



SLOVENSKI STANDARD
SIST EN 62830-2:2017

01-junij-2017

Polprevodniški elementi - Polprevodniške naprave za zajemanje in proizvodnjanje energije - 2. del: Toplotna moč, ki temelji na zajemanju termoelektrične energije (IEC 62830-2:2017)

Semiconductor devices - Semiconductor devices for energy harvesting and generation - Part 2: Thermo power based thermoelectric energy harvesting (IEC 62830-2:2017)

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Dispositifs à semiconducteurs - Dispositifs à semiconducteurs pour récupération et production d'énergie - Partie 2: Récupération d'énergie thermoélectrique basée sur la puissance thermoélectrique (IEC 62830-2:2017)

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Ta slovenski standard je istoveten z: EN 62830-2:2017

ICS:

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

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EUROPEAN STANDARD

EN 62830-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2017

ICS 31.080.99

English Version

Semiconductor devices - Semiconductor devices for energy
harvesting and generation - Part 2: Thermo power based
thermoelectric energy harvesting
(IEC 62830-2:2017)

Dispositifs à semiconducteurs - Dispositifs à
semiconducteurs pour récupération et production d'énergie -
Partie 2: Récupération d'énergie thermoélectrique basée sur
la puissance thermoélectrique
(IEC 62830-2:2017)

Halbleiterbauelemente - Halbleiterbauelemente für das
Energy-Harvesting und die Energieerzeugung -
Teil 2: Thermospannungsbasiertes thermoelektrisches
Energy-Harvesting
(IEC 62830-2:2017)

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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

EN 62830-2:2017**European foreword**

The text of document 47/2329/FDIS, future edition 1 of IEC 62830-2, prepared by IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62830-2:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-11-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-02-24

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IEC 62830-2

Edition 1.0 2017-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Semiconductor devices – Semiconductor devices for energy harvesting and generation –
Part 2: Thermo power based thermoelectric energy harvesting**

**Dispositifs à semiconducteurs – Dispositifs à semiconducteurs pour
récupération et production d'énergie –
Partie 2: Récupération d'énergie thermoélectrique basée sur la puissance
thermoélectrique**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONALE

ICS 31.080.99

ISBN 978-2-8322-3830-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SEMICONDUCTOR DEVICES – SEMICONDUCTOR DEVICES FOR ENERGY HARVESTING AND GENERATION –

Part 2: Thermo power based thermoelectric energy harvesting

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International Standard IEC 62830-2 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
47/2329/FDIS	47/2352/RVD

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

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

A list of all the parts in the IEC 62830 series, published under the general title *Semiconductor devices – Semiconductor devices for energy harvesting and generation*, can be found on the IEC website.

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

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

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SEMICONDUCTOR DEVICES – SEMICONDUCTOR DEVICES FOR ENERGY HARVESTING AND GENERATION –

Part 2: Thermo power based thermoelectric energy harvesting

1 Scope

This part of IEC 62830 describes procedures and definitions for measuring the thermo power of thin films used in micro-scale thermoelectric energy generators, micro heaters and micro coolers. This part of IEC 62830 specifies the methods of tests and the characteristic parameters of the thermoelectric properties of wire, bulk and thin films which have a thickness of less than 5 μm and energy harvesting devices that have thermoelectric thin films, in order to accurately evaluate their performance and practical uses. This part of IEC 62830 is applicable to energy harvesting devices for consumer, general industries, military and aerospace applications without any limitations of device technology and size.

2 Normative references

There are no normative references in this document.

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3 Terms and definitions (standards.iteh.ai)

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

Seebeck coefficient

S

magnitude of an induced thermoelectric voltage in response to a temperature difference across a material, and the entropy per charge carrier in the material

3.2

thermal conductivity

k

at a point fixed in a medium with a temperature field, scalar quantity λ characterizing the ability of the medium to transmit heat through a surface element containing that point: $\varphi = -k \text{ grad } T$, where φ is the density of heat flow rate and T is thermodynamic temperature

Note 1 to entry: In an anisotropic medium, thermal conductivity is a tensor quantity.

Note 2 to entry: The coherent SI unit of thermal conductivity is watt per metre kelvin, $\text{W}/(\text{m}\cdot\text{K})$.

[SOURCE: IEC 60050-113:2011, 113-04-38]

3.3

electrical conductivity specific conductance

σ

value of a material's ability to conduct an electrical current