

Components for low-voltage surge protective devices —

Part 321: Specifications for avalanche breakdown diode (ABD)

The European Standard EN 61643-321:2002 has the status of a
British Standard

ICS 29.120.50; 31.080.10

National foreword

This British Standard is the official English language version of EN 61643-321:2002. It is identical with IEC 61643-321:2001.

The UK participation in its preparation was entrusted by Technical Committee PEL/37, Surge arresters, to Subcommittee PEL/37/2, Surge arresters - Low voltage, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Cross-references

Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement international or European publications may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 21 March 2002

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This European Standard was approved by CENELEC on 2002-02-01. 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
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 37B/59/FDIS, future edition 1 of IEC 61643-321, prepared by SC 37B, Specific components for surge arresters and surge protective devices, of IEC TC 37, Surge arresters, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61643-321 on 2002-02-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-02-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61643-321:2001 was approved by CENELEC as a European Standard without any modification.

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COMPONENTS FOR LOW-VOLTAGE SURGE PROTECTIVE DEVICES –

Part 321: Specifications for avalanche breakdown diode (ABD)

1 Scope

This part of IEC 61643 is applicable to avalanche breakdown diodes (ABDs) which represent one type of surge protective device component (hereinafter referred to as SPDC) used in the design and construction of surge protective devices connected to low-voltage power distribution systems, transmission, and signalling networks. Test specifications in this standard are for single ABDs consisting of two terminals. However, multiple ABDs may be assembled within a single package defined as a diode array. Each diode within the array can be tested to this specification.

This standard contains a series of test criteria for determining the electrical characteristics of the ABD. From the standard test methods described herein, the performance characteristics and ratings of the ABD can be verified or established for specific packaged designs.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61643. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61643 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60068 (all parts), *Environmental testing*

IEC 60364 (all parts), *Electrical installations of buildings*

IEC 60364-3:1993, *Electrical installations of buildings – Part 3: Assessment of general characteristics*

IEC 60721 (all parts), *Classification of environmental conditions*

IEC 60747-2:2000, *Semiconductor devices – Discrete devices and integrated circuits – Part 2: Rectifier diodes*

IEC 60749:1996, *Semiconductor devices – Mechanical and climatic test methods*

3 Definitions and symbols

For the purpose of this part of IEC 61643, the following definitions and symbols apply.

NOTE These definitions apply to one type of SPDC known as an ABD, having both symmetrical and asymmetrical voltage-current ($V-I$) characteristics. Such definitions are for a unidirectional element (see figure 1). If the ABD is considered bidirectional, definitions in the third quadrant will apply in both directions of the $V-I$ characteristic curve.

3.1

avalanche breakdown diode ABD

component intended to limit transient voltages and divert surge currents. This is a two-terminal diode that may be packaged with multiple elements having a common terminal