

APPENDIX C  
MANUFACTURER SPECIFICATIONS FOR PIEZOELECTRIC MATERIAL

# PIEZOELECTRIC SINGLE SHEET: 5H Ceramic H4E Series

Part Number	Thickness		Capacitance
	mm	in	nF ( $\pm 10\%$ )
T105-H4E-602	.127	.005	1250

PIEZOELECTRIC			
Composition		Lead Zirconate Titanate	
Material Designation		PSI-5H-S4-ENH	
Relative Dielectric Constant (@ 1 KHz)	$K_{33}^T$	3800	
Piezoelectric Strain Coefficient	$d_{33}$	$650 \times 10^{-12}$	Meters/Volt
	$d_{31}$	$-320 \times 10^{-12}$	Meters/Volt
Piezoelectric Voltage Coefficient	$g_{33}$	$19.0 \times 10^{-3}$	Volt Meters/Newton
	$g_{31}$	$-9.5 \times 10^{-3}$	Volt Meters/Newton
Coupling Coefficient	$k_{33}$	0.75	
	$k_{31}$	0.44	
Polarization Field	$E_p$	$1.5 \times 10^6$	Volts/Meter
Initial Depolarization Field	$E_c$	$3.0 \times 10^5$	Volts/Meter
MECHANICAL			
Density		7800	Kg/Meter <sup>3</sup>
Mechanical Q		30	
Elastic Modulus	$Y_3^E$	$5.0 \times 10^{10}$	Newtons/Meter <sup>2</sup>
	$Y_1^E$	$6.2 \times 10^{10}$	Newtons/Meter <sup>2</sup>
THERMAL			
Thermal Expansion Coefficient		$\sim 3 \times 10^{-6}$	Meters/Meter °C
Curie Temperature		250	°C

PIEZO SYSTEMS, INC.