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**INDUSTRY STANDARD OF THE
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**Verification Regulation of Standard Slice of Single Crystal
Silicon Resistivity
(English Translation)**

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Silicon single crystal resistivity standard sample verification procedure

1 Scope

This procedure is applicable to the first verification, subsequent verification and inspection in the use of silicon single crystal resistivity standard samples.

2 Overview

The silicon single crystal resistivity standard sample (hereinafter referred to as the standard sample) is made of high-purity polycrystalline silicon, which is prepared by single crystal.

It is manufactured by various processes such as neutron enthalpy doping and has a physical standard of certain geometric dimensions. Known by uncertainty Standard device, the physical resistance of the physical standard and other indicators are calibrated, the standard sample is used as the standard, the phase the parameter is passed for magnitude measurement.

3 Metrological performance requirements

3.1 Measurement range of resistivity of standard samples the measurement range of the resistivity is 0.005 ohm·cm to 5000 ohm·cm.

3.2 Standard sample nominal value the nominal value of the standard sample should meet one of the following 19 specifications, see Table 1.

Table 1 The nominal value of the standard sample ohm·cm

Resistivity nominal value 0.005 0.01 0.02 0.05 0.1 0.2 0.5 1 2 5 10 25 75 180 250 500
1000.2000 5000

3.3 Standard sample parameters and performance requirements

3.3.1 Standard samples, in addition to the nominal and actual values of resistivity, shall also have the following parameters or data. Conductive Type, doping element, diameter value, thickness value and usage requirements.

3.3.2 For the standard samples of different levels, the requirements of each indicator are

shown in Table 2.

Table 2 Indicators of standard samples

Sample level	qualification index	project	National standard	sample	first-class standard
sample	secondary standard	sample	Diameter	(40~75)±1%mm	(40~75)±1%mm
(25~100)±2%mm	Thickness	W≤1.0mm	W≤1.0mm	W≤1.0mm	Nominal value deviation
0.01ohm·cm~500ohm·cm	±5%	±10%	±15%	Center point resistivity repeatability (2sigma)	
0.3%	0.4%	0.8%	Radial resistivity unevenness	≤3%	≤4% ≤8%