SN54AS29821, SN54AS29822, SN74AS29821, SN74AS29822
10-BIT BUS INTERFACE FLIP-FLOPS WITH 3-STATE OUTPUTS

D2825, MAY 1986

- **Designed to be Interchangeable with AMD AM29821 and AM29822**
- **Ideal for Data Synchronization of Wider Data Paths**
- **Provide Extra Data Width Necessary for Wider Address/Data Paths or Buses with Parity**
- **Outputs Have Undershoot Production Circuitry**
- **Power-Up High Impedance State**
- **Package Options Include Both Plastic and Ceramic Chip Carriers in Addition to Plastic and Ceramic DIPs**
- **Buffered Control Inputs to Reduce DC Loading Effects**
- **Dependable Texas Instruments Quality and Reliability**

description

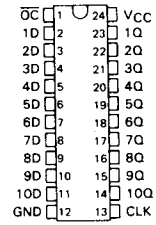
These 10-bit flip-flops feature three-state outputs designed specifically for driving highly-capacitive or relatively low-impedance loads. They are particularly suitable for implementing wider buffer registers, I/O ports, bidirectional bus drivers with parity, and working registers.

The ten flip-flops are edge-triggered D-type flip-flops. On the positive transition of the clock the Q outputs on the 'AS29821 will be true, and on the 'AS29822 will be complementary, to the data input.

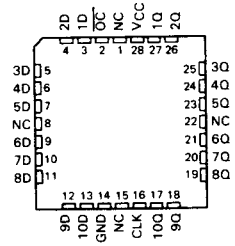
A buffered output control input can be used to place the ten outputs in either a normal logic state (high or low levels) or a high-impedance state. In the high-impedance state, the outputs neither load nor drive the bus lines significantly. The high-impedance state and increased drive provide the capability to drive the bus lines in a bus-organized system without need for interface or pull-up components.

The output control ($\overline{OC}$) does not affect the internal operation of the flip-flops. Old data can be retained or new data can be entered while the outputs are in the high-impedance state.

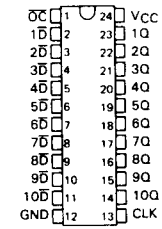
SN54AS29821 . . . JT PACKAGE
SN74AS29821 . . . DW OR NT PACKAGE
(TOP VIEW)



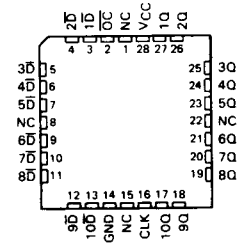
SN54AS29821 . . . FK PACKAGE
SN74AS29821 . . . FN PACKAGE
(TOP VIEW)



SN54AS29822 . . . JT PACKAGE
SN74AS29822 . . . DW OR NT PACKAGE
(TOP VIEW)



SN54AS29822 . . . FK PACKAGE
SN74AS29822 . . . FN PACKAGE
(TOP VIEW)



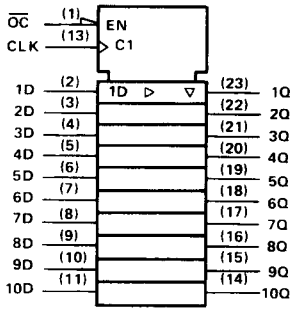
NC – No internal connection

The SN54AS29821 and SN54AS29822 are characterized for operation over the full military temperature range of −55°C to 125°C. The SN74AS29821 and SN74AS29822 are characterized for operation from 0°C to 70°C.

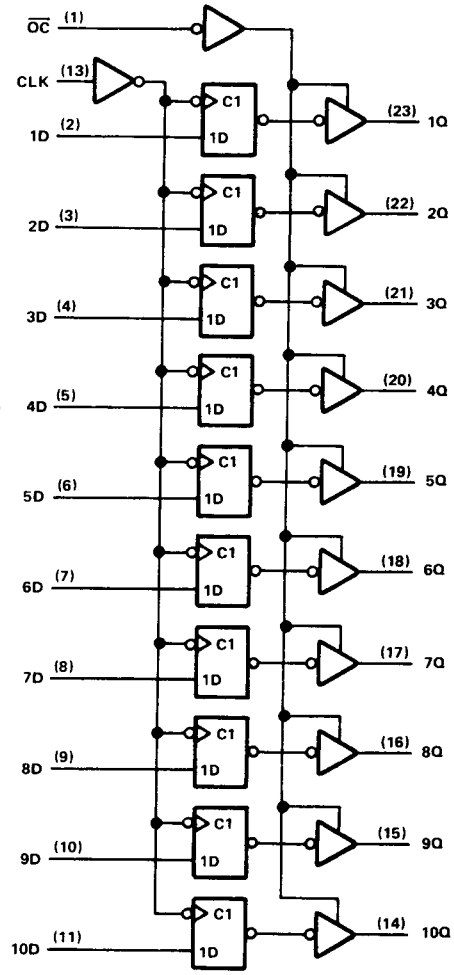
'AS29821 FUNCTION TABLE (EACH FLIP-FLOP)

INPUTS			OUTPUT
$\overline{OC}$	CLK	D	Q
L	↑	H	H
L	↑	L	L
L	L	X	Q_O
H	X	X	Z

'AS29821 logic symbol†



'AS29821 logic diagram (positive logic)



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

Pin numbers shown are for DW, JT, and NT packages.

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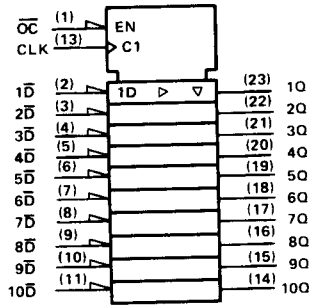
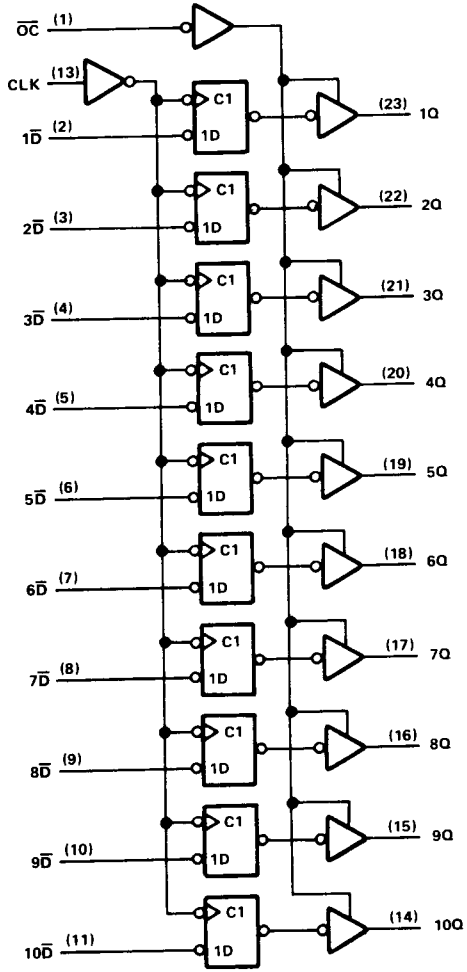
'AS29822 FUNCTION TABLE (EACH FLIP-FLOP)

INPUTS			OUTPUT
$\overline{OC}$	CLK	$\overline{D}$	Q
L	↑	H	L
L	↑	L	H
L	L	X	Q_O
H	X	X	Z

'AS29822 logic symbol†



'AS29822 logic diagram (positive logic)



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Pin numbers shown are for DW, JT, and NT packages.