

## SLOVENSKI STANDARD SIST EN 62779-3:2016

01-september-2016

## Polprevodniški elementi - Polprevodniški vmesnik za komuniciranje človeškega telesa - 3. del: Funkcijski tip in pogoji za njegovo delovanje (IEC 62779-3:2016)

Semiconductor devices - Semiconductor interface for human body communication - Part 3: Functional type and its operational conditions (IEC 62779-3:2016)

## iTeh STANDARD PREVIEW (standards.iteh.ai)

Ta slovenski standard, je istoveten <u>Z:</u> https://standards.iten.avcatalog/standards/sist/7c8bd/ba-cccb-43d4-9189-5ae1a6cadba0/sist-en-62779-3-2016

### SaeTaocadua0/SISt-CIF02/79-3

### <u>ICS:</u>

31.080.01 Polprevodniški elementi (naprave) na splošno Semiconductor devices in general

SIST EN 62779-3:2016

en



## iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 62779-3:2016</u> https://standards.iteh.ai/catalog/standards/sist/7c8bd7ba-cccb-43d4-9189-5ae1a6cadba0/sist-en-62779-3-2016

### SIST EN 62779-3:2016

## EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

### EN 62779-3

June 2016

ICS 31.080.01

**English Version** 

### Semiconductor devices - Semiconductor interface for human body communication - Part 3: Functional type and its operational conditions (IEC 62779-3:2016)

Dispositifs à semiconducteurs - Interface à semiconducteurs pour les communications via le corps humain - Partie 3: Type fonctionnel et ses conditions d'utilisation (IEC 62779-3:2016) Halbleiterbauelemente - Halbleiterschnittstelle zur Kommunikation über den menschlichen Körper -Teil 3: Funktionstyp und seine Betriebsbedingungen (IEC 62779-3:2016)

This European Standard was approved by CENELEC on 2016-05-31. 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.

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 CEN-CENELEC Management Centre has the same status as the official versions.

5ae1a6cadba0/sist-en-62779-3-2016

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2016 CENELEC All rights of exploitation in any form and by any means reserved worldwide for CENELEC Members.

### European foreword

The text of document 47/2282/FDIS, future edition 1 of IEC 62779-3, prepared by IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62779-3:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at (dop) 2017-02-28 national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2019-05-31 the document have to be withdrawn

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

### iTeh STANDARD PREVIEW Endorsement notice (standards.iten.ai)

The text of the International Standard IEC 62779-3:2016 was approved by CENELEC as a European Standard without any modification. 5ae1a6cadba0/sist-en-62779-3-2016

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 62779 NOTE Harmonized in EN 62779 series.



Edition 1.0 2016-04

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



Semiconductor devices – Semiconductor interface for human body communication – (standards.iteh.ai) Part 3: Functional type and its operational conditions

Dispositifs à semiconducteurs in Interface à semiconducteurs pour les communications via le corps humaine en-62779-3-2016 Partie 3: Type fonctionnel et ses conditions d'utilisation

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 31.080.01

ISBN 978-2-8322-3298-9

Warning! Make sure that you obtained this publication from an authorized distributor. Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

 Registered trademark of the International Electrotechnical Commission Marque déposée de la Commission Electrotechnique Internationale

### CONTENTS

| FOREWORD   |  |  |
|--|--|--|
| INTRODUCTION   |  |  |
| 1 Scope  |  |  |
| 2 Normative references   |  |  |
| 3 Terms and definitions  |  |  |
| 3.1 Interface type7  |  |  |
| 3.2 Detection of HBC interface7  |  |  |
| 3.3 Electromagnetic field coupling7  |  |  |
| 3.4 Essential rating and characteristics7                                    |  |  |
| 3.4.1 Signal transmission7   |  |  |
| 3.4.2 Signal radiation8  |  |  |
| 3.5 Other terms and definitions8   |  |  |
| 4 Interface type   |  |  |
| 4.1 General specifications9  |  |  |
| 4.1.1 Function9  |  |  |
| 4.1.2 Implementation10   |  |  |
| 4.1.3 Compatibility10  |  |  |
| 4.2 Electrical specifications  |  |  |
| 4.2.1 Coupling specifications  |  |  |
| 4.2.2 Directional specifications clarces.iteh.ai)                            |  |  |
| 4.2.3 Transient specifications11   |  |  |
| 4.3 Limiting values  |  |  |
| 4.3.1 Details to be stated ai/catalog/standards/sist/7c8bd7ba-cccb-43d4-9189 |  |  |
| 4.3.2 Electrical limiting values   |  |  |
| 4.3.3 Temperatures11   |  |  |
| 4.3.4 Humidity11   |  |  |
| Bibliography   |  |  |
|  |  |  |
| Figure 1 – HBC interfaces  |  |  |
| Figure 2 – Block diagram of interface9                                       |  |  |
|  |  |  |
| Table 1 – Coupling specifications of a HBC interface                         |  |  |
| Table 2 – Direction specifications of a HBC interface                        |  |  |
| Table 3 – Transient specifications of a HBC electrode                        |  |  |

IEC 62779-3:2016 © IEC 2016

#### - 3 -

### INTERNATIONAL ELECTROTECHNICAL COMMISSION

### SEMICONDUCTOR DEVICES – SEMICONDUCTOR INTERFACE FOR HUMAN BODY COMMUNICATION –

### Part 3: Functional type and its operational conditions

### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committee; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user. (Stancards.iten.al)
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter. https://standards.iteh.ai/catalog/standards/sist/7c8bd7ba-cccb-43d4-9189-
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62779-3 has been prepared by IEC technical committee 47: Semiconductor devices.

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

| FDIS         | Report on voting |
|--------------|------------------|
| 47/2282/FDIS | 47/2292/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.

#### – 4 –

IEC 62779-3:2016 © IEC 2016

A list of all parts in the IEC 62779 series, published under the general title *Semiconductor devices* – *Semiconductor interface for human body communication,* can be found on the IEC website.

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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 62779-3:2016</u> https://standards.iteh.ai/catalog/standards/sist/7c8bd7ba-cccb-43d4-9189-5ae1a6cadba0/sist-en-62779-3-2016 IEC 62779-3:2016 © IEC 2016

### INTRODUCTION

The IEC 62779 series is composed of three parts as follows:

- IEC 62779-1 defines general requirements of a semiconductor interface for human body communication. It includes general and functional specifications of the interface.
- IEC 62779-2 defines a measurement method on electrical performances of an electrode that constructs a semiconductor interface for human body communication.
- IEC 62779-3 defines functional type of a semiconductor interface for human body communication, and operational conditions of the interface.

IEC 60748-4 gives requirements on interface integrated circuits for semiconductor devices. Especially, Chapter III, Section 7 in this standard is applied to interface circuits for a communication network using a general channel, such as wire or wireless. However, a channel for HBC is the human body whose channel properties, such as signal loss and delay profile, are different from the general channel, so the Chapter III, Section 7 cannot be applied to an interface for HBC. Furthermore, a standard on a communication protocol for body area network (BAN) – IEEE 802.15.6 (IEEE Std 802.15.6-2012), which includes a communication protocol for HBC was published in 2012. A common interface for HBC should be defined to secure communication compatibility between various devices that are implemented on/inside the human body or embedded in peripheral equipments.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 62779-3:2016</u> https://standards.iteh.ai/catalog/standards/sist/7c8bd7ba-cccb-43d4-9189-5ae1a6cadba0/sist-en-62779-3-2016