

NCE46



Noliac piezoceramic material NCE46 is a hard doped material, which can be exposed to high electrical and mechanical stresses.

SPECIFICATIONS

Properties	Symbol & unit	NCE46
DIELECTRIC PROPERTIES (tolerances +/- 10%)		
Relative Dielectric Constant	$\epsilon_{33}^T / \epsilon_0$	1300
Dielectric Loss Factor	$\text{tg}\delta [10^{-4}]$	30
Dielectric Loss Factor at 400V/mm	$\text{tg}\delta [10^{-4}]$	
ELECTROMECHANICAL PROPERTIES (tolerances +/- 5%)		
Electromech. Coupling Factors**	k_p	0.57
	k_{31}	0.33
	k_{33}	0.68
	k_t	0.47
Piezoelectric Charge Constants	$-d_{31} [10^{-12} \text{ C/N}]$	130
	$d_{33} [10^{-12} \text{ C/N}]$	330
Piezoelectric Voltage Constants	$-g_{31} [10^{-3} \text{ Vm/N}]$	11
	$g_{33} [10^{-3} \text{ Vm/N}]$	28
Frequency Constants	$N_p^E [\text{m/s}]$	2230
	$N_t^D [\text{m/s}]$	2040
	$N_1^E [\text{m/s}]$	1500
	$N_3^D [\text{m/s}]$	1800
PHYSICAL PROPERTIES (tolerances +/- 5%)		
Mechanical Quality Factor	Q_m	>1000
Density	$\rho [10^3 \text{ kg/m}^3]$	7.7
Elastic Compliances	$s_{11}^E [10^{-12} \text{ m}^2/\text{N}]$	13
	$s_{33}^E [10^{-12} \text{ m}^2/\text{N}]$	20
Curie Temperature	$T_c [^\circ\text{C}]$	330

* For multilayer components only

** Measured in accordance with standard EN 50324

The values listed are for reference purposes only and cannot be applied unconditionally to all shapes and

dimensions. Values vary depending on the actual shape, surface finish, shaping process and post-processing of the product.