

## Typical Piezoelectric Characteristics of the Lead-Free Material 無鉛圧電材料の代表的特性

	Lead-Free Piezoelectric Ceramics				PZT Navy Type II
	LFP0202	LFP0401	LFP0501 ※	LFP0502 ※	
$d_{33}$ (pC/N)	180	300	150	150	415
$k_p$	0.47	0.53	0.33	0.45	0.59
$N_p$ (Hz · m)	3190	2990	TBD	TBD	2050
$\epsilon_{33}^T/\epsilon_0$	1400	2200	1120	680	1950
$\tan \delta$	0.013	0.019	0.010	0.005	0.020
$Q_m$	104	50	730	640	60
$T_c$ (°C)	290	250	235	325	320
Specific Gravity (g/cm <sup>3</sup> )	4.55	4.45	Approx. 4.5	Approx. 4.5	7.7

Note : The values shown above are typical values, not guaranteed.  
Each characteristic is subject to change without any notice.

※The LFP0501 / 0502 materials are under development stage.