

Ultrasonic transducer S3750

DATA SHEET

Intended use

The ultrasonic single crystal transducer S3750 is used to perform the ultrasonic material testing and flaw detection in metallic, plastic and composite materials by transmitting and receiving ultrasonic longitudinal waves. The transducer can be used as a part of ultrasonic thickness gauges and flaw detectors in pulse-echo or through-transmission mode.

Main technical specifications

Type of transducer:	Piezoelectric, single crystal
Type of generated wave mode:	Longitudinal
Nominal frequency:	1 MHz
Effective aperture:	30 mm
Delay time in transducer protector:	0.1 μ s
Piezo-element electric capacity:	5.200 \pm 1.000 pF
Maximum excitation pulse voltage, V:	\pm 200 V
Operating temperature range	-30...+50°C
Connector type:	LEMO00.250
Dimensions:	36.5 x \varnothing 40 mm
Weight:	220 gr

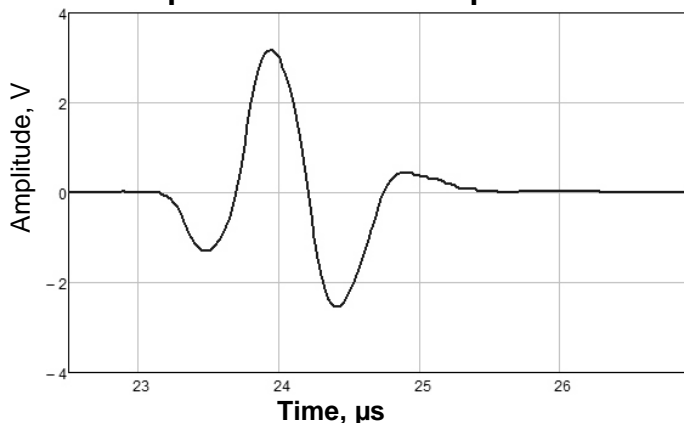


Measurement conditions and equipment used

Transmitting:	square pulse with amplitude 200 V. Pulse duration: <ul style="list-style-type: none"> • 40 ns when determining the shape and spectrum of the backwall echo-signal in a steel sample • 100 ns when measuring the signal amplitude in samples with different thickness and recording characteristics (calculated as a half period for the nominal transducer frequency)
Receiving:	amplifier with the frequency bandwidth 0.01 to 15 MHz and the input impedance 1 k Ω . The effective noise level adjusted to the amplifier input, max. 20 μ V
Damping resistor:	200 Ω (connected in parallel to the receiving piezoelement)
Cable:	RG174 with wave impedance 50 Ω and 1 m length
Reference block:	standard steel block, longitudinal wave velocity 5910 m/s, thickness 100 mm
Ambient conditions	Temperature 25°C, rel. humidity 43%

Measured characteristics

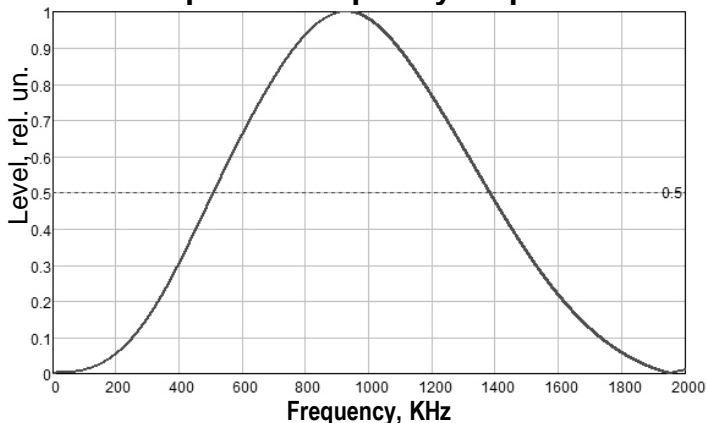
Shape of the measured pulse



Time parameters

Echo signal duration at the -20 dB level	1.76 μ s
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Amplitude frequency response



Frequency parameters

Maximum spectrum frequency	0.95 MHz
Lower band frequency at -6 dB level	0.51 MHz
Upper band frequency at -6 dB level	1.38 MHz
Relative band at -6 dB level	92.4%