

BRITISH STANDARDS INSTITUTION

2 PARK STREET, LONDON, W1A 2BS

SPECIFICATION AVAILABLE FROM:- As shown in PD 9002
AND CECC 00 200 ANDTEXAS INSTRUMENTS LIMITED,
MANTON LANE,
BEDFORD, MK41 7PA

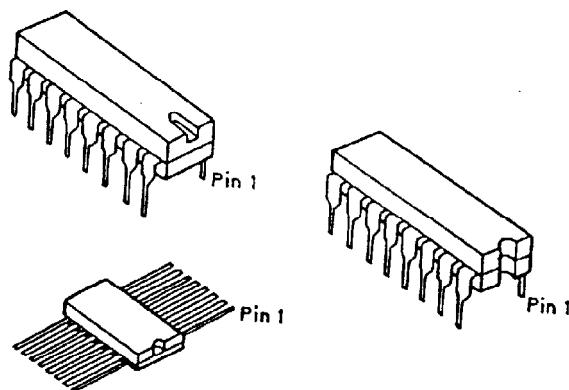
BS CECC 90102-044

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ELECTRONIC COMPONENTS OF ASSESSED QUALITY**DETAIL SPECIFICATION IN ACCORDANCE WITH:-**BS CECC 90 000 : 1982
BS CECC 90 100 : 1977Outline not to scale. Isometric projection
Marking information see Clause 1IEC 191-2 (Type A50C) dual-in-line (plastic or ceramic)
Appendix A1.3 flatpack (metal or ceramic)**MANUFACTURERS TYPE NUMBER**54S85
64S85
74S85
84S85SEE PD 9002 AND CECC 00 200
For ordering information
see Clause 1**4-BIT MAGNITUDE COMPARITORS**TYPICAL CONSTRUCTION
SILICON MONOLITHIC
BIPOLAR SCHOTTKY TTLASSESSMENT 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

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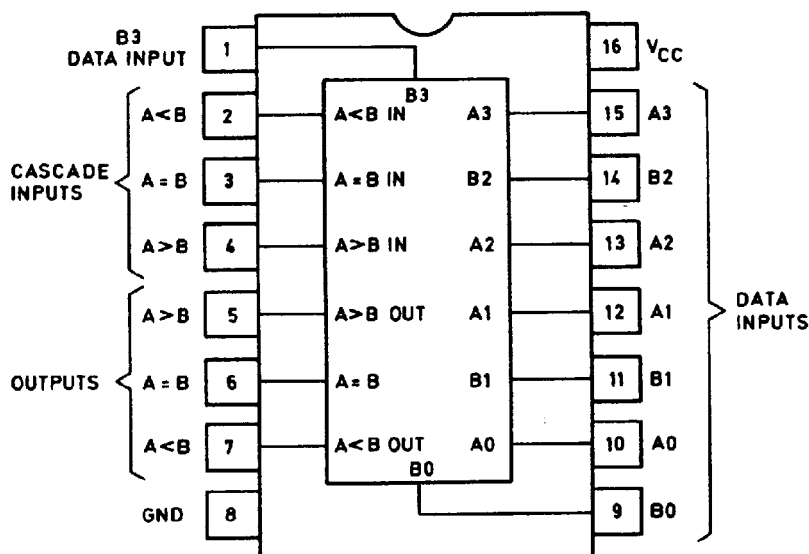
1.1 Truth table (contd)

COMPARING INPUTS				CASCADING INPUTS			OUTPUTS		
A3, B3	A2, B2	A1, B1	A0, B0	A > B	A < B	A = B	A > B	A < B	A = B
A3 > B3	X	X	X	X	X	X	H	L	L
A3 < B3	X	X	X	X	X	X	L	H	L
A3 = B3	A2 > B2	X	X	X	X	X	H	L	L
A3 = B3	A2 < B2	X	X	X	X	X	L	H	L
A3 = B3	A2 = B2	A1 > B1	X	X	X	X	H	L	L
A3 = B3	A2 = B2	A1 < B1	X	X	X	X	L	H	L
A3 = B3	A2 = B2	A1 = B1	A0 > B0	X	X	X	H	L	L
A3 = B3	A2 = B2	A1 = B1	A0 < B0	X	X	X	L	H	L
A3 = B3	A2 = B2	A1 = B1	A0 = B0	H	L	L	H	L	L
A3 = B3	A2 = B2	A1 = B1	A0 = B0	L	H	L	L	H	L
A3 = B3	A2 = B2	A1 = B1	A0 = B0	X	X	H	L	L	H
A3 = B3	A2 = B2	A1 = B1	A0 = B0	H	H	L	L	L	L
A3 = B3	A2 = B2	A1 = B1	A0 = B0	L	L	L	H	H	L

H = High level
L = Low level
X = Logic level irrelevant

1.2 Terminal identification, type designation and marking

1.2.1 Terminal identification



4-bit magnitude comparators

1.2.2 Type designation

TEMPERATURE RANGE	PACKAGE		
	Ceramic Dual-in-Line	Plastic Dual-in-Line	Ceramic Flatpack
0 + 70	54S85J	N	W
-25 + 85	64S85J		
-40 + 85	74S85J		
-55 +125	84S85J		

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	$T_{amb}(^{\circ}C)$	min. max.	54S -55 +125	64S -40 +85	74S 0 +70	84S -25 +85
2.4	Minimum and maximum storage temperatures	$T_{stg}(^{\circ}C)$	min. max.	-65 +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	-0,3	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

3.2 Associated characteristics

3.2.1 Minimum or 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	$V_{CC}(V)$	Symbol	Min.	Max.	Unit
Total supply current per package	$V_{IN} = 0V$ to input A=B, Other inputs 4,5V. Outputs open circuit.	V_{CC} max.	I_{CC}	-	115.0	mA
High level input current A < B, A > B inputs All other inputs A < B, A > B inputs All other inputs	$V_{IN} = V_{IHA}$ $V_{IH} = 2.7V$	V_{CC} max.	$I_{IH(1)}$ $I_{IH(1)}$ $I_{IH(2)}$ $I_{IH(2)}$	- - - -	1.0 1.0 50.0 150.0	mA mA μA μA
Low level input current A < B, A > B inputs All other inputs	$V_{IN} = V_{OLA}$	V_{CC} max.	$-I_{IL}$ $-I_{IL}$	- -	2.0 6.0	mA mA
Input clamping voltage	$-I_{IC} = 18,0mA$	V_{CC} min.		-	1.2	V
Output voltage 54 S 64/74/84 S All types	$I_{OH} = -1.0$ mA $I_{OH} = -1.0$ mA $I_{OL} = 20.0$ mA	V_{CC} min.	V_{OH} V_{OH} V_{OL}	2,5 2,7 -	- - 0.5	V V V
Output short circuit current	$V_O = 0V$ (3) $V_{IN} = 0V$ or 4,5V	V_{CC} max.	$-I_{OS}$	40.0	100.0	mA
Propagation time All types From Any A or B data input To A < B, A > B From Any A or B data input To A = B From A < B or A = B To A > B From A = B To A = B From A > B or A = B To A < B	$T_{amb} = 25^\circ C^*$ test conditions as in Sub-group A5	5,0V	t_{PHL}	- - - - - -	16.5 16.5 8.5 7.5 8.5	ns ns ns ns ns

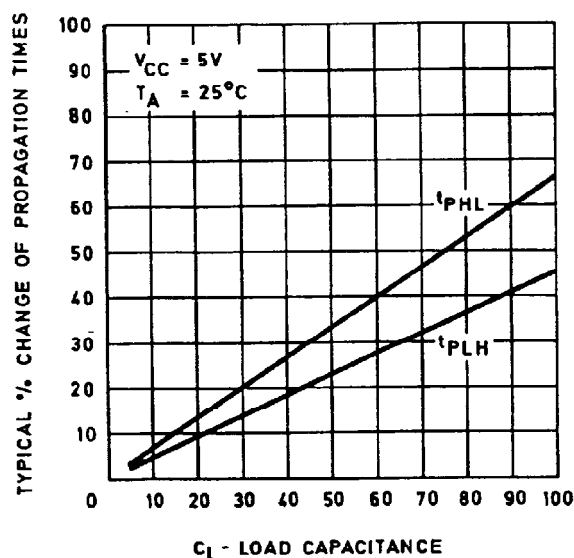
(3) Only one output at a time, duration $t \leq 1$ sec
* See 3.2.1 of this specification

3.2.2 (contd)

Characteristics	Conditions	$V_{CC}(V)$	Symbol	Min.	Max.	Unit
From Any A or B data input To $A < B, A > B$			t_{PLH}	-	16.0	ns
From Any A or B data input To $A = B$				-	18.0	ns
From $A < B$ or $A = B$ To $A < B$				-	7.5	ns
From $A = B$ To $A = B$				-	10.5	ns
From $A > B$ or $A = B$ To $A < B$				-	7.5	ns

3.3 Supplementary information

3.3.1 Change of typical propagation time with output loading



Propagation times Vs. load capacitance