

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Piezoelectric devices –
Preparation of outline drawings of surface-mounted devices (SMD) for frequency
control and selection – General rules**

**Dispositifs piézoélectriques –
Préparation des dessins d'encombrement des dispositifs à montage en surface
pour la commande et le choix de la fréquence – Règles générales**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PIEZOELECTRIC DEVICES –

**Preparation of outline drawings of surface-mounted devices (SMD) for frequency control and selection –
General rules**

FOREWORD

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International Standard IEC 61240 has been prepared by IEC technical committee 49: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection.

This second edition cancels and replaces the first edition published in 1994. It constitutes a technical revision.

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

- outline drawings have been changed from three views (top, front and bottom) to that based on ISO layout in the third-angle projection, in which the view from the right has been added to the top, front and bottom views;
- reference line and geometrical dimensions of the package for enclosures have been changed for practical use;
- information on miniaturized leadless ceramic enclosures of piezoelectric devices (SMD) for frequency control and selection has been included in an annex.

The text of this standard is based on the following documents:

FDIS	Report on voting
49/995/FDIS	49/1000/RVD

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

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

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The enclosures of quartz crystal resonators and oscillators are unified in this second edition of IEC 61240 "Preparation of outline drawings of surface-mounted devices (SMD) for frequency control and selection – General rules".

Regarding the current situation of many quartz crystal device suppliers, many suppliers use their own enclosure layouts in their catalogues. For the convenience of consumers, general rules of enclosure layout and definition of size need to be unified.

In the previous edition of IEC 61240, layout rules of outline drawings of SMD devices were based on IEC 60191-6 and applied to semi-conductive devices. However, there are several specific rules for quartz devices. In this edition, the general rules for outline drawings of SMD enclosures for quartz crystal devices are included, taking account of the ISO layout rules (ISO 1101, ISO 5456-2, and ISO 128-30).

The newly proposed general rules of outline drawings for three types of surface-mounted devices are shown in sheets included as examples. The difference from the previous version of outline drawings is that one set of drawings consists of four views, which are the view from above, the front view, the view from the right, and the view from below.

Furthermore, the definition of the drawings has been changed. Firstly, ceramic enclosure is specifically defined. Secondly, the reference line of the package is defined as shown in the sheets. Thirdly, geometrical dimensions of the package have been further simplified compared to the previous edition. These corrections are shown in Annexes A and B of this standard.

Detailed information concerning the new outline drawings will be provided in a future publication.

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PIEZOELECTRIC DEVICES –

Preparation of outline drawings of surface-mounted devices (SMD) for frequency control and selection – General rules

1 Scope

This International Standard sets out general rules for drawing all dimensional and geometrical characteristics of a surface-mounted piezoelectric device package (referred to in this standard as SMD) in order to ensure mechanical inter-changeability of all outline drawings of the SMDs for frequency control and selection.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60191-6:2009 *Mechanical standardization of semiconductor devices – Part 6: General rules for the preparation of outline drawings of surface mounted semiconductor device packages*

ISO 1101:2004, *Geometrical Product Specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

ISO 5456-2:1996, *Technical drawings – Projection methods – Part 2: Orthographic representations*

ISO 128-30:2001, *Technical drawings – General principles of presentation – Part 30: Basic conventions for views*

3 Classification of SMD

The SMD piezoelectric devices are classified into three types of packages depending on the structure of the terminal leads.

a) **Leaded type:** the folded ends of the terminal leads are turned away from the body.

NOTE 1 The package of the pin lead type is compatible with the socket. This is defined in the description of the leaded type.

b) **Folded-leads type:** the folded ends of the terminal lead are turned towards the body.

NOTE 2 The supporter with a board is defined in the description of this Folded lead type.

c) **Leadless type:** terminal pads only are present on the body instead of terminal leads.

A proper combination of these options should be selected.