SIST

SLOVENSKI STANDARD
SIST EN 60747-5-3:2002/A1:2004

01-november-2004

Diskretni polprevodniki in integrirana vezja - 5-3. del: Optoelektronske naprave - Merilne metode - Dopolnilo A1 (IEC 60747- 5-3:1997/A1:2002)

Discrete semiconductor devices and integrated circuits -- Part 5-3: Optoelectronic devices - Measuring methods

Einzel-Halbleiterbauelemente und integrierte Schaltungen -- Teil 5-3: Optoelektrische Bauelemente - Messverfahren

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Dispositifs discrets à semiconducteurs et circuits intégrés -- Partie 5-3: Dispositifs optoélectroniques - Méthodes de mesure

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Ta slovenski standard je istoveten z: EN 60747-5-3:2001/A1:2002

ICS:

31.080.01	Polprevodniški elementi (naprave) na splošno	Semiconductor devices in general
31.200	Integrirana vezja, mikroelektronika	Integrated circuits. Microelectronics
31.260	Optoelektronika, laserska oprema	Optoelectronics. Laser equipment

SIST EN 60747-5-3:2002/A1:2004 en

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60747-5-3/A1

May 2002

ICS 31.080.99

English version

Discrete semiconductor devices and integrated circuits Part 5-3: Optoelectronic devices - Measuring methods
(IEC 60747-5-3:1997/A1:2002)

Dispositifs discrets à semiconducteurs et circuits intégrés
Partie 5-3: Dispositifs optoélectroniques - Méthodes de mesure
(CEI 60747-5-3:1997/A1:2002)

Einzel-Halbleiterbauelemente und integrierte Schaltungen
Teil 5-3: Optoelektrische Bauelemente - Messverfahren
(IEC 60747-5-3:1997/A1:2002)

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This amendment A1 modifies the European Standard EN 60747-5-3:2001; it was approved by CENELEC on 2002-05-01. 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.

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.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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Ref. No. EN 60747-5-3:2001/A1:2002 E

Foreword

The text of document 47E/210/FDIS, future amendment 1 to IEC 60747-5-3:1997, 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 60747-5-3:2001 on 2002-05-01.

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) 2003-02-01

– latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2005-05-01

Endorsement notice

The text of amendment 1:2002 to the International Standard IEC 60747-5-3:1997 was approved by CENELEC as an amendment to the European Standard without any modification.

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NORME INTERNATIONALE

CEI IEC 60747-5-3

INTERNATIONAL STANDARD

1997

AMENDEMENT 1
AMENDMENT 1
2002-03

Amendement 1

Dispositifs discrets à semiconducteurs et circuits intégrés –

Partie 5-3:
Dispositifs optoélectroniques –
Méthodes de mesure

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Amendment 1

Discrete semiconductor devices and integrated circuits –

Part 5-3:
Optoelectronic devices –
Measuring methods

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International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE M

Pour prix, voir catalogue en vigueur
For price, see current catalogue

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:

FDIS	Report on voting
47E/210/FDIS	47E/215/RVD

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 the base publication and its amendments will remain unchanged until 2004. At this date, the publication will be

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

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Page 57

SIST EN 60747-5-3:2002/A1:2004
https://standards.iteh.ai/catalog/standards/sist/92d913dd-8692-44e0-bf7f-e3adf04a9b94/sist-en-60747-5-3-2002-a1-2004

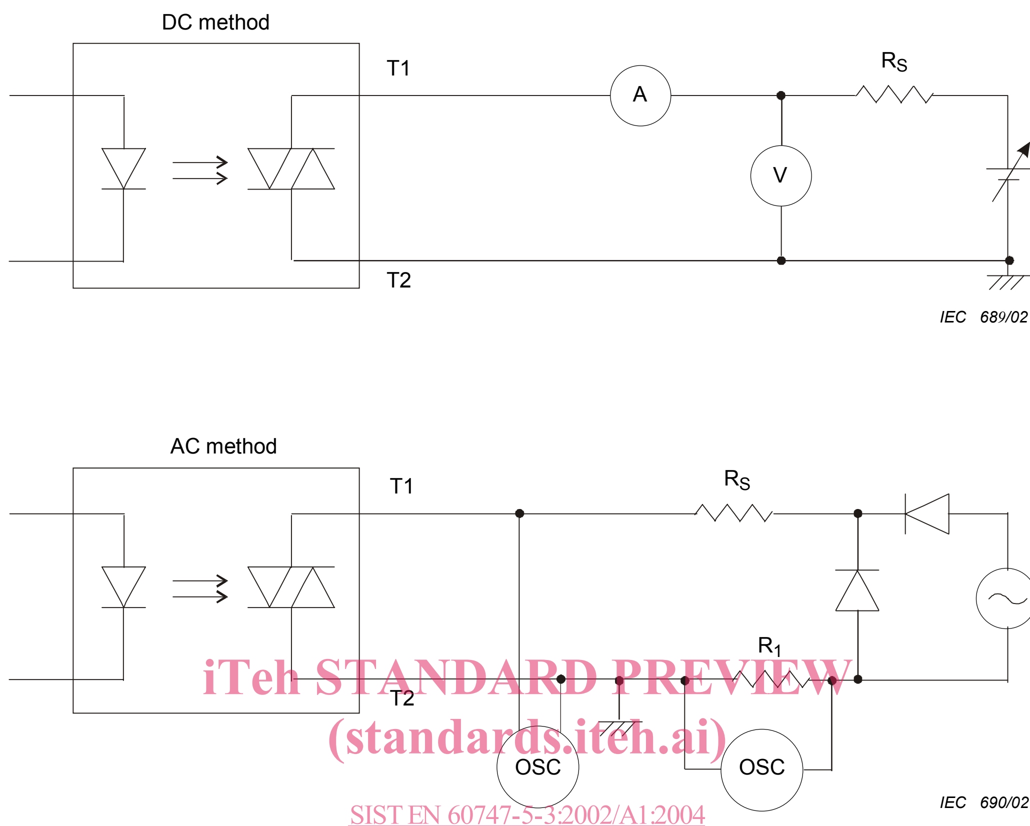
Add the following new subclauses 5.8 to 5.15.2:

5.8 Peak off-state current (I_{DRM})

a) Purpose

To measure the forward leakage current between the output terminals in off-state under specified conditions.

b) Circuit diagram



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R_S Current limiting resistor

R_1 Current detecting resistor

Figure 26 – Measurement circuit for peak off-state current

c) Measurement procedure

1) DC method

The peak off-state current (I_{DRM}) is measured with the specified forward off-state voltage which is applied between the output terminals in off-state.

The peak off-state current (I_{DRM}) is measured again with inverted polarity of the output terminals (T1, T2) by applying the reverse voltage/current between the terminals.

2) AC method

The peak off-state current (I_{DRM}) is measured at the specified peak off-state voltage with the half-wave-rectified a.c. voltage with commercial a.c. line frequency, which is applied between the output terminals in off-state.

The peak off-state current (I_{DRM}) is measured again with inverted polarity of the output terminals (T1, T2) by applying the reverse voltage/current between the terminals.

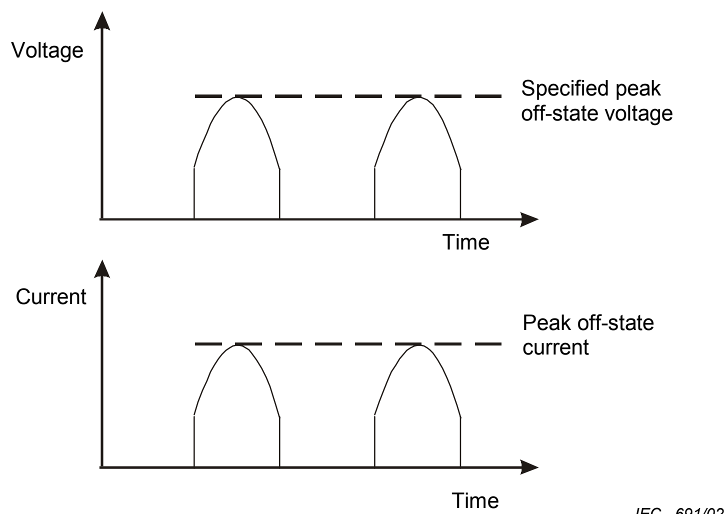

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Figure 27 – Waveforms of the peak off-state voltage and current

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d) Requirements

1) The measurement method of the peak off-state current uses two forced-voltage polarities (T1→T2 and T2→T1).

2) In the case of the d.c. method, the slew rate of the applied d.c. voltage between the output terminals (T1, T2) should not exceed the critical rate of rise of the off-state voltage (dV/dt).

In the case of the a.c. method, the rate of change (dV/dt) of the applied sine-wave-voltage between the output terminals (T1, T2) should not exceed the critical rate of rise of the off-state voltage (dV/dt).

e) Specified conditions

1) Peak off-state voltage (V_{DRM})

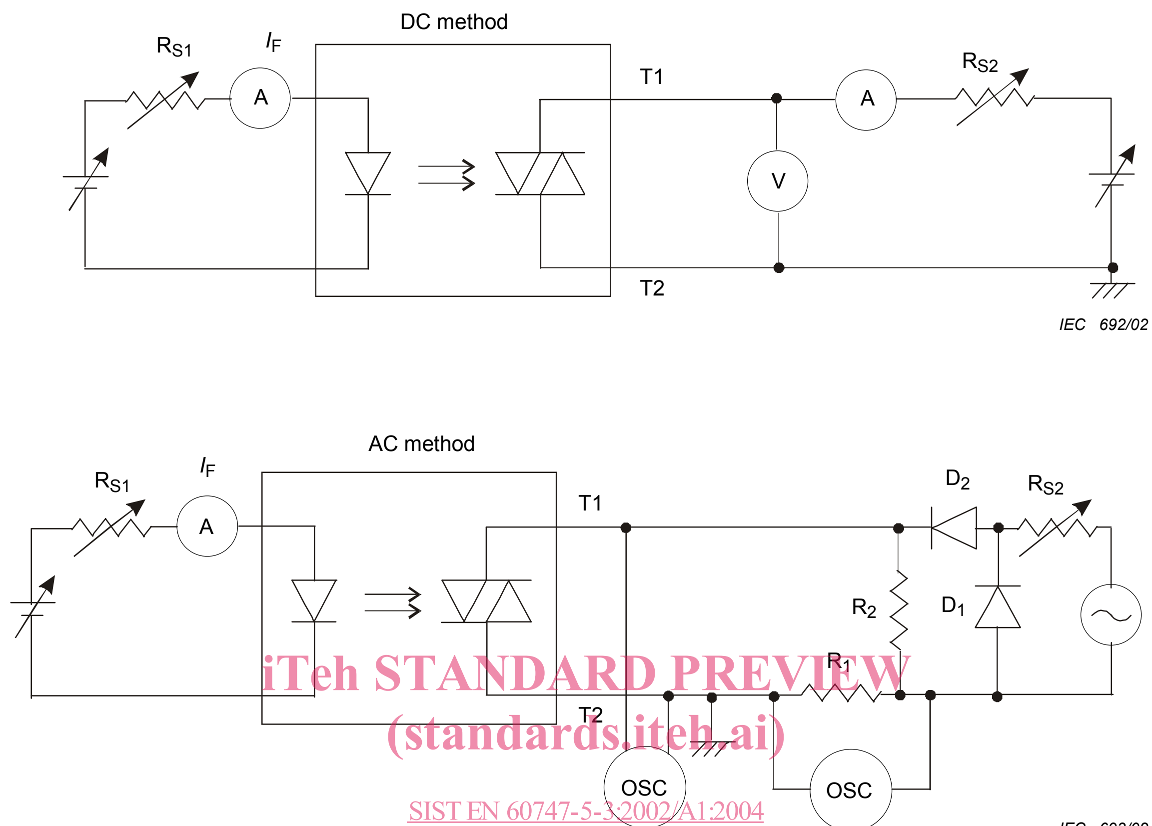
2) Ambient temperature (T_{amb}).

5.9 Peak on-state voltage (V_{TM})

a) Purpose

To measure the peak on-state voltage between the output terminals in on-state under specified conditions, when the specified on-state current is applied between the output terminals in on-state.

b) Circuit diagram



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R_{S1}, R_{S2} Current limiting resistors

R_1 Current detecting resistor

R_2 Resistor to prevent the phototriac from being off-voltage

D_1 Diode for decreasing d.c. current part in power line

NOTE R_2 should be selected approximately to adjust the voltage between the terminals, which is caused by the leakage current through D_1, to nearly zero volt.

Figure 28 – Measurement circuit for peak on-state voltage

c) Measurement procedure

1) DC method

The specified input forward current (I_F) is applied to turn on the output, after which the specified on-state current is applied between the output terminals.

The voltage between the output terminals (peak on-state voltage (V_{TM})) is measured. The voltage between the output terminals is measured again with inverted polarity of the output terminals (T1, T2) by applying the reverse voltage/current between the terminals.

A constant current source may be used instead of a constant voltage source on the input side.

2) AC method

The specified input forward current (I_F) is applied to turn on the output, after which the half-wave-rectified a.c. voltage with commercial a.c. line frequency is applied between the output terminals. The voltage between the output terminals (peak on-state voltage (V_{TM})) is measured at the specified peak on-state current.