

Semiconductor devices - Part 17: Magnetic and
capacitive coupler for basic and reinforced insulation

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Semiconductor devices - Part 17: Magnetic and capacitive
coupler for basic and reinforced insulation
(IEC 60747-17:2020)**

Dispositifs à semiconducteurs - Partie 17: Coupleur
magnétique et capacitif pour l'isolation principale et
renforcée
(IEC 60747-17:2020)

Halbleiterbauelemente - Teil 17: Magnetische und
kapazitive Koppler für Basisisolierung und verstärkte
Isolierung
(IEC 60747-17:2020)

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European foreword

The text of document 47E/711/FDIS, future edition 1 of IEC 60747-17, prepared by SC 47E "Discrete semiconductor devices" of IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60747-17:2020.

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) 2021-07-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-10-26

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60060-1:2010	NOTE	Harmonized as EN 60060-1:2010 (not modified)
IEC 60068-1:2013	NOTE	Harmonized as EN 60068-1:2014 (not modified)
IEC 60068-2-6:2007	NOTE	Harmonized as EN 60068-2-6:2008 (not modified)
IEC 60068-2-17:1994	NOTE	Harmonized as EN 60068-2-17:1994 (not modified)
IEC 60068-2-27:2008	NOTE	Harmonized as EN 60068-2-27:2009 (not modified)
IEC 60270:2000	NOTE	Harmonized as EN 60270:2001 (not modified)
IEC 60664-4:2005	NOTE	Harmonized as EN 60664-4:2006 (not modified)
IEC 60747-5-5:2007	NOTE	Harmonized as EN 60747-5-5:2011 (not modified)
IEC 61000-4-5:2014	NOTE	Harmonized as EN 61000-4-5:2014 (not modified)
IEC 61000-4-8:2009	NOTE	Harmonized as EN 61000-4-8:2010 (not modified)
IEC 61000-4-9:2016	NOTE	Harmonized as EN 61000-4-9:2016 (not modified)
IEC 61649:2008	NOTE	Harmonized as EN 61649:2008 (not modified)
IEC 62368-1:2018	NOTE	Harmonized as EN IEC 62368-1:2020 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-20	2008	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	2008
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60068-2-58	2015	Environmental testing - Part 2-58: Tests - Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)	EN 60068-2-58	2015
IEC 60068-2-67	1995	Environmental testing - Part 2-67: Tests - Test Cy: Damp heat, steady state, accelerated test primarily intended for components	EN 60068-2-67	1996
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60216-1	2013	Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results	EN 60216-1	2013

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60216-2	2005	Electrical insulating materials - Thermal endurance properties - Part 2: Determination of thermal endurance properties of electrical insulating materials - Choice of test criteria	EN 60216-2	2005
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60672-2	1999	Ceramic and glass insulating materials - Part 2: Methods of test	EN 60672-2	2000
IEC 60695-11-5	2016	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2017
IEC 62539	2007	Guide for the statistical analysis of electrical insulation breakdown data	-	-

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IEC Glossary - std.iec.ch/glossary

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

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Part 17: Magnetic and capacitive coupler for basic and reinforced insulation**

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CONTENTS

FOREWORD	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Electrical characteristics – Coupler logic and timing definitions	19
5 Coupler for protection against electrical shock	20
5.1 General	20
5.2 Type	20
5.3 Ratings	20
5.3.1 General	20
5.3.2 Safety limiting values	20
5.3.3 Functional ratings	20
5.3.4 Rated isolation voltages	20
5.4 Electrical safety requirements	20
5.5 Electrical, environmental and/or endurance test information	21
5.5.1 General	21
5.5.2 Routine test	23
5.5.3 Sample test	23
5.5.4 Maximum surge isolation voltage	23
5.5.5 Type test	24
6 Measuring methods for couplers	35
6.1 General	35
6.2 Isolation capacitance (C_{IO})	35
6.2.1 Purpose	35
6.2.2 Circuit diagram	35
6.2.3 Measurement procedure	36
6.2.4 Precautions to be observed	36
6.2.5 Special conditions	36
6.3 Isolation resistance between input and output, R_{IO}	36
6.3.1 Purpose	36
6.3.2 Circuit diagram	36
6.3.3 Precautions to be observed	37
6.3.4 Measurement procedure	37
6.3.5 Special conditions	37
6.4 Isolation test	37
6.4.1 Purpose	37
6.4.2 Circuit diagram	37
6.4.3 Test procedure	38
6.4.4 Requirements	38
6.5 Partial discharges of coupler	39
6.5.1 Purpose	39
6.5.2 Circuit diagram	39
6.5.3 Description of Figure 9 test circuit and requirements	39
6.5.4 Test procedure	40
6.5.5 Description of calibration circuit (see Figure 10)	40

6.5.6	Test methods.....	41
6.5.7	Specified conditions.....	41
6.5.8	Test voltage conditions.....	42
6.6	Switching times of couplers.....	42
6.6.1	Purpose.....	42
6.6.2	Circuit diagram.....	42
6.6.3	Measurement procedure.....	43
6.6.4	Specified conditions.....	44
6.7	Measuring methods of common-mode transient immunity (CMTI) for magnetic and capacitive couplers.....	44
6.7.1	Purpose.....	44
6.7.2	Circuit diagram.....	44
6.7.3	Precautions to be observed.....	45
6.7.4	Static CMTI measuring procedure.....	46
6.7.5	Specified conditions.....	47
6.7.6	Dynamic CMTI measuring procedure.....	47
Annex A (informative)	Qualification guidance.....	48
Bibliography	51
Figure 1	– Time intervals for methods a and b of the test voltage.....	15
Figure 2	– 1,2/50 μ s surge pulse according 61000-4-5:2014 allowed as equivalent impulse for isolation testing.....	24
Figure 3	– Determination of time to failure (referring to method in 5.5.5.8).....	31
Figure 4	– Determination of working voltage (referring to method in 5.5.5.8 for exponential model).....	32
Figure 5	– Determination of working voltage (referring to method in 5.5.5.8 for non- linear model).....	33
Figure 6	– Isolation capacitance measurement circuit.....	36
Figure 7	– Isolation resistance measurement circuit.....	37
Figure 8	– Isolation voltage measurement circuit.....	38
Figure 9	– Partial discharge test circuit.....	39
Figure 10	– Connections for the calibration of the complete test arrangement.....	40
Figure 11	– Switching time test circuit.....	43
Figure 12	– Transition time waveform measurement.....	43
Figure 13	– Propagation delay time waveform measurement.....	44
Figure 14	– Static versus dynamic data source signal V_I	45
Figure 15	– Common-mode transient immunity (CMTI) test setup for both static and dynamic testing.....	45
Figure 16	– Static common-mode transient immunity (CMTI) and V_{CM} and low to high data transition waveform.....	47
Figure A.1	– Lifetime verification.....	49
Table 1	– Overview on characteristics and symbols.....	19
Table 2	– Datasheet characteristics.....	21
Table 3	– Tests and test sequence for coupler providing basic insulation and reinforced insulation for protection against electrical shock.....	22
Table 4	– Test conditions.....	23

Table 5 – Safety factor F	41
Table 6 – Specified conditions for method a and method b.....	42
Table A.1 – Front end process changes within component.....	49
Table A.2 – Front End Process Changes within SiO/SiN/imide-passivation	50
Table A.3 – Layout changes.....	50
Table A.4 – Backend changes.....	50

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SEMICONDUCTOR DEVICES –

**Part 17: Magnetic and capacitive coupler
for basic and reinforced insulation**

FOREWORD

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International Standard IEC 60747-17 has been prepared by subcommittee SC 47E: Discrete semiconductor devices, of IEC technical committee TC 47: Semiconductor devices.

This first edition cancels and replaces IEC PAS 60747-17:2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC PAS 60747-17:2011:

- a) introduced lifetime safety factors for improved life time consideration, to comply with widely recognized aging mechanisms of silicone dioxide (TDDB) and thin film polymer isolation layers;
- b) significantly improved "end of life testing" paragraph and statistical life time consideration by adding detailed description on process, safety factors, methods of generating data points and respective lifetime interpolations as well as being specific on minimum amount of samples required;

- c) introduced concept of certification by similarity, including Annex A, giving guidance on qualification considerations and required certification process;
- d) alternative pulse shape allowed for surge pulse testing, to avoid issues due to surge tester availability;
- e) various improvements throughout the standard: definitions, for example type of coupler have been improved, introduction of surge impulse V_{IMP} rating, usage of glass transition temperature, pre-conditioning have been redefined for improved usability and better compatibility with today's design and functionality of couplers, available mold compounds, etc.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
47E/711/FDIS	47E/715/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 parts in the IEC 60747 series, published under the general title *Semiconductor devices*, 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

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