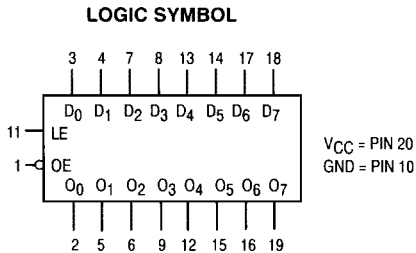
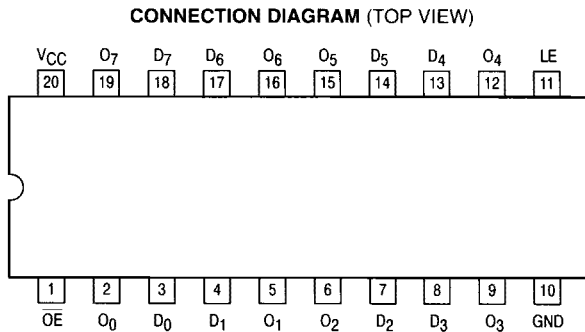




# OCTAL TRANSPARENT LATCH WITH 3-STATE OUTPUTS

The MC54/74F373 consists of eight latches with 3-state outputs for bus organized system applications. The flip-flops appear transparent to the data when Latch Enable (LE) is HIGH. When LE is LOW, the data that meets the setup times is latched. Data appears on the bus when the Output Enable ( $\overline{OE}$ ) is LOW. When  $\overline{OE}$  is HIGH the bus output is in the high impedance state.

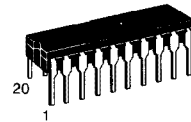
- Eight Latches in a Single Package
- 3-State Outputs for Bus Interfacing
- ESD > 4000 Volts



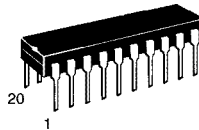
## MC54/74F373

### OCTAL TRANSPARENT LATCH WITH 3-STATE OUTPUTS

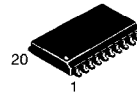
FAST™ SCHOTTKY TTL



**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			-3.0	mA
I <sub>OL</sub>	Output Current — LOW	54, 74			24	mA

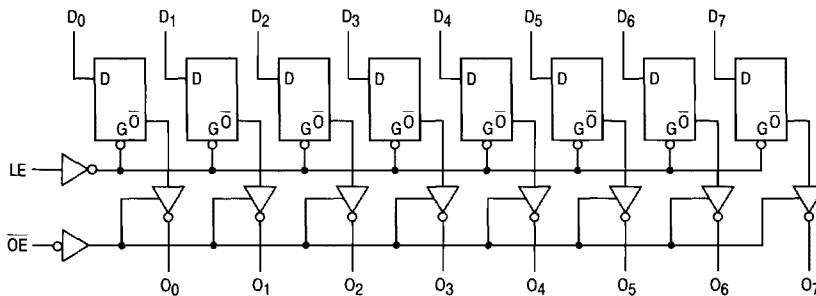
# MC54/74F373

## FUNCTIONAL DESCRIPTION

The F373 contains eight D-type latches with 3-state output buffers. When the Latch Enable (LE) input is HIGH, data on the  $D_n$  inputs enters the latches. In this condition the latches are transparent; i.e., a latch output will change state each time its D input changes. When LE is LOW the latches store the information that was present on the D inputs one setup time

preceding the HIGH-to-LOW transition of LE. The 3-state buffers are controlled by the Output Enable ( $\overline{OE}$ ) input. When ( $\overline{OE}$ ) is LOW, the buffers are in the bi-state mode. When  $\overline{OE}$  is HIGH the buffers are in the high impedance mode, but this does not interfere with entering new data into the latches.

## LOGIC DIAGRAM



**NOTE:**

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

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## 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	2.4	3.3	V	$I_{OH} = -3.0 \text{ mA}$	$V_{CC} = 4.5 \text{ V}$
		74	2.7	3.3	V	$I_{OH} = -3.0 \text{ mA}$	$V_{CC} = 4.75 \text{ V}$
$V_{OL}$	Output LOW Voltage		0.35	0.5	V	$I_{OL} = 24 \text{ mA}$	$V_{CC} = \text{MIN}$
$I_{OZH}$	Output OFF Current — HIGH			50	$\mu\text{A}$	$V_{OUT} = 2.7 \text{ V}$	$V_{CC} = \text{MAX}$
$I_{OZL}$	Output OFF Current — LOW			-50	$\mu\text{A}$	$V_{OUT} = 0.5 \text{ V}$	$V_{CC} = \text{MAX}$
$I_{IH}$	Input HIGH Current			20	$\mu\text{A}$	$V_{IN} = 2.7 \text{ V}$	$V_{CC} = \text{MAX}$
				100	$\mu\text{A}$	$V_{IN} = 7.0 \text{ V}$	$V_{CC} = \text{MAX}$
$I_{IL}$	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	$V_{OUT} = 0 \text{ V}$	$V_{CC} = \text{MAX}$
$I_{CCZ}$	Power Supply Current (All Outputs OFF)		35	55	mA	$\overline{OE} = 4.5 \text{ V}$ $D_n, LE = \text{GND}$	$V_{CC} = \text{MAX}$

**NOTES:**

- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
- Not more than one output should be shorted at a time, nor for more than 1 second.

# MC54/74F373

## AC CHARACTERISTICS

Symbol	Parameter	54/74F			54F		74F		Unit
		T <sub>A</sub> = +25°C V <sub>CC</sub> = +5.0 V C <sub>L</sub> = 50 pF			T <sub>A</sub> = -55°C to +125°C V <sub>CC</sub> = 5.0 V ± 10% C <sub>L</sub> = 50 pF		T <sub>A</sub> = 0°C to +70°C V <sub>CC</sub> = 5.0 V ± 10% C <sub>L</sub> = 50 pF		
		Min	Typ	Max	Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay	3.0	5.3	7.0	3.0	8.5	3.0	8.0	ns
t <sub>PHL</sub>	D <sub>n</sub> to O <sub>n</sub>	2.0	3.7	5.0	2.0	7.0	2.0	6.0	
t <sub>PLH</sub>	Propagation Delay	5.0	9.0	11.5	5.0	15	5.0	13	ns
t <sub>PHL</sub>	LE to O <sub>n</sub>	3.0	5.2	7.0	3.0	8.5	3.0	8.0	
t <sub>PZH</sub>	Output Enable Time	2.0	5.0	11	2.0	13.5	2.0	12	ns
t <sub>PZL</sub>		2.0	5.6	7.5	2.0	10	2.0	8.5	
t <sub>PHZ</sub>	Output Disable Time	1.5	4.5	6.5	1.5	10	1.5	7.5	ns
t <sub>PLZ</sub>		1.5	3.8	6.0	1.5	7.0	1.5	6.0	

## AC OPERATING REQUIREMENTS

Symbol	Parameter	54/74F			54F		74F		Unit
		T <sub>A</sub> = +25°C V <sub>CC</sub> = +5.0 V			T <sub>A</sub> = -55°C to +125°C V <sub>CC</sub> = 5.0 V ± 10%		T <sub>A</sub> = 0°C to +70°C V <sub>CC</sub> = 5.0 V ± 10%		
		Min	Typ	Max	Min	Max	Min	Max	
t <sub>S</sub> (H)	Setup Time, HIGH or LOW	2.0			2.0		2.0		ns
t <sub>S</sub> (L)	D <sub>n</sub> to LE	2.0			2.0		2.0		
t <sub>H</sub> (H)	Hold Time, HIGH or LOW	3.0			3.0		3.0		
t <sub>H</sub> (L)	D <sub>n</sub> to LE	3.0			3.0		3.0		ns
t <sub>w</sub> (H)	LE Pulse Width, HIGH	6.0			6.0		6.0		

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