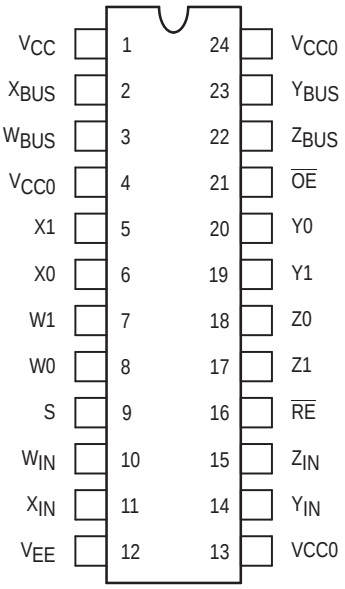
MC10H330

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, ($\overline{OE}$ = high) the bus outputs go to –2.0 V. Their output can be brought to a low state (V_{OL}) by applying a high level to the receiver enable ($\overline{RE}$ = 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

DIP
PIN ASSIGNMENT



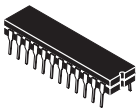
Pin assignment is for Dual–in–Line Package.
For PLCC pin assignment, see the Pin Conversion Tables on page 18 of the ON Semiconductor MECL Data Book (DL122/D).

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 lfpm 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.

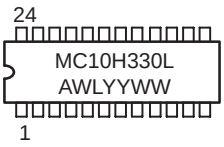
ON Semiconductor

http://onsemi.com

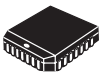
MARKING DIAGRAMS



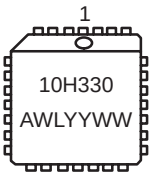
CDIP–24
L SUFFIX
CASE 758



PDIP–24
P SUFFIX
CASE 724



PLCC–28
FN SUFFIX
CASE 776



A = Assembly Location
WL = Wafer Lot
YY = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
MC10H330L	CDIP–24	15 Units/Rail
MC10H330P	PDIP–24	15 Units/Rail
MC10H330FN	PLCC–28	37 Units/Rail

MAXIMUM RATINGS

Symbol	Characteristic	Rating	Unit
V_{EE}	Power Supply (V_{CC} = 0)	–8.0 to 0	Vdc
V_I	Input Voltage (V_{CC} = 0)	0 to V_{EE}	Vdc
I_{out}	Output Current – Continuous – Surge	50 100	mA
T_A	Operating Temperature Range	0 to +75	°C
T_{stg}	Storage Temperature Range – Plastic – Ceramic	–55 to +150 –55 to +165	°C °C

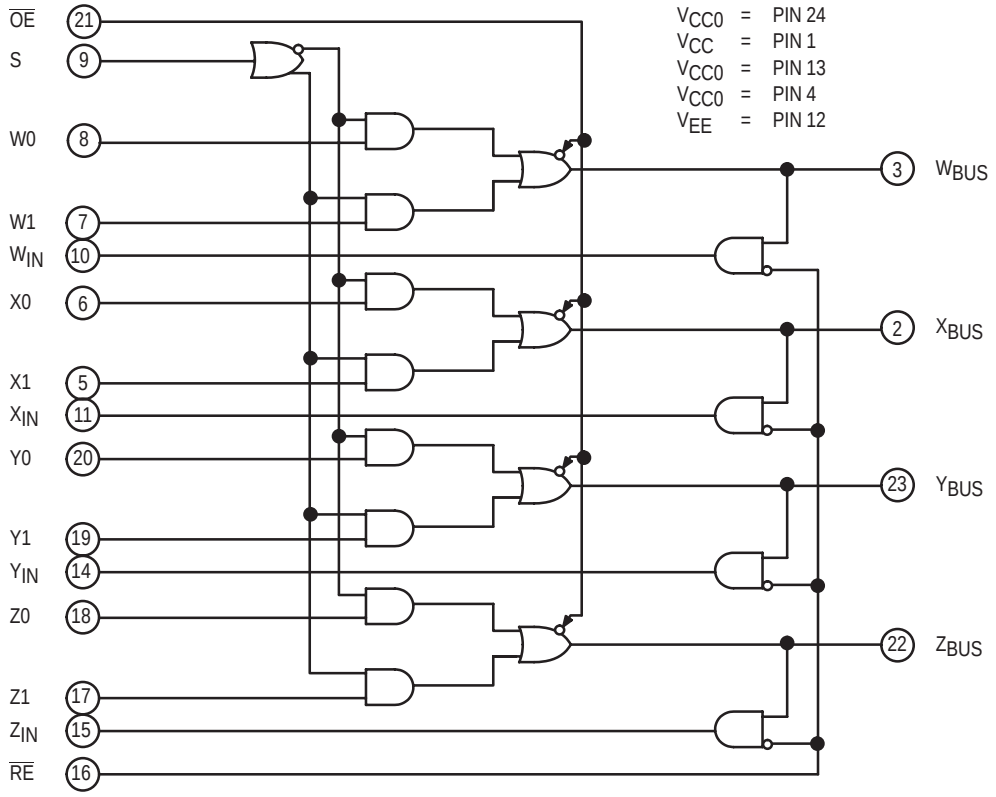
ELECTRICAL CHARACTERISTICS (V_{EE} = –5.2 V ±5%) (See Note)

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

AC PARAMETERS

t_{pd}	Propagation Delay							ns
	Select–to–Input	1.8	5.3	1.8	5.3	1.8	5.3	
	Data–to–Bus Output	0.5	2.0	0.5	2.0	0.5	2.0	
	Select–to–Bus Output	1.0	3.2	1.0	3.2	1.0	3.2	
	$\overline{OE}$–to–Bus Output	0.8	2.2	0.8	2.2	0.8	2.2	
	Bus–to–Input	0.8	2.1	0.8	2.1	0.8	2.4	
	$\overline{RE}$–to–Input	0.5	2.2	0.5	2.2	0.5	2.2	
	Data–to–Receiver Input	1.3	4.0	1.3	4.0	1.3	4.0	
t_r	Rise Time	0.5	2.0	0.5	2.0	0.5	2.0	ns
t_f	Fall Time	0.5	2.0	0.5	2.0	0.5	2.0	ns

LOGIC DIAGRAM



MULTIPLEXER TRUTH TABLE

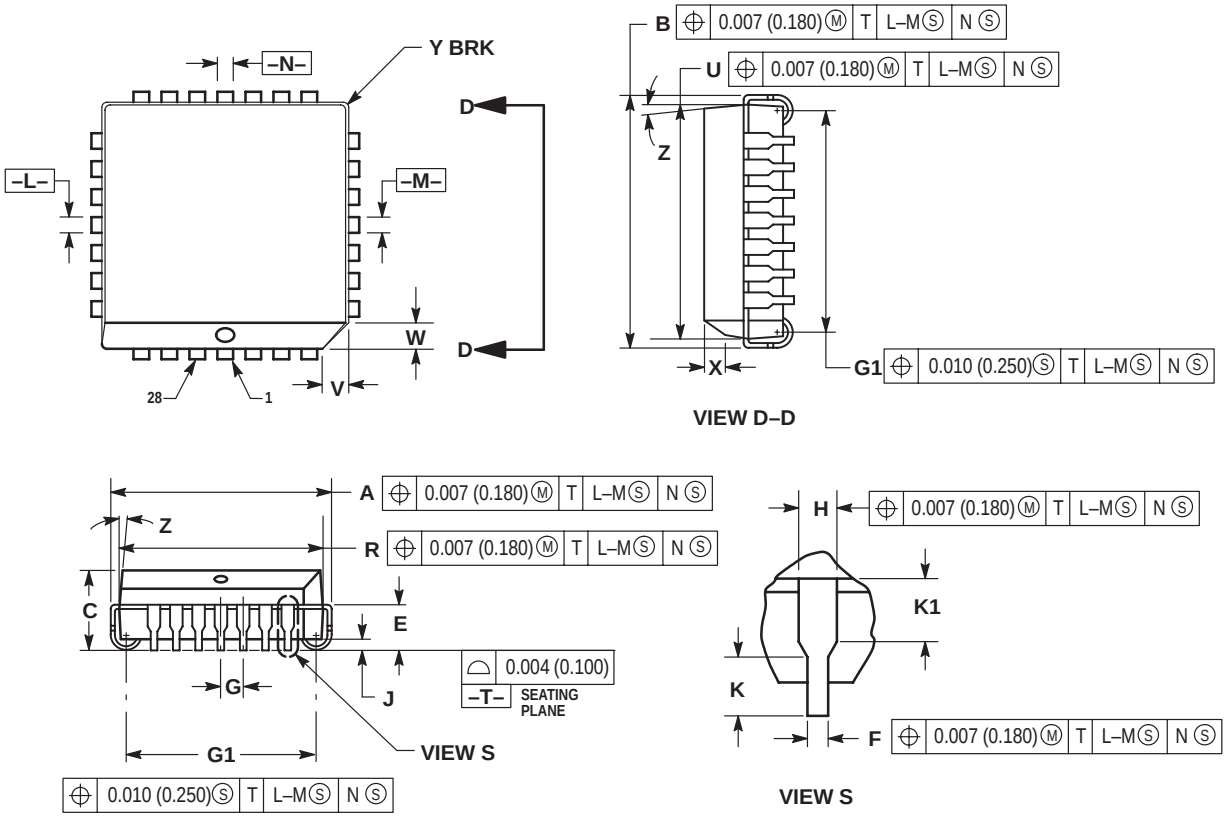
$\overline{OE}$	S	W_{Bus}	X_{Bus}	Y_{Bus}	Z_{Bus}
H	X	–2.0 V	–2.0 V	–2.0 V	–2.0 V
L	L	W0	X0	Y0	Z0
L	H	W1	X1	Y1	Z1

RECEIVER TRUTH TABLE

$\overline{RE}$	W_{in}	X_{in}	Y_{in}	Z_{in}
H	L	L	L	L
L	W_{Bus}	X_{Bus}	Y_{Bus}	Z_{Bus}

PACKAGE DIMENSIONS

PLCC–28
FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776–02
ISSUE D

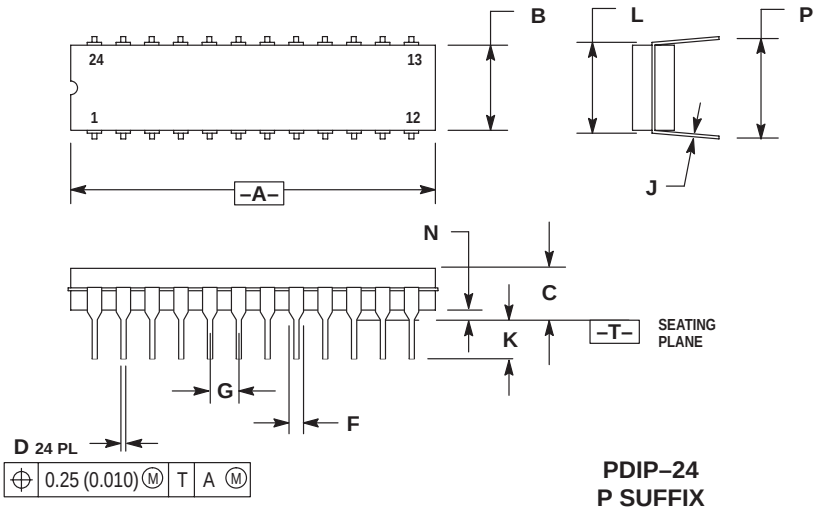


NOTES:
1. DATUMS –L–, –M–, AND –N– DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
2. DIMENSION G1, TRUE POSITION TO BE MEASURED AT DATUM –T–, SEATING PLANE.
3. DIMENSIONS R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
5. CONTROLLING DIMENSION: INCH.
6. 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.
7. 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).

	INCHES		MILLIMETERS	
DIM	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	—

PACKAGE DIMENSIONS

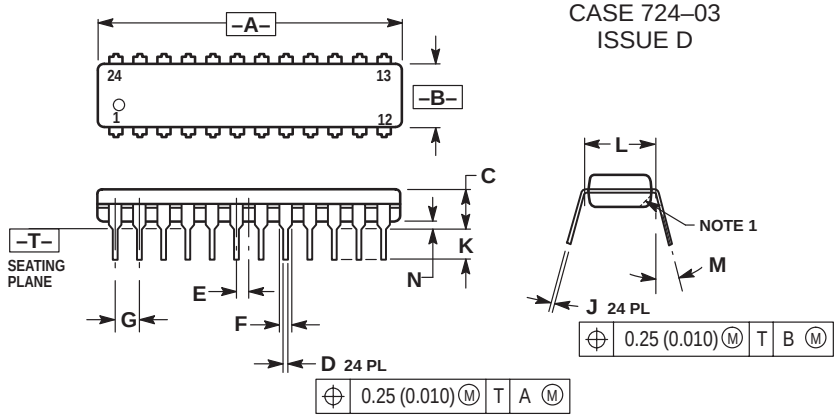
CDIP–24
L SUFFIX
CERAMIC DIP PACKAGE
CASE 758–02
ISSUE A



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

	INCHES		MILLIMETERS	
DIM	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

PDIP–24
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.

	INCHES		MILLIMETERS	
DIM	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

Notes

Notes

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