Quad 2-Input Multiplexer/ Latch

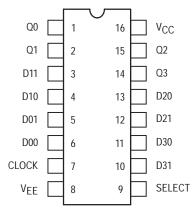
The MC10H173 is a quad 2-input multiplexer with latch. This device is a functional/pinout duplication of the standard MECL 10K part, with 100% improvement in propagation delay and no increase in power supply current.

- Data Propagation Delay, 1.5 ns Typical
- Power Dissipation, 275 mW Typical
- Improved Noise Margin 150 mV (over operating voltage and temperature range)
- Voltage Compensated
- MECL 10K-Compatible

TRUTH TABLE

SELECT	CLOCK	Q0 _{n + 1}	
Н	L	D00	
L	L	D01	
X	Н	Q0 _n	

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).



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MARKING DIAGRAMS



CDIP-16 L SUFFIX CASE 620





PDIP-16 P SUFFIX CASE 648





PLCC-20 FN SUFFIX CASE 775



A = Assembly Location

WL = Wafer Lot YY = Year

WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
MC10H173L	CDIP-16	25 Units/Rail
MC10H173P	PDIP-16	25 Units/Rail
MC10H173FN	PLCC-20	46 Units/Rail

MAXIMUM RATINGS

Symbol	Characteristic	Rating	Unit
VEE	Power Supply (V _{CC} = 0)	-8.0 to 0	Vdc
VI	Input Voltage (V _{CC} = 0)	0 to VEE	Vdc
l _{out}	Output Current – Continuous – Surge	50 100	mA
TA	Operating Temperature Range	0 to +75	°C
T _{stg}	Storage Temperature Range – Plastic – Ceramic	−55 to +150 −55 to +165	ိ

ELECTRICAL CHARACTERISTICS ($V_{EE} = -5.2 \text{ V} \pm 5\%$) (See Note 1.)

		0 °		25°		75°		
Symbol	Characteristic	Min	Max	Min	Max	Min	Max	Unit
ΙE	Power Supply Current	_	73	_	66	_	73	mA
linH	Input Current High Pins 3–7 & 10–13 Pin 9	- -	510 475	- -	320 300	-	320 300	μΑ
linL	Input Current Low	0.5	-	0.5	_	0.3	-	μΑ
Voн	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
VIH	High Input Voltage	-1.17	-0.84	-1.13	-0.81	-1.07	-0.735	Vdc
VIL	Low Input Voltage	-1.95	-1.48	-1.95	-1.48	-1.95	-1.45	Vdc

AC PARAMETERS

^t pd	Propagation Delay Data Clock Select	0.7 1.0 1.0	2.3 3.7 3.6	0.7 1.0 1.0	2.3 3.7 3.6	0.7 1.0 1.0	2.3 3.7 3.6	ns
^t set	Set-up Time Data Select	0.7 1.0	- -	0.7 1.0	- -	0.7 1.0	-	ns
^t hold	Hold Time Data Select	0.7 1.0	- -	0.7 1.0	- -	0.7 1.0	- -	ns
t _r	Rise Time	0.7	2.4	0.7	2.4	0.7	2.4	ns
t _f	Fall Time	0.7	2.4	0.7	2.4	0.7	2.4	ns

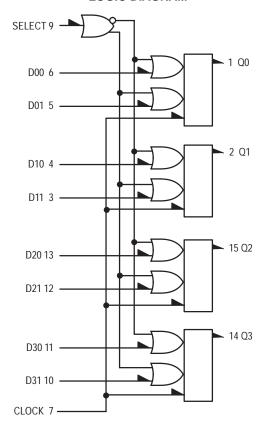
^{1.} Each MECL 10H series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 50–ohm resistor to –2.0 volts.

APPLICATION INFORMATION

The MC10173 is a quad two-channel multiplexer with latch. It incorporates common clock and common data select inputs. The select input determines which data input is enabled. A high (H) level enables data inputs D00, D10, D20, and D30 and a low (L) level enables data inputs D01, D11, D21, D31. Any change on the data input

will be reflected at the outputs while the clock is low. The outputs are latched on the positive transition of the clock. While the clock is in the high state, a change in the information present at the data inputs will not affect the output information.

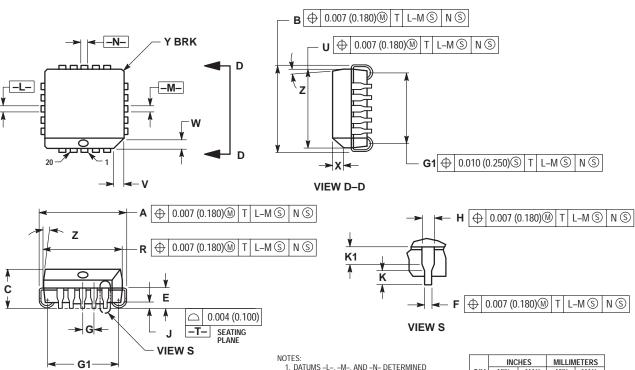
LOGIC DIAGRAM



 V_{CC} = PIN 16 V_{EE} = PIN 8

PACKAGE DIMENSIONS

PLCC-20 **FN SUFFIX** PLASTIC PLCC PACKAGE CASE 775-02 **ISSUE C**



- 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
- 4. DIMENSIONING AND TOLERANCING FER ANSI Y14.5M, 1982. 5. CONTROLLING DIMENSION: INCH. 6. THE PACKAGE TOP MAY BE SMALLER THAN THE

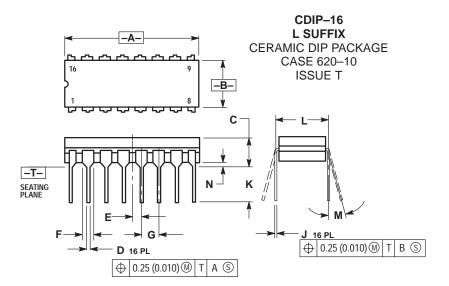
⊕ 0.010 (0.250)⑤ T L-M ⑤ N ⑥

- 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
- INCLUDING ANY MISMAICH BE I WEEN 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).

	INC	HES	MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.385	0.395	9.78	10.03	
В	0.385	0.395	9.78	10.03	
С	0.165	0.180	4.20	4.57	
Ε	0.090	0.110	2.29	2.79	
F	0.013	0.019	0.33	0.48	
G	0.050	BSC	1.27	BSC	
Н	0.026	0.032	0.66	0.81	
J	0.020		0.51		
K	0.025		0.64		
R	0.350	0.356	8.89	9.04	
U	0.350	0.356	8.89	9.04	
V	0.042	0.048	1.07	1.21	
W	0.042	0.048	1.07	1.21	
Χ	0.042	0.056	1.07	1.42	
Υ		0.020		0.50	
Z	2°	10°	2°	10 °	
G1	0.310	0.330	7.88	8.38	
K1	0.040		1.02		

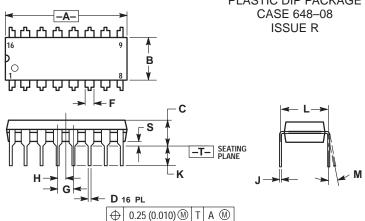
PACKAGE DIMENSIONS



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
 4. DIMENSION F MAY NARROW TO 0.76 (0.030) WHERE THE LEAD ENTERS THE CERAMIC BODY.

	INC	HES	MILLIN	IETERS	
DIM	MIN	MAX	MIN	MAX	
Α	0.750	0.785	19.05	19.93	
В	0.240	0.295	6.10	7.49	
С		0.200		5.08	
D	0.015	0.020	0.39	0.50	
E	0.050	BSC	1.27 BSC		
F	0.055	0.065	1.40	1.65	
G	0.100	BSC	2.54 BSC		
Н	0.008	0.015	0.21	0.38	
K	0.125	0.170	3.18	4.31	
L	0.300 BSC		7.62	BSC	
M	0°	15°	0 °	15°	
N	0.020	0.040	0.51	1.01	

PDIP-16 **P SUFFIX** PLASTIC DIP PACKAGE



- NOTES:

 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

 2. CONTROLLING DIMENSION: INCH.

 3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.

 4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.

 5. ROUNDED CORNERS OPTIONAL.

	INC	HES	MILLIN	IETERS	
DIM	MIN	MAX	MIN	MAX	
Α	0.740	0.770	18.80	19.55	
В	0.250	0.270	6.35	6.85	
С	0.145	0.175	3.69	4.44	
D	0.015	0.021	0.39	0.53	
F	0.040	0.70	1.02	1.77	
G	0.100	BSC	2.54 BSC		
Н	0.050	BSC	1.27 BSC		
J	0.008	0.015	0.21	0.38	
K	0.110	0.130	2.80	3.30	
L	0.295	0.305	7.50	7.74	
M	0°	10 °	0 °	10 °	
S	0.020	0.040	0.51	1.01	

Notes

Notes

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