

10112B,F: -30 to +85°C

DIGITAL 10,000 SERIES ECL

DESCRIPTION

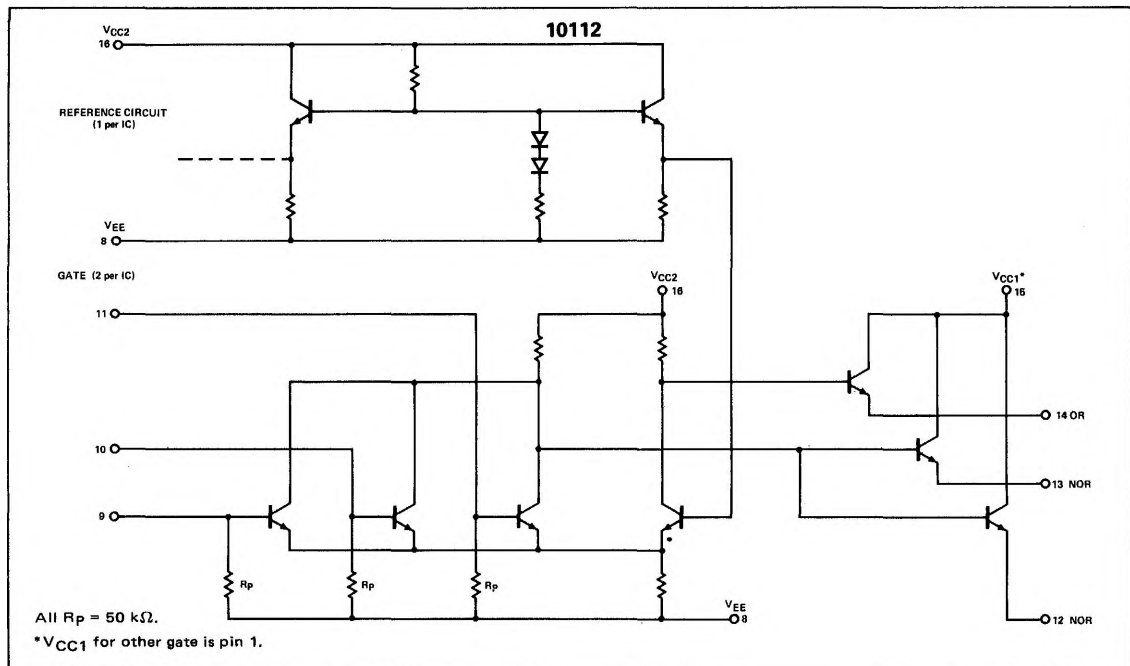
The 10112 is a dual high speed 3-input 1 OR/2 NOR output gate. The 10112 is designed to drive up to three transmission lines simultaneously. The multiple outputs of this device also allow the wire-"OR"-ing of several levels of gating for minimization of gate and package count.

The ability to control three parallel lines from a single point makes the 10112 particularly useful in clock distribution applications where minimum clock skew is desired. The 10112 is suitable for use in memory chip select decoding. The 10112 is particularly useful as a clock amplifier on a board using clock signals of both polarities.

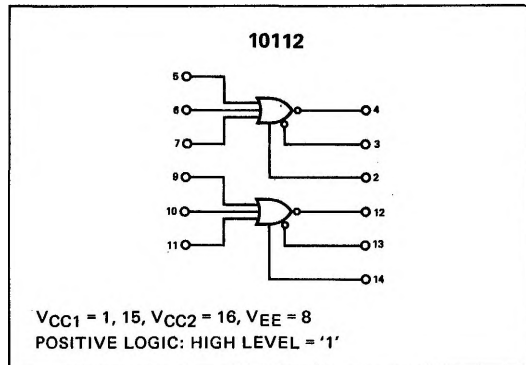
FEATURES

- **FAST PROPAGATION DELAY = 2.4 ns TYP (ALL OUTPUTS LOADED)**
- **POWER DISSIPATION = 150 mW/PACKAGE TYP (NO LOAD)**
- **VERY HIGH FANOUT CAPABILITY**
- CAN DRIVE SIX 50 Ω LINES
- **HIGH Z INPUTS - INTERNAL 50 kΩ PULLDOWNS**
- **HIGH IMMUNITY FROM POWER SUPPLY VARIATIONS: VEE = -5.2 V ±5% RECOMMENDED**
- **OPEN EMITTERS FOR BUSSING AND LOGIC CAPABILITY**

CIRCUIT SCHEMATIC



LOGIC DIAGRAM



TEMPERATURE RANGE

- -30 to +85°C Operating Ambient

PACKAGE TYPE

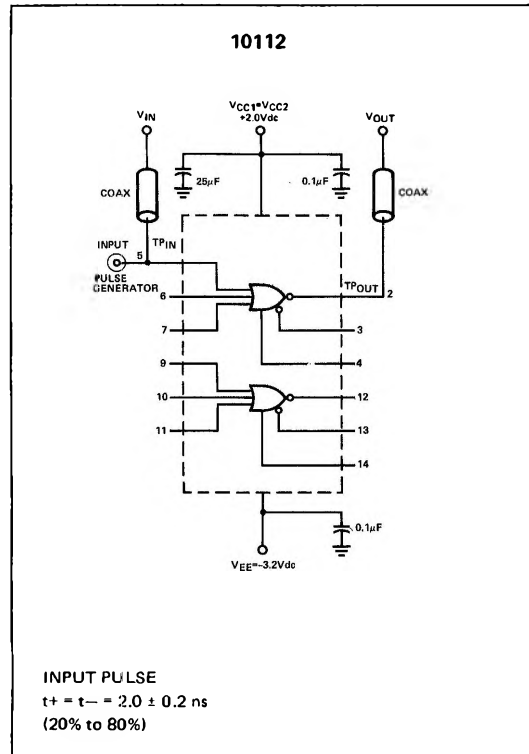
- B: 16-Pin Silicone DIP
- F: 16-Pin CERDIP

ELECTRICAL CHARACTERISTICS

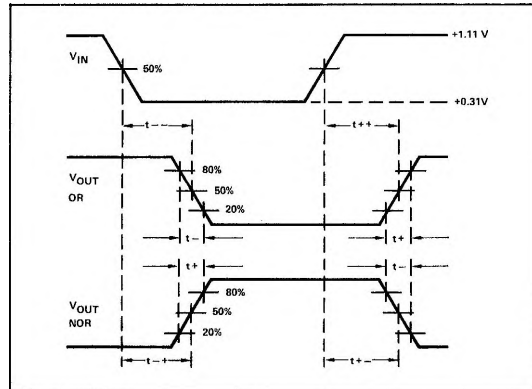
(at Listed Voltages and Ambient Temperatures).

Characteristic	Symbol	Pin Under Test	10112 Test Limits										TEST VOLTAGE APPLIED TO PINS LISTED BELOW				NOTES
			-30°C		+25°C			+85°C			TEST VOLTAGE VALUES (Volts)						
			Min	Max	Min	Typ	Max	Min	Max	Min	Max	V _{IH} max	V _{IL} min	V _{IHA} min	V _{IHA} max		
			TEST CONDITIONS														
Power Supply Drain Current	I _E	8	-	-	-	-	38	-	-	-	-	-	-	-	-	-	5
Input Current	I _{INH}	5	-	-	-	-	420	-	-	-	-	-	-	-	-	-	5
	I _{INL}	5	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	5
Logic "1" Output Voltage	V _{OH}	2	-1.080	-0.890	-0.960	-	-0.810	-0.890	-0.700	-	-	-	-	-	-	-	5
		3	-1.080	-0.890	-0.960	-	0.810	0.890	-0.700	-	5	5	-	-	-	-	6
		4	-1.060	-0.890	-0.960	-	-0.810	-0.890	-0.700	-	-	-	7	-	-	-	5
Logic "0" Output Voltage	V _{OL}	2	-1.890	-1.675	-1.850	-	-1.660	-1.825	-1.615	-	-	-	-	-	-	-	5
		3	-1.890	-1.675	-1.850	-	-1.660	-1.825	-1.615	-	6	6	-	-	-	-	5
		4	-1.890	-1.675	-1.850	-	-1.660	-1.825	-1.615	-	-	-	7	-	-	-	5
Logic "1" Threshold Voltage	V _{OHA}	2	-1.080	-	-0.980	-	-	-0.910	-	-	-	5	-	-	-	-	5
		3	-1.080	-	-0.980	-	-	-0.910	-	-	-	-	6	-	-	-	5
		4	-1.080	-	-0.980	-	-	-0.910	-	-	-	-	-	7	-	-	5
Logic "0" Threshold Voltage	V _{OLA}	2	-	-1.855	-	-1.650	-	-1.595	-	-	-	-	5	-	-	-	5
		3	-	-1.655	-	-1.660	-	-1.595	-	-	-	-	6	-	-	-	5
		4	-	-1.655	-	-1.660	-	-1.595	-	-	-	-	7	-	-	-	5
Switching Times (50 ohm load)																	
Propagation Delay	15+ 2+	2	-	-	1.4	2.4	3.5	-	-	-	-	-	5	2	-	-	2.8
	15- 2-	2	-	-	-	-	-	-	-	-	-	-	-	2	-		
	15+ 1-	3	-	-	-	-	-	-	-	-	-	-	-	3	-		
	15- 3+	3	-	-	-	-	-	-	-	-	-	-	-	3	-		
	15+ 4-	4	-	-	-	-	-	-	-	-	-	-	-	4	-		
Rise Time (20% to 80%)	12+	2	-	-	1.1	2.2	3.5	-	-	-	-	-	-	2	-		
	13+	3	-	-	-	-	-	-	-	-	-	-	-	3	-		
	14+	4	-	-	-	-	-	-	-	-	-	-	-	4	-		
Fall Time (20% to 80%)	12-	2	-	-	-	-	-	-	-	-	-	-	-	2	-		
	13-	3	-	-	-	-	-	-	-	-	-	-	-	3	-		
	14-	4	-	-	-	-	-	-	-	-	-	-	-	4	-		

SWITCHING TIME TEST CIRCUIT



PROPAGATION DELAY WAVEFORMS @ 25°C



NOTES:

- Each ECL 10,000 series device 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. Voltage levels will shift approximately 5 mV with an air flow of 200 linear fpm. Outputs are terminated through a 50-ohm resistor to 2.0 volts.
- For AC tests, all input and output cables to the scope are equal lengths of 50-ohm coaxial cable. Wire length should be < 1/4 inch from TP_{in} to input pin and TP_{out} to output pin. A 50-ohm termination to ground is located in each scope input. Unused outputs are connected to a 50-ohm resistor to ground.
- Test procedures are shown for only one input or set of input conditions. Other inputs are tested in the same manner.
- All voltage measurements are referenced to the ground terminal. Terminals not specifically referenced are left electrically open.
- Pin 1 = Pin 15 = Pin 16 = V_{CC} = 0 V, Pin 8 = V_{EE} = -5.2 V.
- Pin 1 = Pin 15 = Pin 16 = V_{CC} = +2.0 V, Pin 8 = V_{EE} = -3.2 V.