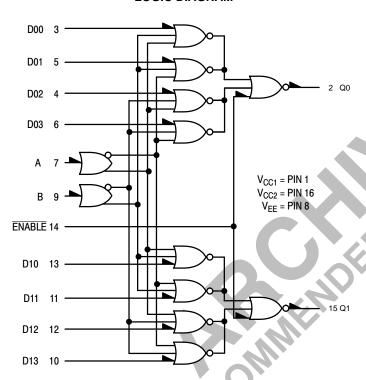
# **Dual 4 to 1 Multiplexer**

The MC10174 is a high speed dual channel multiplexer with output enable capability. The select inputs determine one of four active data inputs for each multiplexer. An output enable forces both outputs low when in the high state.

- $P_D = 305 \text{ mW typ/pkg (No Load)}$
- $t_{pd} = 3.5$  ns typ (Dta to output)
- $t_r$ ,  $t_f = 2.0$  ns typ (20%–80%)

#### LOGIC DIAGRAM



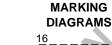
#### TRUTH TABLE

ENABLE	ADDRESS	S INPUTS	OUTPUTS				
Ē	В	Α	Q0	Q1			
Н	X	Х	L	L			
L	L	L	D00	D10			
L	7	Н	D01	D11			
L	Н	L	D02	D12			
L	Н	Н	D03	D13			



# **ON Semiconductor**

http://onsemi.com





CDIP-16 L SUFFIX CASE 620 MC10174L AWLYYWW



PDIP-16 P SUFFIX CASE 648 MC10174P

AWLYYWW



PLCC-20 FN SUFFIX CASE 775



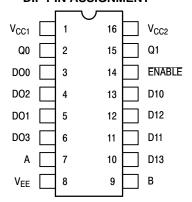
A = Assembly Location

WL = Wafer Lot

YY = Year

WW = Work Week

# **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).

#### **ORDERING INFORMATION**

Device	Package	Shipping		
MC10174L	CDIP-16	25 Units / Rail		
MC10174P	PDIP-16	25 Units / Rail		
MC10174FN	PLCC-20	46 Units / Rail		

# **ELECTRICAL CHARACTERISTICS**

				Test Limits							
Characteristic Syr			Pin Under	−30°C		+25°C		+85°C			
		Symbol	Test	Min	Max	Min	Тур	Max	Min	Max	Unit
Power Supply	Drain Current	Ι <sub>Ε</sub>	8		80		58	73	80		mAdc
Input Current		l <sub>inH</sub>	4 14		350 525			220 330		220 330	μAdc
		I <sub>inL</sub>	4	0.5		0.5			0.3		μAdc
Output Voltage	e Logic 1	V <sub>OH</sub>	15	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700	Vdc
Output Voltage	e Logic 0	V <sub>OL</sub>	15	-1.890	-1.675	-1.850		-1.650	-1.825	-1.615	Vdc
Threshold Volta	age Logic 1	V <sub>OHA</sub>	15	-1.080		-0.980			-0.910		Vdc
Threshold Volta	age Logic 0	V <sub>OLA</sub>	15		-1.655			-1.630		-1.595	Vdc
Switching Time	es (50Ω Load)									C	ns
Propagation De	elay	t <sub>13+15+</sub> t <sub>13-15-</sub> t <sub>7+15-</sub> t <sub>7-15+</sub> t <sub>14+15-</sub> t <sub>14-15+</sub>	15 15 15 15 15 15	1.4 1.4 1.9 1.9 1.0	5.0 5.0 6.6 6.6 3.3 3.3	1.5 1.5 2.0 2.0 1.0	3.5 3.5 5.0 5.0 2.0 2.0	4.7 4.7 6.2 6.2 3.1 3.1	1.4 1.4 2.1 2.1 0.9 0.9	5.0 5.0 6.6 6.6 3.4 3.4	
Rise Time	(20 to 80%)	t+	15	1.0	3.4	1.1	2.0	3.3	1.1	3.6	
Fall Time	(20 to 80%)	t–	15	1.0	3.4	1.1	2.0	3.3	1.1	3.6	

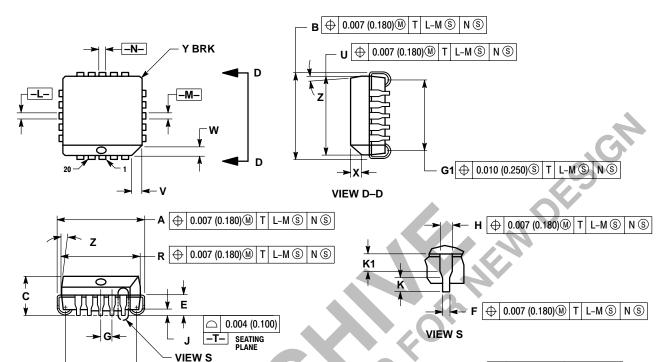
# **ELECTRICAL CHARACTERISTICS** (continued)

ELECTRICAL CHARACTERIOTIC	(	/						
Each MECL 10,000 series circuit has been designed to meet the dc specifications shown in the				TEST VOI	TAGE VALU	JES (Volts)		
test table, after thermal equilibrium has been es- tablished. The circuit is in a test socket or mounted	@ Test Temperature		V <sub>IHmax</sub>	V <sub>ILmin</sub>	V <sub>IHAmin</sub>	V <sub>ILAmax</sub>	V <sub>EE</sub>	
on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs		-30°C	-0.890	-1.890	-1.205	-1.500	<b>−</b> 5.2	
are terminated through a 50-ohm resistor to -2.0 volts. Test procedures are shown for only one		+25°C	-0.810	-1.850	-1.105	-1.475	-5.2	
gate. The other gates are tested in the same manner.		+85°C	-0.700	-1.825	-1.035	-1.440	-5.2	
		Pin	TEST V	OLTAGE AP	PLIED TO P	INS LISTED I	BELOW	
Characteristic	Symbol	Under Test	V <sub>IHmax</sub>	V <sub>ILmin</sub>	V <sub>IHAmin</sub>	V <sub>ILAmax</sub>	V <sub>EE</sub>	(V <sub>CC</sub> ) Gnd
Power Supply Drain Current	ΙE	8					8	1, 16
Input Current	I <sub>inH</sub>	4	4				8	1, 16
		14	14				8	1, 16
	l <sub>inL</sub>	4		4			8	1, 16
Output Voltage Logic 1	V <sub>OH</sub>	15	13				8	1, 16
Output Voltage Logic 0	$V_{OL}$	15	14				8	1, 16
Threshold Voltage Logic 1	V <sub>OHA</sub>	15			13		8	1, 16
Threshold Voltage Logic 0	$V_{OLA}$	15			14		8	1, 16
Switching Times (50Ω Load)			+1.11V		Pulse In	Pulse Out	–3.2 V	+2.0 V
Propagation Delay	t <sub>13+15+</sub>	15			13	15	8	1, 16
	t <sub>13-15-</sub>	15			13	15	8	1, 16
	t <sub>7+15-</sub>	15	11		7	15	8	1, 16
	t <sub>7–15+</sub>	15 15	11 13		7 14	15 15	8 8	1, 16 1, 16
	t <sub>14+15-</sub> t <sub>14-15+</sub>	15	13		14	15	8	1, 16
Rise Time (20 to 80%)	t14–15+ t+	15	13		14	15	8	1, 16
Fall Time (20 to 80%)	t–	15	13		14	15	8	1, 16

#### PACKAGE DIMENSIONS

#### PLCC-20 **FN SUFFIX**

PLASTIC PLCC PACKAGE CASE 775-02 ISSUE C



#### NOTES:

G1 ⊕ 0.010 (0.250)③ T L-M ⑤ N ⑤

OF VICE NOT PRESCO

- IOTES:

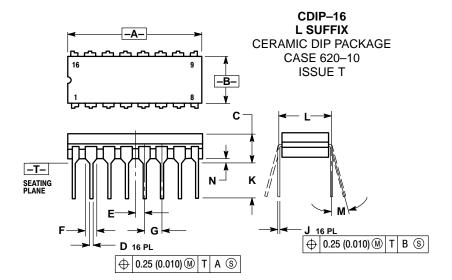
  1. DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.

  2. DIMENSION 61, 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.
- 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).

	INC	HES	MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.385	0.395	9.78	10.03
В	0.385	0.395	9.78	10.03
C	0.165	0.180	4.20	4.57
Е	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
7	0.020		0.51	
K	0.025		0.64	
R	0.350	0.356	8.89	9.04
5	0.350	0.356	8.89	9.04
٧	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
Х	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	



#### NOTES:

- ANIES.

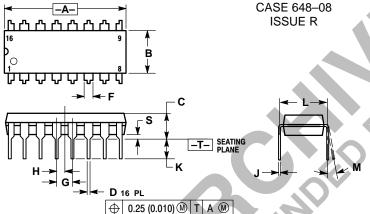
  DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

  CONTROLLING DIMENSION: INCH.

  DIMENSION L TO CENTER OF LEAD WHEN
- FORMED PARALLEL.
  DIMENSION F MAY NARROW TO 0.76 (0.030)
- WHERE THE LEAD ENTERS THE CERAMIC

	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 4	
M	0 °	15°	0 °	15°	
N	0.020	0.040	0.51	1.01	

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



- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982. CONTROLLING DIMENSION: INCH.
- DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
- DIMENSION B DOES NOT INCLUDE MOLD FLASH.
  ROUNDED CORNERS OPTIONAL

	INC	HES	MILLIN	ETERS	
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	

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