

# Quad Bus Driver/Receiver with 2-to-1 Output Multiplexers

The MC10H330 is a Quad Bus Driver/Receiver with two-to-one output multiplexers. These multiplexers have a common select and output enable. When disabled, (OE = high) the bus outputs go to -2.0 V. Their output can be brought to a low state (VOL) by applying a high level to the receiver enable (RE = High). The parameters specified are with 25 Ω loading on the bus drivers and 50 Ω loads on the receivers.

- Propagation Delay, 1.5 ns Typical Data-to-Output
- Improved Noise Margin 150 mV (Over Operating Voltage and Temperature Range)
- Voltage Compensated
- MECL 10K-Compatible

### MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Power Supply (VCC = 0)	V <sub>EE</sub>	-8.0 to 0	Vdc
Input Voltage (VCC = 0)	V <sub>I</sub>	0 to V <sub>EE</sub>	Vdc
Output Current — Continuous — Surge	I <sub>out</sub>	50 100	mA
Operating Temperature Range	T <sub>A</sub>	0 to +75	°C
Storage Temperature Range — Plastic — Ceramic	T <sub>stg</sub>	-55 to +150 -55 to +165	°C °C

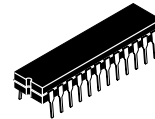
### ELECTRICAL CHARACTERISTICS (V<sub>EE</sub> = -5.2 V ±5%) (See Note)

Characteristic	Symbol	0°		25°		75°		Unit
		Min	Max	Min	Max	Min	Max	
Power Supply Current	I <sub>E</sub>	—	157	—	143	—	157	mA
Input Current High Pins 5-8, 17-20 Pins 16, 21 Pin 9	I <sub>inH</sub>	—	667 514 475	—	417 321 297	—	417 321 297	μA
Input Current Low	I <sub>inL</sub>	0.5	—	0.5	—	0.3	—	μA
High Output Voltage	V <sub>OH</sub>	-1.02	-0.84	-0.98	-0.81	-0.92	-0.735	Vdc
Low Output Voltage	V <sub>OL</sub>	-1.95	-1.63	-1.95	-1.63	-1.95	-1.60	Vdc
High Input Voltage	V <sub>IH</sub>	-1.17	-0.84	-1.13	-0.81	-1.07	-0.735	Vdc
Low Input Voltage	V <sub>IL</sub>	-1.95	-1.48	-1.95	-1.48	-1.95	-1.45	Vdc

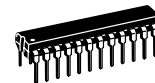
### AC PARAMETERS

Characteristic	Symbol	1.8	5.3	1.8	5.3	1.8	5.3	Unit
Propagation Delay Select-to-Input	t <sub>pd</sub>	1.8	5.3	1.8	5.3	1.8	5.3	ns
Data-to-Bus Output Select-to-Bus _Output		0.5	2.0	0.5	2.0	0.5	2.0	
OE-to-Bus Output		1.0	3.2	1.0	3.2	1.0	3.2	
Bus-to-Input		0.8	2.2	0.8	2.2	0.8	2.2	
RE-to-Input		0.8	2.1	0.8	2.1	0.8	2.4	
Data-to-Receiver Input		0.5	2.2	0.5	2.2	0.5	2.2	
Rise Time	t <sub>r</sub>	1.3	4.0	1.3	4.0	1.3	4.0	ns
Fall Time	t <sub>f</sub>	0.5	2.0	0.5	2.0	0.5	2.0	ns

## MC10H330



**L SUFFIX**  
CERAMIC PACKAGE  
CASE 758-02

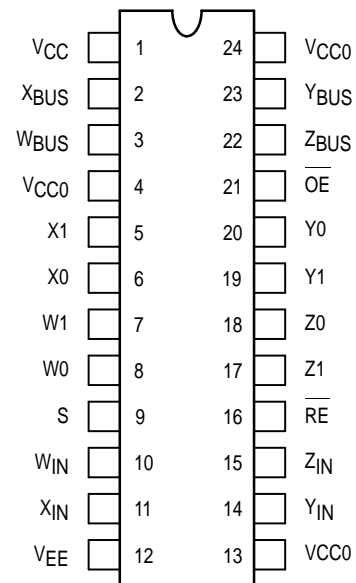


**P SUFFIX**  
PLASTIC PACKAGE  
CASE 724-03



**FN SUFFIX**  
PLCC  
CASE 776-02

### DIP PIN ASSIGNMENT



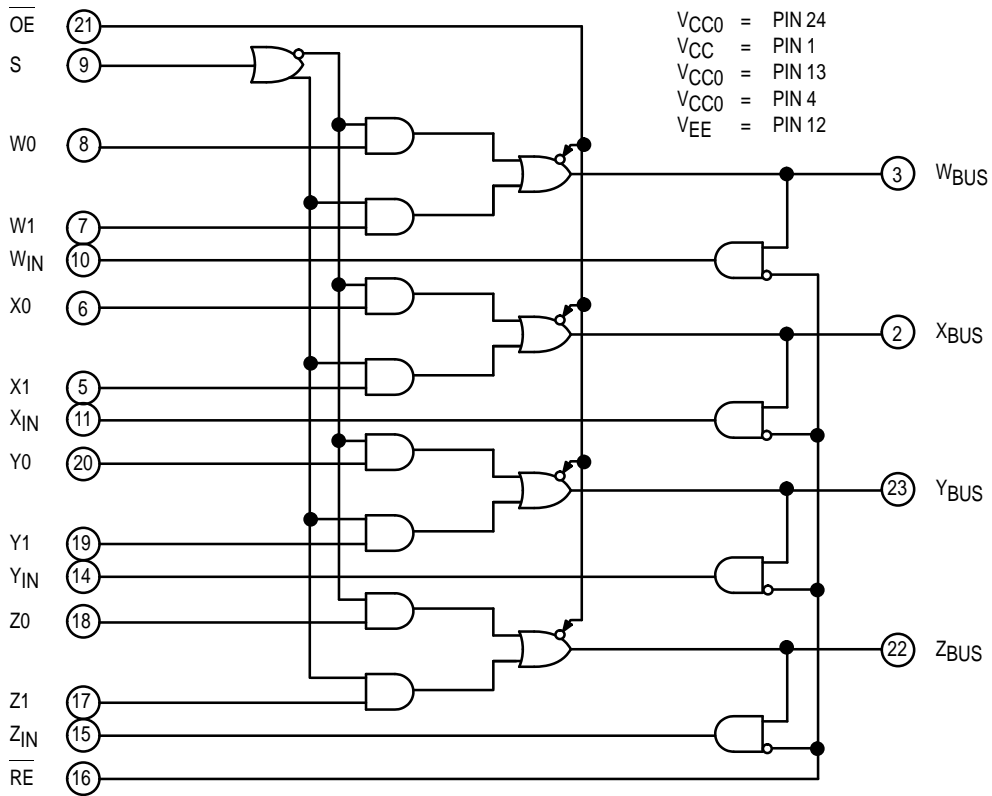
Pin assignment is for Dual-in-Line Package. For PLCC pin assignment, see the Pin Conversion Tables on page 6-11 of the Motorola MECL Data Book (DL122/D).

#### NOTE:

Each MECL 10H series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 lpm is maintained. Receiver outputs are terminated through a 50-ohm resistor to -2.0 volts dc. Bus outputs are terminated through a 25-ohm resistor to -2.0 volts dc.



LOGIC DIAGRAM



MULTIPLEXER TRUTH TABLE

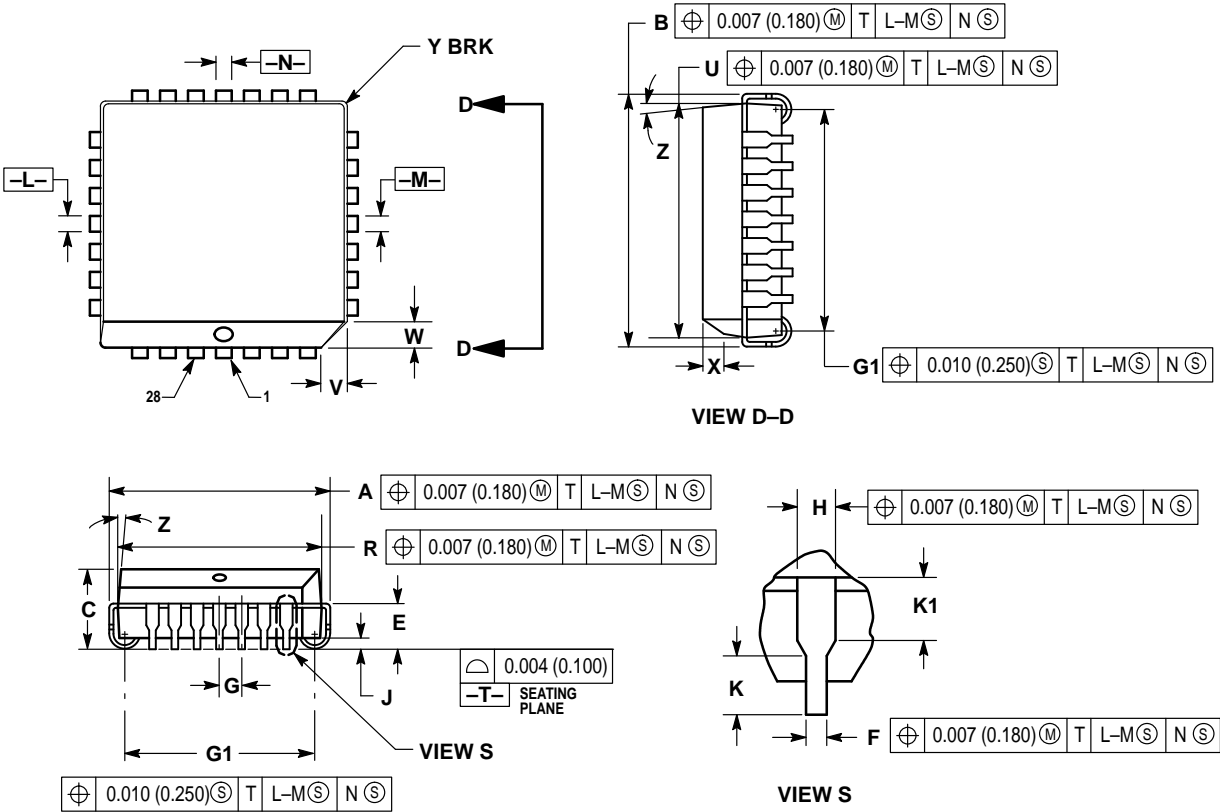
OE	S	W <sub>Bus</sub>	X <sub>Bus</sub>	Y <sub>Bus</sub>	Z <sub>Bus</sub>
H	X	-2.0 V	-2.0 V	-2.0 V	-2.0 V
L	L	W0	X0	Y0	Z0
L	H	W1	X1	Y1	Z1

RECEIVER TRUTH TABLE

RE	W <sub>in</sub>	X <sub>in</sub>	Y <sub>in</sub>	Z <sub>in</sub>
H	L	L	L	L
L	W <sub>Bus</sub>	X <sub>Bus</sub>	Y <sub>Bus</sub>	Z <sub>Bus</sub>

OUTLINE DIMENSIONS

FN SUFFIX  
 PLASTIC PLCC PACKAGE  
 CASE 776-02  
 ISSUE D

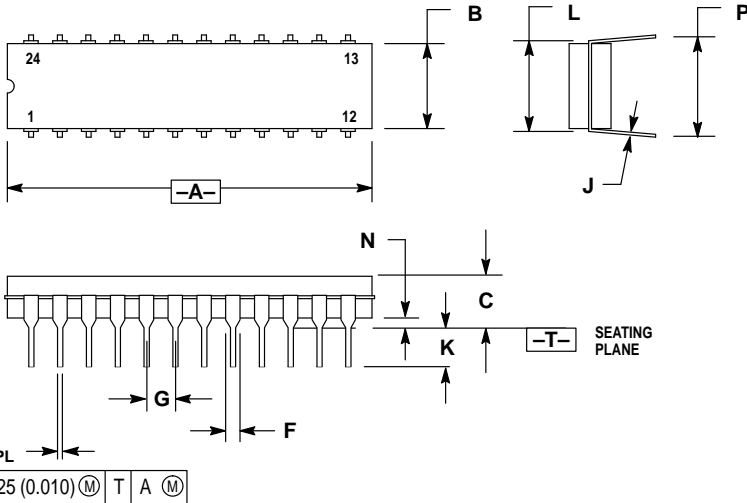


- NOTES:
- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
  - DIMENSION G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
  - DIMENSIONS R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
  - DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  - CONTROLLING DIMENSION: INCH.
  - THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
  - DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.485	0.495	12.32	12.57
B	0.485	0.495	12.32	12.57
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	—	0.51	—
K	0.025	—	0.64	—
R	0.450	0.456	11.43	11.58
U	0.450	0.456	11.43	11.58
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	—	0.020	—	0.50
Z	2° 10°		2° 10°	
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

OUTLINE DIMENSIONS

**L SUFFIX**  
**CERAMIC DIP PACKAGE**  
**CASE 758-02**  
**ISSUE A**

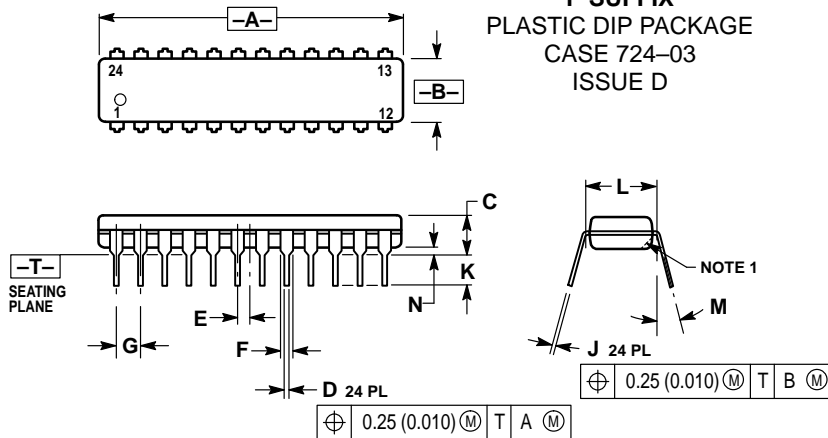


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.240	1.285	31.50	32.64
B	0.285	0.305	7.24	7.75
C	0.160	0.200	4.07	5.08
D	0.015	0.021	0.38	0.53
F	0.045	0.062	1.14	1.57
G	0.100 BSC		2.54 BSC	
J	0.008	0.013	0.20	0.33
K	0.100	0.165	2.54	4.19
L	0.300	0.310	7.62	7.87
N	0.020	0.050	0.51	1.27
P	0.360	0.400	9.14	10.16

⊕ 0.25 (0.010) (M) T A (M)

**P SUFFIX**  
**PLASTIC DIP PACKAGE**  
**CASE 724-03**  
**ISSUE D**



- NOTES:
1. CHAMFERED CONTOUR OPTIONAL.
  2. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
  3. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  4. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.230	1.265	31.25	32.13
B	0.250	0.270	6.35	6.85
C	0.145	0.175	3.69	4.44
D	0.015	0.020	0.38	0.51
E	0.050 BSC		1.27 BSC	
F	0.040	0.060	1.02	1.52
G	0.100 BSC		2.54 BSC	
J	0.007	0.012	0.18	0.30
K	0.110	0.140	2.80	3.55
L	0.300 BSC		7.62 BSC	
M	0°	15°	0°	15°
N	0.020	0.040	0.51	1.01

⊕ 0.25 (0.010) (M) T A (M)

⊕ 0.25 (0.010) (M) T B (M)

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