Agilent 4284A Precision LCR Meter

Step-by-Step Operation Manual

Ceramic Capacitor Measurement

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No. 16000-95103

Notices

The information contained in this document is subject to change without notice.

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Step-by-Step Easy Operations

Agilent 4284A 20 Hz to 1 MHz LCR Meter
Ceramic Capacitor Measurement

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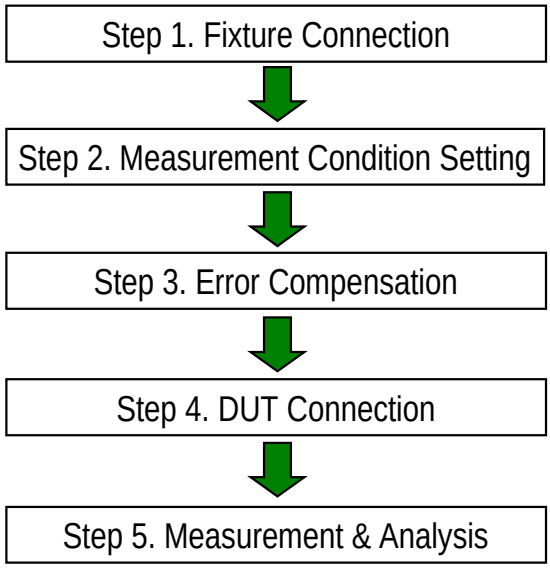
Fundamental Measurement Procedures



The fundamental measurement procedures of the Agilent 4284A are shown in this slide.

1. Fixture Connection
The appropriate fixture is selected and connected to the instrument.

2. Measurement Condition Setting
The measurement conditions of the instrument, such as frequency, test signal level, and measurement parameters are set.

3. Error Compensation
In this step, stray admittance and residual impedance are eliminated by the open, short, and load corrections.

4. DUT Connection
The DUT is connected to the fixture.

5. Measurement & Analysis
After obtaining the measurement results, they are processed and/or analyzed in this step.

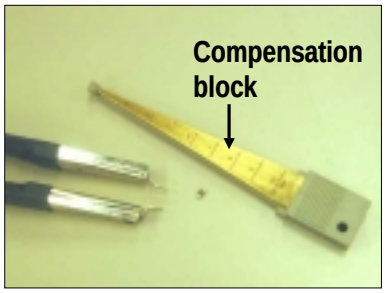
Ceramic Capacitor Measurement

Test Fixture:

Agilent 16334A Tweezers Contact Test Fixture

DUT:

SMD type Ceramic Capacitor (10 nF) (Agilent P/N : 0160-7751)



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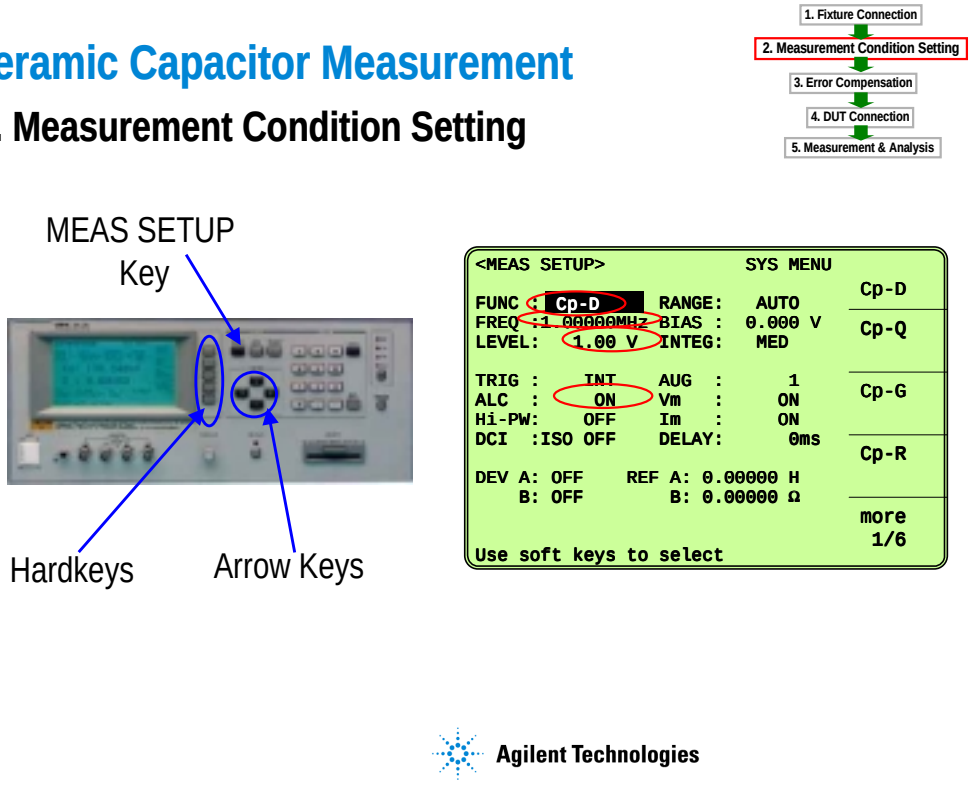
The 16334A tweezers contact test fixture is recommended for measuring an SMD type ceramic capacitor.

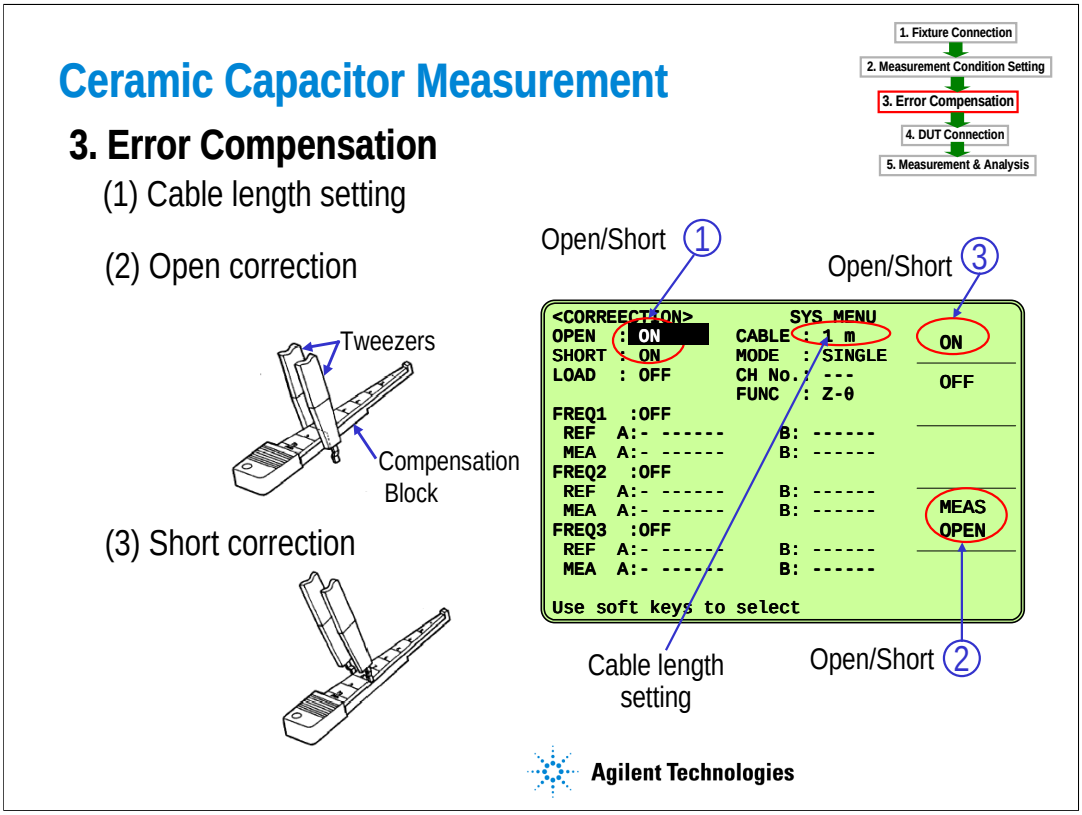
Ceramic Capacitor Measurement

2. Measurement Condition Setting



The second step is measurement condition setting. Set the measurement conditions by using the following key strokes.

	Setting Condition	Value	Key Stroke
	Reset	-	[MEAS SETUP], (SYS MENU), 'more 1/2', 'SYSTEM RESET'
1	Meas. Parameter	Cp-D	[MEAS SETUP], (FUNC), 'Cp-D'
2	Frequency	1 MHz	(FREQ), [1], 'MHz'
3	Signal Level	1 V	(LEVEL), [1], 'V'
4	ALC	ON	(ALC), 'ON'



The third step is error compensation. Compensation consists of three terms: cable length, open, and short.

1) The cable length correction eliminates phase errors caused by an extended cable. A length of 1 m is selected for the 16334A.

2) The open correction eliminates stray admittance. It is recommended that the distance between the tweezers of the 16344A be the same as that between the DUT's electrodes when using the compensation block.

3) The short correction eliminates residual impedance. It is recommended that the distance between the tweezers of the 16344A be the same as that between the DUT's electrodes when using the compensation block.

Perform error compensation by using the following key strokes.

	Setting Condition	Value	Key Stroke
1	Cable Length	1m	[MEAS SETUP], 'CORRECTION', (CABLE), '1m'
2	Open correction	Measure/ ON	[MEAS SETUP], 'CORRECTION', (OPEN), 'MEAS OPEN', 'ON'
3	Short correction	Measure/ ON	[MEAS SETUP], 'CORRECTION', (SHORT), 'MEAS SHORT', 'ON'

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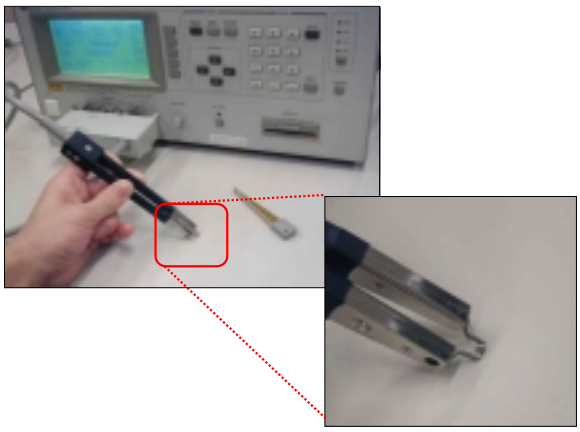
4. DUT Connection

1. Fixture Connection
2. Measurement Condition Setting
3. Error Compensation
4. DUT Connection
5. Measurement & Analysis



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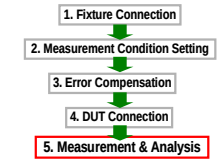
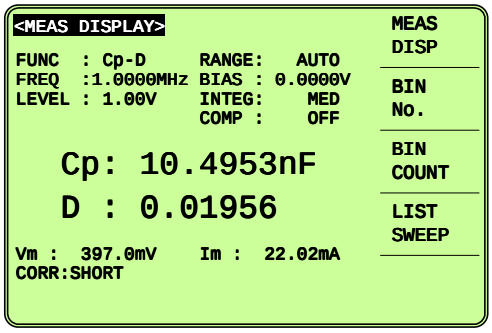
The fourth step is DUT connection.

Hold the DUT with the tweezers.

Ceramic Capacitor Measurement

5. Measurement and Analysis





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The last step of the procedures is measurement and analysis. The measurement result is shown on the display.

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Appendix

4284A with 16034E configuration

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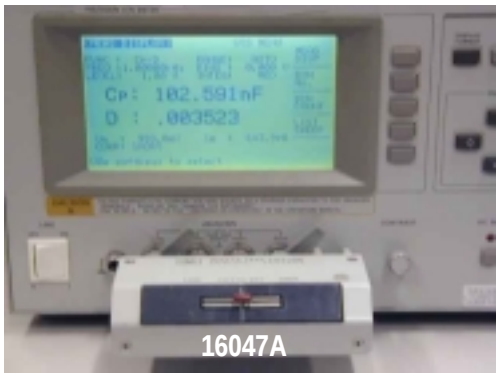
This slide shows the measurement configuration for using the Agilent 16034E test fixture.

The 4284A with the 16034E is suitable for evaluating the parallel electrode SMD components. The minimum SMD size is 1.6 mm length x 0.8 mm width. For a smaller-sized SMD, such as 0.6 mm length x 0.3 mm width, the 16034G is available.

The measurement procedure is almost the same as that used for the 16334A.

Appendix

4284A with 16047A configuration



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This slide shows the measurement configuration for using the Agilent 16047A test fixture.

The 4284A with the 16047A is suitable for evaluating lead type components.

The measurement procedure is almost the same as that used for the 16334A.

Operation Examples

Thank you very much

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