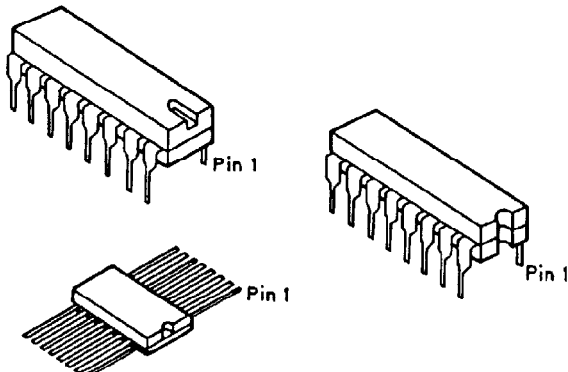


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON. W1A 2BS	BS CECC 90103 - 098 ISSUE 1 JULY 1981
Specification available from:- AS SHOWN IN PD 9002 AND CECC 00 200 AND	 Page 1 of 20 pages
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH: BS CECC 90 000 : 1976 BS CECC 90 100 : 1977	MANUFACTURERS TYPE NUMBER 54LS257A 64LS257A 74LS257A 84LS257A 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)	QUAD 2-LINE TO 1-LINE DATA SELECTOR/MULTIPLEXER WITH THREE LEVEL OUTPUTS 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

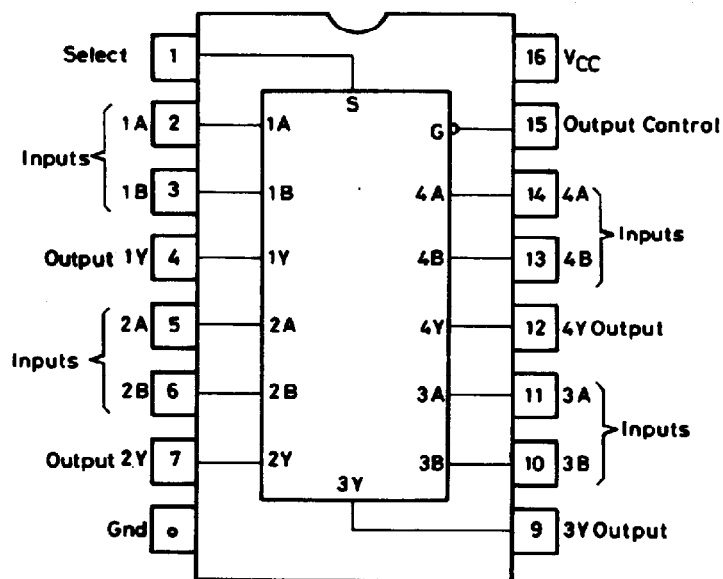
1.1 Truth table (contd)

INPUTS				OUTPUT Y
OUTPUT CONTROL	SELECT	A	B	
H	X	X	X	Z
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

H = High level
 L = Low level
 X = Logic level irrelevant
 Z = High-impedance level (output disabled)

1.2 Terminal identification, type designation and marking

1.2.1 Terminal identification



Quad 2-line to 1-line data selector/
 multiplexer with three level outputs

1.2.1 Terminal identification (contd)

Three level device

A device whose output can be driven into a High, Low or high-impedance level.

High-impedance level

That level of a device in which the output requires a high-impedance characteristic.

High-impedance leakage current

The current measured at the output terminal with input conditions applied such as to cause the switching element to be in the High-impedance level.

1.2.2 Type designation

TEMPERATURE RANGE	PACKAGE		
	Ceramic Dual-in-Line	Plastic Dual-in-Line	Ceramic Flatpack
0 + 70	74LS257AJ	N	W
-25 + 85	84LS257AJ		
-40 + 85	64LS257AJ		
-55 +125	54LS257AJ		

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

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

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	12,0 24,0	mA mA
Maximum value of output current for each output at V_{OH}	I_{OHA}	54LS 64/74/84LS	-1,0 -2,6	mA 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}	54LS 64/74/84LS	0,5 0,7	V V

3.1 (contd)

Description	Symbol	Type	Value	Unit
Maximum value of off-level voltage	V_{OZA}	All types	5,5	V
High impedance level output (leakage) current	I_{OHZ} I_{OLZ}	All types	20,0 20,0	μA μA

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	$V_{IN} = 4,5V$ All inputs High All inputs Low All inputs off	V_{CC} max.	I_{CC}	- - -	10,0 16,0 19,0	mA mA mA
High level input current	$V_{IH(1)} = 7,0V$ S input Any other input $V_{IH(2)} = 2,7V$ S input Any other input	V_{CC} max.	$I_{IH(1)}$ $I_{IH(2)}$	- - - -	0,2 0,1 40,0 20,0	mA mA μA μA

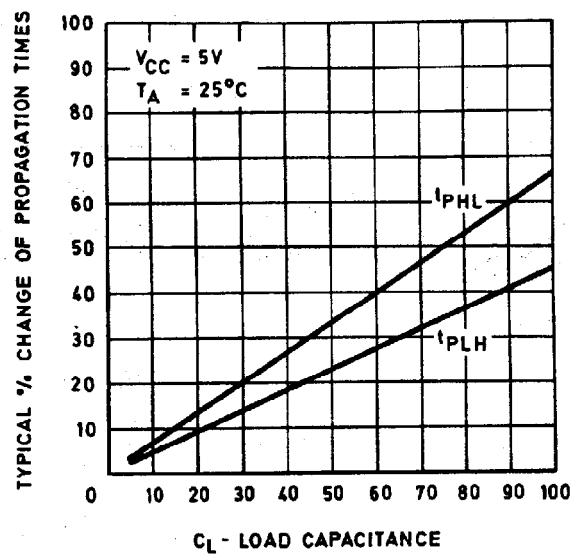
3.2.2 (contd)

Characteristics	Conditions	$V_{CC}(V)$	Symbol	Min.	Max.	Unit
Low level input current	$V_{IL} = 0,4V$ to each input in turn, other inputs at 4,5V S input Any other input	$V_{CC} \text{ max.}$		-	0,8 0,4	mA mA
Input clamping voltage	$-I_{IC} = 18,0mA$	$V_{CC} \text{ min.}$	$-V_{ICA}$	-	1,5	V
Output voltage	$V_{IH} = 2,0V$ $V_{IL} = V_{ILA}$ $I_{OH} = -I_{OHA}$ $V_{IH} = 2,0V$ $V_{IL} = V_{ILA}$ 54LS $I_{OL(1)} = 12,0mA$ (1) 64/74/84LS $I_{OL(2)} = 24,0mA$ (2)	$V_{CC} \text{ min.}$	V_{OH} $V_{OL(1)}$ $V_{OL(2)}$	2,4 - -	- 0,4 0,5	V V V
Output short circuit current	$V_{IN} = 0V$ to output control, all other inputs at 2,4V $V_O = 0V$ (3)	$V_{CC} \text{ max.}$	$-I_{OS}$	30,0	130,0	mA
Propagation times All types	$T_{amb} = 25^{\circ}C^*$ test conditions as in Sub-group A5	5,0V				
From Data input From Select input			t_{PHL}	- -	18,0 25,0	ns ns
From Data input From Select input			t_{PLH}	- -	18,0 21,0	ns ns
Output enable to High level			t_{PZH}	-	30,0	ns
Output enable time to Low level			t_{PZL}	-	30,0	ns
Output disable from High level $C_L = 5pF$			t_{PHZ}	-	30,0	ns
Output disable from Low level $C_L = 5pF$			t_{PLZ}	-	25,0	ns

- (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

3.3 Supplementary information

3.3.1 Change of typical propagation time with output loading



Propagation times Vs. load capacitance

3.3.2 Variation of propagation time with temperature

