

- State-of-the-Art **EPIC-IIIB™** BiCMOS Design Significantly Reduces Power Dissipation
- ESD Protection Exceeds 2000 V Per MIL-STD-883, Method 3015; Exceeds 200 V Using Machine Model (C = 200 pF, R = 0)
- Latch-Up Performance Exceeds 500 mA Per JESD 17
- Typical V_{OLP} (Output Ground Bounce) < 1 V at $V_{CC} = 5$ V, $T_A = 25^\circ\text{C}$
- High-Drive Outputs ($-32\text{-mA } I_{OH}$, $64\text{-mA } I_{OL}$)
- Package Options Include Plastic Small-Outline (DW), Shrink Small-Outline (DB), and Thin Shrink Small-Outline (PW) Packages, Ceramic Chip Carriers (FK), and Plastic (N) and Ceramic (J) DIPs

description

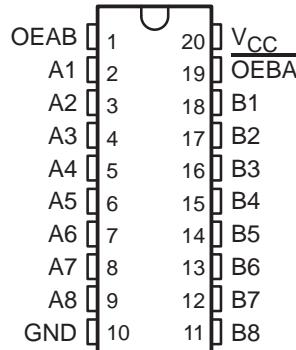
These octal bus transceivers provide for asynchronous communication between data buses. The control-function implementation allows for maximum flexibility in timing. The 'ABT620 devices provide inverted data at the outputs.

These devices allow data transmission from the A bus to the B bus or from the B bus to the A bus, depending on the logic levels at the output-enable (OEAB and OEBA) inputs.

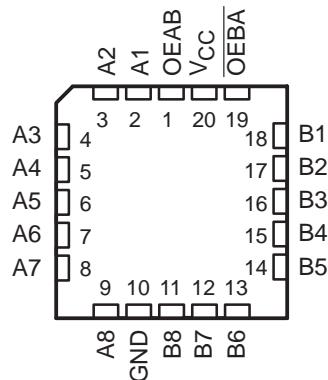
The output-enable inputs can be used to disable the device so that the buses are effectively isolated. The dual-enable configuration gives the transceivers the capability of storing data by simultaneously enabling OEAB and \overline{OEBA} . When both OEAB and \overline{OEBA} are enabled and all other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

To ensure the high-impedance state during power up or power down, \overline{OEBA} should be tied to V_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver. $OEAB$ should be tied to GND through a pulldown resistor; the minimum value of the resistor is determined by the current-sourcing capability of the driver.

The SN54ABT620 is characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ABT620 is characterized for operation from -40°C to 85°C .



**SN54ABT620 . . . FK PACKAGE
(TOP VIEW)**



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

EPIC-IIIB is a trademark of Texas Instruments Incorporated.

UNLESS OTHERWISE NOTED this document contains PRODUCTION DATA information current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.



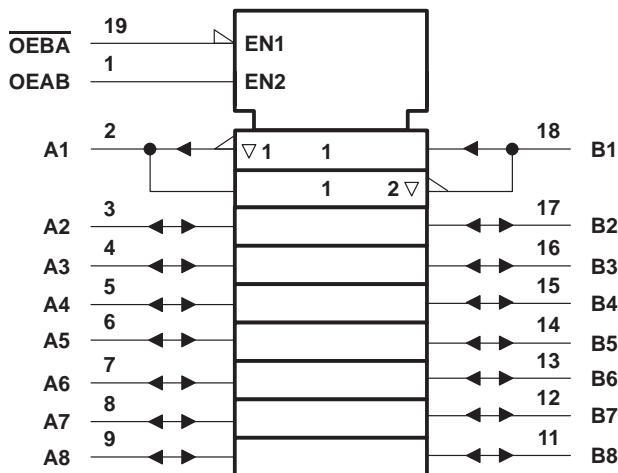
SN54ABT620, SN74ABT620 OCTAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS

SCBS113D – FEBRUARY 1991 – REVISED APRIL 1998

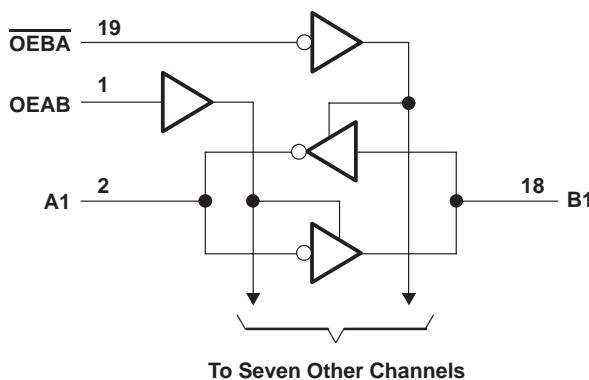
FUNCTION TABLE

INPUTS		OPERATION
OEBA	OEAB	
L	L	B data to A bus
L	H	B data to A bus, A data to B bus
H	L	Isolation
H	H	A data to B bus

logic symbol†



logic diagram (positive logic)



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

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

‡ 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 package thermal impedance is calculated in accordance with JESD 51, except for through-hole packages, which use a trace length of zero.

recommended operating conditions (see Note 3)

		SN54ABT620		SN74ABT620		UNIT
		MIN	MAX	MIN	MAX	
V _{CC}	Supply voltage	4.5	5.5	4.5	5.5	V
V _{IH}	High-level input voltage	2		2		V
V _{IL}	Low-level input voltage		0.8		0.8	V
V _I	Input voltage	0	V _{CC}	0	V _{CC}	V
I _{OH}	High-level output current		-24		-32	mA
I _{OL}	Low-level output current		48		64	mA
Δt/Δv	Input transition rise or fall rate	Outputs enabled		5		ns/V
T _A	Operating free-air temperature	-55	125	-40	85	°C

NOTE 3: All unused pins (control or I/O) of the device must be held at V_{CC} or GND to ensure proper device operation. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

**SN54ABT620, SN74ABT620
OCTAL BUS TRANSCEIVERS
WITH 3-STATE OUTPUTS**

SCBS113D – FEBRUARY 1991 – REVISED APRIL 1998

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

PARAMETER	TEST CONDITIONS	TA = 25°C			SN54ABT620		SN74ABT620		UNIT
		MIN	TYPE†	MAX	MIN	MAX	MIN	MAX	
VIK	VCC = 4.5 V, I _I = -18 mA			-1.2		-1.2		-1.2	V
VOH	VCC = 4.5 V, I _{OH} = -3 mA	2.5			2.5		2.5		V
	VCC = 5 V, I _{OH} = -3 mA	3			3		3		
	VCC = 4.5 V	I _{OH} = -24 mA	2		2				
		I _{OH} = -32 mA	2*				2		
VOL	VCC = 4.5 V	I _{OL} = 48 mA		0.55		0.55			V
		I _{OL} = 64 mA		0.55*			0.55		
V _{hys}			100						mV
I _I	Control inputs A or B ports	VCC = 5.5 V, V _I = VCC or GND		±1	±1	±1			µA
I _{OZH} ‡	VCC = 5.5 V, V _O = 2.7 V			50	50	50			µA
I _{OZL} ‡	VCC = 5.5 V, V _O = 0.5 V			-50	-50	-50			µA
I _{off}	VCC = 0, V _I or V _O ≤ 4.5 V			±100			±100		µA
I _{CEX}	VCC = 5.5 V, V _O = 5.5 V	Outputs high		50	50	50			µA
I _O §	VCC = 5.5 V, V _O = 2.5 V	-50	-100	-180	-50	-180	-50	-180	mA
I _{CC}	A or B ports	VCC = 5.5 V, I _O = 0, V _I = VCC or GND	Outputs high	5	250	250	250	250	µA
			Outputs low	24	30	30	30	30	mA
			Outputs disabled	0.5	250	250	250	250	µA
ΔI _{CC} ¶	Data inputs	VCC = 5.5 V, One input at 3.4 V, Other inputs at VCC or GND	Outputs enabled		1.5	1.5	1.5		mA
			Outputs disabled		0.05	0.05	0.05	0.05	
	Control inputs	VCC = 5.5 V, One input at 3.4 V, Other inputs at VCC or GND			1.5	1.5	1.5		
C _i	Control inputs	V _I = 2.5 V or 0.5 V		4					pF
C _{io}	A or B ports	V _O = 2.5 V or 0.5 V		7					pF

* On products compliant to MIL-PRF-38535, this parameter does not apply.

† All typical values are at VCC = 5 V.

‡ The parameters I_{OZH} and I_{OZL} include the input leakage current.

§ Not more than one output should be tested at a time, and the duration of the test should not exceed one second.

¶ This is the increase in supply current for each input that is at the specified TTL voltage level rather than VCC or GND.

PRODUCT PREVIEW information concerns products in the formative or design phase of development. Characteristic data and other specifications are design goals. Texas Instruments reserves the right to change or discontinue these products without notice.



POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

SN54ABT620, SN74ABT620
OCTAL BUS TRANSCEIVERS
WITH 3-STATE OUTPUTS

SCBS113D – FEBRUARY 1991 – REVISED APRIL 1998

switching characteristics over recommended ranges of supply voltage and operating free-air temperature, $C_L = 50 \text{ pF}$ (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$		SN54ABT620	SN74ABT620	UNIT
			MIN	MAX	MIN	MAX	
t_{PLH}	A or B	B or A	1	4.1	1	1	4.8
t_{PHL}			1	4.3	1	1	4.8
t_{PZH}	OEBA	A	1.3	4.6	1.3	1.3	5.5
t_{PZL}			1	6.1	1	1	7.1
t_{PHZ}	OEBA	A	2	6.3	2	2	7
t_{PLZ}			1.4	5.4	1.4	1.4	5.8
t_{PZH}	OEAB	B	1.6	6.2	1.6	1.6	6.8
t_{PZL}			2	5.9	2	2	6.4
t_{PHZ}	OEAB	B	1.2	5.6	1.2	1.2	6.5
t_{PLZ}			1.1	4.7	1.1	1.1	5.6

PRODUCT PREVIEW information concerns products in the formative or design phase of development. Characteristic data and other specifications are design goals. Texas Instruments reserves the right to change or discontinue these products without notice.

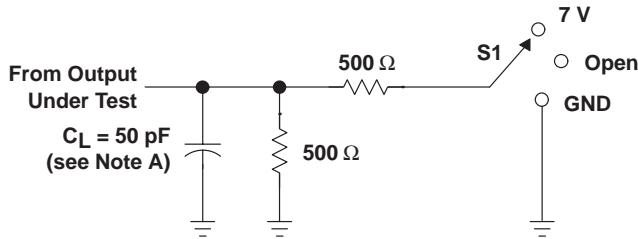


POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

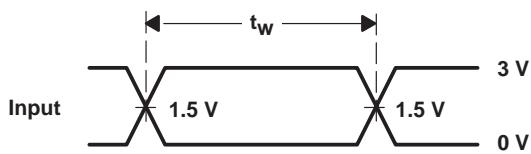
**SN54ABT620, SN74ABT620
OCTAL BUS TRANSCEIVERS
WITH 3-STATE OUTPUTS**

SCBS113D – FEBRUARY 1991 – REVISED APRIL 1998

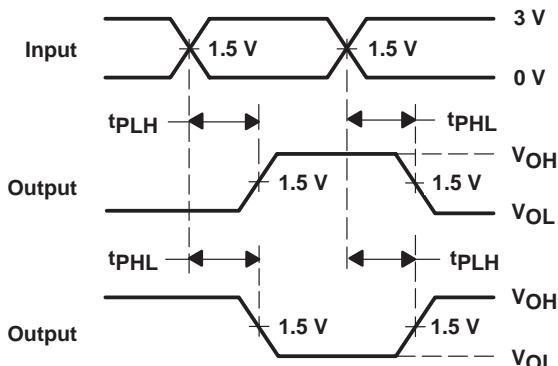
PARAMETER MEASUREMENT INFORMATION



LOAD CIRCUIT

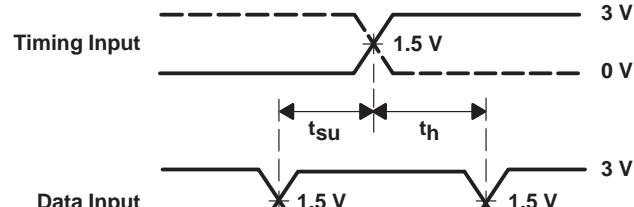


VOLTAGE WAVEFORMS
PULSE DURATION

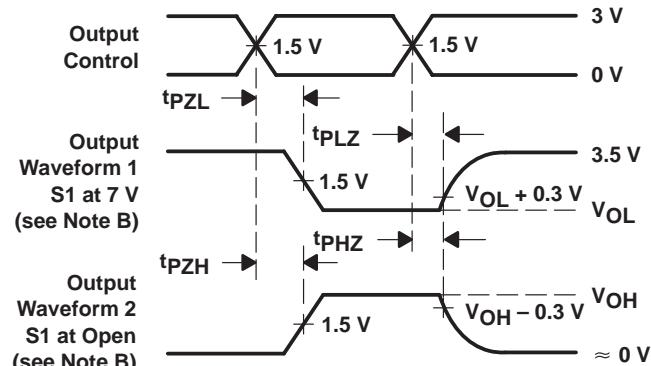


VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES
INVERTING AND NONINVERTING OUTPUTS

TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	7 V
t_{PHZ}/t_{PZH}	Open



VOLTAGE WAVEFORMS
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES
LOW- AND HIGH-LEVEL ENABLING

NOTES:

- C_L includes probe and jig capacitance.
- Waveform 1 is for an output with internal conditions such that the output is low except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
- All input pulses are supplied by generators having the following characteristics: PRR \leq 10 MHz, $Z_O = 50 \Omega$, $t_r \leq 2.5$ ns, $t_f \leq 2.5$ ns.
- The outputs are measured one at a time with one transition per measurement.

Figure 1. Load Circuit and Voltage Waveforms

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package Pins	Package qty Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
SN74ABT620DW	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ABT620
SN74ABT620DW.B	Active	Production	SOIC (DW) 20	25 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ABT620
SN74ABT620N	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74ABT620N
SN74ABT620N.B	Active	Production	PDIP (N) 20	20 TUBE	Yes	NIPDAU	N/A for Pkg Type	-40 to 85	SN74ABT620N
SN74ABT620NSR	Active	Production	SOP (NS) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ABT620
SN74ABT620NSR.B	Active	Production	SOP (NS) 20	2000 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	ABT620

⁽¹⁾ **Status:** For more details on status, see our [product life cycle](#).

⁽²⁾ **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

⁽³⁾ **RoHS values:** Yes, No, RoHS Exempt. See the [TI RoHS Statement](#) for additional information and value definition.

⁽⁴⁾ **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

⁽⁵⁾ **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

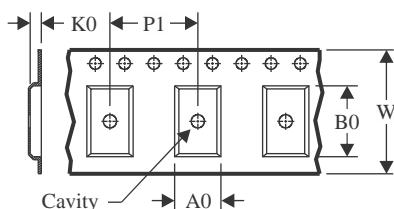
⁽⁶⁾ **Part marking:** There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

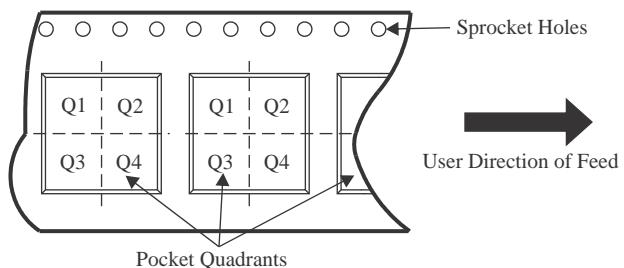
Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

TAPE AND REEL INFORMATION
REEL DIMENSIONS

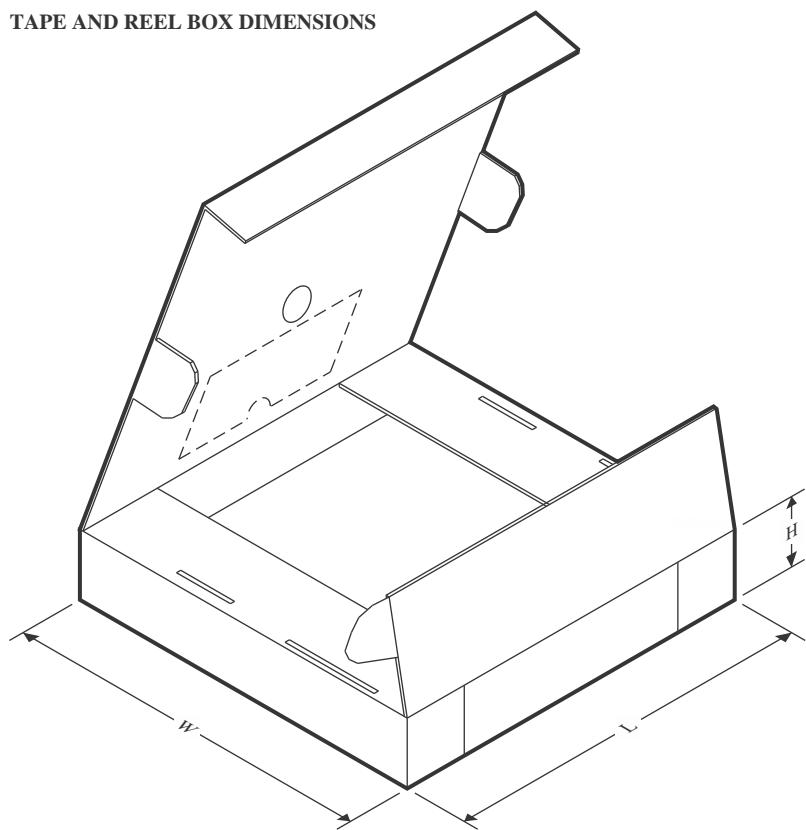
TAPE DIMENSIONS


A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74ABT620NSR	SOP	NS	20	2000	330.0	24.4	8.4	13.0	2.5	12.0	24.0	Q1

TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74ABT620NSR	SOP	NS	20	2000	356.0	356.0	45.0

TUBE


*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
SN74ABT620DW	DW	SOIC	20	25	507	12.83	5080	6.6
SN74ABT620DW.B	DW	SOIC	20	25	507	12.83	5080	6.6
SN74ABT620N	N	PDIP	20	20	506	13.97	11230	4.32
SN74ABT620N.B	N	PDIP	20	20	506	13.97	11230	4.32

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#), [TI's General Quality Guidelines](#), or other applicable terms available either on [ti.com](#) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2026, Texas Instruments Incorporated

Last updated 10/2025