INTERNATIONAL STANDARD

IEC 60748-23-3

QC 165000-3

First edition
2002-05

Semiconductor devices – Integrated circuits –

Part 23-3: Hybrid integrated circuits and film structures – Manufacturing line certification – Manufacturers' self-audit checklist and report

Dispositifs à semiconducteurs –
Circuits intégrés –

Partie 23-3:
Circuits intégrés hybrides et structures par films –
Certification de la ligne de fabrication –
Liste de contrôle et rapport d'évaluation interne pour fabricants

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE XC

For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 60748-23-3 has been prepared by subcommittee 47A: Integrated circuits, of IEC technical committee 47: Semiconductor devices.

The text of this standard is based on the European standard EN 165000-3 and the following documents:

FDIS	Report on voting
47A/640/FDIS	47A/651/RVD

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

IEC 60748-23-3 should be read in conjunction with Parts 23-1, 23-2 and 23-4.

The QC number that appears on the front cover of this publication is the specification number in the IEC Quality Assessment System for Electronic Components (IECQ).

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

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- withdrawn;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

INTRODUCTION

This set of specifications prescribes a set of procedures to be used by users and manufacturers for the production and delivery of high-quality, special requirement hybrid integrated circuits and film structures with a specified level of quality and reliability.

This set of specifications prescribes reference criteria for the establishment, control, maintenance and development of a certified manufacturing line and represents a manufacturing line certification methodology.

The targeted level of quality and reliability is to be achieved by using best design and manufacturing practices. Examples of quality and reliability best practices for elimination of potential failure mechanisms and achievement of a targeted quality and reliability level include: material characterization for derivation of process design rules, in-process control, continuous improvement, etc.

Assessment (estimation) of the targeted quality and reliability level may be accomplished by:

a) using data obtained from the material characterization, design and process control and improvement activities; or

b) through the use of product assessment level schedule (PALS) tests.

Part 23-1 of this set of specifications provides general information.

Part 23-2 of this set of specifications provides guidance to 'users' of hybrids in terms of the 'visual inspection standards' to be expected.

Part 23-4 of this set of specifications provides a blank detail specification, which provides guidance to 'users' of hybrids for procurement purposes.

Part 23-5 of this set of specifications provides a means of quality assessment on the basis of qualification approval.

SEMICONDUCTOR DEVICES – INTEGRATED CIRCUITS –

Part 23-3: Hybrid integrated circuits and film structures – Manufacturing line certification – Manufacturers' self-audit checklist and report

1 Scope

This part of IEC 60748 applies to a high quality approval system for hybrid integrated circuits and film structures.

This checklist is intended for the use of a hybrid microcircuit manufacturer's internal assessment team.

It will provide the hybrid manufacturer and the National Supervising Inspectorate (NSI) with ongoing information on process control demonstrating compliance with IEC 60748-23-1. It is not intended to include quality system requirements.

2 Document information

2.1 General

The checklist and subsequent report is for submission to the NSI in support of an application for approval to IEC 60748-23-1, or as a demonstration of continuing compliance at intervals not exceeding 1 year. Each item in clauses 3 to 7 shall be completed or marked “not applicable”; items which invoke mandatory process or inspection requirements are shown in ***bold italics***.

It should be noted that it is not the requirement or the intention that each item has to be answered with an affirmative, excepting mandatory requirements. The objective of the report is for the manufacturer to demonstrate that all manufacturing processes are under control by whatever means this is achieved.

Where supporting evidence is included, for example engineering reports, statistical process control (SPC) data, etc., it should be appended to the report.

The manufacturer may use his own style of typeface to reproduce this document and produce his report.

The NSI may subsequently validate any part of the submission as a process assessment.

2.2 Normative references

The following referenced documents are indispensable for the application 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 60050 (all parts), *International Electrotechnical Vocabulary*

IEC 60068-2-20:1979, *Basic environmental testing procedures – Part 2: Tests – Test T: Soldering*

IEC 60695-2-2:1991, *Fire hazard testing – Part 2: Test methods – Section 2: Needle-flame test*
Amendment 1 (1994)

IEC 60748-1, *Semiconductor devices – Integrated circuits – Part 1: General*

IEC 60748-23-1:2002, *Semiconductor devices – Integrated circuits – Part 23-1: Hybrid integrated circuits and film structures – Manufacturing line certification – Generic specification*

IEC 60748-23-2:2002, *Semiconductor devices – Integrated circuits – Part 23-2: Hybrid integrated circuits and film structures – Manufacturing line certification – Internal visual inspection and special tests*

IEC 60748-23-4:2002, *Semiconductor devices – Integrated circuits – Part 23-4: Hybrid integrated circuits and film structures – Manufacturing line certification – Blank detail specification*

IEC 61340-5-1:1998, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*

IECQ 001002-3:1998, *IEC Quality Assessment System for Electronic Components (IECQ) – Rules of Procedure – Part 3: Approval procedures*