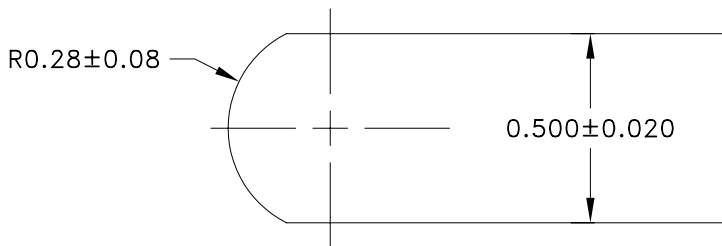


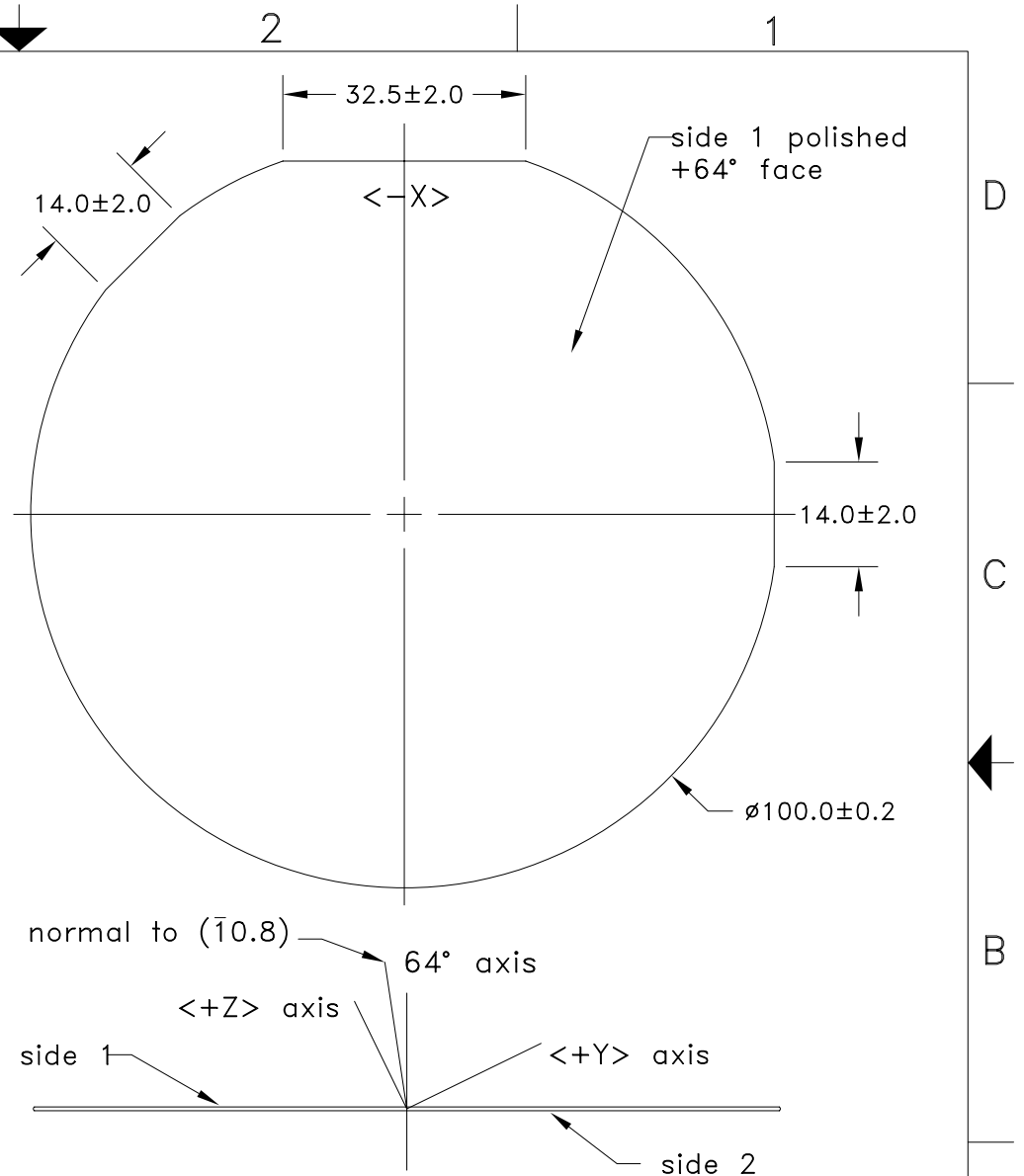
Notes:

- 1.0 Material
 - 1.1 Black lithium niobate, SAW grade
 - 1.2 Internal optical transmission at 500nm through the wafer shall be greater than 3% and less than 20%.
- 2.0 Orientations
 - 2.1 Surface normal (64° axis) is rotated from $(\bar{1}0.8)$ towards the $\langle +Y \rangle = [\bar{1}0.0]$ by $4.6^\circ \pm 0.2^\circ$. The rotation axis is $\langle X \rangle = [1\bar{2}.0]$.
 - 2.2 Flats
 - 2.2.1 Primary flat is normal to $\langle -X \rangle \pm 0.2^\circ$.
 - 2.2.2 Secondary flat is $90^\circ \pm 2^\circ$ clockwise from the primary flat when viewing the polished face $\langle +Z/+Y \rangle$.
 - 2.2.3 Tertiary flat is $45^\circ \pm 2^\circ$ counter clockwise from the primary flat when viewing the polished face.
- 3.0 Edge
 - 3.1 All edges rounded with $R0.28 \pm 0.08\text{mm}$.
 - 3.2 No chips greater than 0.5mm in penetration and 1.0mm in length.
- 4.0 Surfaces
 - 4.1 Side 1 $\langle +Z/+Y \rangle$ face
Polished 10-5 scratch-dig with 1mm edge exclusion. No pits or scratches visible with reflected light and unaided eye.
 - 4.2 Side 2 $\langle -Y/-Z \rangle$ face
Ground, $Ra\ 0.50\mu\text{m}-0.70\mu\text{m}$.
- 4.0 Flatness
 - 4.1 Warp $< 40\mu\text{m}$.
 - 4.2 TTV $< 15\mu\text{m}$.


For Reference Only



Wafer Edge Detail, 50X



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Material: Lithium Niobate		DR. Scholz	10-14-03	 Crystal Technology, Inc. An EPCOS Company
Unless otherwise specified, dimensions in mm		CHK.		
Tolerances		APPD.		Title: LNBK 100 ϕ X0.50mm, 64 $^\circ$ RY Po/Gr, -X FLT, TTV<15 μ m
Inches	Millimeters	Wafer Code: LNF-64:100.050CP		Size: A
.X \pm 0.1	X \pm 0.5	Customer Approval:		Dwg. No: 97-02472-01
.XX \pm 0.01	.X \pm 0.25			Rev: A
.XXX \pm 0.005	.XX \pm 0.1			
.XXXX \pm 0.0020	.XXX \pm 0.05			
Angles \pm 0.5 $^\circ$		DO NOT SCALE DRAWING		Scale: 1:1
				Sheet 1 of 1