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**UTE**

Spécification française harmonisée  
Système CENELEC d'assurance de la qualité  
12, Place des Etats-Unis  
75783 PARIS CEDEX 16

Téléphone : (1) 47 23 72 57

Télex : 620434F

**CECC 90 101-002**

EDITION 1 - Novembre 1987  
ISSUE 1 - November 1987



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Nombre total de pages : 13  
Total number of pages :

COMPOSANTS ELECTRONIQUES SOUS ASSURANCE  
DE QUALITE CONFORMEMENT A :  
*ELECTRONIC COMPONENTS OF ASSESSED QUALITY  
IN ACCORDANCE WITH :*

GS : CECC 90 000 (NF C 86-020)

SS : CECC 90 100 (NF C 86-200)

FS : CECC 90 101 (NF C 86-213)

**UTE C 86-213/B 22**

Adoptée le 16 novembre 1987

BS9401 F087, 090, 093

BS9401 F126, 129, 132

BS9401 F351 to F357

Issue 2

September, 1977

DESSIN ET DIMENSIONS :  
*OUTLINE AND DIMENSIONS :*

CEI 191-2 - Types 050 G 04 - 050 G 03  
IEC 191-2 - Types 050 G 04 - 050 G 03

Référence française : F 105 - F 105A  
*French reference :*

IDENTIFICATION DES CONNEXIONS  
*TERMINAL CONNECTIONS*

Voir Tableau II  
*See Table II*

SPECIFICATION PARTICULIERE POUR  
MICROSTRUCTURES LOGIQUES SELON FS 90 101  
*DETAIL SPECIFICATION FOR DIGITAL INTEGRATED CIRCUITS IN ACCORDANCE WITH FS 90 101*

**54/64/74 02****CIRCUITS OU-NON****QUADRUPLÉ 2-INPUT POSITIVE NOR GATES**

TECHNOLOGIE DE FABRICATION :  
*TYPICAL CONSTRUCTION :*

Circuit monolithique bipolaire au silicium, boîtiers  
avec ou sans cavité.

*Silicon monolithic bipolar integrated circuit,  
cavity/non-cavity packages.*

NIVEAUX D'ASSURANCE DE QUALITE : P, Y, L  
*ASSESSMENT LEVELS :*

**AMENDMENTS TO THE FOLLOWING CLAUSES**

- § 2 - Add :  
*Most negative low level input voltage at an input current :  $I_{IKB} = -12 \text{ mA}$ ,  $V_{IKB} = -1.5 \text{ V}$*
- § 3 To be replaced by CECC 90 000/3 § 2.5
- § 4 To be deleted
- § 5 To be replaced by CECC 90 000/3 § 2.6
- § 6 To be replaced by CECC 90 000/3 § 4.10.1
- § 7 All inspection level and AQL are those specified in 90 100/3.  
*Replace A3b by A4a, A3c by A4b, A4 by A5.  
Add A8 of 90 100/3 (Assessment level P only).  
Apply to A2 extreme temperature testing with A7a/A7b 90 000 inspection requirements.  
For groups B, C, D, apply 90 100/3.  
Sub-groups A6, A7 : not applicable.*

Se reporter à la Liste des Produits Homologués CECC 00 200 en vigueur pour connaître les fabricants dont les composants conformes à cette spécification particulière sont homologués.  
*Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200 : Qualified Products List.*

**Documents**

Document Sharing Hub

BRITISH STANDARDS INSTITUTION

2, PARK STREET,  
LONDON, W1A 2BS

BS9401 F087,090,093

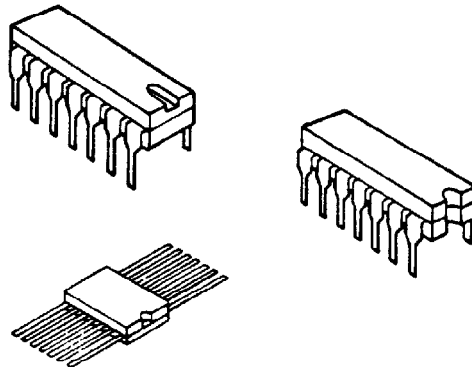
BS9401 F126,129,132

BS9401 F351 to 357

ISSUE 2, SEPTEMBER, 1977

## ELECTRONIC COMPONENTS OF ASSESSED QUALITY: DETAIL SPECIFICATION

Outlines not to scale



For details dimensions:  
14 Lead Flat-Pack – see Appendix I  
14 Lead Dual in-line – BS 3934 SO-87B

SILICON MONOLITHIC TTL  
QUADRUPL 2-INPUT  
POSITIVE – NOR GATES

FULL ASSESSMENT LEVEL AND  
APPLICATION CATEGORIES  
S1, S2, S3 AND S4

## TYPES

5402

6402

7402

See Clause 5

CERAMIC/GLASS HERMETICALLY  
SEALED ENCAPSULATION OR  
DUAL-IN-LINE PLASTIC  
ENCAPSULATION

## 1. Limiting conditions of use (not for inspection purposes)

Absolute values (non-simultaneous)

|           |                                            |        | Units            |
|-----------|--------------------------------------------|--------|------------------|
| $V_{CC}$  | Maximum continuous positive supply voltage | 7.0    | V                |
|           | Maximum continuous negative supply voltage | 0.5    | V                |
|           | Maximum continuous positive input voltage  | 5.5    | V                |
|           | Maximum continuous negative input voltage  | 0.5    | V                |
| $-I_{IL}$ | Maximum input current                      | 1.6    | mA               |
|           | Maximum reverse input current              | 1.0    | mA               |
| $T_{amb}$ | Ambient operating temperature range        | 5402   | -55 to +125 °C   |
|           |                                            | 6402   | -40 to + 85 °C   |
|           |                                            | 7402   | 0 to + 70 °C     |
| $T_{stg}$ | Storage temperature range                  |        | -65 to +150 °C   |
|           | Shock (0.5 ms duration)                    | 14 700 | m/s <sup>2</sup> |
|           | Vibration                                  | 196    | m/s <sup>2</sup> |

Copies of this specification are available from manufacturers  
listed in the Qualified Products List Part 1, of PD 9002.

BS 9401 F087, 090, 093  
BS 9401 F126, 129, 132  
BS 9401 F351 to 357  
Issue 2, September, 1977

## 2. Recommended conditions of use and associated characteristics (not for inspection purposes)

Over the full ambient operating temperature range unless otherwise stated.

|              |                                                                                  |             | Min. | Max.  | Units   |
|--------------|----------------------------------------------------------------------------------|-------------|------|-------|---------|
| $V_{CC}$     | Positive supply voltage                                                          | 5402        | 4.5  | 5.5   | V       |
|              |                                                                                  | 6402 & 7402 | 4.75 | 5.25  | V       |
| $V_{IH}$     | HIGH state input voltage                                                         | 5402        | 2.0  | 5.5   | V       |
|              |                                                                                  | 6402 & 7402 | 2.0  | 5.25  | V       |
| $I_{CCL}$    | Total supply current per package at<br>$V_{CC}$ maximum value LOW state outputs  |             |      | 27.0  | mA      |
| $I_{CCH}$    | Total supply current per package at<br>$V_{CC}$ maximum value HIGH state outputs |             |      | 16.0  | mA      |
| $V_{OH}$     | HIGH state output voltage                                                        |             | 2.4  |       | V       |
| $V_{IL}$     | LOW state input voltage                                                          |             | 0    | 0.8   | V       |
| $V_{OL}$     | LOW state output voltage                                                         |             |      | 0.4   | V       |
| $I_{IH} (1)$ | HIGH state input current at, $V_{IN} = V_{IH}$ maximum value                     |             |      | 1.0   | mA      |
| $I_{IH} (2)$ | HIGH state input current at, $V_{IN} = 2.4V$                                     |             |      | 40.0  | $\mu A$ |
| $-I_{IL}$    | LOW state input current at, $V_{IN} = 0.4V$                                      |             |      | 1.6   | mA      |
| $I_{OL}$     | LOW state output current                                                         |             |      | 16.0  | mA      |
| $-I_{OH}$    | HIGH state output current                                                        |             |      | 400.0 | $\mu A$ |
| $-I_{OS}$    | Output short-circuit current                                                     | 5402        | 20.0 | 55.0  | mA      |
|              |                                                                                  | 6402 & 7402 | 18.0 | 55.0  | mA      |
| $t_{PHL}$    | HIGH to LOW state propagation time at 25° C*                                     |             |      | 15.0  | ns      |
| $t_{PLH}$    | LOW to HIGH state propagation time at 25° C*                                     |             |      | 22.0  | ns      |

\*See subgroup A4 for details

Table I

Function table (each gate)

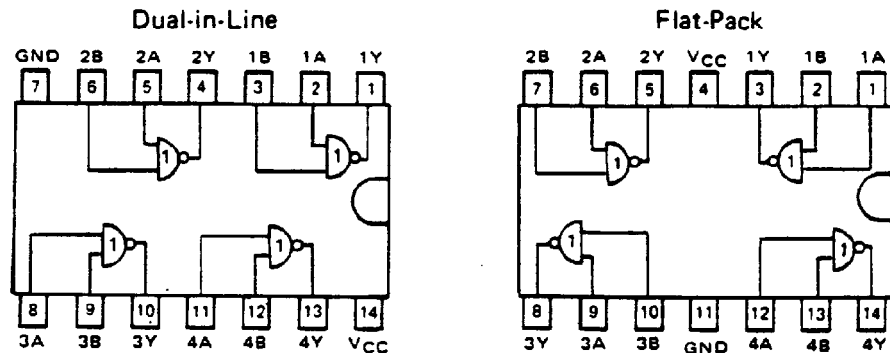
| Input |   | Output |
|-------|---|--------|
| A     | B |        |
| H     | H | L      |
| L     | H | L      |
| H     | L | L      |
| L     | L | H      |

H = HIGH state

L = LOW state

Table II

Logic diagram and connections

**3. Marking**

(1) Each integrated circuit shall bear the following markings

- Terminal identification.
- The manufacturer's type number.
- The factory identification code, or manufacturer's trade mark.
- The date code.

(2) Each package containing one or more of these circuits shall bear the markings b, c and d above and in addition.

- The BS detail specification number. Example BS 9401 F129

**4. Related documents**

BS 3934 'Dimensions of semiconductor devices'

BS 6001, 'Sampling procedures and tables for inspection by attributes'

BS 9000 'General requirements for electronic components of assessed quality'

PD 9002 'Qualified products list for electronic components of assessed quality'

BS 9400 'Integrated electronic circuits of assessed quality: Generic data and methods of test'

**5. Ordering information**

Orders for these integrated circuits shall contain the following minimum information:

Manufacturer's integrated circuit type and package identification as detailed in PD 9002 to BS 9401 F... as defined below.

| TYPE                                        |      | APPLICATION CATEGORY |      |      |      | FULL ASSESSMENT LEVEL |
|---------------------------------------------|------|----------------------|------|------|------|-----------------------|
|                                             |      | S1                   | S2   | S3   | S4   |                       |
| CERAMIC<br>Dual-in-line<br>and<br>Flat-Pack | 5402 | F126                 | F129 | F132 | F351 | F087                  |
|                                             | 6402 | *                    | F352 | F353 | F354 | F090                  |
|                                             | 7402 | *                    | F355 | F356 | F357 | F093                  |
| PLASTIC<br>Dual-in-line                     | 5402 | *                    | *    | *    | *    | F087                  |
|                                             | 6402 | *                    | *    | *    | *    | F090                  |
|                                             | 7402 | *                    | *    | *    | *    | F093                  |

\* = Not available at present.