

# 用于能量转换器的产品介绍

## Materials for power converters

产品名称 Material		Sonox® P4	Sonox® P8
<b>介电性能 Dielectric properties</b>			
相对介电常数 $\epsilon_r$ Relative permittivity $\epsilon_r$	$\epsilon_{33}^T/\epsilon_0$ $\epsilon_{33}^S/\epsilon_0$ $\epsilon_{11}^T/\epsilon_0$ $\epsilon_{11}^S/\epsilon_0$	1300 660 1535 885	1000 540 1250 800
介质损耗因素 $\tan \delta$ Dielectric dissip. factor $\tan \delta$		$10^{-3}$ 3	2
居里温度 $T_c$ Curie temperature $T_c$		$^{\circ}\text{C}$ 325	305
<b>机电性能 Electromechanical properties</b>			
频率常数 Frequency constant	$N_p$ $N_t$ $N_1$ $N_3$	KHz $\times$ mm	2210 2000 1480 1340
耦合系数 Coupling coefficient	$k_p$ $k_{31}$ $k_{33}$ $k_t$ $k_{15}$		0,57 0,31 0,68 0,50 0,65
充电常数 Charge constant	$d_{33}$ $d_{31}$ $d_{15}$	$10^{-12}$ C/N	310 -130 455
电压常数 $g_{33}$ Voltage constant $g_{33}$		$10^{-3}$ Vm/N	26,9 27,1
<b>机械性能 Mechanical properties</b>			
弹性柔量 Elastic compliance	$S_{11}^E$ $S_{33}^E$	$10^{-12}$ m <sup>2</sup> /N	14,9 18,1
弹性刚度 Elastic stiffness	$C_{33}^D$ $C_{55}^D$	$10^{10}$ N/m <sup>2</sup>	15,9 4,8
密度 $\rho$ Density $\rho$		$10^3$ kg/m <sup>3</sup>	7,65 7,70
机械品质因素 $Q_m$ Mechan. quality factor $Q_m$			500 1000
<b>稳定性 Stability</b>			
温度系数 $\alpha_k$ 详细信息见下页 Temperature coefficient $\alpha_k$ (Details see overleaf)		$10^{-4}/\text{K}^{-1}$	
老化率 Aging ratio	$C_e$ $C_f$ $C_k$	%/每十年 %/Decade	-4,5 1,0 -1,6

备注：压电陶瓷材料的关键参数信息请参照宣传单35页中的相关说明。“压电应用中的先进陶瓷”

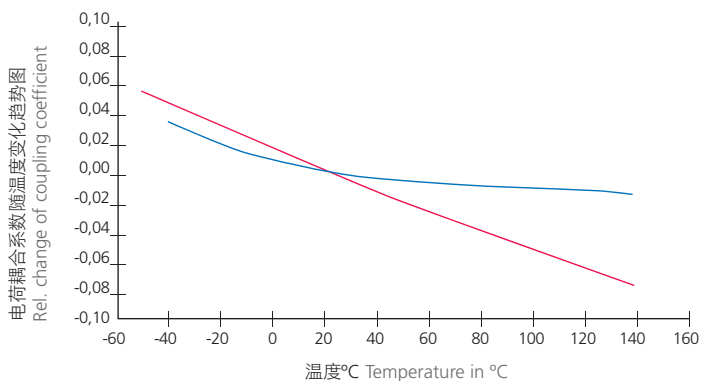
Note: For information on the key figures of piezo ceramic materials see the glossary on p. 35 of the leaflet „Advanced ceramics in Piezo Applications”

# 压电性能与温度的关系

## Thermal dependency of piezo electric characteristics

电荷耦合系数随温度变化趋势图

Relative temperature dependence of coupling coefficient

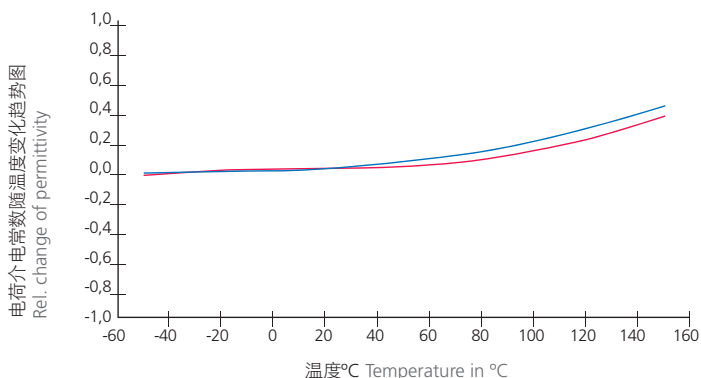


SONOX® P4

SONOX® P8

电荷介电常数随温度变化趋势图

Relative temperature dependence of permittivity



电荷谐振频率随温度变化趋势图

Relative temperature dependence of serial resonant frequency

