

## Piezoelectric Discs

Fast Availability of Specified Versions



- Piezo material matched to the application
- Full-surface contact electrodes
- Can be delivered within two weeks
- Larger quantities available direct from stock

### Fields of application

Piezo components made of ferroelectric soft piezo material (PIC255):

- Sensor technology
- Actuator engineering
- Air ultrasound

Piezo components made of ferroelectric hard piezo material (PIC181):

- High-power ultrasound applications
- Sonar

### Customized versions and other specifications on request

- Flexible, selectable dimensions
- Piezo material
- Contacting
- Polarity
- Electrical connections
- Assembling technology
- Special ambient conditions

## Specifications

Piezo components made of ferroelectric soft piezo material (PIC255), with silver electrodes

	PRYY-0886	000022817	000023079	PRYY+0398	000023074	000053020	Unit
Outer diameter (OD)	2	3	3	5	5	6.5	mm
Thickness (TH)	1	0.25	2	0.25	2	0.25	mm
Resonant frequency (thickness)*	2000	8000	1000	8000	1000	8000	kHz
Resonant frequency (radial)	1000	667	667	400	400	308	kHz
Electrical capacitance	0.053	0.338	0.056	0.992	0.152	1.676	nF
Piezo material	PIC255	PIC255	PIC255	PIC255	PIC255	PIC255	
Coupling factor for radial oscillation $k_p$	0.62	0.62	0.62	0.62	0.62	0.62	
Coupling factor for thickness oscillation $k_t$	0.47	0.47	0.47	0.47	0.47	0.47	

	000053024	PRYY-1129	000014300	PRYY+1119	PRYY+0110	PRYY+0111	Unit
Outer diameter (OD)	6.5	8	8	10	10	10	mm
Thickness (TH)	1	1	2	0.2	0.5	1	mm
Resonant frequency (thickness)*	2000	2000	1000	10000	4000	2000	kHz
Resonant frequency (radial)	308	250	250	200	200	200	kHz
Electrical capacitance	0.504	0.764	0.404	5.240	2.280	1.220	nF
Piezo material	PIC255	PIC255	PIC255	PIC255	PIC255	PIC255	
Coupling factor for radial oscillation $k_p$	0.62	0.62	0.62	0.62	0.62	0.62	
Coupling factor for thickness oscillation $k_t$	0.47	0.47	0.47	0.47	0.47	0.47	

	PRYY+0372	PRYY+0327	PRYY+0332	PRYY+0333	PRYY+0349	PRYY+0170	Unit
Outer diameter (OD)	10	16	16	16	20	20	mm
Thickness (TH)	1	0.2	1	2	0.2	1	mm
Resonant frequency (thickness)*	1000	10000	2000	1000	10000	2000	kHz
Resonant frequency (radial)	200	125	125	125	100	100	kHz
Electrical capacitance	0.634	12.906	3.200	1.625	22.300	5.060	nF
Piezo material	PIC255	PIC255	PIC255	PIC255	PIC255	PIC255	
Coupling factor for radial oscillation $k_p$	0.62	0.62	0.62	0.62	0.62	0.62	
Coupling factor for thickness oscillation $k_t$	0.47	0.47	0.47	0.47	0.47	0.47	

	PRYY+0354	000014801	PRYY+0189	PRYY+0190	Unit
Outer diameter (OD)	20	25	25	25	mm
Thickness (TH)	2	0.2	1	2	mm
Resonant frequency (thickness)*	1000	10000	2000	1000	kHz
Resonant frequency (radial)	100	80	80	80	kHz
Electrical capacitance	2.560	35.000	7.820	3.996	nF
Piezo material	PIC255	PIC255	PIC255	PIC255	
Coupling factor for radial oscillation $k_p$	0.62	0.62	0.62	0.62	
Coupling factor for thickness oscillation $k_t$	0.47	0.47	0.47	0.47	

\* Due to coupling of thickness and radial oscillation, the actual value can deviate by  $\pm 5\%$  (below 2000 kHz) or  $\pm 10\%$  (from 2000 kHz).

**Piezo components made of ferroelectric hard piezo material (PIC181), with silver electrodes**

	PRYY-0884	PRYY+0853	PRYY+0850	PRYY+0392	PRYY+0395	000053021	Unit
Outer diameter (OD)	2	3	3	5	5	6.5	mm
Thickness (TH)	1	0.25	2	0.25	2	0.25	mm
Resonant frequency (thickness)*	2110	8440	1055	8440	1055	8440	kHz
Resonant frequency (radial)	1135	757	757	454	454	349	kHz
Electrical capacitance	0.036	0.232	0.038	0.680	0.104	1.150	nF
Piezo material	PIC181	PIC181	PIC181	PIC181	PIC181	PIC181	
Coupling factor for radial oscillation $k_p$	0.56	0.56	0.56	0.56	0.56	0.56	
Coupling factor for thickness oscillation $k_t$	0.46	0.46	0.46	0.46	0.46	0.46	

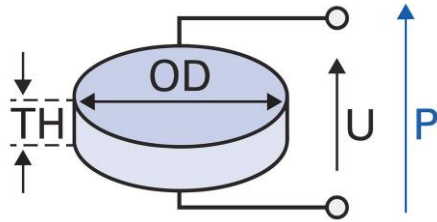
	000053025	PRYY-0445	000052797	PRYY+1113	PRYY+0107	PRYY+0442	Unit
Outer diameter (OD)	6.5	8	8	10	10	10	mm
Thickness (TH)	1	1	2	0.2	0.5	1	mm
Resonant frequency (thickness)*	2110	2110	1055	10550	4220	2110	kHz
Resonant frequency (radial)	349	284	284	227	227	227	kHz
Electrical capacitance	0.346	0.524	0.277	3.593	1.563	0.837	nF
Piezo material	PIC181	PIC181	PIC181	PIC181	PIC181	PIC181	
Coupling factor for radial oscillation $k_p$	0.56	0.56	0.56	0.56	0.56	0.56	
Coupling factor for thickness oscillation $k_t$	0.46	0.46	0.46	0.46	0.46	0.46	

	PRYY+0108	PRYY+0321	PRYY+0325	PRYY+0326	PRYY+0344	PRYY+0348	Unit
Outer diameter (OD)	10	16	16	16	20	20	mm
Thickness (TH)	1	0.2	1	2	0.2	1	mm
Resonant frequency (thickness)*	1055	10550	2110	1055	10550	2110	kHz
Resonant frequency (radial)	227	142	142	142	114	114	kHz
Electrical capacitance	0.435	8.850	2.194	1.114	15.291	3.470	nF
Piezo material	PIC181	PIC181	PIC181	PIC181	PIC181	PIC181	
Coupling factor for radial oscillation $k_p$	0.56	0.56	0.56	0.56	0.56	0.56	
Coupling factor for thickness oscillation $k_t$	0.46	0.46	0.46	0.46	0.46	0.46	

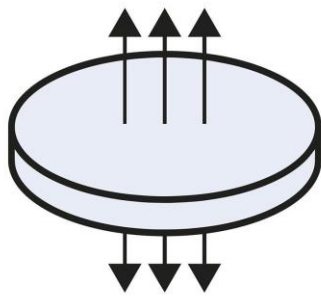
	PRYY+0168	000052809	000052810	PRYY+0187	Unit
Outer diameter (OD)	20	25	25	25	mm
Thickness (TH)	2	0.2	1	2	mm
Resonant frequency (thickness)*	1055	10550	2110	1055	kHz
Resonant frequency (radial)	114	91	91	91	kHz
Electrical capacitance	1.755	24.000	5.362	2.740	nF
Piezo material	PIC181	PIC181	PIC181	PIC181	
Coupling factor for radial oscillation $k_p$	0.56	0.56	0.56	0.56	
Coupling factor for thickness oscillation $k_t$	0.46	0.46	0.46	0.46	

\* Due to coupling of thickness and radial oscillation, the actual value can deviate by  $\pm 5\%$  (below 2000 kHz) or  $\pm 10\%$  (from 2000 kHz).

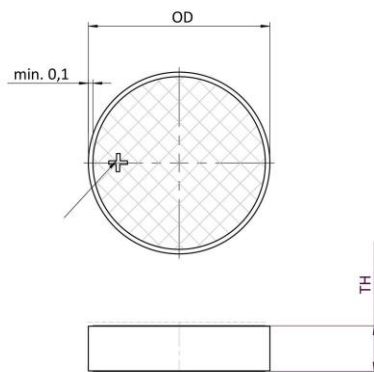
## Drawings / Images



*Piezoelectric discs, allocation of dimensions and direction of polarization P*



*Displacement of piezoelectric discs, thickness oscillation*



*Piezoelectric discs, dimensions in mm*

## Ordering Information

### Piezo components made of ferroelectric soft piezo material (PIC255), with silver electrodes

**PRYY-0886**

Piezoelectric disc, outside diameter (OD) = 2 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o2 t1 eAg

**000022817**

Piezoelectric disc, outside diameter (OD) = 3 mm × thickness (TH) = 0.25 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o3 t0.25 eAg

**000023079**

Piezoelectric disc, outside diameter (OD) = 3 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o3 t2 eAg

**PRYY+0398**

Piezoelectric disc, outside diameter (OD) = 5 mm × thickness (TH) = 0.25 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o5 t0.25 eAg

**000023074**

Piezoelectric disc, outside diameter (OD) = 5 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o5 t2 eAg

**000053020**

Piezoelectric disc, outside diameter (OD) = 6.5 mm × thickness (TH) = 0.25 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o6.5 t0.25 eAg

**000053024**

Piezoelectric disc, outside diameter (OD) = 6.5 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o6.5 t1 eAg

**PRYY-1129**

Piezoelectric disc, outside diameter (OD) = 8 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o8 t1 eAg

**000014300**

Piezoelectric disc, outside diameter (OD) = 8 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o8 t2 eAg

**PRYY+1119**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 0.2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o10 t0.2 eAg

**PRYY+0110**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 0.5 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o10 t0.5 eAg

**PRYY+0111**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o10 t1 eAg

**PRYY+0372**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o10 t2 eAg

**PRYY+0327**

Piezoelectric disc, outside diameter (OD) = 16 mm × thickness (TH) = 0.2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o16 t0.2 eAg

**PRYY+0332**

Piezoelectric disc, outside diameter (OD) = 16 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o16 t1 eAg

**PRYY+0333**

Piezoelectric disc, outside diameter (OD) = 16 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o16 t2 eAg

**PRYY+0349**

Piezoelectric disc, outside diameter (OD) = 20 mm × thickness (TH) = 0.2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o20 t0.2 eAg

**PRYY+0170**

Piezoelectric disc, outside diameter (OD) = 20 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o20 t1 eAg

**PRYY+0354**

Piezoelectric disc, outside diameter (OD) = 20 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o20 t2 eAg

**000014801**

Piezoelectric disc, outside diameter (OD) = 25 mm × thickness (TH) = 0.2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o25 t0.2 eAg

**PRYY+0189**

Piezoelectric disc, outside diameter (OD) = 25 mm × thickness (TH) = 1 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o25 t1 eAg

**PRYY+0190**

Piezoelectric disc, outside diameter (OD) = 25 mm × thickness (TH) = 2 mm, piezo material PIC255, electrode Ag screen printed; disc c255 o25 t2 eAg

**Piezo components made of ferroelectric hard piezo material (PIC181), with silver electrodes****PRYY-0884**

Piezoelectric disc, outside diameter (OD) = 2 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o2 t1 eAg

**PRYY+0853**

Piezoelectric disc, outside diameter (OD) = 3 mm × thickness (TH) = 0.25 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o3 t0.25 eAg

**PRYY+0850**

Piezoelectric disc, outside diameter (OD) = 3 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o3 t2 eAg

**PRYY+0392**

Piezoelectric disc, outside diameter (OD) = 5 mm × thickness (TH) = 0.25 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o5 t0.25 eAg

**PRYY+0395**

Piezoelectric disc, outside diameter (OD) = 5 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o5 t2 eAg

**000053021**

Piezoelectric disc, outside diameter (OD) = 6.5 mm × thickness (TH) = 0.25 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o6.5 t0.25 eAg

**000053025**

Piezoelectric disc, outside diameter (OD) = 6.5 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o6.5 t1 eAg

**PRYY-0445**

Piezoelectric disc, outside diameter (OD) = 8 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o8 t1 eAg

Piezoelectric disc, outside diameter (OD) = 8 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o8 t2 eAg

**PRYY+1113**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 0.2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o10 t0.2 eAg

**PRYY+0107**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 0.5 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o10 t0.5 eAg

**PRYY+0442**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o10 t1 eAg

**PRYY+0108**

Piezoelectric disc, outside diameter (OD) = 10 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o10 t2 eAg

**PRYY+0321**

Piezoelectric disc, outside diameter (OD) = 16 mm × thickness (TH) = 0.2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o16 t0.2 eAg

**PRYY+0325**

Piezoelectric disc, outside diameter (OD) = 16 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o16 t1 eAg

**PRYY+0326**

Piezoelectric disc, outside diameter (OD) = 16 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o16 t2 eAg

**PRYY+0344**

Piezoelectric disc, outside diameter (OD) = 20 mm × thickness (TH) = 0.2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o20 t0.2 eAg

**PRYY+0348**

Piezoelectric disc, outside diameter (OD) = 20 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o20 t1 eAg

**PRYY+0168**

Piezoelectric disc, outside diameter (OD) = 20 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o20 t2 eAg

**000052809**

Piezoelectric disc, outside diameter (OD) = 25 mm × thickness (TH) = 0.2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o25 t0.2 eAg

**000052810**

Piezoelectric disc, outside diameter (OD) = 25 mm × thickness (TH) = 1 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o25 t1 eAg

**PRYY+0187**

Piezoelectric disc, outside diameter (OD) = 25 mm × thickness (TH) = 2 mm, piezo material PIC181, electrode Ag screen printed; disc c181 o25 t2 eAg