

Synthetic quartz crystal - Specifications and guide to the use

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 60758:2009 sisaldab Euroopa standardi EN 60758:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 18.02.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 09.01.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 60758:2009 consists of the English text of the European standard EN 60758:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 18.02.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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The standard is available from Estonian standardisation organisation.

ICS 31.140

Võtmesõnad:

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Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

English version

**Synthetic quartz crystal -
Specifications and guidelines for use
(IEC 60758:2008)**

Cristal de quartz synthétique -
Spécifications et
guide d'utilisation
(CEI 60758:2008)

Synthetischer Quarzkristall -
Festlegungen und Leitfaden
für die Anwendung
(IEC 60758:2008)

This European Standard was approved by CENELEC on 2008-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 49/808/FDIS, future edition 4 of IEC 60758, prepared by IEC TC 49, Piezoelectric and dielectric devices for frequency control and selection, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60758 on 2008-12-01.

This European Standard supersedes EN 60758:2005.

EN 60758:2009 includes the following significant technical changes with respect to EN 60758:2005:

- preparation of AT-cut slice sample for etching is changed to make it easier;
- etch channel grade classification is changed considering request of the user;
- explanation of quartz axes difference between IEEE and IEC is added as Annex F.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2009-09-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2011-12-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60758:2008 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1 + corr. October + A1	1988 1988 1992	Environmental testing - Part 1: General and guidance	EN 60068-1	1994
IEC 60122-1	2002	Quartz crystal units of assessed quality - Part 1: Generic specification	EN 60122-1	2002
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC/TS 61994	Series	Piezoelectric and dielectric devices for frequency control and selection - Glossary	-	-

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SYNTHETIC QUARTZ CRYSTAL – SPECIFICATIONS AND GUIDELINES FOR USE

1 Scope

This International Standard applies to synthetic quartz single crystals intended for manufacturing piezoelectric elements for frequency control and selection.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1: 1992

IEC 60122-1:2002, *Quartz crystal units of assessed quality – Part 1: Generic specification*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 61994 (all parts), *Piezoelectric and dielectric devices for frequency control and selection – Glossary*

3 Terms and definitions

For the purposes of this document, the following terms and definitions, as well as those given in IEC 61994, apply.

3.1

hydrothermal crystal growth

literally, crystal growth in the presence of water, elevated temperatures and pressures by a crystal growth process believed to proceed geologically within the earth's crust. The industrial synthetic quartz growth processes utilize alkaline water solutions confined within autoclaves at supercritical temperatures (330 °C to 400 °C) and pressures (700 to 2 000 atmospheres).

NOTE The autoclave is divided into two chambers: the dissolving chamber, containing raw quartz chips at the higher temperature; the growing chamber, containing cut seeds at the lower temperature (see 7.1.2)

3.2

synthetic quartz crystal

single crystal of α quartz grown by the hydrothermal method. The crystal is of either handedness and in the as-grown condition. Cultured quartz has the same meaning as synthetic quartz crystal

3.2.1

as-grown synthetic quartz crystal

single crystal quartz grown hydrothermally. As-grown refers to the state of processing and indicates a state prior to whatever treatment might occur after growth, excluding quality control operations