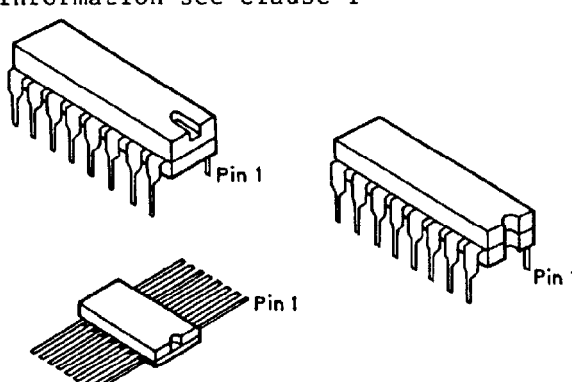


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON. W1A 2BS	BS CECC 90103 - 109 ISSUE 1 AUGUST 1981 Page 1 of 17 pages
Specification available from:- AS SHOWN IN PD 9002 AND CECC 00 200 AND ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH: BS CECC 90 000 : 1976 BS CECC 90 100 : 1977	MANUFACTURERS TYPE NUMBER 54LS298 64LS298 74LS298 84LS298 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 A50C) Dual-in-Line (plastic or ceramic) refer to Appendix A1.3 Flatpack (metal or ceramic)	QUADRUPL 2-INPUT MULTIPLEXER WITH STORAGE TYPICAL CONSTRUCTION SILICON MONOLITHIC BIPOLAR TTL-LOW-POWER SCHOTTKY 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)

INPUTS		OUTPUTS			
WORD SELECT	CLOCK	Q _A	Q _B	Q _C	Q _D
L	↓	a1	b1	c1	d1
H	↓	a2	b2	c2	d2
X	H	Q _{AO}	Q _{BO}	Q _{CO}	Q _{DO}

H = High level (steady level)

L = Low level (steady level)

X = Logic level irrelevant (any input including transitions)

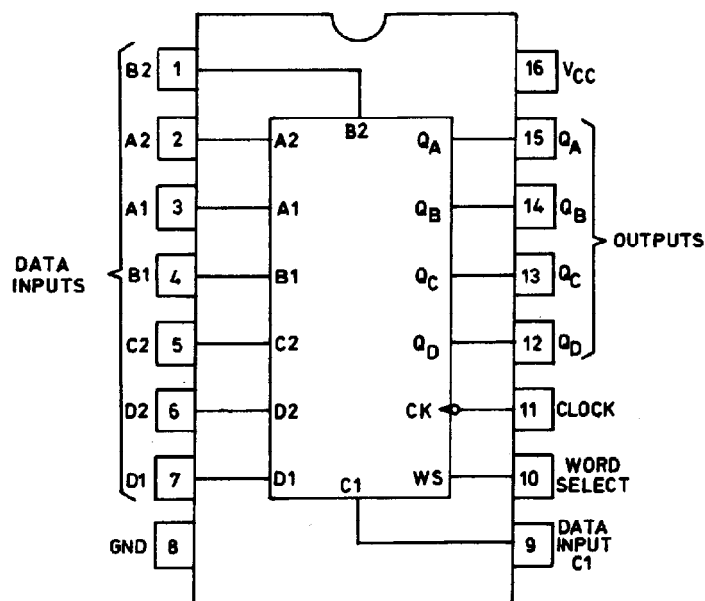
↓ = Transition from High to Low level

a1, a2, etc. = The level of steady level input at A1, A2, etc.

Q_{AO}, Q_{BO}, etc. = The level of Q_A, Q_B, etc. entered on the most recent ↓ transition of the clock input.

1.2 Terminal identification, type designation and marking

1.2.1 Terminal identification



Quadruple 2-input multiplexer with storage

1.2.2 Type designation

TEMPERATURE RANGE	PACKAGE		
	Ceramic Dual-in-Line	Plastic Dual-in-Line	Ceramic Flatpack
0 + 70	74LS298J	N	W
-25 + 85	84LS298J		
-40 + 85	64LS298J		
-55 +125	54LS298J		

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	Maximum continuous supply voltage	V_{CC}	-0,5V +7,0V
2.2	Maximum input voltages		
2.2.1	Maximum input voltage	V_I	-0,5V +7,0V
2.2.2	Maximum input voltage between multiple emitter transistor inputs	V_{II}	+5,5V
2.3	Minimum and maximum operating ambient temperatures	$T_{amb}(^{\circ}C)$	54LS 64LS 74LS 84LS min. -55 -40 0 -25 max. +125 +85 +70 +85

2. Limiting conditions of use (contd)

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}	54LS 64/74/84LS	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	-0,3	V
Maximum value of Low level input voltage	V_{ILA}	54LS 64/74/84LS	0,7 0,8	V V
Maximum value of Low level output current for each output	I_{OLA}	54LS 64/74/84LS	4,0 8,0	mA mA
Maximum value of Low level output current for each output at V_{OH}	I_{OHA}	All types	-400,0	μA
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}	54LS 64/74/84LS	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 (*)

	54LS	64LS	74LS	84LS	
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} (V)	Symbol	Min.	Max.	Unit	
Total supply current per package	All outputs open circuit. All inputs = 0V except Clock, measure after momentary 4,5V, followed by Ground to Clock input.	V _{CC} max.	I _{CC}	-	21,0	mA	
High level input current	V _{IH} (1) = 7,0V	V _{CC} max.	I _{IH} (1)	-	0,1	mA	
	V _{IH} (2) = 2,7V	V _{CC} max.	I _{IH} (2)	-	20,0	µA	
Low level input current	V _{IN} = 0,4V	V _{CC} max.	-I _{IL}	-	0,4	mA	
Input clamping voltage	-I _{IC} = 18,0mA	V _{CC} min.	-V _{ICA}	-	1,5	V	
Output voltage	54LS 64/74/84LS All types 64/74/84LS	V _{CC} min.	I _{OH} = -400,0µA	V _{OH}	2,5	-	V
			I _{OH} = -400,0µA	V _{OH}	2,7	-	V
			I _{OL} (1) = 4,0mA ⁽¹⁾	V _{OL} (1)	-	0,4	V
			I _{OL} (2) = 8,0mA ⁽²⁾	V _{OL} (2)	-	0,5	V
Output short circuit current	V _O = 0V or 4,5V ⁽³⁾	V _{CC} max.	-I _{OS}	15,0	130,0	mA	

(1) Fan out = 10, (2) Fan out = 20,
(3) Only one output at a time, duration $t \leq 1 \text{ sec}$
* See 3.2.1 of this specification

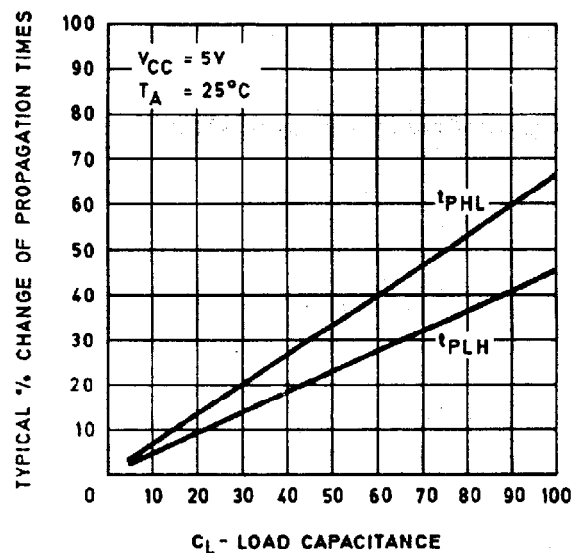
3.2.2 (contd)

Characteristics	Conditions	$V_{CC}(V)$	Symbol	Min.	Max.	Unit
Propagation times All types	$T_{amb} = 25^{\circ}C^*$ test conditions as in Sub-group A5	5,0V				
	<u>From</u> <u>To</u>					
	Clock Q		t_{PHL}	-	32,0	ns
	<u>From</u> <u>To</u>					
	Clock Q		t_{PLH}	-	27,0	ns
Duration of clock pulse			$t_{p(clock)}$	20,0	-	ns
Set-up time	Data input		t_{set-up}	15,0	-	ns
	Word select		t_{set-up}	25,0	-	ns
Data hold time	Data input		t_{hold}	5,0	-	ns
	Word select		t_{hold}	0	-	ns

* See 3.2.1 of this specification

3.3 Supplementary information

3.3.1 Change of typical propagation time with output loading



Propagation time Vs. load capacitance