- **Functionally Equivalent to QS3384 and QS3L384**
- **5-Ω Switch Connection Between Two Ports**
- **TTL-Compatible Input and Output Levels**
- **Package Options Include Plastic Small-Outline (DW), Shrink Small-Outline (DB), and Thin Shrink Small-Outline (PW) Packages**

DB, DW, OR PW PACKAGE
(TOP VIEW)

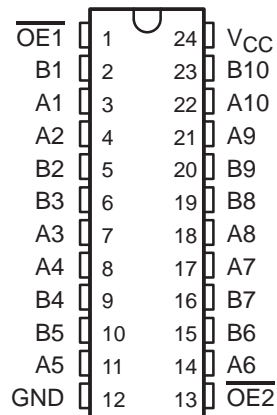|			
$\overline{OE1}$	1	24	V_{CC}
B1	2	23	B10
A1	3	22	A10
A2	4	21	A9
B2	5	20	B9
B3	6	19	B8
A3	7	18	A8
A4	8	17	A7
B4	9	16	B7
B5	10	15	B6
A5	11	14	A6
GND	12	13	$\overline{OE2}$

description

The SN74CBT3384 provides ten bits of high-speed TTL-compatible bus switching. The low on resistance of the switch allows connections to be made without adding propagation delay.

The device is organized as two 5-bit switches with separate output-enable ($\overline{OE}$) inputs. When $\overline{OE}$ is low, the switch is on and port A is connected to port B. When $\overline{OE}$ is high, the switch is open and a high-impedance state exists between the two ports.

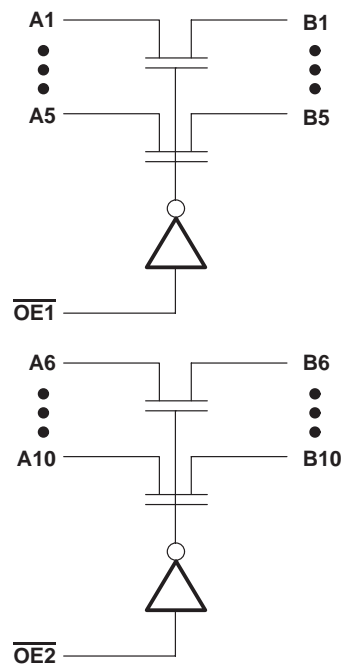The SN74CBT3384 is characterized for operation from 0°C to 70°C.

FUNCTION TABLE

$\overline{OE1}$	$\overline{OE2}$	B1 – B5	B6 – B10
L	L	A1 – A5	A6 – A10
L	H	A1 – A5	Z
H	L	Z	A6 – A10
H	H	Z	Z

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logic diagram

A1 ——— B1

A5 ——— B5

$\overline{OE1}$

A6 ——— B6

A10 ——— B10

$\overline{OE2}$

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage range, V_{CC} .... −0.5 V to 7 V
Input voltage range, V_I (see Note 1) .... −0.5 V to 6 V
Continuous channel current .... 128 mA
Input clamp current, I_{IK} ($V_{I/O}$ < 0) .... −50 mA
Maximum power dissipation at T_A = 55°C (in still air) (see Note 2): DB package .... 0.6 W
DW package .... 1.6 W
PW package .... 0.7 W
Storage temperature range .... −65°C to 150°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and
functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not
implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES: 1. The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.
2. The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils.
For more information, refer to the *Package Thermal Considerations* application note.

recommended operating conditions

		MIN	MAX	UNIT
V_{CC}	Supply voltage	4.75	5.25	V
V_{IH}	High-level control input voltage	2		V
V_{IL}	Low-level control input voltage		0.8	V
T_A	Operating free-air temperature	0	70	°C

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electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER		TEST CONDITIONS			MIN	TYP†	MAX	UNIT
V_{IK}		V_{CC} = 4.5 V,	I_I = −18 mA				−1.2	V
I_I		V_{CC} = 5.25 V,	V_I = 5.25 V or GND				±5	µA
I_{OS}		V_{CC} = 4.75 V,	$V_{I(A)}$ = 0,	$V_{I(B)}$ = 4.75 V		250		mA
I_{CC}		V_{CC} = 5.5 V,	I_O = 0,	V_I = V_{CC} or GND			50	µA
ΔI_{CC}‡	Control pins	V_{CC} = 5.25 V,	One input at 3.4 V,	Other inputs at V_{CC} or GND			2.5	mA
C_i	Control pins	V_I = 3 V or 0				3		pF
$C_{io(OFF)}$		V_O = 3 V or 0,	$\overline{OE}$ = V_{CC}			6		pF
r_{on}§		V_{CC} = 4.75 V	V_I = 0,	I_I = 64 mA		5	7	Ω
			V_I = 0,	I_I = 30 mA		5	7	
			V_I = 2.4 V,	I_I = 15 mA		10	15	

† All typical values are at V_{CC} = 5 V, T_A = 25°C.
‡ This is the increase in supply current for each input that is at the specified TTL voltage level rather than V_{CC} or GND.
§ Measured by the voltage drop between the A and B pin at the indicated current through the switch. On resistance is determined by the lower of the voltages of the two (A or B) pins.

switching characteristics over recommended operating free-air temperature range, C_L = 50 pF (unless otherwise noted) (see Note 3)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	MIN	MAX	UNIT
t_{pd}¶	A or B	B or A		0.25	ns
t_{en}	$\overline{OE}$	A or B	1	8.5	ns
t_{dis}	$\overline{OE}$	A or B	1	8.5	ns

¶ This parameter is characterized but not tested. This propagation delay is based on the RC time constant of the typical on resistance of the switch and a load capacitance of 50 pF.
NOTE 3:   Load circuit and voltage waveforms are shown in Section 1.

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