



# HPZ™ Piezoelectric Ceramic Datasheet

Supplier: Ionix Advanced Technologies

Material: HPZ380

Dielectric Properties			
Property	Symbol	Units	20 °C
Relative Permittivity	$\epsilon_r$	-	690
Loss	$\tan\delta$	-	0.026
Curie Temperature	$T_c$	°C	520

**Table 1** – Dielectric Properties of HPZ380

Physical Properties			
Property	Symbol	Units	20 °C
Density	$\rho$	kg/m <sup>3</sup>	7700
Compliance	$s_{11}^E$	m <sup>2</sup> /N	1.27E <sup>-11</sup>
	$s_{33}^E$	m <sup>2</sup> /N	1.38E <sup>-11</sup>
Acoustic Impedance	Z	MRayl	23.4
Speed of Sound	c	m/s	3036
Thermal Expansion Coefficient	TCE	K <sup>-1</sup>	8E <sup>-6</sup>

**Table 2** – Physical Properties of HPZ380

Electromechanical Properties			
Property	Symbol	Units	20 °C
<i>Coupling coefficients:</i>			
Planar	$k_p$	-	0.24
Length thickness extensional	$k_{31}$	-	0.21
Length extensional	$k_{33}$	-	0.47
Thickness extensional	$k_t$	-	0.38
<i>Charge coefficients:</i>			
Charge coefficients	$d_{33}$	pC/N	120
	$d_{31}$	pC/N	-50
<i>Voltage coefficients:</i>			
Voltage coefficients	$g_{33}$	Vm/N	0.020
	$g_{31}$	Vm/N	-0.008
<i>Frequency constants:</i>			
Frequency constants	$N_p$	m/s	2200
	$N_1$	m/s	1600
	$N_3$	m/s	1550
	$N_t$	m/s	1750

**Table 3** – Electromechanical Properties of HPZ380

- Data presented was collected according to BS EN 50324 using the geometries and dimensions dictated by the standard.
- The values listed above are typical values for reference purposes only and cannot be applied to all geometries and dimensions.
- All data collected was determined after aging the parts at 380 °C for 16 hrs after poling