

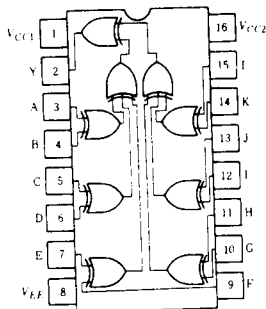
# HD10160

## 12-bit Parity Generator/Checker

The HD10160 consists of nine Exclusive-OR gates in a single package, internally connected to provide odd parity checking or generation. Output goes high when an odd number of inputs are high.

Unconnected inputs are pulled to low logic levels allowing parity detection and generation for less than 12 bits.

### PIN ARRANGEMENT



(Top View)

### FUNCTION TABLE

Inputs	Output
Sum of High Level Inputs	Y
Even	L
Odd	H

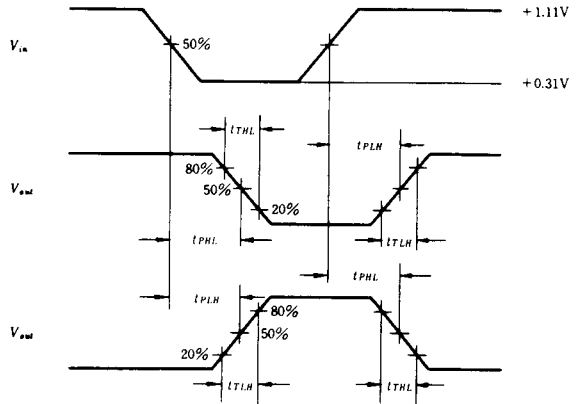
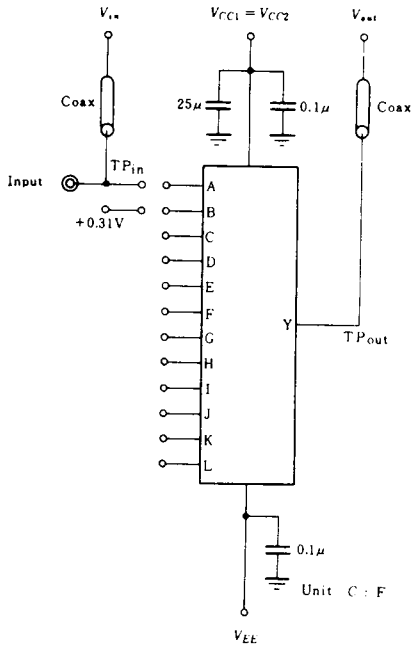
### DC CHARACTERISTICS ( $V_{EE} = -5.2V$ , $T_a = -30 \sim +85^\circ C$ )

Item	Symbol	Test Condition	min			typ			max			Unit
Supply Current	$I_{EE}$	B, C, F, G, J, K = -0.810V	25°C	—	62	78				mA		
Input Current	$I_{IN}$	$V_{IH} = -0.810V$	25°C	A, D, E, H, I, L		—		265		$\mu A$		
				B, C, F, G, J, K		—		220		$\mu A$		
	$I_{LL}$	$V_{LL} = -1.850V$	25°C	0.5	—	—				$\mu A$		
Output Voltage	$V_{OH}$	Each one input = -0.890V, Other inputs = -1.890V	-30°C	-1.060	—	-0.890			V			
		Each one input = -0.810V, Other inputs = -1.850V	25°C	-0.960	—	-0.810			V			
		Each one input = -0.700V, Other inputs = -1.825V	85°C	-0.890	—	-0.700			V			
	$V_{OL}$	All inputs = -1.890V	-30°C	-1.890	—	-1.675			V			
		All inputs = -1.850V	25°C	-1.850	—	-1.650			V			
		All inputs = -1.825V	85°C	-1.825	—	-1.615			V			
Output Threshold Voltage	$V_{OHA}$	Each one input = -1.205V, Other inputs = -1.890V	-30°C	-1.080	—	—			V			
		Each one input = -1.105V, Other inputs = -1.850V	25°C	-0.980	—	—			V			
		Each one input = -1.035V, Other inputs = -1.825V	85°C	-0.910	—	—			V			
	$V_{OLA}$	Each one input = -1.500V, Other inputs = -1.890V	-30°C	—	—	-1.655			V			
		Each one input = -1.475V, Other inputs = -1.850V	25°C	—	—	-1.630			V			
		Each one input = -1.440V, Other inputs = -1.825V	85°C	—	—	-1.595			V			

■ AC CHARACTERISTICS ( $V_{EE} = -3.2V$ ,  $V_{CC} = +2.0V$ ,  $T_a = -30 \sim +85^\circ C$ )

Item	Symbol	Test Condition	min	typ	max	Unit	
Propagation Delay Time	$t_{PLH}$	$R_L = 50\Omega$	-30°C	1.8	—	8.1	ns
			25°C	2.0	5.0	7.5	
			85°C	2.0	—	8.0	
	$t_{PHL}$		-30°C	1.8	—	8.1	ns
			25°C	2.0	5.0	7.5	
			85°C	2.0	—	8.0	
Rise/Fall Time	$t_{TLH}$	$R_L = 50\Omega$	-30°C	1.1	—	3.5	ns
			25°C	1.1	2.0	3.3	
			85°C	1.0	—	3.5	
	$t_{THL}$		-30°C	1.1	—	3.5	ns
			25°C	1.1	2.0	3.3	
			85°C	1.0	—	3.5	

■ SWITCHING TIME TEST CIRCUIT



- Notes)
1.  $50\Omega$  termination to ground located in each scope channel input. All input and output cables to the scope are equal lengths of  $50\Omega$  coaxial cable.
  2. Wire length should be  $<6.35\text{mm}$  (1/4 inch) from TPin to input pin and TPin to output pin.
  3. Unused outputs connected to a  $50\Omega$  resistor to ground.