ECL 10KH High-Speed Emitter-Coupled Logic Family
MC10H174
Dual 4-to-1 Multiplexer

Features/Benefits

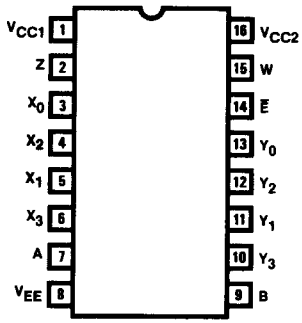
- **Propagation delay 1.5 ns typical**
- **Power dissipation, 305 mW typical**
- **Noise margin 150 mV**
- **Voltage compensated**
- **ECL 10K-compatible**

Description

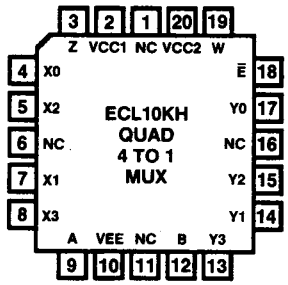
The MC10H174 is a Dual 4-to-1 Multiplexer. This device is a member of Monolithic Memories' new ECL family. This device is a functional/pinout duplication of the standard ECL 10K part with 100% improvement in propagation delay, and no increase in power-supply current.

Pin Configuration

MC10H174
Dual 4-to-1 Multiplexer



MC10H174

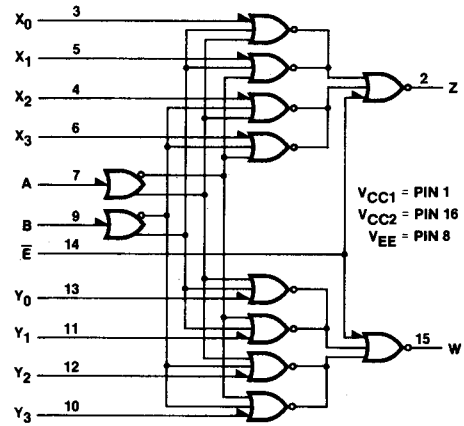


Ordering Information

PART NUMBER	PACKAGE	TEMPERATURE
MC10H174	J,N,NL(20)	Com

Logic Diagram

MC10H174



Function Table

ENABLE	ADDRESS	INPUTS	OUTPUTS	
$\overline{E}$	B	A	Z	W
H	X	X	L	L
L	L	L	X_0	Y_0
L	L	H	X_1	Y_1
L	H	L	X_2	Y_2
L	H	H	X_3	Y_3

X = Don't care.

2175 Mission College Blvd. Santa Clara, CA 95054-1592 Tel: (408) 970-9700 TWX: 910-338-2374
TWX: 910-338-2376
Monolithic Memories MMI

Absolute Maximum Ratings

Supply voltage V_{EE} (V_{CC} = 0) ..... -8.0 V to 0 Vdc
Input voltage V_I (V_{CC} = 0) ..... 0 Vdc to V_{EE}
Output Current:
Continuous ..... 50 mA
Surge ..... 100 mA

Operating Conditions

SYMBOL	PARAMETER		COMMERCIAL MIN	TYP	MAX	UNIT
V_{EE}	Supply voltage		-5.46	-5.2	-4.94	V
T_A	Operating temperature range		0		75	°C
T_{STG}	Storage temperature range	Plastic	-55		150	°C
		Ceramic	-55		165	

Electrical Characteristics V_{EE} = -5.2 V ±5% (See Note)

SYMBOL	PARAMETER		0° MIN	0° MAX	25° MIN	25° MAX	75° MIN	75° MAX	UNIT
I_E	Power supply current		—	80	—	73	—	80	mA
I_{inH}	Input current HIGH	Pins 3 - 7 and 9 - 13	—	475	—	300	—	300	µA
		Pin 14	—	670	—	420	—	420	
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

Switching Characteristics V_{EE} = -5.2 V, ±5% (See Note)

SYMBOL	PARAMETER		0° MIN	0° MAX	25° MIN	25° MAX	75° MIN	75° MAX	UNIT
t_{pd}	Propagation delay	Data (All others)	0.7	2.4	0.8	2.3	0.9	2.6	ns
		Select (A,B) Pin 7, 9	1.0	2.8	1.1	2.9	1.2	3.2	
		Enable Pin 14	0.4	1.45	0.4	1.50	0.5	1.70	
t_r, t+	Rise time		0.5	1.5	0.5	1.6	0.5	1.70	ns
t_f, t-	Fall time		0.5	1.5	0.5	1.6	0.5	1.70	ns

Note: Each ECL 10KH 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 50Ω resistor to -2.0 V.

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