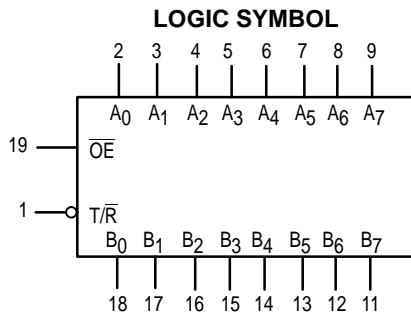
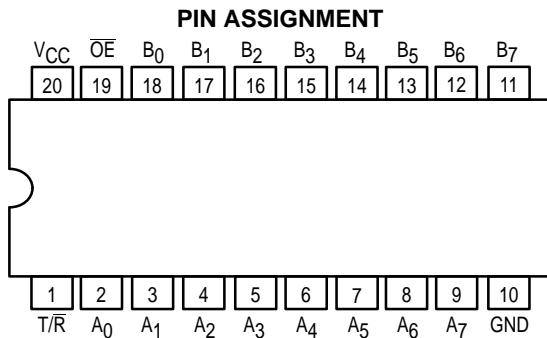




# OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3-STATE INPUTS/OUTPUTS

The MC74F1245 contains eight noninverting bidirectional buffers with 3-state outputs and is intended for bus-oriented applications. Current sinking capability is 24 mA at the A ports and 64 mA at the B ports. The Transmit/Receive (T/R) input determines the direction of data flow through the bidirectional transceiver. Transmit (active HIGH) enables data from A ports to B ports; Receive (active LOW) enables data from B ports to A ports. The Output Enable input, when HIGH, disables both A and B ports by placing them in a high-Z condition.

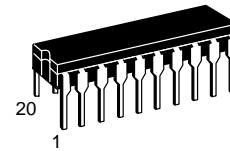
- Noninverting Buffers
- Bidirectional Data Path
- B Outputs Sink 64 mA
- High Impedance Inputs for Reduced Loading
- Same Function and Pinout as the F245
- ESD Protection > 4000 Volts



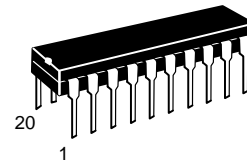
## MC74F1245

### OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3-STATE INPUTS/OUTPUTS

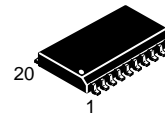
FAST™ SCHOTTKY TTL



**J SUFFIX**  
CERAMIC  
CASE 732-03



**N SUFFIX**  
PLASTIC  
CASE 738-03



**DW SUFFIX**  
SOIC  
CASE 751D-03

#### ORDERING INFORMATION

MC74FXXXXJ Ceramic  
MC74FXXXXN Plastic  
MC74FXXXXDW SOIC

#### GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit	
V <sub>CC</sub>	DC Supply Voltage	74	4.5	5.0	5.5	V	
T <sub>A</sub>	Operating Ambient Temperature Range	74	0	25	70	°C	
I <sub>OH</sub>	Output Current — High	A <sub>n</sub> Outputs	74	—	—	—3.0	mA
I <sub>OL</sub>	Output Current — Low	A <sub>n</sub> Outputs	74	—	—	24	mA
I <sub>OH</sub>	Output Current — High	B <sub>n</sub> Outputs	74	—	—	-15	mA
I <sub>OL</sub>	Output Current — Low	B <sub>n</sub> Outputs	74	—	—	64	mA

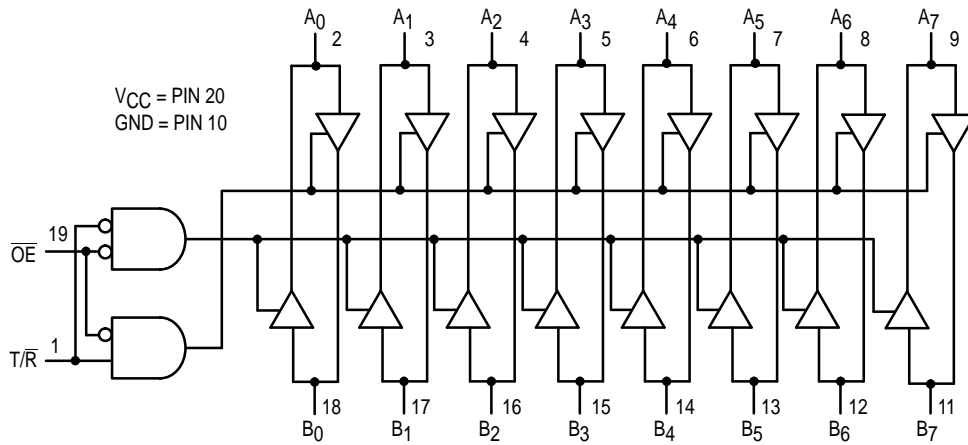
# MC74F1245

**FUNCTION TABLE**

Inputs		Inputs/Outputs	
$\overline{OE}$	$T/\overline{R}$	$A_n$	$B_n$
L	L	$A = B$	Inputs
L	H	Inputs	$B = A$
H	X	Z	Z

H = HIGH voltage level: L = LOW voltage level: X = Don't care: Z = HIGH impedance "off" state.

**LOGIC DIAGRAM**



# MC74F1245

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

Symbol	Parameter	Limits			Unit	Test Conditions (Note 1)		
		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	—	-0.73	-1.2	V	V <sub>CC</sub> = MIN, I <sub>IN</sub> = -18 mA		
V <sub>OH</sub>	Output HIGH Voltage A <sub>n</sub> Outputs	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		V <sub>CC</sub> = 4.75 V
V <sub>OH</sub>	Output HIGH Voltage B <sub>n</sub> Outputs	74	2.4	3.4	—	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.5 V
		74	2.7	3.4	—	V		V <sub>CC</sub> = 4.75 V
		74	2.0	—	—	V	I <sub>OH</sub> = -15 mA	V <sub>CC</sub> = 4.5 V
V <sub>OL</sub>	Output LOW Voltage A <sub>n</sub> Outputs	74	—	0.35	0.5	V	I <sub>OL</sub> = 24 mA	V <sub>CC</sub> = MIN
V <sub>OL</sub>	Output LOW Voltage B <sub>n</sub> Outputs	74	—	—	0.55	V	I <sub>OL</sub> = 64 mA	
I <sub>OZH</sub>	Output Off Current HIGH	—	—	70	μA	V <sub>CC</sub> = MAX	V <sub>OUT</sub> = 2.7 V	
I <sub>OZL</sub>	Output Off Current LOW	—	—	-70	μA	V <sub>CC</sub> = MAX, V <sub>OUT</sub> = 0.5 V		
I <sub>IH</sub>	Input HIGH Current	$\overline{OE}$ , T/R Inputs	—	—	40	μA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.7 V	
		A <sub>n</sub> , B <sub>n</sub> Inputs	—	—	70	μA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.7 V	
		$\overline{OE}$ , T/R Inputs	—	—	100	μA	V <sub>CC</sub> = 0 V, V <sub>IN</sub> = 7.0 V	
		B <sub>n</sub> Inputs	—	—	1.0	mA	V <sub>CC</sub> = 0 V, V <sub>IN</sub> = 5.5 V	
I <sub>IHH</sub>	Input HIGH Current	A <sub>n</sub> Inputs	—	—	2.0	mA	V <sub>CC</sub> = 0 V, V <sub>IN</sub> = 5.5 V	
I <sub>IL</sub>	Input LOW Current	$\overline{OE}$ , T/R Inputs	—	—	-40	μA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 0.5 V	
		A <sub>n</sub> , B <sub>n</sub> Inputs	—	—	-70	μA		
I <sub>OS</sub>	Output Short Circuit Current (Note 2)	A <sub>n</sub> Outputs	-60	—	-150	mA	V <sub>CC</sub> = MAX, V <sub>OUT</sub> = GND	
		B <sub>n</sub> Outputs	-100	—	-225	mA		
I <sub>CC</sub>	Power Supply Current	I <sub>CC</sub> H	—	—	120	mA	V <sub>CC</sub> = MAX	
		I <sub>CC</sub> L	—	—	120			
		I <sub>CC</sub> Z	—	—	130			

### 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.

## AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	74F		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> = 0°C to +70°C V <sub>CC</sub> = +5.0 V ±10% C <sub>L</sub> = 50 pF		
		Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay	2.0	6.5	1.5	7.0	ns
t <sub>PHL</sub>	Transparent Mode A <sub>n</sub> to B <sub>n</sub> or B <sub>n</sub> to A <sub>n</sub>	2.5	7.5	2.0	8.0	
t <sub>PZH</sub>	Output Enable Time	3.0	8.0	2.5	9.0	ns
t <sub>PZL</sub>		4.0	10.0	3.5	11.0	
t <sub>PHZ</sub>	Output Disable Time	2.0	8.0	1.5	9.0	ns
t <sub>PLZ</sub>		1.0	10.0	1.0	11.0	