

Piezoelectric Material



Features

- Suitable for precision motion
- Wide range of application fields
- Vacuum compatible, not affected by electromagnetic interference
- Possesses a certain level of mechanical strength and high compressive resistance

Description

Piezoelectric materials can generate an electric field due to mechanical deformation, and they can also undergo mechanical deformation in response to an applied electric field. This inherent electromechanical coupling effect has led to widespread applications of piezoelectric materials in engineering. For instance, active vibration damping, noise control, non-destructive testing, and ultrasound imaging, among others.

Discover the precision engineering of YINGUAN Company's piezoelectric devices, meticulously crafted with state-of-the-art lead zirconate titanate (PZT) material.

Experience unparalleled accuracy in driving mechanical components, designed to deliver exceptional ultra-precision positioning for the most discerning international clients.

Elevate your projects with our cutting-edge technology.

Technical Specifications

	Symbol	YGP-51	YGP-51A	YGP-51H	YGP-51G	YGP-P84	YGP-P81	Unit
Electrical property								
Permittivity	ϵ_{33}^T	1900	2600	4200	1800	1600	1400	
Dielectric loss	$\text{tg}\delta$	<2.5	<2.5	<2.5	1.50	0.50	0.30	%
Electromechanical property								
Electro-mechanical coupling factor	K_p	0.65	0.66	0.69	0.62	0.54	0.55	%
	K_{31}	0.37	0.39	0.42	0.35	0.41	0.35	%
	K_{33}	0.72	0.77	0.78	0.69	0.56	0.65	%
	K_T	0.50	0.48	0.50	0.49	0.41	0.46	%
Piezoelectric Constant	d_{31}	-320	-220	-300	-220	-230	-120	10^{-12}C/N
	d_{33}	440	560	750	400	450	270	10^{-12}C/N
	g_{31}	-11	-10	-9	-10.5	-10	-11.5	10^{-3}Vm/N
	g_{33}	17.8	22.3	16.8	24	17.2	26	10^{-3}Vm/N

Technical Specifications(Continued from previous page)

	Symbol	YGP-51	YGP-51A	YGP-51H	YGP-51G	YGP-P84	YGP-P81	Unit
Frequency constant	N_p	2010	1980	2000	2080	2040	2235	kHz·mm
	N_t	1950	2040	2030	2010	2000	2050	kHz·mm
	N_{31}	1400	1400	-	1400	1300	1340	kHz·mm
	N_{33}	1500	1350	-	1450	1250	1200	kHz·mm
Physical property								
Mechanical quality factor	Q_m	80	90	60	50	800	2200	
Density	ρ	7.74	7.85	7.75	7.78	7.79	7.8	10^3 Kg/m^3
Elastic compliance	S^{E11}	17	16	17	17	16	12	$10^{-12} \text{ m}^2/\text{N}$
	S^{E33}	21	19	21	20	18	14.6	$10^{-12} \text{ m}^2/\text{N}$
Curie temperature	T_c	320	300	190	360	320	310	$^{\circ}\text{C}$
Process characteristic								
Sintering temperature	T_s	1050	1250	1050	-	-	-	$^{\circ}\text{C}$
Strain (@20kv/cm)		-	-	-	1.5‰	-	-	