



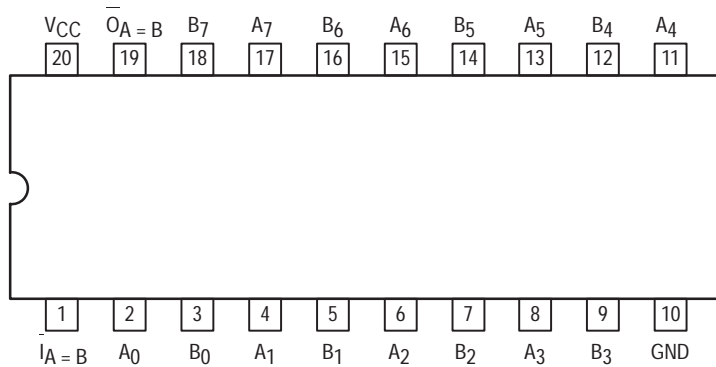
MOTOROLA

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 $I_A = B$ also serves as an active-LOW enable input.

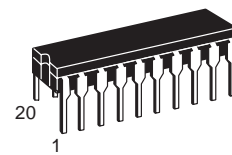
- Compares Two 8-Bit Words in 6.5 ns Typical
- Expandable to Any Word Length
- 20-Pin Package

CONNECTION DIAGRAM (TOP VIEW)

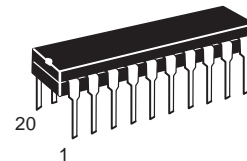


MC54/74F521

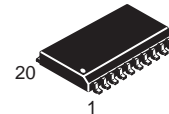
8-BIT IDENTITY COMPARATOR
FAST™ SCHOTTKY TTL



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

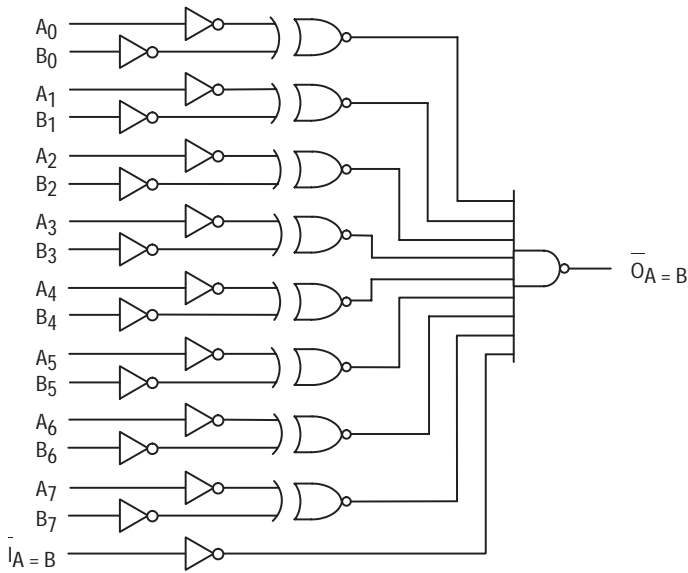
Symbol	Parameter		Min	Typ	Max	Unit
V _{CC}	Supply Voltage	54, 74	4.5	5.0	5.5	V
T _A	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
I _{OH}	Output Current — High	54, 74			-1.0	mA
I _{OL}	Output Current — Low	54, 74			20	mA

LIFETIME BUY

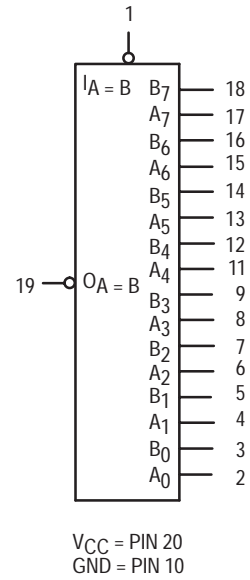
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LOGIC DIAGRAM



LOGIC SYMBOL



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_{IH}	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage	
V_{IL}	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage	
V_{IK}	Input Clamp Diode Voltage			-1.2	V	$I_{IN} = -18 \text{ mA}$	$V_{CC} = \text{MIN}$
V_{OH}	Output HIGH Voltage	54, 74	2.5	3.4	V	$I_{OH} = -1.0 \text{ mA}$	$V_{CC} = 4.5 \text{ V}$
		74	2.7	3.4	V	$I_{OH} = -1.0 \text{ mA}$	$V_{CC} = 4.75 \text{ V}$
V_{OL}	Output LOW Voltage		0.35	0.5	V	$I_{OL} = 20 \text{ mA}$	$V_{CC} = \text{MIN}$
I_{IH}	Input HIGH Current			20	μA	$V_{IN} = 2.7 \text{ V}$	$V_{CC} = \text{MAX}$
				100	μA	$V_{IN} = 7.0 \text{ V}$	
I_{IL}	Input LOW Current			-0.6	mA	$V_{IN} = 0.5 \text{ V}$	$V_{CC} = \text{MAX}$
I_{OS}	Output Short Circuit Current (Note 2)	-60		-150	mA	$V_{OUT} = 0 \text{ V}$	$V_{CC} = \text{MAX}$
I_{CC}	Power Supply Current		21	32	mA	$I_A = B = \text{GND}$	$V_{CC} = \text{MAX}$

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.

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FUNCTION TABLE

Inputs		Output
$I_{A=B}$	A, B	$O_{A=B}$
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
 * $A_0 = B_0, A_1 = B_1, A_2 = B_2$, etc.

AC CHARACTERISTICS

Symbol	Parameter	54/74F			54F		74F		Unit
		$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0\text{ V}$ $C_L = 50\text{ pF}$			$T_A = -55^\circ\text{C to } +125^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $V_{CC} = 5.0\text{ V} \pm 10\%$ $C_L = 50\text{ pF}$		
		Min	Typ	Max	Min	Max	Min	Max	
t_{PLH}	Propagation Delay $\bar{I}_{A=B}$ to $\bar{O}_{A=B}$	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 $\bar{I}_{A=B}$ to $\bar{O}_{A=B}$	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	

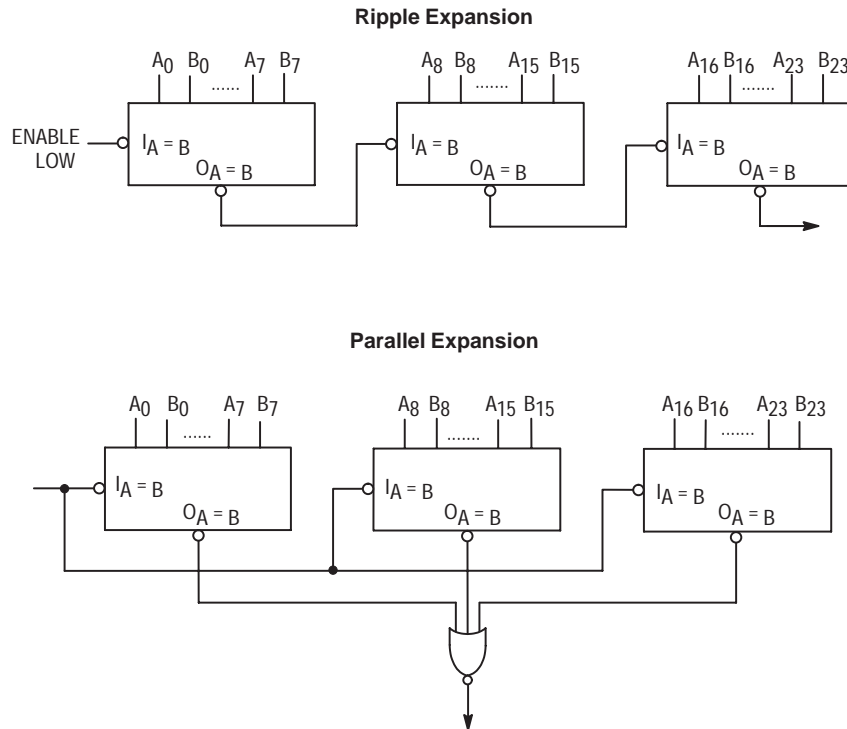


Figure 1. Applications


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