

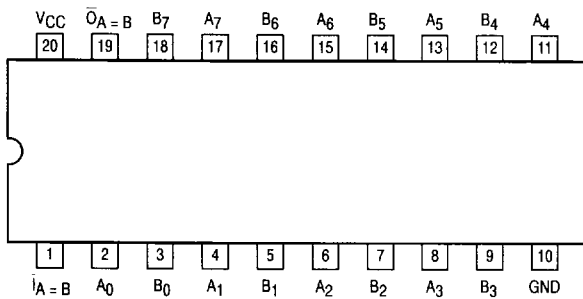


# 8-BIT IDENTITY COMPARATOR

The MC54/74F521 is an expandable 8-bit comparator. It compares two words of up to eight bits each and provides a LOW output when the two words match bit for bit. The expansion input  $\bar{I}_A = \bar{B}$  also serves as an active-LOW enable input.

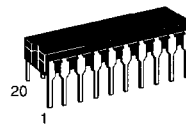
- Compares Two 8-Bit Words in 6.5 ns Typical
- Expandable to Any Word Length
- 20-Pin Package

CONNECTION DIAGRAM (TOP VIEW)

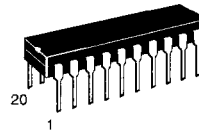


## MC54/74F521

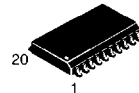
8-BIT IDENTITY COMPARATOR  
 FAST™ SCHOTTKY TTL



J SUFFIX  
 CERAMIC  
 CASE 732-03



N SUFFIX  
 PLASTIC  
 CASE 738-03



DW SUFFIX  
 SOIC  
 CASE 751D-03

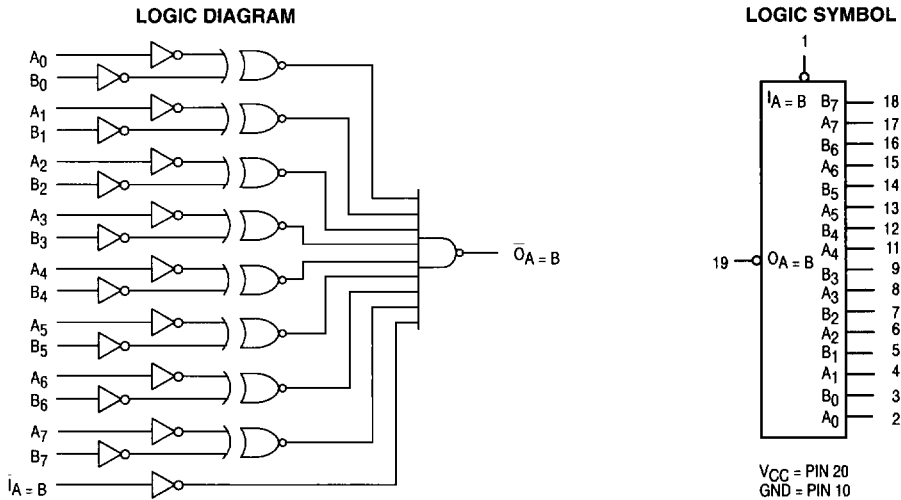
ORDERING INFORMATION

MC54FXXXJ Ceramic  
 MC74FXXXN Plastic  
 MC74FXXXDW SOIC

GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
V <sub>CC</sub>	Supply Voltage	54, 74	4.5	5.0	5.5	V
T <sub>A</sub>	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
I <sub>OH</sub>	Output Current — High	54, 74			-1.0	mA
I <sub>OL</sub>	Output Current — Low	54, 74			20	mA

# MC54/74F521



**NOTE:**  
This diagram is provided only for the understanding of logic operations and should not be used to estimate propagation delays.

## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	PARAMETER	Limits			Unit	Test Conditions	
		Min	Typ	Max			
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage	
V <sub>IL</sub>	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage	
V <sub>IK</sub>	Input Clamp Diode Voltage			-1.2	V	I <sub>IN</sub> = -18 mA	V <sub>CC</sub> = MIN
V <sub>OH</sub>	Output HIGH Voltage	54, 74	2.5	3.4	V	I <sub>OH</sub> = -1.0 mA	V <sub>CC</sub> = 4.5 V
		74	2.7	3.4	V	I <sub>OH</sub> = -1.0 mA	V <sub>CC</sub> = 4.75 V
V <sub>OL</sub>	Output LOW Voltage		0.35	0.5	V	I <sub>OL</sub> = 20 mA	V <sub>CC</sub> = MIN
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>IN</sub> = 2.7 V	V <sub>CC</sub> = MAX
				100	μA	V <sub>IN</sub> = 7.0 V	
I <sub>IL</sub>	Input LOW Current			-0.6	mA	V <sub>IN</sub> = 0.5 V	V <sub>CC</sub> = MAX
I <sub>OS</sub>	Output Short Circuit Current (Note 2)	-60		-150	mA	V <sub>OUT</sub> = 0 V	V <sub>CC</sub> = MAX
I <sub>CC</sub>	Power Supply Current		21	32	mA	I <sub>A</sub> = B = GND	V <sub>CC</sub> = MAX

**NOTES:**  
1. For conditions shown as MIN or MAX, use the appropriate value specified under guaranteed operating ranges.  
2. Not more than one output should be shorted at a time, nor for more than 1 second.

# MC54/74F521

## FUNCTION TABLE

Inputs		Output
$\bar{I}_A = B$	A, B	$\bar{O}_A = B$
L	$A = B^*$	L
L	$A \neq B$	H
H	$A = B^*$	H
H	$A \neq B$	H

H = HIGH Voltage Level

L = LOW Voltage Level

\* $A_0 = B_0, A_1 = B_1, A_2 = B_2, \text{etc.}$

## AC CHARACTERISTICS

Symbol	Parameter	54/74F			54F		74F		Unit
		$T_A = +25^\circ\text{C}$			$T_A = -55^\circ\text{C to } +125^\circ\text{C}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$		
		Min	Typ	Max	Min	Max	Min	Max	
$t_{PLH}$	Propagation Delay	2.5	6.5	10	2.5	15	2.5	11	ns
$t_{PHL}$	$A_n$ or $B_n$ to $\bar{O}_A = B$	3.0	6.5	10	3.0	12	3.0	11	
$t_{PLH}$	Propagation Delay	2.5	4.5	6.5	2.5	8.5	2.5	7.5	ns
$t_{PHL}$	$\bar{I}_A = B$ to $\bar{O}_A = B$	3.5	5.0	9.0	3.5	10	3.5	10	

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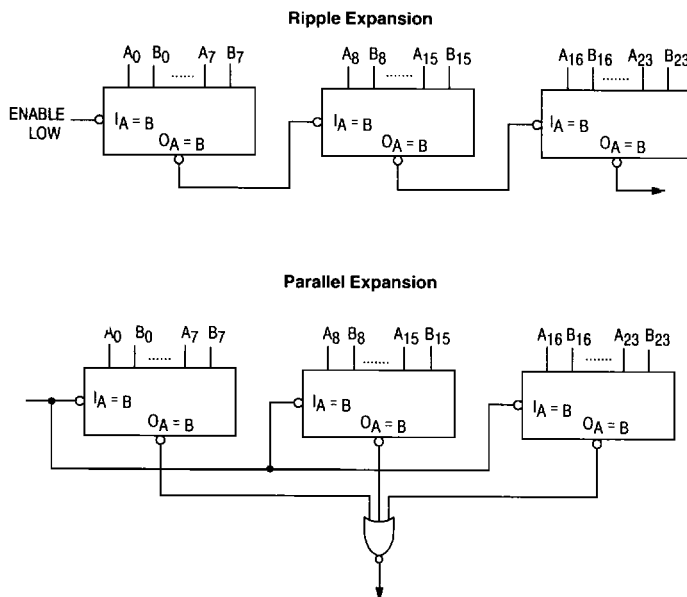


Figure 1. Applications