PD IEC TR 63362-1:2022

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# Application of fixed capacitors in electronic equipment

Part 1: Aluminium electrolytic capacitors

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# National foreword

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# TECHNICAL REPORT

colour inside

## Application of fixed capacitors in electronic equipment – Part 1: Aluminium electrolytic capacitors

INTERNATIONAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

# APPLICATION OF FIXED CAPACITORS IN ELECTRONIC EQUIPMENT –

## Part 1: Aluminium electrolytic capacitors

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IEC TR 63362-1 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is a Technical Report.

This first edition cancels and replaces CLC/TR 50454 published in 2008. This edition constitutes a technical revision.

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

a) Complete technical revision, details of cleaning processes and failure modes added.

b) Inclusion of parts of JEITA RCR 2367D.

The text of this Technical Report is based on the following documents:

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| Draft | Report on voting |
|---|---|
| 40/2881/DTR | 40/2908/RVDTR |

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

The language used for the development of this Technical Report is English.

A list of all parts in the IEC 63362 series, published under the general title *Application of fixed capacitors in electronic equipment*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

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# APPLICATION OF FIXED CAPACITORS IN ELECTRONIC EQUIPMENT –

## Part 1: Aluminium electrolytic capacitors

## 1 Scope

This document establishes guidelines for the application and use of aluminium electrolytic capacitors in electronic equipment.

The information given in this document applies to capacitors with non-solid electrolyte but can, in its appropriate clauses, apply to capacitors with solid electrolyte as well.

Electrolytic capacitors in general – and aluminium electrolytic capacitors in particular – are an exception in the capacitor field because of the components' close interaction of physics and chemistry. Therefore, aluminium electrolytic capacitors show, in various aspects, a technical behaviour unaccustomed to the user. That could easily lead to misapplications and even to endangering of persons and goods. The aim of this document is to minimize these risks by providing detailed information on the specific peculiarities of the component.

## 2 Normative references

There are no normative references in this document.

NOTE Further information about related standards can be found in Bibliography at the end of 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**
**anode**
**positive electrode**
aluminium (preferably aluminium foil) of extreme purity that is etched in most cases in order to increase the electrode's surface and, consequently, the capacitor's capacitance yield

**3.2**
**cathode**
**negative electrode**
working electrolyte that is a conductive material

Note 1 to entry: Working electrolyte in the case of capacitors with solid electrolyte is a layer of manganese dioxide $MnO_2$, conductive organic salt (e.g. TCNQ) or conductive polymer (e.g. polypyrrole, PEDOT).

Note 2 to entry: PEDOT is a thiophene-based doped polymer, which is used as a solid cathode in aluminium electrolytic capacitors, often combined with an additional liquid electrolyte.

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