

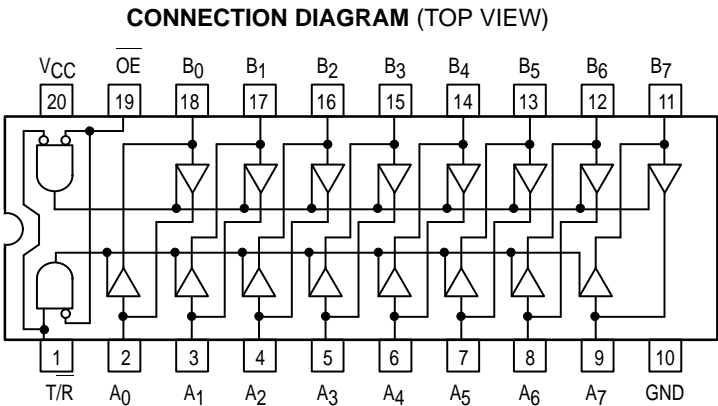
25Ω Octal Bidirectional Transceiver With 3-State Inputs and Outputs

The MC74F2245 is designed for asynchronous communication between data buses. The device transmits data from the A bus to the B bus or from the B bus to the A bus depending upon the logic level at the direction control (DIR) input. The output enable (OE) input disables the device so the buses are effectively isolated.

Both A and B outputs can sink up to 12mA; 25Ω resistors are included in the lower output circuit to reduce overshoot and undershoot.

The MC74F2245 is characterized for operation from 0°C to 70°C.

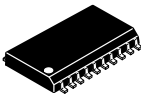
- 3-State Outputs Drive Bus Lines or Buffer Memory Address Registers
- Package Options Include Plastic SOIC (DW-Suffix) and Plastic SSOP (SD-Suffix)



MC74F2245

25Ω OCTAL BIDIRECTIONAL
TRANSCEIVER WITH 3-STATE
INPUTS AND OUTPUTS

FAST™ SCHOTTKY TTL



DW SUFFIX
PLASTIC SOIC
CASE 751D-04



SD SUFFIX*
PLASTIC SSOP
CASE 940C-03

**Thermal Mounting Techniques are
Recommended. Please refer to Motorola
Application Note AN1567/D.*

GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
VCC	Supply Voltage		4.5	5.0	5.5	V
T _A	Operating Ambient Temperature Range		0	25	70	°C
I _{OH}	Output Current — High	Outputs			−3.0	mA
I _{OL}	Output Current — Low	Outputs			12	mA



DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

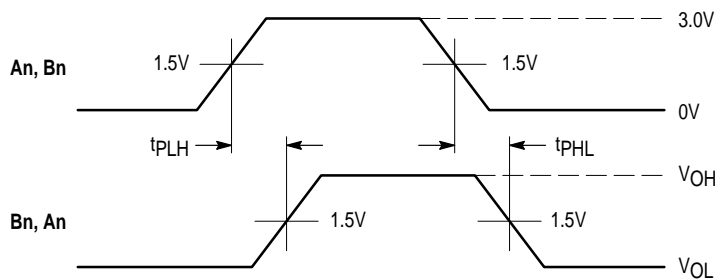
Symbol	Parameter		Limits			Unit	Test Conditions	
			Min	Typ	Max			
V_{IH}	Input HIGH Voltage		2.0			V	Guaranteed Input HIGH Voltage	
V_{IL}	Input LOW Voltage				0.8	V	Guaranteed Input LOW Voltage	
V_{IK}	Input Clamp Diode Voltage				-1.2	V	$I_{IN} = -18 \text{ mA}$	$V_{CC} = \text{MIN}$
V_{OH}	Output HIGH Voltage, Outputs		2.5			V	$I_{OH} = -1.0 \text{ mA}$	$V_{CC} = 4.50 \text{ V}$
			2.4	3.0		V	$I_{OH} = -3.0 \text{ mA}$	$V_{CC} = 4.50 \text{ V}$
			2.7	3.2		V	$I_{OH} = -3.0 \text{ mA}$	$V_{CC} = 4.75 \text{ V}$
V_{OL}	Output LOW Voltage, Outputs			0.2	0.5	V	$I_{OL} = 1 \text{ mA}$	$V_{CC} = \text{MIN}$
V_{OL}	Output LOW Voltage, Outputs			0.5	0.75	V	$I_{OL} = 12 \text{ mA}$	$V_{CC} = \text{MIN}$
$I_{OZH} + I_{IH}$	Output Off Current HIGH				70	μA	$V_{OUT} = 2.7 \text{ V}$	$V_{CC} = \text{MAX}$
$I_{OZL} + I_{IL}$	Output Off Current LOW				-650	mA	$V_{OUT} = 0.5 \text{ V}$	$V_{CC} = \text{MAX}$
I_{IH}	Input HIGH Current	OE, T/R Inputs			20	μA	$V_{IN} = 2.7 \text{ V}$	$V_{CC} = \text{MAX}$
		OE, T/R Inputs			100	μA	$V_{IN} = 7.0 \text{ V}$	
		A_n, B_n Inputs			1.0	mA	$V_{IN} = 5.5 \text{ V}$	
I_{IL}	Input LOW Current	T/R Input			-0.8	mA	$V_{IN} = 0.5 \text{ V}$	$V_{CC} = \text{MAX}$
		OE Input			-1.2	mA		
I_{OS}	Output Short Circuit Current (Note 2)	A_n Outputs	-60		-150	mA	$V_{OUT} = \text{GND}$	$V_{CC} = \text{MAX}$
		B_n Outputs	-100		-225	mA	$V_{OUT} = \text{GND}$	$V_{CC} = \text{MAX}$
I_{CCH}	Power Supply Current HIGH				90	mA	$V_{CC} = \text{MAX}$, Outputs HIGH	
I_{CCL}	Power Supply Current LOW				120	mA	$V_{CC} = \text{MAX}$, Outputs LOW	
I_{CCZ}	Power Supply Current OFF				110	mA	$V_{CC} = \text{MAX}$, Outputs OFF	

NOTES:

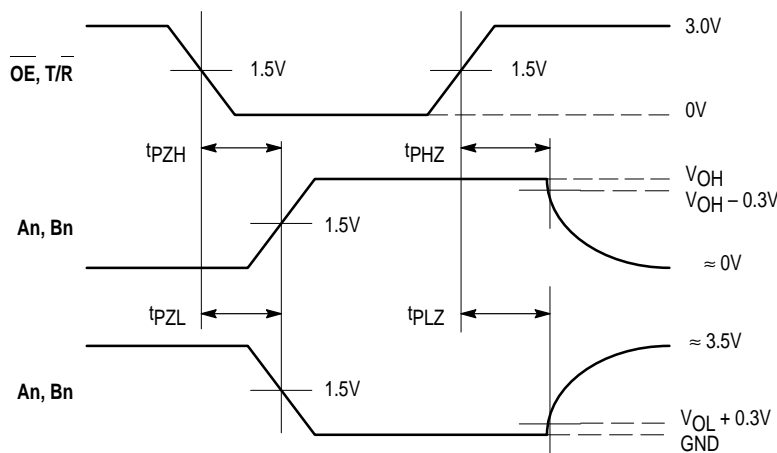
- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
- Not more than one output should be shorted at a time.

AC CHARACTERISTICS

Symbol	Parameter	$T_A = +25^\circ\text{C}$ $V_{CC} = +5.0 \text{ V}$ $C_L = 50 \text{ pF}$		$T_A = 0^\circ\text{C to } +70^\circ\text{C}$ $V_{CC} = 5.0 \text{ V} \pm 10\%$ $C_L = 50 \text{ pF}$		Unit
		Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay A_n to B_n or B_n to A_n	2.5 2.5	6.0 6.6	2.5 2.5	7.0 7.1	ns
t_{PZH} t_{PZL}	Output Enable Time	3.0 3.5	7.3 10.6	3.0 3.5	8.5 12.0	ns
t_{PHZ} t_{PLZ}	Output Disable Time	2.5 2.0	6.5 6.5	2.5 2.0	7.5 7.5	ns

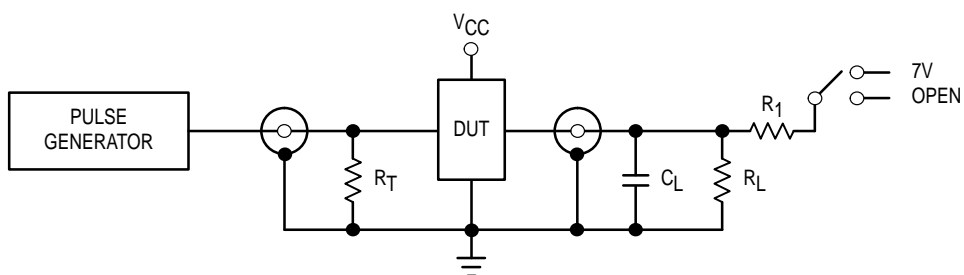


WAVEFORM 1 – PROPAGATION DELAYS
 $t_R = t_F = 2.5\text{ns}$, 10% to 90%; $f = 1\text{MHz}$; $t_W = 500\text{ns}$



WAVEFORM 2 – OUTPUT ENABLE AND DISABLE TIMES
 $t_R = t_F = 2.5\text{ns}$, 10% to 90%; $f = 1\text{MHz}$; $t_W = 500\text{ns}$

Figure 1. AC Waveforms



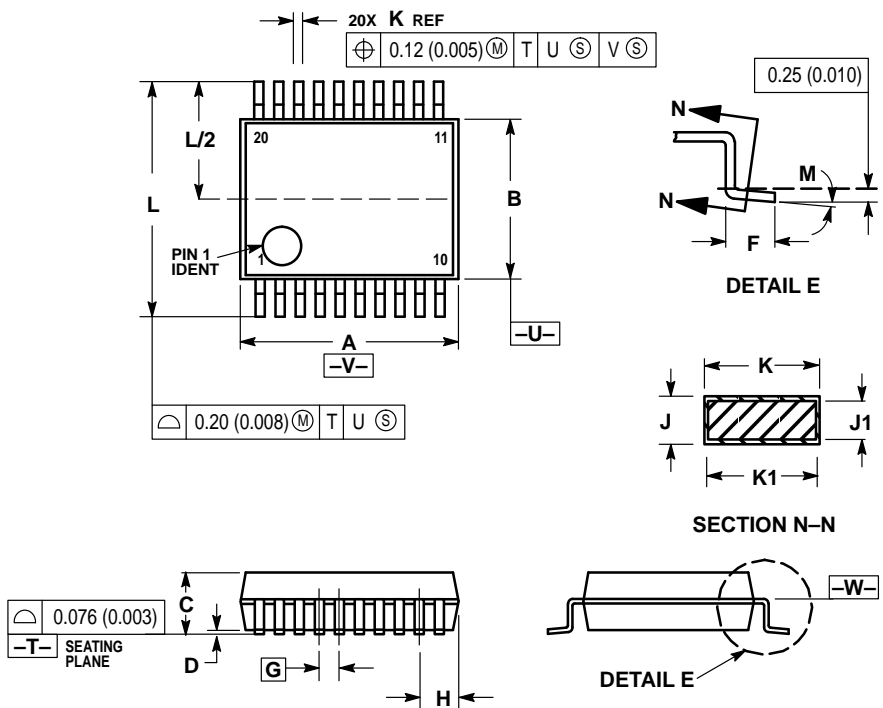
TEST	SWITCH
t_{PLH} , t_{PHL}	Open
t_{PZL} , t_{PLZ}	7V
t_{PZH} , t_{PHZ}	Open

$C_L = 50\text{pF}$ or equivalent (Includes jig and probe capacitance)
 $R_L = R_1 = 500\Omega$ or equivalent
 $R_T = Z_{OUT}$ of pulse generator (typically 50Ω)

Figure 2. Test Circuit

OUTLINE DIMENSIONS

SD SUFFIX
PLASTIC SSOP PACKAGE
CASE 940C-03
ISSUE B

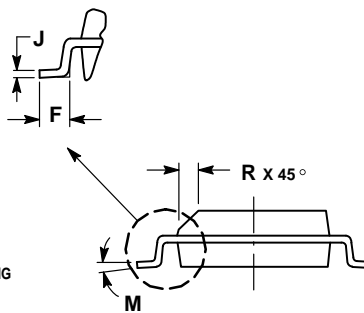
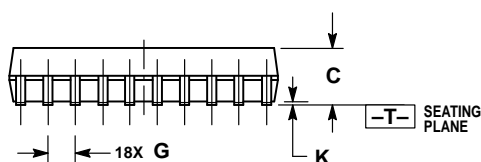
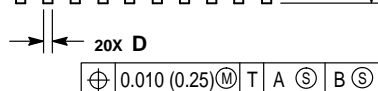
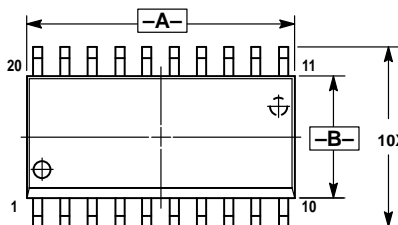


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.
 3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
 4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
 5. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION/INTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.13 (0.005) TOTAL IN EXCESS OF K DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR INTRUSION SHALL NOT REDUCE DIMENSION K BY MORE THAN 0.07 (0.002) AT LEAST MATERIAL CONDITION.
 6. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
 7. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.07	7.33	0.278	0.288
B	5.20	5.38	0.205	0.212
C	1.73	1.99	0.068	0.078
D	0.05	0.21	0.002	0.008
F	0.63	0.95	0.024	0.037
G	0.65 BSC		0.026 BSC	
H	0.59	0.75	0.023	0.030
J	0.09	0.20	0.003	0.008
J1	0.09	0.16	0.003	0.006
K	0.25	0.38	0.010	0.015
K1	0.25	0.33	0.010	0.013
L	7.65	7.90	0.301	0.311
M	0 °	8 °	0 °	8 °

OUTLINE DIMENSIONS


DW SUFFIX
PLASTIC SOIC PACKAGE
CASE 751D-04
ISSUE E



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.150 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.13 (0.005) TOTAL IN EXCESS OF D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.65	12.95	0.499	0.510
B	7.40	7.60	0.292	0.299
C	2.35	2.65	0.093	0.104
D	0.35	0.49	0.014	0.019
F	0.50	0.90	0.020	0.035
G	1.27 BSC		0.050 BSC	
J	0.25	0.32	0.010	0.012
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	10.05	10.55	0.395	0.415
R	0.25	0.75	0.010	0.029

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How to reach us:

USA/EUROPE: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

MFAX: RMFAX0@email.sps.mot.com -TOUCHTONE (602) 244-6609
INTERNET: <http://Design-NET.com>

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,
6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

