

# Material Specification · NCE55

Property	Symbol	Units	Soft Material
			<b>NCE55</b>
Dielectric Constant (1 kHz)	$K^T_3$		5000
Dielectric Loss Factor (1 kHz)	$\tan\delta_e$		0.022
Dielectric Loss Factor (at 0.4V/mm)	$\tan\delta_e$		
Density	$\rho$	kg/m <sup>3</sup>	8000
Curie Point	$T_c$	°C	160
Mechanical Quality Factor	$Q_m$		70
Coupling Coefficients	$k_p$		0.62
	$k_{33}$		0.72
	$k_{31}$		0.39
	$k_t$		0.5
Piezoelectric Charge	$d_{31}$	Coul/N x 10 <sup>-12</sup> (or)	-260
Displacement Coefficient	$d_{33}$	m/V x 10 <sup>-12</sup>	670
Piezoelectric Voltage Coefficient	$g_{31}$		-9
Voltage Coefficient	$g_{33}$	V·m/N x 10 <sup>-3</sup>	19
Frequency Constants	$N_p$		1970
	$N_t$		1990
	$N_{ta}$	Hz·m	
	$N_{33}$		
	$N_{31}$		
Poisson's Ratio	$\gamma$		
Elastic Constants Short Circuit	$S^E_{11}$		17
	$S^E_{33}$		21
	$S^E_{12}$	x 10 <sup>-12</sup> m <sup>2</sup> /N	-6
	$S^E_{13}$		-7.5
	$S^E_{55}$		36.2
	$S^E_{66}$		46