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CONSOLIDATED VERSION

VERSION CONSOLIDÉE

colour inside

Semiconductor devices – Part 16-1: Microwave integrated circuits – Amplifiers

Dispositifs à semiconducteurs – Partie 16-1: Circuits intégrés hyperfréquences – Amplificateurs

IEC 60747-16-1:2001-11+AMD1:2007-01+AMD2:2017-02 CSV(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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This Consolidated version of IEC 60747-16-1 bears the edition number 1.2. It consists of the first edition (2001-11) [documents 47E/200/FDIS and 47E/204/RVD], its amendment 1 (2007-01) [documents 47E/305/FDIS and 47E/317/RVD] and its amendment 2 (2017-02) [documents 47E/500/CDV and 47E/518/RVC]. The technical content is identical to the base edition and its amendments.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 60747-16-1 has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability 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

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SEMICONDUCTOR DEVICES –

Part 16-1: Microwave integrated circuits – Amplifiers

1 Scope

This part of IEC 60747 provides the terminology, the essential ratings and characteristics, as well as the measuring methods for integrated circuit microwave power amplifiers.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60747. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60747 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050-702, *International Electrotechnical Vocabulary – Chapter 702: Oscillations, signals and related devices* (available at: http://www.electropedia.org)

~~IEC 60617-12:1997, *Graphical symbols for diagrams – Part 12: Binary logic elements*~~

~~IEC 60617-13:1993, *Graphical symbols for diagrams – Part 13: Analogue elements*~~

IEC 60617, *Graphical symbols for diagrams* (available at: <http://std.iec.ch/iec60617>)

IEC 60747-1:~~1983~~ 2006, *Semiconductor devices ~~– Discrete devices~~ – Part 1: General*
IEC 60747-1:2006/AMD1:2010

IEC 60747-4:2007, *Semiconductor devices – Discrete devices – Part 4: Microwave diodes and transistors*
IEC 60747-4:2007/AMD1:2017

~~IEC 60747-7:2000, *Semiconductor devices – Part 7: Bipolar transistors*~~

IEC 60748-2:1997, *Semiconductor devices – Integrated circuits – Part 2: Digital integrated circuits*

IEC 60748-3:1986, *Semiconductor devices – Integrated circuits – Part 3: Analogue integrated circuits*
IEC 60748-3:1986/AMD1:1991
IEC 60748-3:1986/AMD2:1994

IEC 60748-4:1997, *Semiconductor devices – Integrated circuits – Part 4: Interface integrated circuits*

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

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

3 ~~Terminology~~ Terms and definitions

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

3.1
linear (power) gain G_{lin}
power gain in the linear region of the power transfer curve P_o (dBm) = $f(P_i)$

NOTE In this region, ΔP_o (dBm) = ΔP_i (dBm).

3.2
linear (power) gain flatness ΔG_{lin}
power gain flatness when the operating point lies in the linear region of the power transfer curve

3.3
power gain G_p, G
ratio of the output power to the input power

NOTE Usually the power gain is expressed in decibels.

3.4
(power) gain flatness ΔG_p
difference between the maximum and minimum power gain for a specified input power in a specified frequency range

3.5
(maximum available) gain reduction ΔG_{red}
difference in decibels between the maximum and minimum power gains that can be provided by the gain control

3.6 Output power limiting

3.6.1
output power limiting range
range in which, for rising input power, the output power is limiting

NOTE For specification purposes, the limits of this range are specified by specified lower and upper limit values for the input power.

3.6.2
limiting output power $P_{o(ltg)}$
output power in the range where it is limiting

3.6.3
limiting output power flatness $\Delta P_{o(ltg)}$
difference between the maximum and minimum output power in the output power limiting range:

$$\Delta P_{o(ltg)} = P_{o(ltg,max)} - P_{o(ltg,min)}$$

3.7
intermodulation distortion
~~P_n/P_i~~ P_n/P_1
ratio of ~~the output power of~~ the nth order component to the output power of the fundamental component~~, at a specified input~~ of the output power

Note 1 to entry: The abbreviation "IMD_n" is in common use for the nth order intermodulation distortion.