

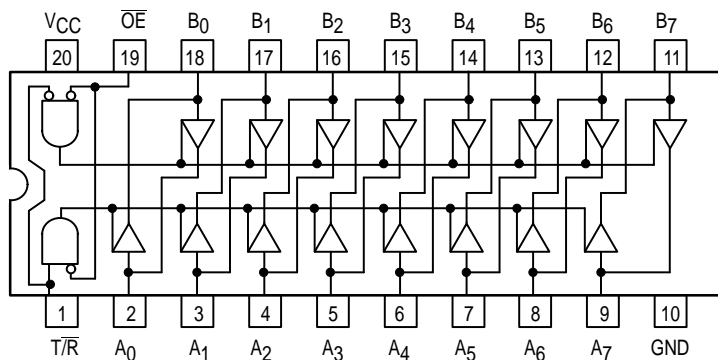


# OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3-STATE INPUTS/OUTPUTS

The MC54/74F245 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
- ESD > 4000 Volts

CONNECTION DIAGRAM (TOP VIEW)



FUNCTION TABLE

Inputs		Output
OE	T/R	
L	L	Bus B Data to Bus A
L	H	Bus A Data to Bus B
H	X	High-Z State

H = HIGH Voltage Level  
L = LOW Voltage Level  
X = Don't Care

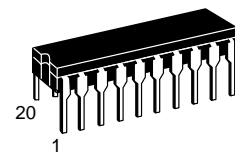
## GUARANTEED OPERATING RANGES

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	An Outputs	54, 74			-3.0	mA
			74			24	
IOL	Output Current — Low	An Outputs	54			20	mA
			74				
IOH	Output Current — High	Bn Outputs	54			-12	mA
			74			-15	
IOL	Output Current — Low	Bn Outputs	54			48	mA
			74			64	

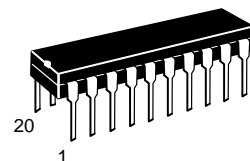
# MC54/74F245

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

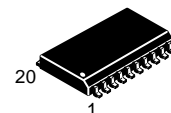
FAST™ SCHOTTKY TTL



J SUFFIX  
CERAMIC  
CASE 732-03



N SUFFIX  
PLASTIC  
CASE 738-03



DW SUFFIX  
SOIC  
CASE 751D-03

## ORDERING INFORMATION

MC54FXXXJ Ceramic  
MC74FXXXN Plastic  
MC74FXXXDW SOIC

# MC54/74F245

## 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, A <sub>n</sub> Outputs	54, 74	2.4	3.3	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.50 V	
		74	2.7	3.3	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.75 V	
V <sub>OH</sub>	Output HIGH Voltage, B <sub>n</sub> Outputs	54, 74	2.4	3.4	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.50 V	
		74	2.7	3.4	V	I <sub>OH</sub> = -3.0 mA	V <sub>CC</sub> = 4.75 V	
		54	2.0		V	I <sub>OH</sub> = -12 mA	V <sub>CC</sub> = 4.50 V	
		74	2.0		V	I <sub>OH</sub> = -15 mA		
V <sub>OL</sub>	Output LOW Voltage, A <sub>n</sub> Outputs	54		0.35	0.5	V	I <sub>OL</sub> = 20 mA	V <sub>CC</sub> = MIN
		74		0.35	0.5	V	I <sub>OL</sub> = 24 mA	
V <sub>OL</sub>	Output LOW Voltage, B <sub>n</sub> Outputs	54			0.55	V	I <sub>OL</sub> = 48 mA	V <sub>CC</sub> = MIN
		74			0.55	V	I <sub>OL</sub> = 64 mA	
I <sub>OZH</sub> + I <sub>IH</sub>	Output Off Current HIGH				70	μA	V <sub>OUT</sub> = 2.7 V	V <sub>CC</sub> = MAX
I <sub>OZL</sub> + I <sub>IL</sub>	Output Off Current LOW				-650	mA	V <sub>OUT</sub> = 0.5 V	V <sub>CC</sub> = MAX
I <sub>IH</sub>	Input HIGH Current	OE, T/R Inputs			20	μA	V <sub>IN</sub> = 2.7 V	V <sub>CC</sub> = MAX
		OE, T/R Inputs			100	μA	V <sub>IN</sub> = 7.0 V	
		A <sub>n</sub> , B <sub>n</sub> Inputs			1.0	mA	V <sub>IN</sub> = 5.5 V	
I <sub>IL</sub>	Input LOW Current	T/R Input			-0.8	mA	V <sub>IN</sub> = 0.5 V	V <sub>CC</sub> = MAX
		OE Input			-1.2	mA		
I <sub>OS</sub>	Output Short Circuit Current (Note 2)	A <sub>n</sub> Outputs	-60		-150	mA	V <sub>OUT</sub> = GND	V <sub>CC</sub> = MAX
		B <sub>n</sub> Outputs	-100		-225	mA	V <sub>OUT</sub> = GND	V <sub>CC</sub> = MAX
I <sub>CCH</sub>	Power Supply Current HIGH				90	mA	V <sub>CC</sub> = MAX, Outputs HIGH	
I <sub>CCL</sub>	Power Supply Current LOW				120	mA	V <sub>CC</sub> = MAX, Outputs LOW	
I <sub>CCZ</sub>	Power Supply Current OFF				110	mA	V <sub>CC</sub> = MAX, Outputs OFF	

### 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.

## 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	Max	Min	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay	2.5	6.0	2.5	8.0	2.5	7.0	ns
t <sub>PHL</sub>	A <sub>n</sub> to B <sub>n</sub> or B <sub>n</sub> to A <sub>n</sub>	2.5	6.0	2.5	8.0	2.5	7.0	
t <sub>PZH</sub>	Output Enable Time	3.0	7.0	3.0	9.0	3.0	8.0	ns
t <sub>PZL</sub>		3.5	8.0	3.5	10	3.5	9.0	
t <sub>PHZ</sub>	Output Disable Time	2.5	6.5	2.5	8.5	2.5	7.5	ns
t <sub>PLZ</sub>		2.0	6.5	2.0	8.5	2.0	7.5	