

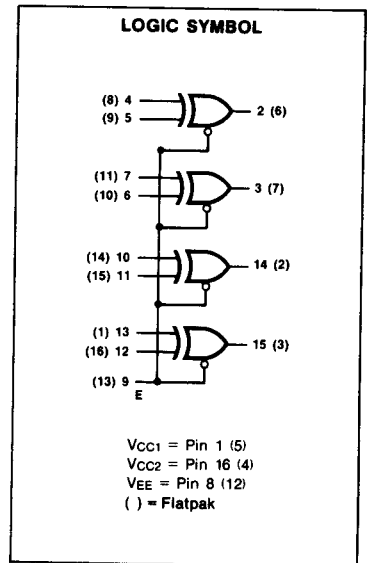
F10113 • F10513

QUAD EXCLUSIVE OR WITH ENABLE F10K VOLTAGE COMPENSATED ECL

DESCRIPTION — The F10113 and F10513 are Quad Exclusive OR Gates, with an Enable common to all four gates. When the Enable (\bar{E}) input is HIGH, all outputs are forced LOW.

A 4-bit active LOW comparator can be formed by tying the four outputs together. When each pair of inputs agrees, the output will go LOW. A disagreement in any pair will cause the output to go HIGH.

Input pull-down resistors included in the circuit make it unnecessary to tie down unused inputs. Open emitter outputs permit direct connection to busses.



- **VOLTAGE COMPENSATED . . . NOISE MARGIN INSENSITIVE TO POWER SUPPLY VARIATIONS AND GRADIENTS: RELAXED POWER SUPPLY REQUIREMENTS**
- **INTERNAL 50 k Ω (NOMINAL) PULL-DOWN RESISTORS . . . UNUSED INPUTS MAY BE LEFT OPEN**
- **OPEN EMITTER-FOLLOWER OUTPUTS DRIVE TERMINATED LINES**
- **SINGLE V_{EE} POWER SUPPLY . . . -4.7 V TO -6.2 V**
- **FULLY COMPATIBLE WITH OTHER 10K SERIES ECL**

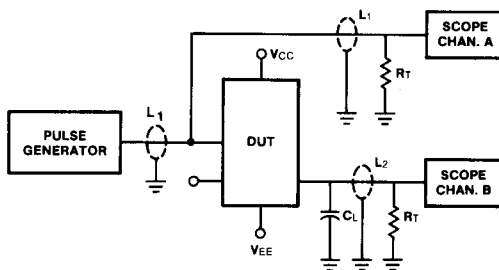
DC CHARACTERISTICS: $V_{EE} = -5.2$ V, $V_{CC} =$ GND

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	T_A	CONDITIONS
		B	TYP	A			
I_{IH}	Input Current HIGH Pin 9			545	μ A	25°C	$V_{IN} = V_{IHA}$
	Pins 5, 6, 11, 12			220			
	Pins 4, 7, 10, 13			265			
I_{EE}	Power Supply Current	-42	-33		mA	25°C	Inputs Open

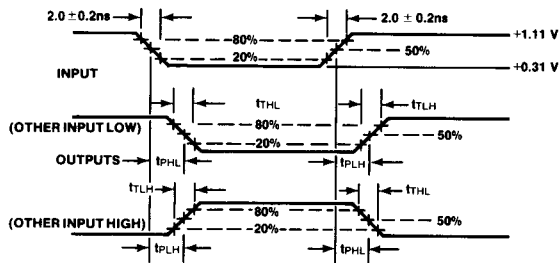
SWITCHING CHARACTERISTICS: $V_{EE} = -5.2 \text{ V}$, $T_A = 25^\circ \text{ C}$

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
t_{PLH} , t_{PHL}	Propagation Delay, Inputs to Outputs	1.1	2.5	3.7	ns	See Figure 1
t_{PHL} , t_{PLH}	Propagation Delay, \bar{E} to Outputs	1.1	3.0	4.0	ns	
t_{TLH}	Output Transition Time LOW to HIGH, HIGH to LOW (20% to 80%) (80% to 20%)	1.5	2.0	3.5	ns	

SWITCHING TEST CIRCUIT AND WAVEFORMS



Jig set-up with no circuit under test
 $V_{CC1} = V_{CC2} = +2.0\text{V}$
 $V_{EE} = -3.2 \text{ V}$



L_1 and L_2 = equal length 50Ω impedance lines
 R_T = 50Ω termination of scope
 C_L = Jig and stray capacitance $< 5.0 \text{ pF}$
 Decoupling $0.1 \mu\text{F}$ from gnd to V_{EE} and V_{CC}

Figure 1