k_p	.580	.600	.650	.510
Piezoelectric Constants				
d_{33} ($\times 10^{-12}$ m/V)	295	374	585	225
d_{31}	-122	-171	-265	-97
d_{15}	500	585	730	330
g_{33} ($\times 10^{-3}$ Vm/N)	24.9	24.8	19.7	24.0
g_{31}	-10.6	-11.4	-8.5	-10.9
g_{15}	39.0	38.2	29.0	-28.9
Free Dielectric Constant				
K_{33}^T	1300	1700	3400	1000
K_{11}^T	1475	1730	3130	1290
Elastic Constants				
S_{33}^E ($\times 10^{-12}$ m ² /N)	15.5	18.8	20.0	13.5
S_{11}^E	12.3	15.0	15.6	10.0
Physical Properties				
Density (Kg/m ³)	7600	7500	7500	7500
Q_M	400	100	65	1000
Q_E	250	50	40	250
Curie Point (°C)	325	350	195	300
Youngs Modulus ($\times 10^{10}$ N/m ²)	7.8	6.6	9.3	9.9
Poisson ratio (ν) is approx. 0.31 for all ceramics				
Frequency Constants				
N_t (Hz-m) thickness	2000	1800	1765	2180
(KHz in)	80	71	70	86
N_s (Hz-m) shear	1300	1080	1100	1400
(KHz in)	51	42.5	43	55

N _r (Kz-m) radial	2150	2000	1950	2310
(KHz in)	84.5	79	77	91

Data as published by various suppliers. BPO makes no claims as to accuracy of published information.

Questions? [Contact us](#) to discuss your particular application.