

# **SLOVENSKI STANDARD**

## **SIST EN 190107:2002**

**01-september-2002**

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**Family specification: TTL FAST digital integrated circuits - Series 54F, 74F**

Family Specification: TTL FAST digital integrated circuits - Series 54F, 74F

Familienspezifikation: Digitale integrierte TTL FAST-Schaltungen - Serien 54F, 74F

Spécification de famille: Circuits intégrés logiques TTL FAST - Série 54F, 74F

**Ta slovenski standard je istoveten z: EN 190107:1994**

[SIST EN 190107:2002](https://standards.iteh.ai/catalog/standards/sist/7888fcb4-c698-4dc2-beca-882fcfddedc4/sist-en-190107-2002)

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**ICS:**

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Integrirana vezja,  
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Integrated circuits.  
Microelectronics

**SIST EN 190107:2002**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 190107

May 1994

UDC

Supersedes CECC 90107 Issue 2:1987

Descriptors: Quality, electronic components, TTL FAST digital integrated circuits

English version

Family Specification:  
TTL FAST Digital Integrated Circuits  
Series 54F, 74F

Spécification de famille:  
Circuits intégrés logiques  
TTL FAST  
Séries 54F, 74F

Familienspezifikation:  
Digitale integrierte TTL  
FAST-Schaltungen  
Serien 54 F, 74 F

**iTeh STANDARD PREVIEW**  
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This European Standard was approved by the CENELEC Electronic Components Committee (CECC) on 30 April 1994. CENELEC members are bound to comply with CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 General Secretariat of the CECC or to any CENELEC member.

This European Standard 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 CECC General Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. The membership of the CECC is identical, with the exception of the national electrotechnical committees of Greece, Iceland and Luxembourg.

**CECC**

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

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This European Standard was prepared by CECC WG 9, "Integrated Circuits".

The text of the draft based on document CECC 90107 Issue 2:1987 (with A1) was submitted to the formal vote for conversion to a European Standard; together with the voting report, circulated as document CECC(Secretariat)3537 it was approved by CECC as EN 190107 on 30 April 1994.

The following dates were fixed:

- latest date of announcement of the EN at national level (doa) 1994-09-01
- latest date of publication of an identical national standard<sup>a</sup> (dop) 1995-03-01
- latest date of withdrawal of conflicting national standards<sup>a</sup> (dow) 1996-03-01

<sup>a</sup> National Standard (excluding National implementation of IECQ Specifications)

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Förderverein für Elektrotechnische Normung (FEN) e. V.  
Cenelec Electronic Components Committee

**CECC**

English version

Harmonized System of Quality Assessment for  
Electronic Components

FAMILY SPEZIFICATION:  
**TTL FAST DIGITAL  
INTEGRATED CIRCUITS**

**STANDARD PREVIEW**  
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Système Harmonisé d'Assurance de la Qualité  
des Composants Electroniques

<https://standards.iteh.ai/catalog/standards/sist/7888fcb4-c698-4dc2-beca-8b3fddc4a4a4/sist-en-190107-2002>  
SPECIFICATION DE FAMILLE:

**CIRCUITS INTEGRES  
LOGIQUES TTL FAST**

Harmonisiertes Gütebestätigungssystem für  
Bauelemente der Elektronik

FAMILIEN-SPEZIFIKATION:  
**DIGITALE INTEGRIERTE  
TTL FAST-SCHALTUNGEN**



**2**

Edition  
Issue  
Ausgabe

**CECC 90 107**

1987

## Foreword

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby accepted by all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for TTL FAST DIGITAL INTEGRATED CIRCUITS. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

## Preface

This Family Detail Specification was prepared by CECC WG9 "*Integrated Circuits*".

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC 747: *Semiconductor devices: Discrete devices and integrated circuits*, IEC 748: *Semiconductor devices: Integrated circuits*, IEC 749: *Semiconductor devices: Mechanical and climatic test methods*.

It contains general information on TTL FAST digital integrated circuits and defines the common characteristics for this family of integrated circuits.

Together with the device type detail specification (DS) of a component usually prepared nationally, this family detail specification forms a complete detail specification.


The text of this second Issue consists of the text of CECC 90107 Issue 1 (1984) amended in accordance with the ratified new material introduced by the following document.

Document	Date of Voting	Report on the Voting
CECC (Secretariat) 1969	September 1986	CECC (Secretariat) 2011

In accordance with the decision of the CECC Management Committee this specification is published initially in French and English. The German text will follow as soon as it has been prepared.

## Effective date

This second Issue of CECC 90107 shall become effective for all new qualification approvals on 1 April 1987. Issue 1 will continue to remain effective to cover all past approvals.

	<p align="center"><b>CECC 90 107</b></p> <p align="center">ISSUE 2 - 1987</p> 
<p align="center"><b>ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH :</b></p> <p><b>CECC 90 000</b> : Generic specification for Monolithic integrated circuits (GS)</p> <p><b>CECC 90 100</b> : Sectional specification for Digital monolithic integrated circuits (SS)</p>	<p>Page 3    Total number of pages : 17</p>
<p><b>OUTLINE AND DIMENSIONS</b> (See DS for the specific type)</p> <p><b>TERMINAL CONNECTIONS</b> (See DS for the specific type)</p>	<p align="center"><b>FAMILY DETAIL SPECIFICATION FOR TTL FAST DIGITAL INTEGRATED CIRCUITS</b></p> <p align="center"><b>Series 54 F, 74 F</b></p> <p><i>NOTE : This family detail specification shall be completed by a DS in accordance with this specification covering one or more specific types of circuits.</i></p> <p><b>TYPICAL CONSTRUCTION :</b> Silicon monolithic bipolar integrated circuits, cavity/non-cavity packages.</p> <p><b>CAUTION :</b> These are electroensitive devices.</p> <p><b>ASSESSMENT LEVELS :</b> P, Y, L</p>
<p align="center"><b><u>CONTENTS</u></b></p> <p align="center"><b>54 F, 74 F</b></p> <p><b>1 - LIMITING CONDITIONS OF USE FOR THE FAMILY</b></p> <p><b>2 - RECOMMENDED OPERATING CONDITIONS AND ASSOCIATED CHARACTERISTICS FOR THE FAMILY</b></p> <p><b>3 - TEST METHODS AND PROCEDURES</b></p> <p><b>4 - INSPECTION REQUIREMENTS</b></p>	
<p>Information about manufacturers who have components qualified to a detail specification written in accordance with this family detail specification is available in the current CECC 00 200 : Qualified Products List.</p>	

## 1 Limiting conditions of use for the family

(Not for inspection purposes)

### 1.1 Maximum continuous supply voltage

$V_{CC}$  :  $-0,5\text{ V}$   
 $+7,0\text{ V}$

### 1.2 Maximum input voltage

#### 1.2.1 Max. input voltage

$V_I$  :  $-0,5\text{ V}$   
 $+7,0\text{ V}$  } (See DS)

### 1.3 Minimum and maximum operating ambient temperatures

$T_{amb}$ (°C)	54 F	74 F
min.	- 55	0
max.	+ 125	+ 70

### 1.4 Minimum and maximum storage temperatures

$T_{stg}$  :  $-65\text{ °C min.}$   
 $+150\text{ °C max.}$  } (unless otherwise  
specified in the DS)

## 2 Recommended operating conditions and associated characteristics for the family (Not for inspection purposes)

(See also relevant DS)

These conditions apply to the total operating temperature range, unless otherwise prescribed.

### 2.1 Positive supply voltage

$V_{CC}$ : 4,5 to 5,5 V

### 2.2 Most negative low level input voltage at an input current $I_{IK} = -18\text{ mA}$

$V_{IKB}$ :  $-1,2\text{ V}$

### 2.3 Minimum low level input voltage

$V_{ILB}$ : 0 V

### 2.4 Maximum low level input voltage

$V_{ILA}$ : 0,8 V

### 2.5 Minimum high level input voltage

$V_{IHB}$ : 2 V

### 2.6 Maximum high level input voltage

$V_{IHA}$ : 5,5 V (for inputs which are I/O ports)  
7,0 V (all others)

### 2.7 Load factors

#### 2.7.1 Unit load current

- 1) At low level voltage: 1,6 mA
- 2) At high level voltage:  $-40\text{ }\mu\text{A}$



**2.7.2 Input load factor (*fan-in*)**

- 1) At low level input voltage
  - 2) At high level input voltage
- } (see DS for the relevant input)

**2.7.3 Output loading capability (*fan-out*)**

- 1) At low level output voltage
  - 2) At high level output voltage
- } (see DS for the relevant output)

**2.8 Most positive low level output voltage at an output current of  $1,6 \text{ mA} \times$  the higher output loading capability**

(unless otherwise prescribed in the DS)

$V_{OLA}$ : 0,5 V

0,55 V (buffer outputs)

**2.9 Most negative high level output voltage at an output current of  $-40 \mu\text{A} \times$  the higher output loading capability**

$V_{OHB}$ : 2,5 V (standard outputs)

2,4 V (buffer outputs)

2 V (bus driver outputs)

**2.10 Most positive high level output voltage**

$V_{OHA}$ : 5,5 V

**2.11 DC noise margin at low level ( $V_{ILA} - V_{OLA}$ )**

$V_{NL}$ : 0,3 V

0,25 V (buffer and bus driver outputs)

**2.12 DC noise margin at high level ( $V_{OHB} - V_{IHB}$ )**

$V_{NH}$ : 0,5 V (standard outputs)

0,4 V (buffer outputs)

0 V (bus driver outputs)

**3 Test methods and procedures****3.1 Dynamic characteristic**

Unless otherwise prescribed in the relevant DS, the following dynamic measurement condition are applicable.

**3.1.1 General diagram**

Measurement of dynamic characteristics are performed in accordance with the general diagram of Figure 1.