



BSI Standards Publication

**Piezoelectric, dielectric and electrostatic
devices and associated materials for frequency
control, selection and detection - Glossary**

Part 4-1: Piezoelectric materials - Synthetic quartz crystal

National foreword

This Published Document is the UK implementation of IEC TS 61994-4-1:2018. It supersedes DD IEC/TS 61994-4-1:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/49, Piezoelectric devices for frequency control and selection.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Published by BSI Standards Limited 2018

ISBN 978 0 580 52476 9

ICS 01.040.31; 31.140

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 November 2018.

Amendments/corrigenda issued since publication

Date	Text affected
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IEC TS 61994-4-1

Edition 3.0 2018-11

TECHNICAL SPECIFICATION

**Piezoelectric, dielectric and electrostatic devices and associated materials for
frequency control, selection and detection – Glossary –
Part 4-1: Piezoelectric materials – Synthetic quartz crystal**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 01.040.31; 31.140

ISBN 978-2-8322-6186-6

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PIEZOELECTRIC, DIELECTRIC AND ELECTROSTATIC DEVICES
AND ASSOCIATED MATERIALS FOR FREQUENCY CONTROL,
SELECTION AND DETECTION – GLOSSARY –**

Part 4-1: Piezoelectric materials – Synthetic quartz crystal

FOREWORD

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 61944-4-1, which is a technical specification, has been prepared by IEC technical committee 49: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection.

This third edition of IEC 61994-4-1 cancels and replaces the second edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) The new terms and definitions given in IEC 60758:2016 have been taken into account;
- b) The general title has been changed according to the change in the title of TC 49 in 2009.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
49/1282/DTS	49/1286/RVDTS

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61994 series, published under the general title *Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection – Glossary*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

PIEZOELECTRIC, DIELECTRIC AND ELECTROSTATIC DEVICES AND ASSOCIATED MATERIALS FOR FREQUENCY CONTROL, SELECTION AND DETECTION – GLOSSARY –

Part 4-1: Piezoelectric materials – Synthetic quartz crystal

1 Scope

This part of IEC 61994 gives the terms and definition for synthetic quartz crystals representing the state of the art, which are intended for manufacturing piezoelectric and optical elements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

AT-cut plate

rotated Y-cut crystal plate oriented at an angle of about $+35^\circ$ around the X-axis or about -3° from the z (minor rhombohedral)-face

[SOURCE: IEC 60758:2016, 3.11, modified – the reference to Figure 3 has been removed.]

3.2

as-grown Y-bar

crystals which are grown by using long stick seed in the Y-direction

[SOURCE: IEC 60758:2016, 3.4]

3.3

as-grown Z-bar

crystals which are grown by using Z-cut seed

[SOURCE: IEC 60758:2016, 3.5]

3.4

as-grown synthetic quartz crystal

state of synthetic quartz crystal prior to grinding or cutting