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Interested committees:

Title: BS EN 60747-16-11 Semiconductor devices

Part 16-11: Microwave integrated circuits - Power detectors

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



PROJECT NUMBER:

IEC 60747-16-11 ED1

DATE OF CIRCULATION:

2023-03-31

CLOSING DATE FOR COMMENTS:

2023-06-23

SUPERSEDES DOCUMENTS:

47E/787/NP, 47E/795A/RVN

IEC SC 47E : DISCRETE SEMICONDUCTOR DEVICES

SECRETARIAT:

Korea, Republic of

SECRETARY:

Mr Hojun Ryu

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Semiconductor devices - Part 16-11: Microwave integrated circuits - Power detectors

NOTE FROM TC/SC OFFICERS:

The title is changed from "Detectors" to "Power Detectors" based on the last meeting held in previous meeting. The CD document will be discussed at the upcoming interim meeting.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SEMICONDUCTOR DEVICES –

Part 16-11: Microwave integrated circuits –
Power detectors

FOREWORD

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IEC 60747-16-11 has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices. It is an International Standard.

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

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at

188 www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in
189 greater detail at www.iec.ch/publications.

190 A list of all parts in the IEC 60747 series, published under the general title *Semiconductor devices*, can
191 be found on the IEC website.

192 The committee has decided that the contents of this document will remain unchanged until the stability
193 date indicated on the IEC website under webstore.iec.ch in the data related to the specific document.
194 At this date, the document will be

- 195 • reconfirmed,
- 196 • withdrawn,
- 197 • replaced by a revised edition, or
- 198 • amended.

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SEMICONDUCTOR DEVICES –

Part 16-11: Microwave integrated circuits – Power detectors

1 Scope

This part of IEC 60747 specifies the terminology, essential ratings and characteristics, and measuring methods of microwave integrated circuit power detectors.

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 60747-1:2006, *Semiconductor devices – Part 1: General*
IEC 60747-1:2006/AMD 1:2010

IEC 60747-4:2007, *Semiconductor devices – Discrete devices – Part 4: Microwave diodes and transistors*
IEC 60747-4:2007/AMD 1:2017

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

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 output voltage

V_o

voltage measured at the output port

3.2 tangential signal sensitivity

P_{TSS}

input power when the negative noise peak value of the *output voltage* (3.1) is equal to the positive noise peak value when there is no input signal

3.3 output current

I_o

current measured at the output port

3.4**voltage sensitivity** β_V ratio of the *output voltage* (3.1) to the input power**3.5****current sensitivity** β_i ratio of the *output current* (3.3) to the input power**3.6****frequency response flatness** ΔP difference between the maximum input power and the minimum input power at the same *output voltage* (3.1)**3.7****output slope** k slope of the *output voltage* (3.1) ideal response curve**3.8****output intercept point** P_{ip} intersection point of the extension line of the *output voltage* (3.1) ideal response curve and the horizontal axis which represents input power**3.9****dynamic range**input power range in which the actual response curve deviates $\pm n$ dB from the ideal response curve**3.10****temperature sensitivity** β_T

rate at which calculated input power varies with temperature at the same actual input power

3.11**rise time** $t_{r(out)}$ interval between the lower reference point on the leading edge of the *output voltage* (3.1) and the upper reference point on the leading edge of the *output voltage* (3.1)

Note 1 to entry: Usually the lower reference is 10% of the amplitude, and the upper reference is 90% of the amplitude.

3.12**fall time** $t_{f(out)}$ interval between the upper reference point on the trailing edge of the *output voltage* (3.1) and the lower reference point on the trailing edge of the *output voltage* (3.1)

Note 1 to entry: Usually the lower reference is 10% of the amplitude, and the upper reference is 90% of the amplitude.

3.13**rising edge propagation delay** t_{rd} interval between the reference point on the leading edge of the envelope of the RF input voltage and the reference point on the leading edge of the *output voltage* (3.1)

Note 1 to entry: Usually the reference is 50% of the amplitude.