

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
 - Class Q Military
 - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)
 - Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

- 'ALS679 is a 12-Bit Address Comparator with Enable
- 'ALS680 is a 12-Bit Address Comparator with Latch
- Package Options Include "Small Outline" Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs
- Dependable Texas Instruments Quality and Reliability

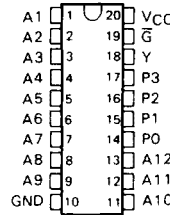
description

The 'ALS679 and 'ALS680 address comparators simplify addressing of memory boards and/or other peripheral devices. The four P inputs are normally hard wired with a preprogrammed address. An internal decoder determines what input information applied to the 12 A inputs must be low or high to cause a low state at the output (Y). For example, a positive-logic bit combination of 0111 (decimal 7) at the P input determines that inputs A1 through A7 must be low and that inputs A8 through A12 must be high to cause the output to go low. Equality of the address applied at the A inputs to the preprogrammed address is indicated by the output being low.

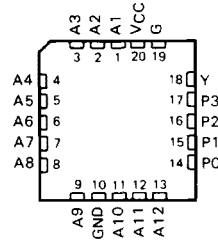
The 'ALS679 features an enable input (\bar{G}). When \bar{G} is low, the device is enabled. When \bar{G} is high, the device is disabled and the output is high regardless of the A and P inputs. The 'ALS680 features a transparent latch and a latch enable input (C). When C is high, the device is in the transparent mode. When C is low, the previous logic state of Y is latched.

The SN54ALS679 and SN54ALS680 are characterized for operation over the full military temperature range of -55°C to 125°C . The SN74ALS679 and SN74ALS680 are characterized for operation from 0°C to 70°C .

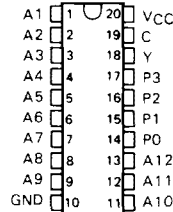
**SN54ALS679 . . . J PACKAGE
SN74ALS679 . . . DW OR N PACKAGE
(TOP VIEW)**



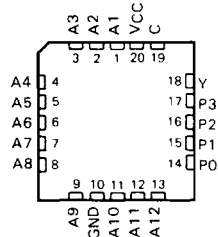
**SN54ALS679 . . . FK PACKAGE
(TOP VIEW)**



**SN54ALS680 . . . J PACKAGE
SN74ALS680 . . . DW OR N PACKAGE
(TOP VIEW)**

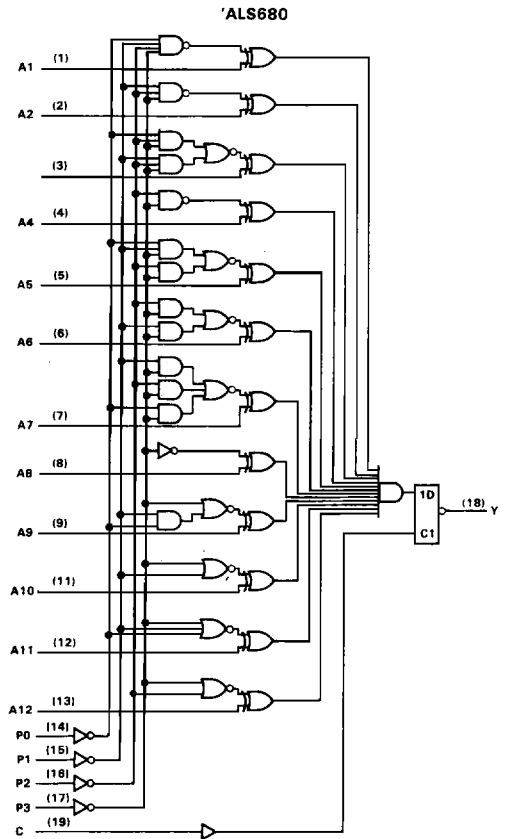
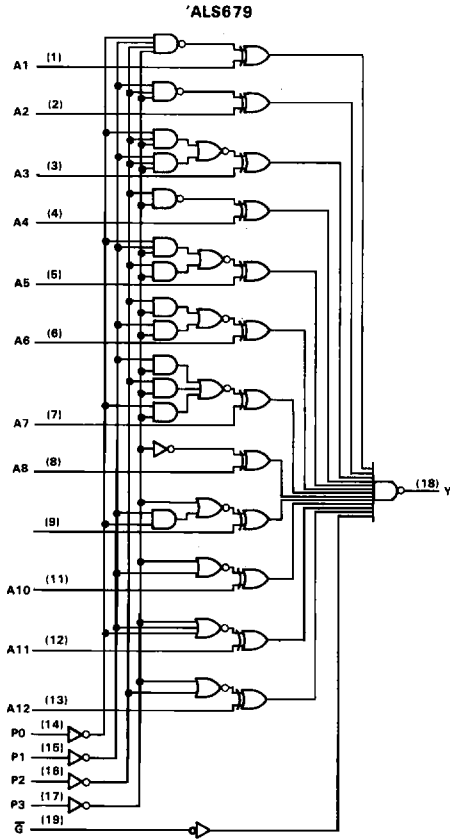


**SN54ALS680 . . . FK PACKAGE
(TOP VIEW)**



SN54ALS679, SN54ALS680, SN74ALS679, SN74ALS680
12-BIT ADDRESS COMPARATORS

logic diagrams (positive logic)



SN54ALS679, SN54ALS680, SN74ALS679, SN74ALS680

12-BIT ADDRESS COMPARATORS

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

Supply voltage, V_{CC}	7 V
Input voltage	7 V
Operating free-air temperature range: SN54ALS679, SN54ALS680	-55 °C to 125 °C
SN74ALS679, SN74ALS680	0 °C to 70 °C
Storage temperature range	-65 °C to 150 °C

recommended operating conditions

		SN54ALS679 SN54ALS680			SN74ALS679 SN74ALS680			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.7			0.8	V
I_{OH}	High-level output current			-1			-2.6	mA
I_{OL}	Low-level output current			12			24	mA
t_w	Pulse duration, Enable C high	'ALS680			45		40	ns
t_{su}	Setup time, Data before C.	'ALS680			50		45	ns
t_h	Hold time, Data after C.	'ALS680			10		5	ns
T_A	Operating free air temperature	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS	SN54ALS679 SN54ALS680			SN74ALS679 SN74ALS680			UNIT	
		MIN	TYP [†]	MAX	MIN	TYP [†]	MAX		
V_{IK}	$V_{CC} = 4.5 \text{ V}$, $I_I = 18 \text{ mA}$			-1.5			-1.5	V	
V_{OH}	$V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$, $I_{OH} = -0.4 \text{ mA}$	$V_{CC} - 2$			$V_{CC} - 2$			V	
	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = 1 \text{ mA}$	2.4	3.3						
	$V_{CC} = 4.5 \text{ V}$, $I_{OH} = 2.6 \text{ mA}$				2.4	3.2			
V_{OL}	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 12 \text{ mA}$		0.25	0.4		0.25	0.4	V	
	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 24 \text{ mA}$					0.35	0.5		
I_I	$V_{CC} = 5.5 \text{ V}$, $V_I = 7 \text{ V}$			0.1			0.1	mA	
I_{IH}	$V_{CC} = 5.5 \text{ V}$, $V_I = 2.7 \text{ V}$			20			20	μA	
I_{IL}	$V_{CC} = 5.5 \text{ V}$, $V_I = 0.4 \text{ V}$			-0.1			-0.1	mA	
I_O^{\ddagger}	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$	-30		-112	-30		-112	mA	
I_{CC}	$V_{CC} = 5.5 \text{ V}$	'ALS679			17	28	17	28	mA
		'ALS680			18	27	18	27	

[†]All typical values are at $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$.

[‡]The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit output current, I_{OS} .

2 ALS and AS Circuits

SN54ALS679, SN54ALS680, SN74ALS679, SN74ALS680 12-BIT ADDRESS COMPARATORS

'ALS679 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5\text{ V to }5.5\text{ V}$, $C_L = 50\text{ pF}$, $R_L = 500\ \Omega$, $T_A = \text{MIN to MAX}$				UNIT
			SN54ALS679		SN74ALS679		
			MIN	MAX	MIN	MAX	
t_{PLH}	Any P	Y	4	28	4	25	ns
t_{PHL}			8	40	8	35	
t_{PLH}	Any A	Y	5	26	5	22	ns
t_{PHL}			5	35	5	30	
t_{PLH}	\bar{G}	Y	3	15	3	13	ns
t_{PHL}			5	30	5	25	

'ALS680 switching characteristics (see Note 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 4.5\text{ V to }5.5\text{ V}$ $C_L = 50\text{ pF}$ $R_L = 500\ \Omega$ $T_A = \text{MIN to MAX}$				UNIT
			SN54ALS680		SN74ALS680		
			MIN	MAX	MIN	MAX	
t_{PLH}	Any P	Y	6	27	6	22	ns
t_{PHL}			10	43	10	38	
t_{PLH}	Any A	Y	5	25	5	21	ns
t_{PHL}			5	28	5	25	
t_{PLH}	C	Y	3	25	3	20	ns
t_{PHL}			15	48	15	42	

NOTE 1: Load circuit and voltage waveforms are shown in Section 1.

2

ALS and AS Circuits

SN54ALS679, SN54ALS680, SN74ALS679, SN74ALS680 12-BIT ADDRESS COMPARATORS

TYPICAL APPLICATION INFORMATION

The 'ALS679 and 'ALS680 can be wired to recognize any one of 212 addresses. The number of "lows" in the address determines the input pattern for the P inputs. Then those system address lines that are low in the address to be recognized are connected to the lowest numbered A inputs of the address comparator and the system address lines that are high are connected to the highest numbered A inputs.

For example, assume the comparator is to enable a device when the 12-bit system address is:

A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
H	H	L	L	H	H	L	L	H	H	H	H

Since the address contains 4 lows and 8 highs, the following connections are made:

P3 to 0 V, P2 to V_{CC}, P1 to 0 V, and P0 to 0 V.

System address lines A9, A8, A5, and A4 to comparator inputs A1 through A4 in any convenient order.

The remaining eight system address lines to comparator inputs A5 through A12 in any convenient order.

The output provides an active-low enabling signal.

The following circuit is a register bank decoder that examines the 14 most significant bits (A0 through A13) of a 20-bit address to select banks corresponding to the hex addresses 10000, 10040, 10080, and 100C0.

