

High Resolution 0-3type Composite Transducer Technical Information

ISL 0-3type Composite Transducers with elements in frequency range of 5MHz to 20MHz have been developed in order to obtain higher resolution power and bigger crystal size than ceramics transducers. The element films can be curved so that a sharp focus is obtained. Due to this feature, the electro-acoustic energy conversion efficiency of the Composite



transducers might be half that of ceramics transducers, but they are much effective for detection of fine defects than ceramics transducer.

Since the Q value of Composite transducers is very low (about 3), it might be possible to generate damped waveforms without using a damping material, but if a proper backing material is attached, higher resolution power can be obtained. The combination with a spike type pulser/receiver on the market allows sounds of about one wave to be transmitted and sounds of about 1.5 waves to be received. When using the ISL step-function type pulser BLP11c, it is possible to generate and receive ultrasounds of half wave(unipolar).

The main application of this crystal is curved paint-bruch transducers.

Technical Data

*For polymer type and 1-3 Composite type transducers : provide differ data.

No.	Description	Specifications
0	Piezoelectric material	Polymer/Ceramic composite
1	No. of waves	With our step function-type pulser, almost a half wave to be generated.
2	Temperature in continuous operation of piezoelectric element	70°C or higher
3	Density of piezoelectric material	5
4	Acoustic impedance of piezoelectric element	10
5	Production frequency range	5...20MHz (nominal)
	Production range of element diameter	1mm ...150mm 0.3mm pitch for Array transducer.
7	Curvature of element	Down to 2.5mmR(depend on element size)
8	Connector type	UHF, Microdot, LEMO
9	Withstand voltage	-1000V
10	Temperature range in continuous operation	0...50°C
11	Case size	16 dia.x40mm or 9.6 dia x31mm (typical)

The appearance and specifications are subject to change for modifications without notice.

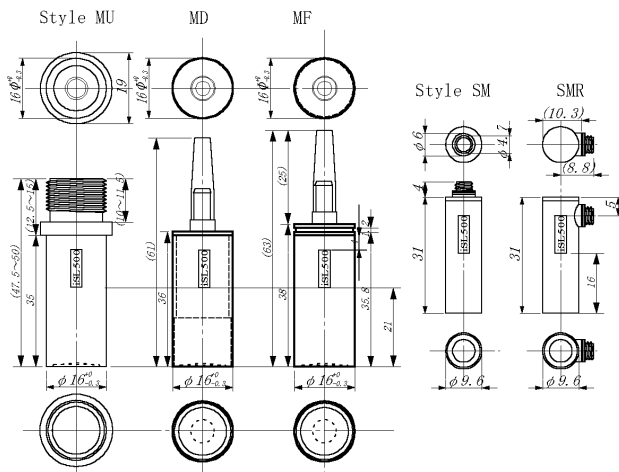
Variations of frequency, element diameter and focusing type allow many combination of specifications. But some combinations can not be produced, or can not provide required performance. We offer the standard transducers listed below at low prices. The

standard transducers will meet any requirements in normal applications. Call us for special applications.

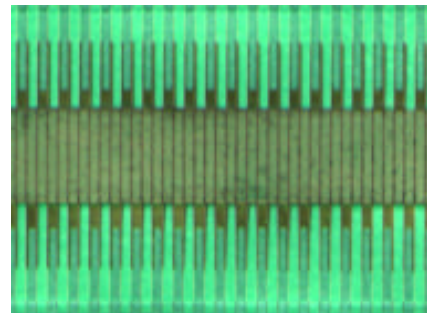
Standard Transducers(our favorite and a parts of standard transducers)

Order code	Nominal Frequency	Resonance frequency of element	Element diameter mm dia.	Curvature of element (≈Focal length)	Delay Length
High-resolution					
ISL-5C0-5-R25	5MHz	5MHz	5mm	25mmR	
ISL-5C0-10-R50	5MHz	5MHz	10mm	50mmR	
ISL-10C0-5-R25	10MHz	10MHz	5mm	25mmR	
ISL-10C0-10-R50	10MHz	10MHz	10mm	50mmR	
ISL-15C0-5-R25	15MHz	13...17MHz	5mm	25mmR	
ISL-20C0-5-R25	20MHz	18...25MHz	5mm	25mmR	
ISL-20C0-5-R17	20MHz	18...25MHz	5mm	17mmR	
Ultra High-resolution					
ISL-10C0-5-D5R17	10MHz	10MHz	5mm	17mmR	5mm
ISL-10C0-5-D10R25	10MHz	10MHz	5mm	25mmR	10mm
ISL-20C0-5-D5R17	20MHz	18...25MHz	5mm	17mmR	5mm

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 ISL-[Freq in MHz]C0-[diameter in mm]-[Point/Line]-R[Curvature in mm]-[Case & con.style]



A part of 15MHz0.4x8mm128ch Array Transducer



Special Polymer Transducers

- The material is electrically polarized at high temperature, and will not often repolazised at normal temperature even when a reverse voltage to normal pulser is applied. Therefore, it is possible to generate a pulse which starts with a positive pressure wave.
- Small boreside transducer with which ultrasounds are generated from a side wall of a 4mm outer diameter tube.
- Multi-element/Array transducer allowing the electronic rotation scanning on the circumference of tube.
- Super-broadband/high resolution transducer (DLL Series). The element is sandwiched between two dampers.

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