Lithium Niobate

surface acoustic wave wafer

- CONSISTENT QUALITY
- STOCK AVAILABILITY
- 3-INCH AND 100 mm DIAMETERS

Since 1967 Crystal Technology has pioneered the growth and fabrication of larger, less expensive oxide single crystals for critical acoustical and optical applications. Crystal Technology's development in 1972 of a 2-inch diameter lithium niobate ($LiNbO_3$) wafer opened the way for the design and manufacture of low cost, high performance surface acoustic wave (SAW) devices.

In 1977 Crystal Technology introduced the first 3-inch diameter wafer and in 1987 the first 5-inch diameter wafer for prototype applications in our continuing efforts to expand the manufacture of SAW devices. In 1990 100 mm diameter wafers became available.

Crystal Technology currently supplies standard 3-inch and 100 mm wafers in YZ, and 64° and 128° in rotated Y orientations. All wafers are produced from the highest purity chemicals possible to ensure the best quality lithium niobate for SAW applications. The crystal composition is congruent to 0.05 mol% Li_2O. Careful quality control throughout the entire manufacturing process enables Crystal Technology to offer the most reproducible wafers possible for SAW applications.

Crystal Technology, Inc.
An EPCOS Company

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SPECIFICATIONS

Part Number	***99-30002-01***	***99-30003-01***
Size (diameter)	*2.995" +0.010", -0.015"*	*2.995" +0.010", -0.015"*
Thickness	*0.0197" ±0.0010" (0.5 mm ±0.05 mm)*	*0.0197" ±0.0010" (0.5 mm ±0.05 mm)*
Bow	*50 µm max @ wafer center*	*50 µm max @ wafer center*
T.T.V.	*<25 µm*	*<25 µm*
Axes Orientation	*Y-axis x-ray oriented perpendicular to the major face ±15'*	*127.86° surface normal oriented perpendicular to the major face ±15'*
	Z-axis x-ray oriented perpendicular to a 0.900" ±0.080" reference flat within ±15'	*X-axis x-ray oriented perpendicular to a 0.900" ±0.080" reference flat within ±15'. A 0.400" ±0.110" secondary flat at 90° to the reference flat.*
Surface Finish		
*Front **	*20/10 scratch/dig polish*	*20/10 scratch/dig polish*
Back	*Fine ground*	*Fine ground*
Edge	*Edge rounded and free of chips less than 0.020" in depth and 0.040" in length*	*Edge rounded and free of chips less than 0.020" in depth and 0.040" in length*

Part Number	***97-01030-01***	***97-01064-01***	***97-02196-02***
Size (diameter)	*3.937" +0.010", -0.015"*	*3.937" +0.010", -0.015"*	*3.00" ±0.008"*
Thickness	*0.0197" ±0.0010" (0.5 mm ±0.05 mm)*	*0.0197" ±0.0010" (0.5 mm ±0.05 mm)*	*0.0197" ±0.008" (0.5 mm ±0.02 mm)*
Bow	*70 µm max @ wafer center*	*70 µm max @ wafer center*	*20 µm max @ wafer center*
T.T.V.	*<25 µm*	*<25 µm*	*<25 µm*
Axes Orientation	*Y-axis x-ray oriented perpendicular to the major face ±15'*	*127.86° surface normal oriented perpendicular to the major face ±15'*	*64° surface normal oriented perpendicular to the major face ±15'*
	Z-axis x-ray oriented perpendicular to a 1.200" ±0.080" reference flat within ±15'	*X-axis x-ray oriented perpendicular to a 1.200" ±0.080" reference flat within ±15'. A 0.600" ±0.110" secondary flat at 90° to the reference flat.*	*- X-axis x-ray oriented perpendicular to a 0.870" ±0.080" reference flat within ±15'. A 0.400" ±0.110" secondary flat at 90° and a 0.400" ±0.110" tertiary flat at -45° to the reference flat*
Surface Finish			
*Front **	*20/10 scratch/dig polish*	*20/10 scratch/dig polish*	*20/10 scratch/dig polish*
Back	*Fine ground*	*Fine ground*	*Fine ground*
Edge	*Edge rounded and free of chips less than 0.020" in depth and 0.040" in length*	*Edge rounded and free of chips less than 0.020" in depth and 0.040" in length*	*Edge rounded and free of chips less than 0.020" in depth and 0.040" in length*

** As measured within the working area, i.e. the entire wafer less 0.040" on the edge.*

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