- State-of-the-Art BiCMOS Design Significantly Reduces I_{CC7}
- ESD Protection Exceeds 2000 V Per MIL-STD-883C, Method 3015
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description

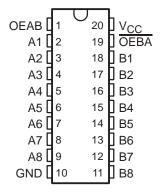
The 'BCT623 bus transceiver is designed for asynchronous communication between data buses. The control function implementation allows for maximum flexibility in timing. The 'BCT623 provides true data at its outputs.

This device allows data transmission from the A bus to the B bus or from the B bus to the A bus depending upon the <u>logic</u> levels at the output-enable (OEAB and OEBA) inputs.

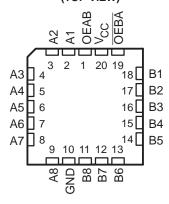
The output-enable inputs can be used to disable the device so that the buses are effectively isolated. The dual-enable configuration gives the transceivers the capability of storing data by simultaneously enabling OEAB and OEBA. Each output reinforces its input in this configuration. When both OEAB and OEBA are enabled and all other data sources to the two sets of bus lines are at high impedance, both sets of bus lines (16 in all) will remain at their last states.

The SN54BCT623 is characterized for operation over the full military temperature range of -55° C to 125°C. The SN74BCT623 is characterized for operation from 0°C to 70°C.

SN54BCT623 . . . J OR W PACKAGE SN74BCT623 . . . DW OR N PACKAGE (TOP VIEW)



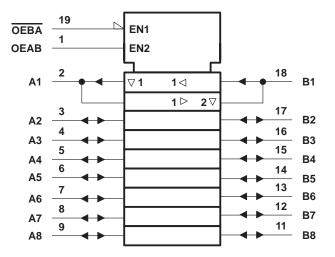
SN54BCT623 . . . FK PACKAGE (TOP VIEW)



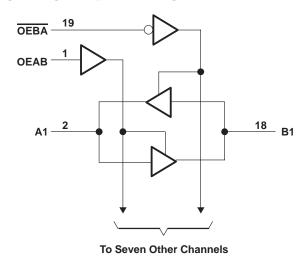
FUNCTION TABLE

INP	UTS	OPERATION
OEBA	OEAB	OPERATION
L	L	B data to A bus
L	Н	B data to A bus, A data to B bus
Н	L	Isolation
Н	Н	A data to B bus

logic symbol†



logic diagram (positive logic)



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: Control inputs (see Note 1)	– 0.5 V to 7 V
I/O ports (see Note 1)	– 0.5 V to 5.5 V
Voltage range applied to any output in the disabled or p	ower-off state, V _O – 0.5 V to 5.5 V
Voltage range applied to any output in the high state, Vo	$_{O}$ – 0.5 V to V_{CC}
Input clamp current, I _{IK}	
Current into any output in the low state: SN54BCT623	96 mA
SN74BCT623	128 mA
Operating free-air temperature range: SN54BCT623	– 55°C to 125°C
SN74BCT623	0°C to 70°C
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.

recommended operating conditions

					SN54BCT623			SN74BCT623		
			MIN	NOM	MAX	MIN	NOM	MAX	UNIT	
VCC	Supply voltage		4.5	5	5.5	4.5	5	5.5	V	
VIH	High-level input voltage		2			2			V	
V_{IL}	Low-level input voltage				0.8			0.8	V	
lik	Input clamp current				-18			-18	mA	
	High-level output current	A port			-3			-3	mA	
ЮН	nigii-level output current	B port			-12			-15	IIIA	
la.	Low level output ourrent	A port			20			24		
IOL	Low-level output current	B port			48			64	mA	
T _A	Operating free-air temperature	-	-55		125	0		70	°C	



[†] This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

NOTE 1: The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

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

PARAMETER		TEST CONDITIONS			54BCT6	23	SN74BCT623			UNIT
'	PARAMETER	l les	I CONDITIONS	MIN	TYP†	MAX	MIN	TYP [†]	MAX	UNII
٧ıK		V _{CC} = 4.5 V,	I _I = -18 mA			-1.2			-1.2	V
	A port	V _{CC} = 4.5 V	$I_{OH} = -1 \text{ mA}$	2.5	3.4		2.5	3.4		
	·	VCC = 4.5 V	$I_{OH} = -3 \text{ mA}$	2.4	3.3		2.4	3.3		V
Vон			$I_{OH} = -3 \text{ mA}$	2.4	3.3		2.4	3.3		
	B port	V _{CC} = 4.5 V	$I_{OH} = -12 \text{ mA}$	2	3.2					
		$I_{OH} = -15 \text{ mA}$				2	3.1			
	A port	V _{CC} = 4.5 V	$I_{OL} = 20 \text{ mA}$		0.3	0.5				
VOL	Apon	VCC = 4.0 V	I _{OL} = 24 mA					0.35	0.5	V
VOL	B port	V _{CC} = 4.5 V	$I_{OL} = 48 \text{ mA}$	01		0.55				V
	B port	VCC = 4.0 V	$I_{OL} = 64 \text{ mA}$					0.42	0.55	
ļ.,	A or B port	V _{CC} = 5.5 V,	V _I = 5.5 V			1			1	mA
I _I	OEAB or OEBA	VCC = 0.0 V,	V - 0.0 V			0.1			0.1	111/
I _{IH} ‡	A or B port	V _{CC} = 5.5 V,	V _I = 2.7 V			70			70	μΑ
ΊΗΤ	OEAB or OEBA	VCC = 0.0 V,	V - 2.7 V			20			20	μπ
1 _‡	A or B port	V _{CC} = 5.5 V,	V _I = 0.5 V			-0.65			-0.65	mA
ılL.	OEAB or OEBA	VCC = 0.0 V,	V - 0.0 V			-0.6			-0.6	
I _{OS} §	A port	V _{CC} = 5.5 V,	V _O = 0	-60		-150	-60		-150	mA
1083	B port	VCC = 0.0 V,	·0 - v	-100		-225	-100		-225	
ICCL	A to B	V _{CC} = 5.5 V			58	92		58	92	mA
ICCH	A to B	V _{CC} = 5.5 V			33	53		33	53	mA
ICCZ		V _{CC} = 5.5 V			6	11		6	11	mA
Ci	OEAB or OEBA	$V_{CC} = 5 V$,	$V_I = 2.5 \text{ V or } 0.5 \text{ V}$		5			5		pF
C _{io}	A to B	V _{CC} = 5 V,	V _O = 2.5 V or 0.5 V		9			9		pF
910	B to A	VCC = 5 v,	VO = 2.0 V 01 0.0 V		12			12		Pi

[†] All typical values are at V_{CC} = 5 V, T_A = 25°C. ‡ For I/O ports, the parameters I_{IH} and I_{IL} include the off-state output current. § Not more than one output should be tested at a time, and the duration of the test should not exceed one second.

switching characteristics (see Note 2)

PARAMETER	FROM TO (INPUT) (OUTPUT)		V_{CC} = 5 V, C_{L} = 50 pF, R1 = 500 Ω, R2 = 500 Ω, T_{A} = 25°C			V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R1 = 500 Ω , R2 = 500 Ω , T_A = MIN to MAX †				UNIT	
			1	BCT623		SN54B	CT623	SN74BCT623			
			MIN	TYP	MAX	MIN	MAX	MIN	MAX		
t _{PLH}	А	В	0.5	3.1	4.7	0.5	5.3	0.5	5.2	ns	
^t PHL	Α	В	1.7	4.9	6.9	1.7	7.6	1.7	7.4		
t _{PLH}	В	А	0.9	4.1	5.9	0.9	6.8	0.9	6.7	ns I	
^t PHL	В	A	1.8	5.3	7.6	1.8	8.3	1.8	8		
^t PZH	OEBA	А	3.1	6.8	9.1	3.1	10.7	3.1	10.6	ns	
^t PZL	OEBA	A	3.3	7.2	9.6	3.3	11.3	3.3	10.7	115	
^t PHZ	OEBA	А	1.9	6.1	8.3	1.9	10.6	1.9	9.8	ne	
^t PLZ	OEBA	A	1.1	4.6	7	1.1	8.1	1.1	7.8	ns	
^t PZH	OEAB	В	2	5	6.8	2	7.8	2	7.6	ns	
^t PZL	OEAB	ט	2.7	6.2	8	2.7	9.3	2.7	8.9	115	
^t PHZ	OEAB	В	1.1	4.6	6.5	1.1	8	1.1	7.7	ne	
t _{PLZ}	OLAD	В	0.3	3.2	6.3	0.3	7.2	0.3	7.1	ns	

[†] For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions. NOTE 2: Load circuits and voltage waveforms are shown in Section 1.



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PRODUCT SUPPORT: TRAINING

SN74BCT623, Octal Bus Transceivers

DEVICE STATUS: ACTIVE

PARAMETER NAME	SN54BCT623	SN74BCT623
Voltage Nodes (V)	5	5
Vcc range (V)	4.5 to 5.5	4.5 to 5.5
Input Level	TTL	TTL
Output Level	TTL	TTL
Output Drive (mA)		-15/64
No. of Outputs	8	8
Logic	True	True
Static Current		72.5
tpd max (ns)		8

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▲Back to Top DESCRIPTION

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TECHNICAL DOCUMENTS

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DATASHEET ▲Back to Top

Full datasheet in Acrobat PDF: sn74bct623.pdf (78 KB,Rev.A) (Updated: 11/01/1993)

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• Bus-Interface Devices With Output-Damping Resistors Or Reduced-Drive Outputs (Rev. A) (SCBA012A - Updated: 08/01/1997)

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- Designing With Logic (Rev. C) (SDYA009C Updated: 06/01/1997)
- Evaluation of Nickel/Palladium/Gold-Finished Surface-Mount Integrated Circuits (SZZA026 Updated: 06/20/2001)
- Implications of Slow or Floating CMOS Inputs (Rev. C) (SCBA004C Updated: 02/01/1998)
- Input and Output Characteristics of Digital Integrated Circuits (SDYA010 Updated: 10/01/1996)
- LVT-to-LVTH Conversion (SCEA010 Updated: 12/08/1998)
- Live Insertion (SDYA012 Updated: 10/01/1996)
- Logic Solutions For IEEE Std 1284 (SCEA013 Updated: 06/01/1999)

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SN74BCT623NSR

PRICING/AVAILABILITY/PKG

- Logic Reference Guide (SCYB004, 1032 KB Updated: 10/23/2001)
- Logic Selection Guide Second Half 2002 (Rev. R) (SDYU001R, 4274 KB Updated: 07/19/2002)
- Military Semiconductors Selection Guide 2002 (Rev. B) (SGYC003B, 1648 KB Updated: 04/22/2002)

(NS)

SAMPLES			<u> ▲Bacl</u>	k to Top		
ORDERABLE DEVICE	<u>PACKAGE</u> <u>INDUSTRY (TI)</u>	<u>PINS</u>	TEMP (°C)	<u>STATUS</u>	PRODUCT CONTENT	SAMPLES
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DEVICE INFORMATION							INVENTORY STAT 00 PM GMT, 26 S		REPORTED DISTRIBUTOR INVENTORY AS OF 3:00 PM GMT, 26 Sep 2002			
ORDERABLE DEVICE	<u>STATUS</u>	PACKAGE TYPE PINS	TEMP (°C)	PRODUCT CONTENT	BUDGETARY PRICING QTY \$US	STD PACK QTY	IN STOCK	IN PROGRESS QTY DATE	LEAD TIME	DISTRIBUTOR COMPANY REGION	<u>IN STOCK</u>	PURCHASE
SN74BCT623DW	ACTIVE	SOP (DW) 20	0 TO 70	View Contents	1KU 1.68	25	<u>N/A*</u>	8341 04 Oct	12 WKS			
								>10k 11 Oct				
SN74BCT623DWR	ACTIVE	<u>SOP</u> 20	0 TO 70	View Contents	1KU 1.71	2000	<u>N/A*</u>	8341 04 Oct	12 WKS			
								>10k 11 Oct				
SN74BCT623N	ACTIVE	<u>PDIP</u> 20	0 TO 70	View Contents	1KU 1.68	20	80	1674 19 Sep	12 WKS			
								8341 09 Oct				
								>10k 16 Oct				
								>10k 23 Oct				
SN74BCT623NSR	ACTIVE	SOP 20		View Contents	1KU 1.75	2000	<u>N/A*</u>	>10k 14 Oct	12 WKS			

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