

**Splošne zahteve za integrirana vezja**

General requirements for integrated circuits

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English version

## General requirements for integrated circuits

Allgemeine Anforderungen  
für integrierte Schaltungen

This European Specification was approved by CENELEC on 1998-01-16.

CENELEC members are required to announce the existence of this ES in the same way as for an EN and to make the ES available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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

### Foreword

This European Specification was prepared by STACK INTERNATIONAL.

It was submitted to the CENELEC combined questionnaire and vote procedure and was approved as ES 59002 on 1998-01-16.

The following dates were fixed:

- latest date by which the existence of the ES has to be announced at national level

(doa) 1998-04-15

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**SPECIFICATION 0001 ISSUE 12.1**

**GENERAL REQUIREMENTS FOR INTEGRATED CIRCUITS**

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**WORLDWIDE  
SPECIFICATION**

Page 2 of 31  
STACK 0001  
Issue 12.1

TITLE: GENERAL REQUIREMENTS FOR INTEGRATED CIRCUITS

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**WORLDWIDE  
SPECIFICATION**

CONTENTS

<b>INTRODUCTION</b> .....Page 4	<b>MECHANICAL</b> ..... Page 9	<b>SIMILARITY ASSESSMENTS</b> .... Page 15
- Purpose and scope	- Package dimensions	- Introduction
- Use of equivalent tests	- Device marking	- Die design changes
- Liaison	- Storage	- Process/wafer fab changes
- Order of precedence	- Robustness of hermetic seals	- Package/assembly changes
- Translation	- Lead (termination) finishes	
<b>REFERENCED STANDARDS</b> ..... 4	<b>SHIP TO STOCK</b> ..... 9	<b>RELIABILITY</b> ..... 16
		- Operating reliability
		- Failure criteria
		- Corrective action
		- Data accumulation
		- Suspension of qualification approval
		- Table 6 operating life failure rates
<b>TERMS AND DEFINITIONS</b> ..... 5	<b>QUALITY ASSURANCE</b> ..... 10	<b>PRODUCT MONITOR</b> ..... 17
	- Quality system	- Monitor program
	- Sampling procedures	- Problem alert
	- Failure analysis support	- Data reporting
	- Outgoing quality	- Samples
<b>ADMINISTRATION</b> .....6	<b>INCOMING INSPECTION</b> ..... 11	- Production maturity factors
- Registration	- Lot acceptance	- Device dissipation
- Suspension of registration	- Suspension of deliveries	- Corrective action
- Acceptance permit/Concession	- Loss of approval	- Suspension of qualification approval
- Updates to this specification	- AQL/LTPD figures	- Accumulated test data
- Waivers	- 100% screening	- Table 7 product monitor tests
	- Table 3 Incoming test	
<b>PROCEDURES</b> .....7	<b>QUALIFICATION</b> ..... 12	<b>SAFETY</b> ..... 18
- Product discontinuation	- Purpose	- Self ignition
- ESD protection during manufacture	- Samples	- Toxic materials
- Specification control	- Mil 883 references	
- Internal quality audit	- In process test results	<b>SHIPMENT PACKAGING</b> ..... 18
- Subcontract manufacturing	- Product monitor results	- General
- Traceability	- Maintenance of qualification standard	- Electrostatic properties
	- Pre qualification questionnaire	- Magazine reuse
<b>CHANGE NOTIFICATION (PCN)</b> .....7	- Technology verification	- Tubes
- Notification	- Archiving	
- Notification details	- Table 4 test schedule ..... 13	<b>LABELS</b> ..... 19
- Notifiable changes		- General
	<b>QUALIFICATION OF CHANGES</b> ..... 15	- Dry pack
<b>SHIPMENT CONTROLS</b> .....8	- Introduction	- Outer box
- Date code remarking	- Table 5	- Inner box
- Inner box formation		
- Date code age on delivery		<b>TEST CODE INDEX</b> ..... 20
<b>ELECTRICAL</b> .....8		
- Operating conditions		<b>DOCUMENT REVISION HISTORY</b> ..... 31
- Electrical test		

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## WORLDWIDE SPECIFICATION

Page 4 of 31  
STACK 0001  
Issue 12.1

### 1. INTRODUCTION

**1.1 Purpose and Scope:** This *specification* defines the STACK International members' quality, reliability and general requirements for integrated circuits.

**1.2 Use of equivalent tests:** To comply with the requirements of this *specification*, the *supplier* shall perform the tests as specified. In exceptional cases, other test methods may be used, provided an adequate and documented technical assessment has been performed, which shows the specified test requirement is being met. The technical assessment shall be supplied on request.

**1.3 Liaison:** Enquiries relating to this specification which concern product deliveries or orders shall be addressed to the purchasing STACK member. Enquiries relating to registration should be addressed to the STACK office.

**1.4 Order of precedence:** In case of conflict the following order of precedence shall apply:-

- a) The purchase document
- b) The individual *device specification*
- c) This specification
- d) Any referenced documents
- e) The *data sheet*

**1.5 Translation:** If translated into other languages the English language version of this specification is definitive.

### 2. REFERENCED STANDARDS:

2.1 Unless otherwise specified the following documents form a part of this *specification* to the extent specified herein. Where no particular document revision is given the latest revision shall be used.

Mil-Std-883	Test methods and procedures for microelectronics.
Mil-Std 1189	Standard DOD bar code symbology
IEC 695-2-2	Fire hazard testing - Needle flame test.
UL94 V0	Flammability of plastic materials
EIA 541	Packaging materials for ESD sensitive items.
Jedec Std 17	Latch up in CMOS integrated circuits
Mil-F-14256	Flux soldering liquid (rosin base)
Mil-M-38510	General specification for microcircuits.

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### 3. TERMS AND DEFINITIONS

3.1 For the purposes of this *specification*, when the following terms are used in italics, they have the meaning defined in this section:

**Acceptance Permit:** A concession granted by an individual STACK member to allow the delivery of a *shipping lot* which does not fully meet the requirements of this *specification*.

**Concession:** See acceptance permit.

**Data Sheet:** A *device* specification written by the *device* manufacturer.

**Device:** Any integrated circuit to which this *specification* is applied.

**Device Specification:** A *device* specification written by a STACK member.

**DPM:** Defect per million

**Incoming Lot:** One or more shipments of a *device*, grouped together for the purpose of incoming inspection, but including no more than the number of shipments received in one week.

**Inner Box:** A box or bag containing *devices* in *magazines*.

**Manufacturing Lot:** A definite quantity of *devices* tracked at each manufacturing operation. It is associated with a travel log and constitutes a group, homogeneously processed through all manufacturing operations under uniform manufacturing conditions.

**Magazine:** Sticks, tubes, matrix trays, tape/reel etc.

**Outer Box:** An outer shipping container, containing one or more *inner boxes*.

**Shipping Lot:** A single shipment of one or more *outer boxes* received by a STACK member.

**PQQ:** Pre qualification questionnaire

**Reference method:** A test method a STACK member would normally use. STACK members reserve the right to reject on failure using this method, however the supplier may use another method to meet the same requirement.

**Room Temperature:**  $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$

**Specification:** This *specification* together with all other documents referred to as forming part thereof.

**Standard Atmospheric Conditions:** Ambient temperature and relative humidity in the range 5 to 30°C, 20 to 70%RH.

**Supplier:** The company identified by the logo, or name marked on the *device*.

**T<sub>op min</sub>:** Minimum operating temperature.

**T<sub>op max</sub>:** Maximum operating temperature.

**Triboelectric Charge:** An electrical charge generated by frictional movement or separation of two surfaces.

**Waiver:** A written notice that a requirement of this *specification* no longer applies or is relaxed.

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#### 4. ADMINISTRATION

**4.1 Registration:** Registration is the procedure by which a *supplier* declares compliance with this *specification*. The scope of registration is as defined on the registration certificate.

**4.5 Waivers:** Any waiver request requires the approval of the STACK membership. If granted the waiver will stand as a change to this *specification* and as such is applicable to all *suppliers*. Waivers to this *specification* will not be given to individual *suppliers*.

**4.2 Suspension of registration:** If it is determined that a registered *supplier* is not fully compliant with this *specification*, then registration may be suspended until the non compliance is corrected or a corrective action plan has been agreed.

#### 4.3 Acceptance permits/Concessions:

a) In the event of the *supplier* wishing to ship devices which deviate from the requirements of the purchase order, relevant specifications, or this *specification*, prior consent must be obtained from the purchasing STACK member.

b) Applications for such *acceptance permits* must contain the following information:-  
Purchase Order Number.  
Description of items.  
*Supplier* type number.  
STACK member part number.  
Quantities or time period affected.  
Description of deviation(s).  
Cause of deviations.  
Reason for requesting acceptance.  
Corrective measures being taken to overcome the deviation on subsequent deliveries.

c) *Devices* subject to application for an *acceptance permit* shall be held at the *supplier's* premises pending reply unless otherwise instructed by the purchasing STACK member.

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**4.4 Updates to this specification:** Updates to this *specification* will be circulated to all STACK registered *suppliers*. A period of time will be defined at each release date depending on the extent of the change to allow *suppliers* to formally accept the new issue.



**WORLDWIDE  
SPECIFICATION**

5. PROCEDURES

5.1 **Product discontinuation:** The *supplier* shall provide 12 months notice of last order dates for single source *devices* and 6 months for multi sourced *devices* to individual STACK members.

5.2 **ESD protection during manufacture:** All integrated circuits are considered to be static sensitive and shall be protected through the *supplier's* manufacturing operation. *Suppliers* shall ensure that *devices* are not exposed to static damage and are not degraded or damaged due to static.

5.3 **Specification control:** The *supplier* shall:  
a) Have central or local record of the STACK member's part number and specification, against the product to be delivered.  
b) Ensure the specifications on the purchase documents have been reviewed and accepted by personnel authorised to do so.

5.4 **Internal quality audits:** The *supplier* shall have a system to audit their internal quality system, at each manufacturing location, to a uniform set of standard quality practices. The results of these audits and the audit acceptance criteria, shall be available for on site inspection during a STACK audit.

5.5 **Sub contract manufacturing:** The *supplier* shall qualify all sub contracted operations to the same standards as the *suppliers* internal operations and perform audits to equivalent internal standards.

5.6 **Traceability:**

- a) The *supplier* shall have traceability for any device in a *shipping lot* through *device* marking (preferred on top surface) or *magazine* marking or *inner box* marking to identify the manufacturing route, ie:
- groups of wafer lots
  - wafer fab location
  - assembly location
  - test location
- b) The route code shall be supplied on request.
- c) The procedure shall be available for inspection during audit.

6. PRODUCT OR PROCESS CHANGE NOTIFICATION (PCN)

6.1 **Notification:** In the event of the *supplier* proposing a change subsequent to the supply of the initial qualification samples, then the *supplier* shall notify the STACK member, in writing, at least 90 days prior to incorporation in the delivered product. The STACK member will respond within 30 days, to accept the change, reject the change or request further information.

6.2 **Notification details:** The PCN shall include the following items. Note: + indicates items which are preferred but not mandatory.

- a) Title of change
- b) *Supplier* type number(s) affected
- c) *Supplier* notification identification number
- d) Estimated last order and shipment dates for unchanged *devices* to be supplied on request.
- e) Estimated first shipment date of changed *devices*.
- f) Manufacturing location and product line affected
- g) A thorough description of the proposed change.
- h) Means of distinguishing changed *devices* from unchanged *devices*. This may be a date code or date code range.
- i) Sufficient engineering and/or qualification test data shall be available on request to demonstrate that the change will not adversely affect performance quality, reliability, interchangeability, and that the changed product will continue to meet the specified requirements.
- j) + Customer part number of the affected *device*

6.3 **Notifiable changes:**

- a) It is the responsibility of the *supplier* to notify the STACK member of any proposed product change which may affect performance, quality, reliability or interchangeability.
- b) MIL-M-38510 may be used as a guide to changes requiring notification.
- c) Package dimension changes shall be notified.

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### 7. SHIPMENT CONTROLS

**7.1 Date code remarking:** Devices shall not be remarked with a date code earlier or later than their original date code.

**7.2 Inner box formation:**

- a) An *inner box* shall contain only *devices* of the same die revision/stepping level.
  
- b) It is preferred that devices shall also be from the same:
  - wafer fab location
  - assembly site
  - outgoing QA electrical inspection site.

**7.3 Date code age on delivery:** The date codes of the *devices* shall not be older than 18 months referred to the incoming goods arrival date.

### 8. ELECTRICAL

**8.1 Operating Conditions:** As defined in the *device specification* or *data sheet*.

**8.2 Electrical Test:** All *devices* shipped must have passed a full electrical test per Test Code 1a or in the case of customer specific devices a test program approved by the customer.

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