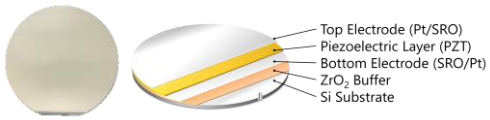
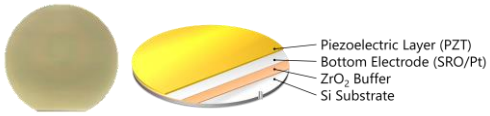
KRYSTAL Wafer
Standard Type

KRYSTAL® Wafer

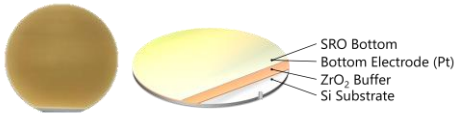
Superior wafers for piezoelectric MEMS, that can be single-crystallize PZT to be deposited by using our original ZrO2 Buffer.
Compared to general piezoelectric thin films, KRYSTAL® Wafer shows superior electrical and mechanical properties.

PZT with Top Electrode Wafer (Actuator Type)	Layer Structure	Specification
	Top Pt	100nm(Target)
	Top SRO	10nm(Target)
	PZT	2000nm ±10%
	Bottom SRO	40nm ±10%
	Bottom Pt	150nm ±10%
	ZrO2	60nm ±10%

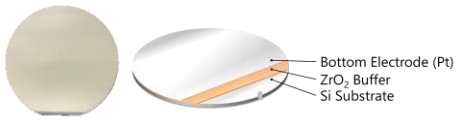
Base Wafer Type and Thickness		Parts Number
8-inch Si(100)	725μm	RF300-8F00
6-inch Si(100)	625μm	RF200-6F00

PZT Wafer (Actuator Type)	Layer Structure	Specification
	—	—
	—	—
	PZT	2000nm ±10%
	Bottom SRO	40nm ±10%
	Bottom Pt	150nm ±10%
	ZrO2	60nm ±10%

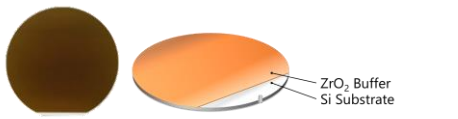
Base Wafer Type and Thickness		Parts Number
8-inch Si(100)	725μm	RF300-8D00
6-inch Si(100)	625μm	RF200-6D00

Bottom Electrode SRO/Pt Wafer	Layer Structure	Specification
	—	—
	—	—
	—	—
	Bottom SRO	40nm ±10%
	Bottom Pt	150nm ±10%
	ZrO2	60nm ±10%

Base Wafer Type and Thickness		Parts Number
8-inch Si(100)	725μm	RF300-8C00
6-inch Si(100)	625μm	RF200-6C00

Bottom Electrode Pt Wafer	Layer Structure	Specification
	—	—
	—	—
	—	—
	—	—
	Bottom Pt	150nm ±10%
	ZrO2	60nm ±10%

Base Wafer Type and Thickness		Parts Number
8-inch Si(100)	725μm	RF300-8B00
6-inch Si(100)	625μm	RF200-6B00

ZrO2 Buffer Wafer	Layer Structure	Specification
	—	—
	—	—
	—	—
	—	—
	—	—
	ZrO2	60nm ±10%

Base Wafer Type and Thickness		Parts Number
8-inch Si(100)	725μm	RF300-8A00
6-inch Si(100)	625μm	RF200-6A00

If you have any further questions, please contact our sales representatives.

Contact: I-PEX Piezo Solutions Inc. Yokohama office (TEL: +81-45-472-7111)
Shin-Yokohama Square Bldg., 11F, 2-3-12, Shin-Yokohama, Kohoku-ku, Yokohama-city, Kanagawa, 222-0033, JAPAN

KRYSTAL Wafer
Description of Conditions
< IPS Standard Specifications >

Unless otherwise specified, IPS standard specifications will be applied.

■Base Wafer for Deposition
IPS standard bare Si wafers use the orientation flat of (110) specified by JEITA is used as a standard.

■Deposition Services
In addition to standard deposition on Si wafers, we also provide custom deposition services,
such as deposition at different thicknesses, deposition on SOI wafers, and deposition on wafers supplied by customer*.

*Please note: In case of wafers supplied by the customer

If there is any concern about organic contamination on the surface of the supplied wafers, it will not be able to be deposited on our equipment.

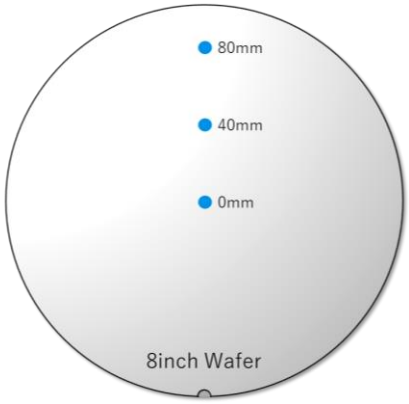
In such cases, we would request and recommend RCA cleaning (or scrubbing + RCA cleaning in the case of severely contaminated wafers).

■Specifications and Inspection Methods

Items	Specifications	Inspection Method
Single-crystal Ratio (Orientation Ratio)	96 % or more Single crystal ratio calculation formula : PZT(001)Int./(PZT(001)Int.+PZT(110)Int.)	Three points* are measured by XRD
Film thickness	As described in the [Layer Structure] section.	Three points* are measured by XRF
Appearance	No particles of 100 μm or larger	Appearance inspection by visual & microscope

XRD: X-ray Diffractometer
XRF: X-ray Fluorescence Analyzer

*Example of three points mesurement on the wafers
Described by R dimension from the center of the wafer



■Handling of wafers
In the standard wafer handling method in the IPS manufacturing process,
the backside of the wafer is picked up and handled with vacuum tweezers during wafer transfer.

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