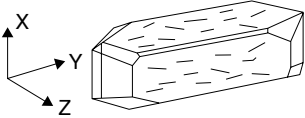
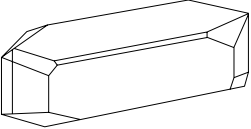
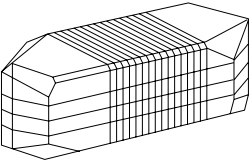
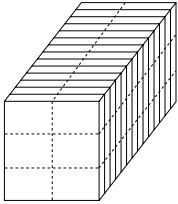
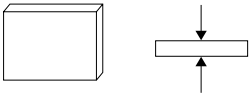
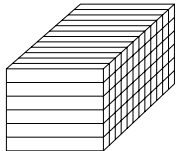


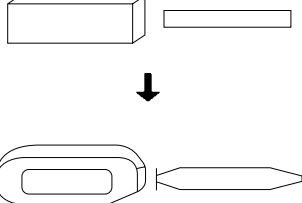
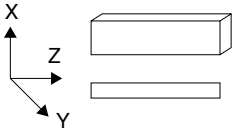
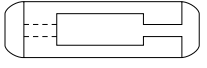
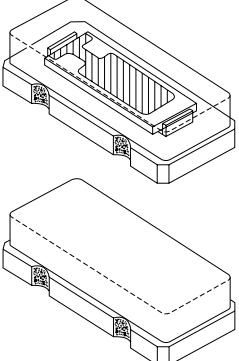
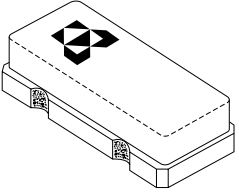


Quartz Crystal Units Manufacturing Process

	<p>Synthetic Crystal</p>	<p>This is a product made by fusing Lasca and growing a seed quartz crystal under high temperature and high pressure condition (at 350°C and 1,000 atmospheric pressure in a container called synthetic crystal growing furnace (Autoclave) filled with alkaline solution. It usually requires 40 to 90 days to grow.</p>
↓		
	<p>Lumbered</p>	<p>Grind axial plane of X, Y and Z of synthetic quartz crystal to define crystal axes.</p>
↓		
	<p>Cutting</p>	<p>Cut the synthetic quartz crystal at the prescribed cut angle. The frequency temperature characteristics will be determined by the angle.</p>
↓		
	<p>Cutting & Dimensioning</p>	<p>Cut & lap a block to make wafers.</p>
↓		
	<p>Lapping & Precision Lapping</p>	<p>Lap quartz crystal (cut at wafer cutting process) to the extent of the prescribed thickness. Lap the quartz crystal to the extent of the prescribed frequency.</p>
↓		
	<p>Cutting & Dimensioning</p>	<p>After pasting together the thickness lapped quartz crystal, process them to the prescribed dimensions.</p>

↓
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	<p style="text-align: center;">↓</p> <p style="text-align: center;">Beveling</p>	<p>Lap edges of each piece of crystal blank so as to bring the vibration to the center area. (Generally, applied to the quartz crystal whose frequency is less than 10 MHz.)</p>
	<p style="text-align: center;">↓</p> <p style="text-align: center;">Etching & Cleaning</p>	<p>Remove the processed layer during the lapping process chemically, boost the frequency accuracy simultaneously and wash the chemical solution later.</p>
	<p style="text-align: center;">↓</p> <p style="text-align: center;">Electrode Base Plating • Assembly</p>	<p>Put the washed quartz crystal blank in evaporation mask and form silver electrode in high vacuum chamber. Then the quartz crystal blank is mounted on a holder and fixed by conductive adhesive.</p>
	<p style="text-align: center;">↓</p> <p style="text-align: center;">Frequency Adjustment • Sealing</p>	<p>Adjust the frequency of the assembled quartz crystal blank to the target frequency in high vacuum. To prevent the deterioration of the etching characteristics, the cap is sealed in the nitrogen or in the vacuum.</p>
	<p style="text-align: center;">↓</p> <p style="text-align: center;">Final Inspection</p>	<p>Inspect the characteristics of hermeticness, insulation, frequency characteristics, impedance, etc.</p>