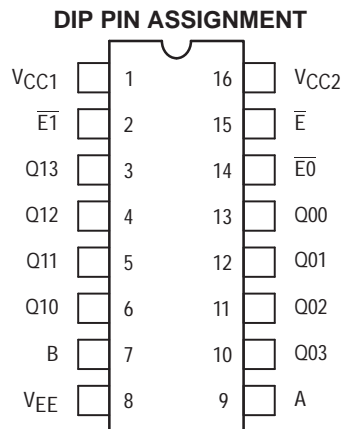
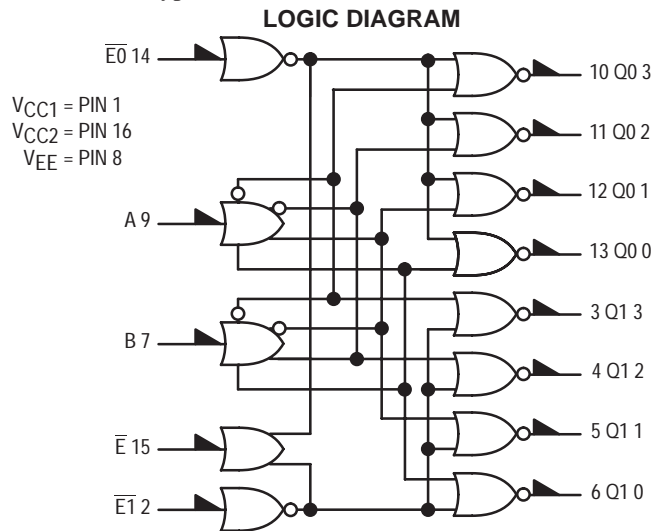


MC10172

Dual Binary to 1-4 Decoder (High)

The MC10172 is a binary-coded 2 line to dual 4 line decoder with selected outputs high. With either $\overline{E0}$ or $\overline{E1}$ low, the corresponding selected 4 outputs are low. The common enable \overline{E} , when high, forces all outputs low.

- $P_D = 325$ mW typ/pkg (No Load)
- $t_{pd} = 4.0$ ns typ
- $t_r, t_f = 2.0$ ns typ (20%–80%)



Pin assignment is for Dual-in-Line Package.
 For PLCC pin assignment, see the Pin Conversion Tables on page 18.

TRUTH TABLE

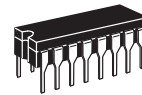
\overline{E}	$\overline{E1}$	$\overline{E0}$	A	B	Q10	Q11	Q12	Q13	Q00	Q01	Q02	Q03
L	H	H	L	L	H	L	L	L	H	L	L	L
L	H	H	L	H	L	H	L	L	L	H	L	L
L	H	H	H	L	L	L	H	L	L	L	H	L
L	H	H	H	H	L	L	L	H	L	L	L	H
L	L	H	L	L	L	L	L	L	H	L	L	L
L	L	H	L	H	L	L	L	L	L	L	L	L
L	L	H	H	L	L	L	L	L	L	L	L	L
L	L	H	H	H	L	L	L	L	L	L	L	L
H	X	X	X	X	L	L	L	L	L	L	L	L



ON Semiconductor

<http://onsemi.com>

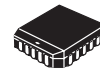
MARKING DIAGRAMS



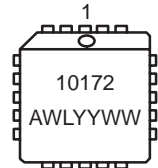
CDIP-16
L SUFFIX
CASE 620



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
MC10172L	CDIP-16	25 Units / Rail
MC10172P	PDIP-16	25 Units / Rail
MC10172FN	PLCC-20	46 Units / Rail

MC10172

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Pin Under Test	Test Limits						Unit		
			-30°C		+25°C			+85°C			
			Min	Max	Min	Typ	Max	Min		Max	
Power Supply Drain Current	I_E	8		85		65	77		85	mAdc	
Input Current	I_{inH}	14		350			220		220	μ Adc	
	I_{inL}	14	0.5		0.5			0.3		μ Adc	
Output Voltage Logic 1	V_{OH}	6	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700	Vdc	
		13	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700		
Output Voltage Logic 0	V_{OL}	13	-1.890	-1.675	-1.850		-1.650	-1.825	-1.615	Vdc	
Threshold Voltage Logic 1	V_{OHA}	6	-1.080		-0.980			-0.910		Vdc	
		13	-1.080		-0.980			-0.910			
Threshold Voltage Logic 0	V_{OLA}	6		-1.655			-1.630		-1.595	Vdc	
		13		-1.655			-1.630		-1.595		
Switching Times (50 Ω Load)										ns	
Propagation Delay		t_{7+6-}	6	1.5	6.2	1.5	4.0	6.0	1.5	6.4	
		t_{7-6+}	6	1.5	6.2	1.5	4.0	6.0	1.5	6.4	
		t_{7+13-}	13	1.5	6.2	1.5	4.0	6.0	1.5	6.4	
		t_{7-13+}	13	1.5	6.2	1.5	4.0	6.0	1.5	6.4	
Rise Time (20 to 80%)		t_{6+}	6	1.0	3.3	1.1	2.0	3.3	1.1	3.4	
		t_{13+}	13	1.0	3.3	1.1	2.0	3.3	1.1	3.4	
Fall Time (20 to 80%)		t_{6-}	6	1.0	3.3	1.1	2.0	3.3	1.1	3.4	
		t_{13-}	13	1.0	3.3	1.1	2.0	3.3	1.1	3.4	

MC10172

ELECTRICAL CHARACTERISTICS (continued)

			TEST VOLTAGE VALUES (Volts)					
			V _{IHmax}	V _{ILmin}	V _{IHAmin}	V _{ILAmax}	V _{EE}	
@ Test Temperature								
-30°C			-0.890	-1.890	-1.205	-1.500	-5.2	
+25°C			-0.810	-1.850	-1.105	-1.475	-5.2	
+85°C			-0.700	-1.825	-1.035	-1.440	-5.2	
Characteristic	Symbol	Pin Under Test	TEST VOLTAGE APPLIED TO PINS LISTED BELOW					(V _{CC}) Gnd
			V _{IHmax}	V _{ILmin}	V _{IHAmin}	V _{ILAmax}	V _{EE}	
Power Supply Drain Current	I _E	8					8	1, 16
Input Current	I _{inH}	14	14				8	1, 16
	I _{inL}	14		14			8	1, 16
Output Voltage Logic 1	V _{OH}	6	2				8	1, 16
		13	14				8	1, 16
Output Voltage Logic 0	V _{OL}	13	15	2,7,9,14			8	1, 16
Threshold Voltage Logic 1	V _{OHA}	6			2		8	1, 16
		13			14		8	1, 16
Threshold Voltage Logic 0	V _{OLA}	6		2,9,14		7	8	1, 16
		13		2,7,14		9	8	1, 16
Switching Times (50Ω Load)			+1.11V	+0.31V	Pulse In	Pulse Out	-3.2 V	+2.0 V
Propagation Delay	t ₇₊₆₋	6	2	9, 14	7	6	8	1, 16
	t ₇₋₆₊	6	2	9, 14	7	6	8	1, 16
	t ₇₊₁₃₋	13	14	2, 9	7	13	8	1, 16
	t ₇₋₁₃₊	13	14	2, 9	7	13	8	1, 16
Rise Time (20 to 80%)	t ₆₊	6	2	9, 14	7	6	8	1, 16
	t ₁₃₊	13	14	2, 9	7	13	8	1, 16
Fall Time (20 to 80%)	t ₆₋	6	2	9, 14	7	6	8	1, 16
	t ₁₃₋	13	14	2, 9	7	13	8	1, 16

Each MECL 10,000 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. Test procedures are shown for only one gate. The other gates are tested in the same manner.