

Ultrasonic transducer S1805 DATA SHEET

Intended use

Main technical specifications

Type of generated wave mode:	Longitudinal
Nominal frequency:	150 kHz
Operating frequency:	(150 ± 10) kHz
Double conversion ratio:	70 dB or better
Relative frequency bandwidth:	$> 55 \%$
Electric capacity of the piezoelectric element:	(1250 ± 800) pF
Maximum excitation pulse voltage:	< 200 V
Connector type:	LEMO 00.250
Overall dimensions:	$< 24 \times \varnothing 11$ mm
Weight:	< 11 g
Operating temperature range:	-20 °C to $+50$ °C



Measurement conditions and equipment used

The measurement of the tested DPC transducer characteristics occurs in combination with the reference DPC transducer, whereby both transducers are connected by their tips with the nip force of 4 N. The tested transducer operates as a trans-mitter and the reference transducer operates as a receiver of ultrasonic waves. The double conversion ratio S_{rel} is determined as a ratio value between the received signal amplitude on the reference transducer and excitation pulse amplitude on the tested transducer.

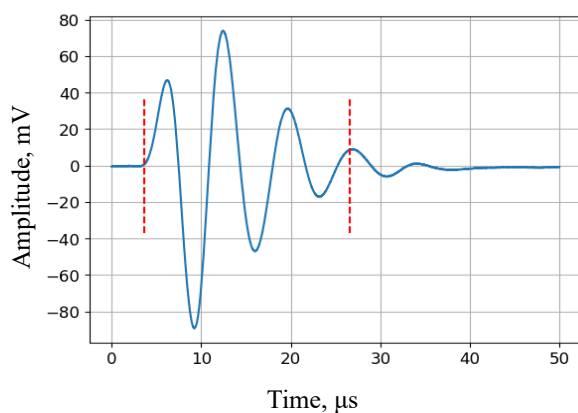
Excitation signal: square pulse with the amplitude 200 V, duration 10 μ s, equal to half period of the nominal.

Receiver parameters: integrating amplifier with the bandwidth 0.01 Hz – 400 kHz, input resistance 4 k Ω , equivalent input noise voltage 10 μ V.

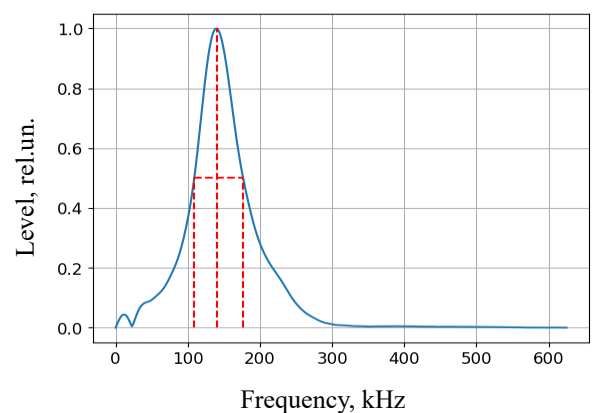
Environmental conditions: temperature 24 °C, rel. 20 %.

Measured characteristics

Shape of the measured pulse



Amplitude-frequency response



Echo pulse duration τ :	26.6 μs	Operating frequency f_c :	143.0 kHz
AFC frequency maximum f_p :	140.2 kHz	Double conversion ratio AFCmaximum S_{rel} :	-83.1 dB
Lower AFC frequency f_l :	108.9 kHz	Transducer delay t_d :	3.6 μs
Upper AFC frequency f_u :	177.0 kHz	Relative frequency bandwidth (at -6 dB) B_W :	47.6 %