



## Ultrasonic piezoelectric transducer S3567 2.5A0D10CL DATA SHEET

### Main technical specifications

Transducer type:	Contact straight beam single
Nominal frequency:	2.5 MHz
Nominal echo pulse duration:	1.1 $\mu$ s
Nominal relative band width:	95 %
Nominal sensitivity:	-60 dB
Piezoelement diameter:	10 mm
Nominal echo pulse delay in protector:	0.15 $\mu$ s
Nominal piezoelement capacity:	1300 $\pm$ 100 pF
Connector type:	LEMO 00.250
Operation temperature range:	from -20 to +50 $^{\circ}$ C
Dimensions:	24 $\times$ 19 $\times$ 16 mm
Weight:	26 g

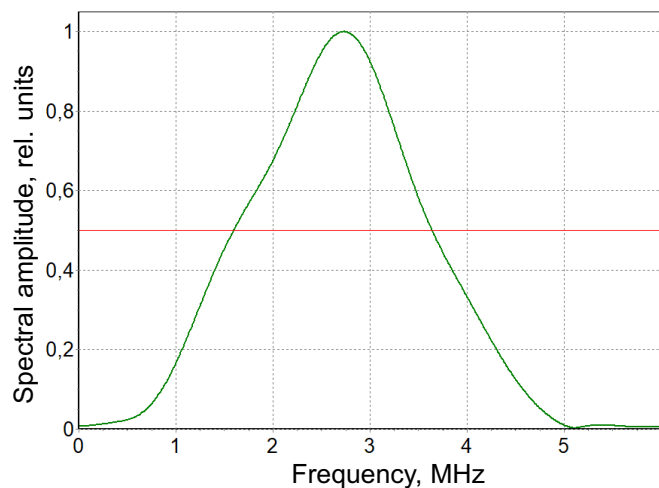
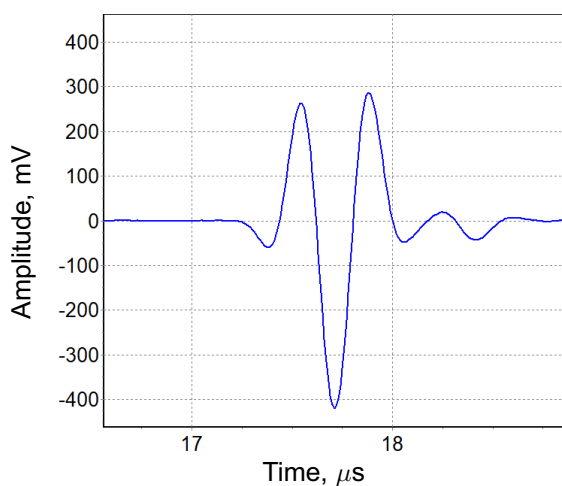


### Measurement conditions and used equipment

<b>Excitation:</b>	Rectangular pulse with amplitude 20 V and duration <b>200 ns</b> , equal to half-period of nominal frequency oscillations.
<b>Receiver:</b>	Amplifier with 0.01-15 MHz bandwidth and 400 $\Omega$ input impedance. Effective noise level, normalized to the amplifier input level, is less than 20 $\mu$ V.
<b>Damping resistor:</b>	100 $\Omega$ (connected in parallel to the transducer).
<b>Cable:</b>	Single LEMO-LEMO with wave resistance 50 $\Omega$ and 1.2 m length.
<b>Calibration block:</b>	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 $\times$ 120 $\times$ 50 mm).

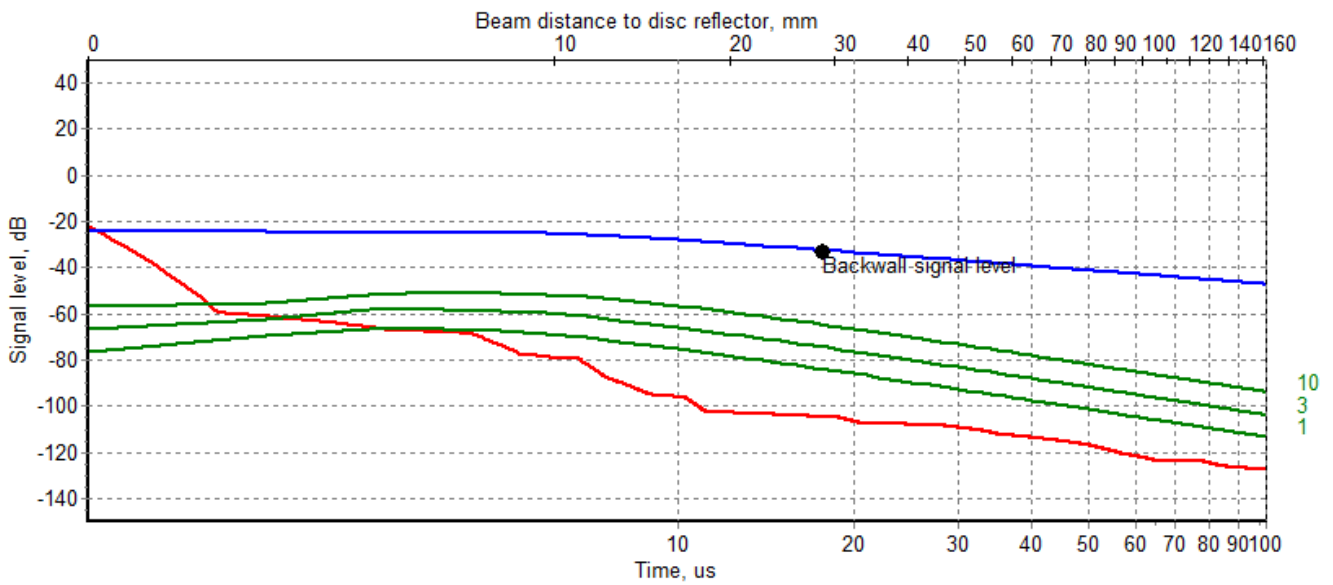
### Measurement results

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 mm<sup>2</sup>**

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



**Calculated parameters and acceptance results**

Parameter	Value	Tolerance	Result
<b>Work frequency</b> (Mean of border spectrum frequencies) , MHz	<b>2.7</b>	2 – 3	<b>+</b>
<b>Echo pulse duration</b> (at -20 dB level from maximum) , $\mu$ s	<b>1.09</b>	$\leq$ 1.1	<b>+</b>
<b>Relative spectrum bandwidth</b> (at -6 dB level) , %	<b>75</b>	70 – 120	<b>+</b>
<b>Sensitivity</b> (bottom echo pulse and excitation pulse amplitudes' ratio), dB	<b>-33</b>	$\geq$ -60	<b>+</b>
<b>Sensitivity margin above the RNC in the time interval 2 - 50 <math>\mu</math>s according to ADD for reflector area of 1 mm<sup>2</sup></b> , dB	<b>70</b>	$\geq$ 47	<b>+</b>
<b>Echo pulse amplitude</b> , mV	<b>428</b>	—	
<b>Delay</b> , $\mu$ s	<b>0.8</b>	—	
<b>Spectrum maximum frequency</b> , MHz	<b>2.7</b>	—	
<b>Lower spectrum frequency</b> (at -6 dB level) , MHz	<b>1.6</b>	—	
<b>Upper spectrum frequency</b> (at -6 dB level) , MHz	<b>3.6</b>	—	
<b>Spectrum bandwidth</b> (at -6 dB level) , MHz	<b>2</b>	—	
<b>Amplitude of the first maximum of the 1st lobe of aouto-correlation function(ACF)</b>	<b>0.42</b>	—	
<b>Time position of the maximum of the 1st lobe of ACF</b> , $\mu$ s	<b>0,41</b>	—	