MOTOROLA

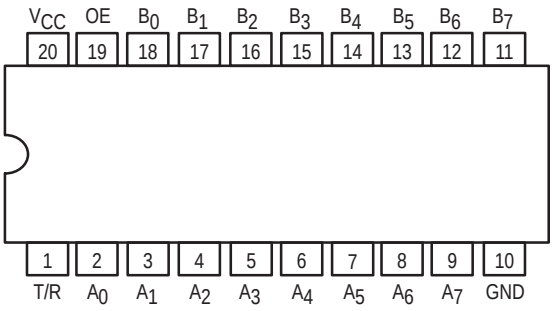
MC74F1245

OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3-STATE INPUTS/OUTPUTS

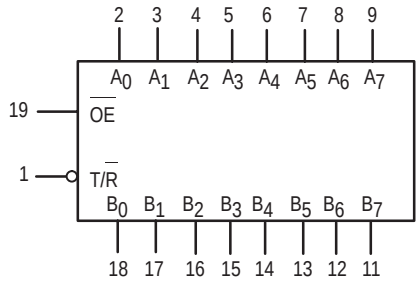
The MC74F1245 contains eight noninverting bidirectional buffers with 3-state outputs and is intended for bus-oriented applications. Current sinking capability is 24 mA at the A ports and 64 mA at the B ports. The Transmit/Receive (T/R) input determines the direction of data flow through the bidirectional 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

PIN ASSIGNMENT

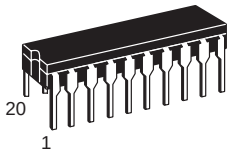


LOGIC SYMBOL

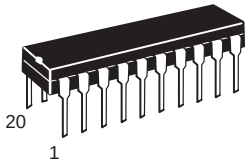


OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3-STATE INPUTS/OUTPUTS

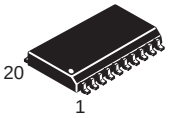
FAST™ SCHOTTKY TTL



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

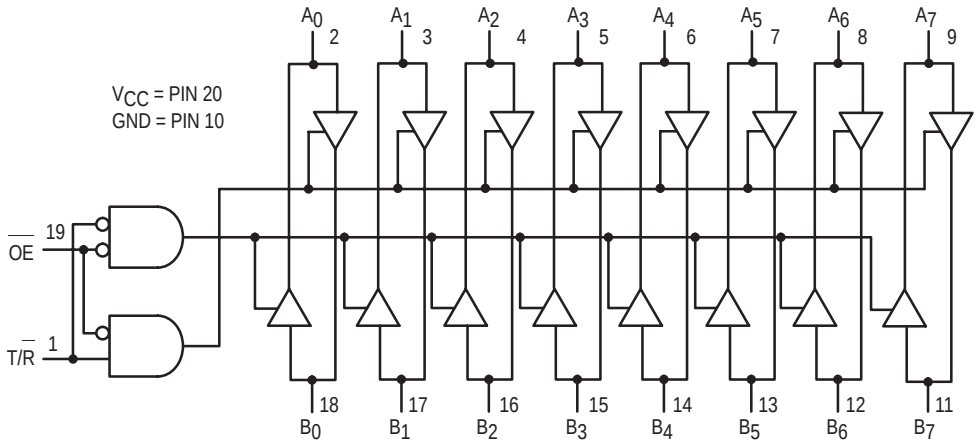
Symbol	Parameter			Min	Typ	Max	Unit
V_{CC}	DC Supply Voltage		74	4.5	5.0	5.5	V
T_A	Operating Ambient Temperature Range		74	0	25	70	°C
I_{OH}	Output Current — High	A_n Outputs	74	—	—	–3.0	mA
I_{OL}	Output Current — Low	A_n Outputs	74	—	—	24	mA
I_{OH}	Output Current — High	B_n Outputs	74	—	—	–15	mA
I_{OL}	Output Current — Low	B_n Outputs	74	—	—	64	mA

FUNCTION TABLE

Inputs		Inputs/Outputs	
$\overline{OE}$	$\overline{T/R}$	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



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter		Limits Min	Limits Typ	Limits Max	Unit	Test Conditions (Note 1)	
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		—	–0.73	–1.2	V	V_{CC} = MIN, I_{IN} = –18 mA	
V_{OH}	Output HIGH Voltage A_n Outputs	74	2.4	3.3	—	V	I_{OH} = –3.0 mA	V_{CC} = 4.5 V
		74	2.7	3.3	—	V		V_{CC} = 4.75 V
V_{OH}	Output HIGH Voltage B_n Outputs	74	2.4	3.4	—	V	I_{OH} = –3.0 mA	V_{CC} = 4.5 V
		74	2.7	3.4	—	V		V_{CC} = 4.75 V
		74	2.0	—	—	V	I_{OH} = –15 mA	V_{CC} = 4.5 V
V_{OL}	Output LOW Voltage A_n Outputs	74	—	0.35	0.5	V	I_{OL} = 24 mA	V_{CC} = MIN
V_{OL}	Output LOW Voltage B_n Outputs	74	—	—	0.55	V	I_{OL} = 64 mA	
I_{OZH}	Output Off Current HIGH		—	—	70	µA	V_{CC} = MAX	V_{OUT} = 2.7 V
I_{OZL}	Output Off Current LOW		—	—	–70	µA	V_{CC} = MAX, V_{OUT} = 0.5 V	
I_{IH}	Input HIGH Current	$\overline{OE}$, T/R Inputs	—	—	40	µA	V_{CC} = MAX, V_{IN} = 2.7 V	
		A_n, B_n Inputs	—	—	70	µA	V_{CC} = MAX, V_{IN} = 2.7 V	
		$\overline{OE}$, T/R Inputs	—	—	100	µA	V_{CC} = 0 V, V_{IN} = 7.0 V	
		B_n Inputs	—	—	1.0	mA	V_{CC} = 0 V, V_{IN} = 5.5 V	
I_{IHH}	Input HIGH Current	A_n Inputs	—	—	2.0	mA	V_{CC} = 0 V, V_{IN} = 5.5 V	
I_{IL}	Input LOW Current	$\overline{OE}$, T/R Inputs	—	—	–40	µA	V_{CC} = MAX, V_{IN} = 0.5 V	
		A_n, B_n Inputs	—	—	–70	µA		
I_{OS}	Output Short Circuit Current (Note 2)	A_n Outputs	–60	—	–150	mA	V_{CC} = MAX, V_{OUT} = GND	
		B_n Outputs	–100	—	–225	mA		
I_{CC}	Power Supply Current	I_{CCH}	—	—	120	mA	V_{CC} = MAX	
		I_{CCL}	—	—	120			
		I_{CCZ}	—	—	130			

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

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	74F T_A = +25°C, V_{CC} = +5.0 V, C_L = 50 pF Min	74F T_A = +25°C, V_{CC} = +5.0 V, C_L = 50 pF Max	74F T_A = 0°C to +70°C, V_{CC} = +5.0 V ±10%, C_L = 50 pF Min	74F T_A = 0°C to +70°C, V_{CC} = +5.0 V ±10%, C_L = 50 pF Max	Unit
t_{PLH} t_{PHL}	Propagation Delay Transparent Mode A_n to B_n or B_n to A_n	2.0 2.5	6.5 7.5	1.5 2.0	7.0 8.0	ns
t_{PZH} t_{PZL}	Output Enable Time	3.0 4.0	8.0 10.0	2.5 3.5	9.0 11.0	ns
t_{PHZ} t_{PLZ}	Output Disable Time	2.0 1.0	8.0 10.0	1.5 1.0	9.0 11.0	ns

LIFETIME BUY

LAST ORDER 31/03/99 LAST SHIP 30/09/99

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