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**Polprevodniški elementi - 16-4. del: Mikrovalovna integrirana vezja - Stikala -  
Dopolnilo A1 (IEC 60747-16-4:2004/A1:2009)**

Semiconductor devices - Part 16-4: Microwave integrated circuits - Switches (IEC 60747-16-4:2004/A1:2009)

Halbleiterbauelemente - Teil 16-4: Integrierte Mikrowellenschaltkreise - Schalter (IEC 60747-16-4:2004/A1:2009)

Dispositifs à semiconducteurs - Partie 16-4: Circuits intégrés hyperfréquences -  
Commutateurs (CEI 60747-16-4:2004/A1:2009)

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**Ta slovenski standard je istoveten z: EN 60747-16-4:2004/A1:2011**

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**ICS:**

31.080.01	Polprevodniški elementi (naprave) na splošno	Semiconductor devices in general
31.200	Integrirana vezja, mikroelektronika	Integrated circuits. Microelectronics

**SIST EN 60747-16-4:2005/A1:2011**      **en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60747-16-4/A1**

January 2011

ICS 31.080.99

English version

**Semiconductor devices -  
Part 16-4: Microwave integrated circuits -  
Switches**  
(IEC 60747-16-4:2004/A1:2009)

Dispositifs à semiconducteurs -  
Partie 16-4: Circuits intégrés  
hyperfréquences -  
Commutateurs  
(CEI 60747-16-4:2004/A1:2009)

Halbleiterbauelemente -  
Teil 16-4: Integrierte  
Mikrowellenschaltkreise -  
Schalter  
(IEC 60747-16-4:2004/A1:2009)

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This amendment A1 modifies the European Standard EN 60747-16-4:2004; it was approved by CENELEC on 2011-01-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

<https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-292626c07510/en-60747-16-4-a1-2011>  
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 amendment 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.

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

**CENELEC**

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 47E/358/CDV, future amendment 1 to IEC 60747-16-4:2004, prepared by SC 47E, Discrete semiconductor devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60747-16-4:2004 on 2011-01-02.

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

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2011-10-02
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2014-01-02

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## Endorsement notice

The text of amendment 1:2009 to the International Standard IEC 60747-16-4:2004 was approved by CENELEC as an amendment to the European Standard without any modification.

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[SIST EN 60747-16-4:2005/A1:2011](https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-239e268f2c6f/sist-en-60747-16-4-2005-a1-2011)

<https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-239e268f2c6f/sist-en-60747-16-4-2005-a1-2011>

Replace the existing Annex ZA as follows:

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60617	-	Standard data element types with associated classification scheme for electric components - Part 4: IEC reference collection of standard data element types and component classes	-	-
IEC 60747-1	2006	Semiconductor devices - Part 1: General	-	-
IEC 60747-4	-	Semiconductor devices - Discrete devices - Part 4: Microwave diodes and transistors	-	-
IEC 60747-16-1 + A1	2001 2007	Semiconductor devices - Part 16-1: Microwave integrated circuits - Amplifiers	EN 60747-16-1 + A1	2002 2007
IEC 60748-2-1	-	Semiconductors devices - Integrated circuits - Part 2: Digital integrated circuits - Section one - Blank detail specification for bipolar monolithic digital integrated circuit gates (excluding uncommitted logic arrays)	-	-
IEC 60748-3	-	Semiconductors devices - Integrated circuits - Part 3: Analogue integrated circuits	-	-
IEC 60748-4	-	Semiconductor devices - Integrated circuits - Part 4: Interface integrated circuits	-	-
IEC 61340-5-1	2007	Electrostatics - Part 5-1: Protection of electronic devices from electrostatic phenomena - General requirements	EN 61340-5-1	2007
IEC/TR 61340-5-2	2007	Electrostatics - Part 5-2: Protection of electronic devices from electrostatic phenomena - User guide	CLC/TR 61340-5-2	2008

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IEC 60747-16-4

Edition 1.0 2009-03

# INTERNATIONAL STANDARD

AMENDMENT 1

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**Semiconductor devices –**  
**Part 16-4: Microwave integrated circuits – Switches**

**STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 60747-16-4:2005/A1:2011](https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-239e268f2c6f/sist-en-60747-16-4-2005-a1-2011)  
<https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-239e268f2c6f/sist-en-60747-16-4-2005-a1-2011>

INTERNATIONAL  
ELECTROTECHNICAL  
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**F**

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ICS 31.080.99

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## FOREWORD

This amendment has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices.

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

CDV	Report on voting
47E/358/CDV	47E/373/RVC

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the maintenance result 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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[SIST EN 60747-16-4:2005/A1:2011](https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-10166f701010/sist-en-60747-16-4-2005-a1-2011)

[https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-](https://standards.iteh.ai/catalog/standards/sist/00533878-45cd-490b-9c9a-10166f701010/sist-en-60747-16-4-2005-a1-2011)

5.8  $n$ -th order harmonic distortion ratio ( $P_{nth}/P_1$ )

*Replace the title of this subclause by the following new title;*

5.8  $n$ th order harmonic distortion ratio ( $P_1/P_{nth}$ )

## 2 Normative references

*Replace the existing references IEC 60617-12, IEC 60617-13 and IEC 60747-1 as follows:*

IEC 60617, *Graphical symbols for diagrams*

IEC 60747-1:2006, *Semiconductor devices – Part 1: General*

*Add, to the existing list, the following new references:*

IEC 60747-16-1:2001, *Semiconductor devices – Part 16-1: Microwave integrated circuits – Amplifiers*

Amendment 1 (2007)<sup>1</sup>

<sup>1</sup> There exists a consolidated edition 1.1 published in 2007, including the base publication (2001) and its Amendment 1 (2007).



IEC 61340-5-1:2007, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*

IEC/TR 61340-5-2:2007, *Electrostatics – Part 5-2: Protection of electronic devices from electrostatic phenomena – User guide*

### 3 Terms and definitions

Replace the terms, definitions and NOTES 3.1, 3.2 and 3.11 by the following new terms, definitions and NOTES:

#### 3.1

##### insertion loss

$L_{ins}$

ratio of the input power to the output power at the switched on port, in the linear region of the power transfer curve  $P_o$  (dBm) =  $f(P_i)$

NOTE 1 In this region,  $\Delta P_o$  (dBm) =  $\Delta P_i$  (dBm).

NOTE 2 Usually the insertion loss is expressed in decibels.

#### 3.2

##### isolation

$L_{iso}$

ratio of the input power to the output power at the switched off port, in the linear region of the power transfer curve  $P_o$  (dBm) =  $f(P_i)$

NOTE 1 In this region,  $\Delta P_o$  (dBm) =  $\Delta P_i$  (dBm).

NOTE 2 Usually the isolation is expressed in decibels.

#### 3.11

##### $n$ th order harmonic distortion ratio

$P_1/P_{nth}$

See 3.14 of Amendment 1 of IEC 60747-16-1:2007.

#### 4.1.4 Package identification

Replace, in item b), "drawing, of drawing" by "drawing, or drawing".

#### 4.3.1 Detailed block diagram – functional blocks

Replace, in the last paragraph, "IEC 60617-12 or IEC 60617-13" by "IEC 60617".

#### 4.4.2 Temperatures

Replace the existing all items, a) to e), by the following new items:

- a) Operating temperature (ambient or reference-point temperature)
- b) Storage temperature
- c) Channel temperature
- d) Lead temperature (for soldering).

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