

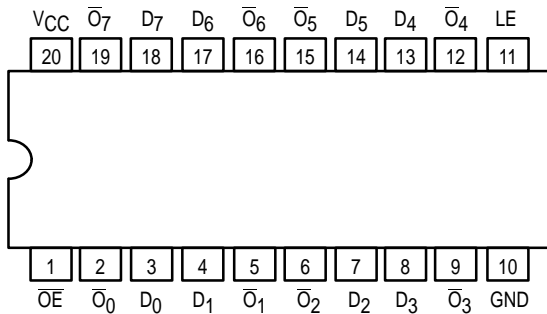


# OCTAL TRANSPARENT LATCH WITH 3-STATE OUTPUTS

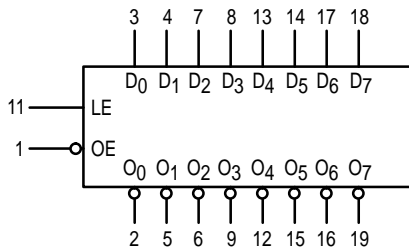
The MC54/74F533 consists of eight latches with 3-state outputs for bus organized system applications. The flip-flops appear transparent to the data when Latch Enable (LE) is HIGH. When LE is LOW, the data that meets the setup times is latched. Data appears on the bus when the Output Enable ( $\overline{OE}$ ) is LOW. When  $\overline{OE}$  is HIGH the bus output is in the high-impedance state. The F533 is the same as the F373, except that the outputs are inverted. For description and logic diagram please see the F373 data sheet.

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

### CONNECTION DIAGRAM



### LOGIC SYMBOL

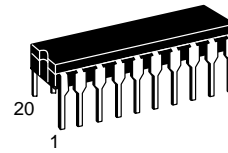


VCC = PIN 20  
GND = PIN 10

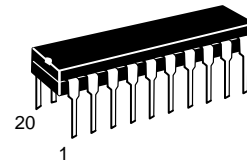
## MC54/74F533

### OCTAL TRANSPARENT LATCH WITH 3-STATE OUTPUTS

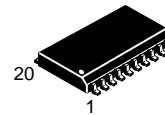
FAST™ SCHOTTKY TTL



**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	
VCC	Supply Voltage	54, 74	4.5	5.0	5.5	V
TA	Operating Ambient Temperature Range	54	-55	25	125	°C
		74	0	25	70	
IOH	Output Current — High	54, 74		-3.0	mA	
IOL	Output Current — Low	54, 74		24	mA	

# MC54/74F533

## 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	2.4	3.3	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.5 V
		74	2.7	3.3	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.75 V
V <sub>OL</sub>	Output LOW Voltage		0.35	0.5	V	I <sub>OL</sub> = 24 mA	V <sub>CC</sub> = MIN
I <sub>OZH</sub>	Output OFF Current — HIGH			50	μA	V <sub>OUT</sub> = 2.7 V	V <sub>CC</sub> = MAX
I <sub>OZL</sub>	Output OFF Current — LOW			-50	μA	V <sub>OUT</sub> = 0.5 V	V <sub>CC</sub> = MAX
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>IN</sub> = 2.7 V	V <sub>CC</sub> = MAX
				100		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>CCZ</sub>	Power Supply Current		41	61	mA	$\overline{OE}$ = 4.5 V D <sub>n</sub> , LE = Gnd	V <sub>CC</sub> = MAX

### NOTES:

1. For conditions such 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.

## 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 to +125°C V <sub>CC</sub> = 5.0 V ±10% C <sub>L</sub> = 50 pF		T <sub>A</sub> = 0 to +70°C V <sub>CC</sub> = 5.0 V ±10% C <sub>L</sub> = 50 pF		
		Min	Max	Min	Max	Min	Max	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay D <sub>n</sub> to O <sub>n</sub>	4.0 3.0	9.0 7.0	4.0 3.0	12 9.0	4.0 3.0	10 8.0	ns
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay LE to O <sub>n</sub>	5.0 3.0	11 7.0	5.0 3.0	14 9.0	5.0 3.0	13 8.0	ns
t <sub>PZH</sub> t <sub>PZL</sub>	Output Enable Time	2.0 2.0	10 7.5	2.0 2.0	12.5 9.0	2.0 2.0	11 8.5	ns
t <sub>PHZ</sub> t <sub>PLZ</sub>	Output Disable Time	1.5 1.5	6.5 5.5	1.5 1.5	8.5 7.5	1.5 1.5	7.0 6.5	ns

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