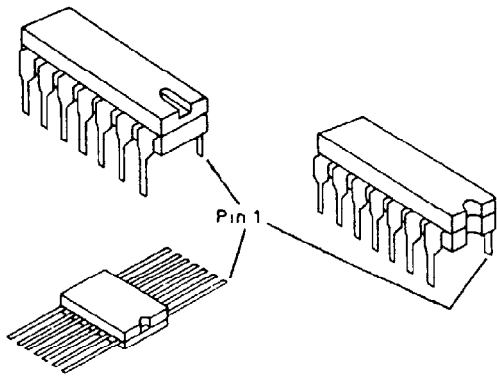


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON. W1A 2BS	BS CECC 90102 - 005 ISSUE 1 DECEMBER 1981  Page 1 of 17 pages
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH: BS CECC 90 000 : 1976 BS CECC 90 100 : 1977	MANUFACTURERS TYPE NUMBER 54S20 64S20 74S20 84S20 SEE PD 9002 AND CECC 00 200 For ordering information see clause 1
Outline not to scale: Isometric projection Marking information see clause 1  Refer to IEC 191-1-50a (type A50B) Dual-in-Line (plastic or ceramic) refer to Appendix A1.3 Flatpack (metal or ceramic)	DUAL 4-INPUT POSITIVE NAND GATES TYPICAL CONSTRUCTION SILICON MONOLITHIC BIPOLAR CAVITY AND NON-CAVITY PACKAGES ASSESSMENT LEVELS R, S, T, AND V

1. Type description

1.1 Truth table (see page 2)

Refer to Qualified Products List PD 9002 and/or CECC 00 200
for details of manufacturers approved to this specification

1.1 Truth table (contd)

INPUT				OUTPUT
A	B	C	D	Y
H	H	H	H	L
L	X	X	X	H
X	L	X	X	H
X	X	L	X	H
X	X	X	L	H

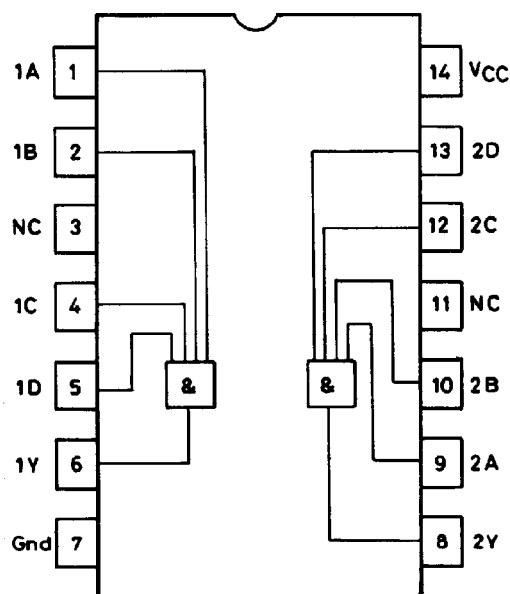
H = High level

L = Low level

X = Logic level irrelevant

1.2 Terminal identification, type designation and marking

1.2.1 Terminal identification



Dual 4-input positive Nand gates



1.2.1 (contd)

Terminals marked with NC are not connected internally and may be used as electrical support points. The applied voltage shall not exceed 7,0V.

1.2.2 Type designation

TEMPERATURE RANGE	PACKAGE		
	Ceramic Dual-in-Line	Plastic Dual-in-Line	Ceramic Flatpack
0 + 70	74S20J	N	W
-25 + 85	84S20J		
-40 + 85	64S20J		
-55 +125	54S20J		

1.2.3 Marking

Each integrated circuit shall bear the following markings:

- (1) Terminal identification
- (2) Type designation
- (3) Date code
- (4) Factory identification code (unless derived from trademark)
- (5) Manufacturers trade name or mark
- (6) Mark of conformity (unless a certificate of conformity is used)

1.3 Ordering information

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

Manufacturers integrated circuit type designation, screening procedures and assessment levels as detailed to this CECC specification number.

(For details of screening procedures see Appendix A1.1)

2. Limiting conditions of use (not for inspection purposes)

2.1	Minimum and maximum continuous supply voltage	V_{CC}	-0,5V +7,0V
2.2	Minimum and maximum input voltages		
2.2.1	Minimum and maximum input voltage	V_I	-0,5V +5,5V
2.2.2	Maximum input voltage between multiple emitter transistor inputs	V_{II}	+5,5V



			54S	64S	74S	84S
2.3	Minimum and maximum operating ambient temperatures	$T_{amb}(^{\circ}C)$	min. -55 max. +125	-40 +85	0 +70	-25 +85
2.4	Minimum and maximum storage temperatures	$T_{stg}(^{\circ}C)$	min. -65 max. +150	(All types)		

3. Recommended operating conditions and associated characteristics (not for inspection purposes)

3.1 Recommended operating conditions.

These apply over the operating ambient temperature range unless otherwise stated.

Description	Symbol	Type	Value	Unit
Positive supply voltage range	V_{CC}	54S 64/74/84S	4,5 - 5,5 4,75 - 5,25	V V
Minimum value of High level input voltage	V_{IHB}	All types	2,0	V
Maximum value of High level input voltage	V_{IHA}	All types	5,5	V
Minimum value of Low level input voltage	V_{ILB}	All types	0	V
Maximum value of Low level input voltage	V_{ILA}	All types	0,8	V
Maximum value of Low level output current for each output	I_{OLA}	All types	20,0	mA
Maximum value of output current for each output at V_{OH}	I_{OHA}	All types	-1,0	mA
D.C. noise margin at Low level ($V_{ILA} - V_{OLA}$)	V_{NL}	All types	0,3	V
at High level ($V_{OHB} - V_{IHB}$)	V_{NH}	54S 64/74/84S	0,5 0,7	V V



3.2 Associated characteristics

3.2.1 Minimum and maximum values are given for the worst case operation over the ambient temperature range, except for those conditions marked with an asterisk (*)

	54S	64S	74S	84S	
T _{amb} min.	-55	-40	0	-25	°C
T _{amb} max.	+125	+85	+70	+85	
V _{CC} min.	4,5	4,75			V
V _{CC} max.	5,5	5,25			

3.2.2

Characteristics	Conditions	$V_{CC}(\text{V})$	Symbol	Min.	Max.	Unit
Total supply current at High level	V_{IN} to give High level output (1)	$V_{CC} \text{ max.}$	I_{CCH}	-	8,0	mA
Total supply current at Low level	V_{IN} to give Low level output (1)	$V_{CC} \text{ max.}$	I_{CCL}	-	18,0	mA
High level input current	$V_{IH(1)} = 5,5\text{V}$	$V_{CC} \text{ max.}$	$I_{IH(1)}$	-	1,0	mA
	$V_{IH(2)} = 2,7\text{V}$	$V_{CC} \text{ max.}$	$I_{IH(2)}$	-	50,0	μA
Low level input current	$V_{IN} = 0,5\text{V}$	$V_{CC} \text{ max.}$	$-I_{IL}$	-	2,0	mA
Input clamping voltage	$-I_{IC} = 18,0\text{mA}$	$V_{CC} \text{ min.}$	$-V_{IC}$	-	1,2	V
Output voltage	54S $-I_{OH} = 1,0\text{mA}$	$V_{CC} \text{ min.}$	V_{OH}	2,5	-	V
	64/74/84S $-I_{OH} = 1,0\text{mA}$		V_{OH}	2,7	-	V
	All types $I_{OUT} = 20,0\text{mA}$ (2)		V_{OL}	-	0,5	V

(1) To all inputs, (2) Fan out = 10,
*See Clauses 3.1 and 3.2.1 of this specification



3.2.2 (contd)

Characteristics	Conditions	$V_{CC}(V)$	Symbol	Min.	Max.	Unit
Output short circuit current	$V_{IN} = 0V$ (1) $V_O = 0V$ (3)	$V_{CC} \text{ max.}$	$-I_{OS}$	40,0	100,0	mA
Propagation times All types	$T_{amb} = 25^{\circ}C^*$ test conditions as in Sub-group A5	5,0V				
High to Low level			t_{PHL}	-	8,0	ns
Low to High level			t_{PLH}	-	7,0	ns

(1) To all inputs.

(3) Only one output at a time, duration $t \leq 1 \text{ sec}$

*See Clauses 3.1 and 3.2.1 of this specification

3.3 Supplementary information

3.3.1 Change of typical propagation time with output loading

