



Ultrasonic piezoelectric transducer S3469 1.8A0D18CL DATA SHEET

Main technical specifications

Transducer type:	Contact straight beam single
Nominal frequency:	1.8 MHz
Nominal echo pulse duration:	2 μ s
Nominal relative band width:	95 %
Nominal sensitivity:	-40 dB
Piezoelement diameter:	18 mm
Nominal echo pulse delay in protector:	0.08 μ s
Nominal piezoelement capacity:	3500 \pm 50 pF
Connector type:	LEMO 00.250
Operation temperature range:	from -20 to +50 °C
Dimensions:	24×27×23 mm
Weight:	40 g

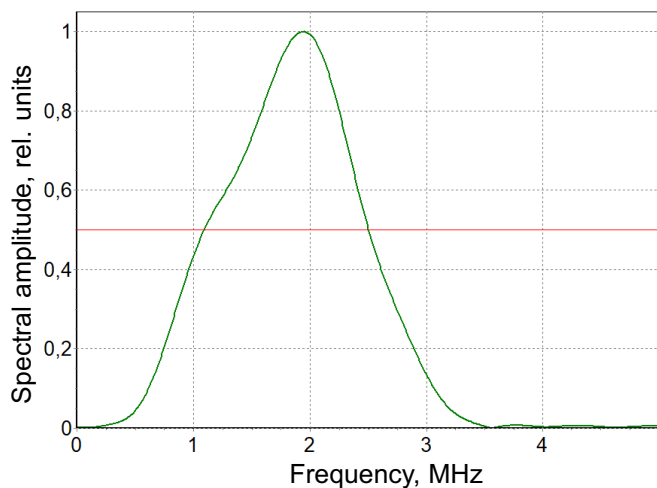
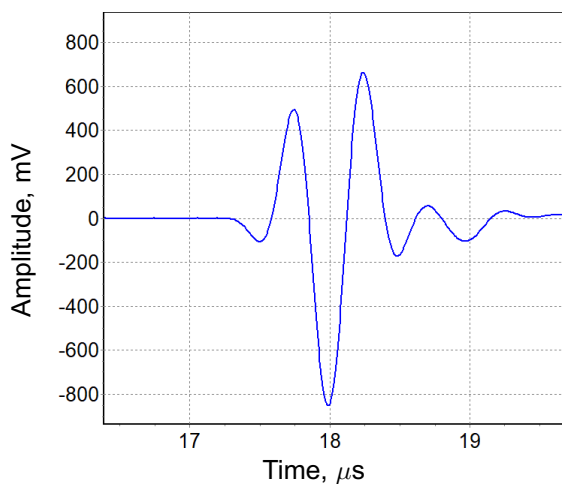


Measurement conditions and used equipment

Excitation:	Rectangular pulse with amplitude 20 V and duration 277.777777777778 ns , equal to half-period of nominal frequency oscillations.
Receiver:	Amplifier with 0.01-15 MHz bandwidth and 400 Ω input impedance. Effective noise level, normalized to the amplifier input level, is less than 20 μ V.
Damping resistor:	100 Ω (connected in parallel to the transducer).
Cable:	Single LEMO-LEMO with wave resistance 50 Ω and 1.2 m length.
Calibration block:	Calibration block CB002-2 from a set of ultrasonic samples of thickness and ultrasonic wave velocity, SN004. Calibration certificate 0930220 of 17.02.2020. Longitudinal wave velocity 5918 m/s, thickness 50 mm (dimensions 230×120×50 mm).

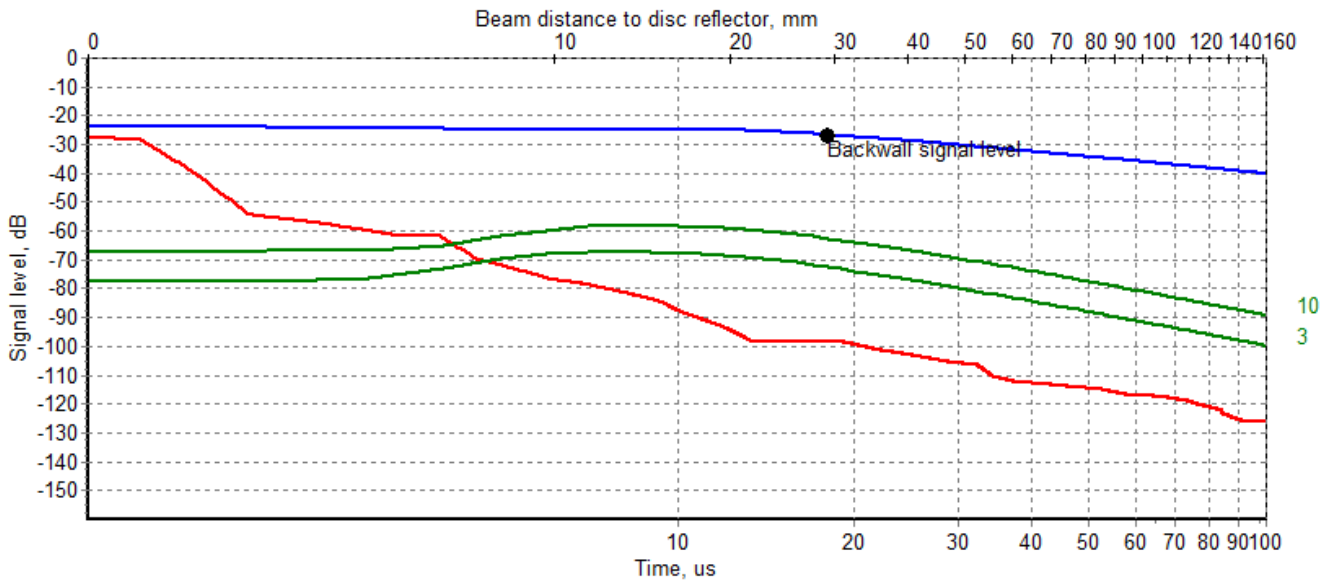
Measurement results

Backwall echo pulse for 50 mm thickness and its spectrum



Reverberation-noise characteristics (RNC) of the transducer without acoustic load and DGS diagram for flat bottomed reflectors with area 1, 3 and 10 mm²

The level of 0 dB corresponds to the amplitude of the transducer excitation pulse.



Calculated parameters and acceptance results

Parameter	Value	Tolerance	Result
Work frequency (Mean of border spectrum frequencies) , MHz	1.9	1.44 – 2.16	+
Echo pulse duration (at -20 dB level from maximum) , μs	1.56	<= 2	+
Relative spectrum bandwidth (at -6 dB level) , %	72	70 – 120	+
Sensitivity (bottom echo pulse and excitation pulse amplitudes' ratio), dB	-27	>= -40	+
Sensitivity margin above the RNC in the time interval 2 - 50 μs according to ADD for reflector area of 1 mm² , dB	71	>= 40	+
Echo pulse amplitude , mV	866	—	
Delay , μs	1.1	—	
Spectrum maximum frequency , MHz	1.9	—	
Lower spectrum frequency (at -6 dB level) , MHz	1.1	—	
Upper spectrum frequency (at -6 dB level) , MHz	2.5	—	
Spectrum bandwidth (at -6 dB level) , MHz	1.4	—	
Amplitude of the first maximum of the 1st lobe of aouto-correlation function(ACF)	0.45	—	
Time position of the maximum of the 1st lobe of ACF , μs	0,41	—	