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Halvledarkomponenter – Del 5-5: Optokomponenter – Optokopplare

*Semiconductor devices –
Part 5-5: Optoelectronic devices –
Photocouplers*

Som svensk standard gäller europastandarden EN IEC 60747-5-5:2020. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60747-5-5:2020.

Nationellt förord

Europastandarden EN IEC 60747-5-5:2020

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60747-5-5, Second edition, 2020 - Semiconductor devices - Part 5-5: Optoelectronic devices - Photocouplers**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60747-5-5, utgåva 1, 2011 och SS-EN 60747-5-5/A1, utgåva 1, 2015, gäller ej fr o m 2023-08-24.

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English Version

**Semiconductor devices - Part 5-5: Optoelectronic devices -
Photocouplers
(IEC 60747-5-5:2020)**

Dispositifs à semiconducteurs - Partie 5-5 : Dispositifs
optoélectroniques - Photocoupleurs
(IEC 60747-5-5:2020)

Halbleiterbauelemente - Teil 5-5: Optoelektronische
Bauelemente - Optokoppler
(IEC 60747-5-5:2020)

This European Standard was approved by CENELEC on 2020-08-24. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre 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, Republic of North Macedonia, Romania, Serbia, 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: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 47E/706/FDIS, future edition 2 of IEC 60747-5-5, 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 60747-5-5:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2021-05-24 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2023-08-24 document have to be withdrawn

This document supersedes EN 60747-5-5:2011 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 60747-5-5:2020 was approved by CENELEC as a European Standard without any modification.

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

IEC 60065	NOTE	Harmonized as EN 60065
IEC 60270:2000	NOTE	Harmonized as EN 60270:2001 (not modified)
IEC 60747-5-2	NOTE	Harmonized as EN 60747-5-2
IEC 60747-5-3	NOTE	Harmonized as EN 60747-5-3

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 60068-1	2013	Environmental testing - Part 1: General and guidance	EN 60068-1	2014
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-14	-	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-17	-	Basic environmental testing procedures - Part 2-17: Tests - Test Q: Sealing	EN 60068-2-17	-
IEC 60068-2-20	-	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	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-30	-	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	-
IEC 60068-2-58	-	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	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	-

EN IEC 60747-5-5:2020 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60216-1	-	Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results	EN 60216-1	-
IEC 60216-2	-	Electrical insulating materials - Thermal endurance properties - Part 2: Determination of thermal endurance properties of electrical insulating materials - Choice of test criteria	EN 60216-2	-
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	-	Ceramic and glass insulating materials - Part 2: Methods of test	EN 60672-2	-
IEC 60695-11-5	-	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	-
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	-
IEC 62368-1	2018	Audio/video, information and communication technology equipment - Part 1: Safety requirements	EN IEC 62368-1	2020

CONTENTS

FOREWORD	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
3.7 Symbols for limiting values (absolute maximum system) over the operating temperature range, unless otherwise stated	16
4 Electrical characteristics	16
4.1 Phototransistor output photocoupler	16
4.2 Phototriac output photocoupler or solid state opto-relay	17
5 Photocouplers providing protection against electric shock	18
5.1 General	18
5.2 Type	18
5.3 Ratings	18
5.3.1 Datasheet ratings	18
5.3.2 Safety ratings	18
5.3.3 Functional ratings	18
5.3.4 Rated isolation voltages	18
5.4 Electrical safety requirements	18
5.5 Electrical, environmental and/or endurance test information (supplementary information)	19
5.5.1 Test and test sequence	19
5.5.2 Routine test	19
5.5.3 Sample test	20
5.5.4 Type test	20
6 Measuring methods for photocouplers	27
6.1 Current transfer ratio $H_{f(ctr)}$	27
6.2 Input-to-output capacitance C_{IO}	28
6.3 Isolation resistance between input and output R_{IO}	29
6.4 Isolation test	30
6.5 Partial discharges of photocouplers	31
6.6 Collector-emitter saturation voltage $V_{CE(sat)}$ of a photocoupler	34
6.6.1 Collector-emitter saturation voltage (DC method)	34
6.6.2 Collector-emitter saturation voltage (pulse method)	34
6.7 Switching times t_{on} , t_{off} of a photocoupler	35
6.8 Peak off-state current I_{DRM}	37
6.9 Peak on-state voltage V_{TM}	39
6.10 DC off-state current I_{BD}	41
6.11 DC on-state voltage V_T	42
6.12 Holding current I_H	42
6.13 Critical rate of rise of off-state voltage dV/dt	43
6.14 Trigger input current I_{FT}	46
6.15 Measuring methods of common mode transient immunity (CMTI) for photocouplers	47
7 Testing methods of electrical ratings for phototriac couplers	49
7.1 Repetitive peak off-state voltage V_{DRM}	49

7.2	DC off-state voltage V_{BD}	50
Annex A	(normative) Input/output safety test.....	51
A.1	Purpose	51
A.2	Circuit diagram	51
A.3	Circuit description	51
A.4	Precautions to be observed.....	51
A.5	Measurement procedure	51
A.6	Specified conditions.....	51
Bibliography		52
Figure 1	– Time intervals for method a).....	12
Figure 2	– Time intervals for method b).....	13
Figure 3	– Test voltage	15
Figure 4	– Measurement circuit.....	27
Figure 5	– Measurement circuit for input to output capacitance	29
Figure 6	– Measurement circuit for isolation resistance.....	29
Figure 7	– Test circuit for withstanding isolation voltage	30
Figure 8	– Partial discharge test circuit	31
Figure 9	– Complete test arrangement connections for calibration	32
Figure 10	– DC measurement circuit	34
Figure 11	– Pulse measurement circuit	35
Figure 12	– Switching time measurement circuit	36
Figure 13	– Switching times	37
Figure 14	– Measurement circuit for peak off-state current.....	38
Figure 15	– Waveforms of the peak off-state voltage and current.....	39
Figure 16	– Measurement circuit for peak on-state voltage	40
Figure 17	– Waveforms of the peak on-state voltage and current	41
Figure 18	– Measurement circuit for DC off-state current	41
Figure 19	– Measurement circuit for DC on-state voltage	42
Figure 20	– Measurement circuit for holding current.....	43
Figure 21	– Measurement circuit for critical rate of rise of off-state voltage	44
Figure 22	– Exponential waveform of the off-voltage (V_D)	45
Figure 23	– Linear pulse form of the off-voltage (V_D).....	45
Figure 24	– Measurement circuit for the trigger input current	46
Figure 25	– Output terminal voltage versus input forward current.....	46
Figure 26	– Common mode transient immunity (CMTI) measurement circuit for photocoupler.....	47
Figure 27	– Typical waveforms of the common mode pulse (V_{CM}) and photocoupler output (V_O).....	49
Figure A.1	– Circuit diagram	51
Table 1	– Phototransistor electrical characteristics	16
Table 2	– Phototriac electrical characteristics	17
Table 3	– Datasheet characteristics	19

Table 4 – Tests and test sequence for photocoupler providing protection against electrical shock	26
Table 5 – Test conditions	27
Table 6 – Specified conditions for methods a) and b)	33

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SEMICONDUCTOR DEVICES –**Part 5-5: Optoelectronic devices –
Photocouplers****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 committees; 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.
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International Standard IEC 60747-5-5 has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices.

This second edition cancels and replaces the first edition published in 2007 and Amendment 1:2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) optional data sheet basic insulation rating in accordance with IEC 60664-1:2007, 6.1.3.5;
- b) editorial corrections on the use of V_{IORM} ;
- c) editorial corrections on Figure 2: Time intervals for method b);
- d) addition of an alternative surge pulse V_{IOSM} test method.

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

FDIS	Report on voting
47E/706/FDIS	47E/714/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.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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.

SEMICONDUCTOR DEVICES –

Part 5-5: Optoelectronic devices – Photocouplers

1 Scope

This part of IEC 60747 specifies the terminology, essential ratings, characteristics, safety tests, as well as the measuring methods for photocouplers.

NOTE The term "optocoupler" can also be used instead of "photocoupler".

2 Normative references

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.

IEC 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-17, *Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-58, *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)*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60216-1, *Electrical insulating materials – Thermal endurance properties – Part 1: Ageing procedures and evaluation of test results*

IEC 60216-2, *Electrical insulating materials – Thermal endurance properties – Part 2: Determination of thermal endurance properties of electrical insulating materials – Choice of test criteria*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60672-2, *Ceramic and glass insulating materials – Part 2: Methods of test*

IEC 60695-11-5, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 62368-1:2018, *Audio/video, information and communication technology equipment – Part 1: Safety requirements*