

Innovia Ultrasound Grade [110]-poled PMN-PT Crystal (Typical)

[110]-poled PMN-PT Crystal		
	PT Content (28~30%PT)	PT Content (30~32%PT)
Materials Part No.	110PMN-L	110PMN-H
Mechanical		
Density (g/cc)	8.1	8.1
Poisson Ratio	0.32	0.32
Elastic s_{33}^E ($10^{-12}m^2/N$)	50	48
s_{33}^D ($10^{-12}m^2/N$)	13	12
Piezoelectric		
d_{33} (pC/N)	700	1000
d_{32} (pC/N)	480	400
d_{31} (pC/N)	-1400	-1700
d_{36} (pC/N)	2200	2800
Coupling k_{33}	0.75	0.80
K_{32}	0.35	0.33
K_{31}	0.86	0.90
Transition Temperature (°C)	>85	>80

Dielectric Coefficients		
ϵ_{33}^T	2800	3800
ϵ_{33}^S	300	300
Coercive Field (kV/cm)	3.0	2.8

*Note: Piezoelectric properties are obtained according to IEEE Standard 176-1987, where electromechanical coupling coefficient is given by:

$$k^2 = \frac{\pi}{2} \frac{f_r}{f_a} \tan\left(\frac{\pi}{2} \frac{f_a - f_r}{f_a}\right)$$

Where f_r is resonance frequency and f_a is anti-resonance frequency

Impedance Analyzer Keysight E4990A (Former Agilent)

