

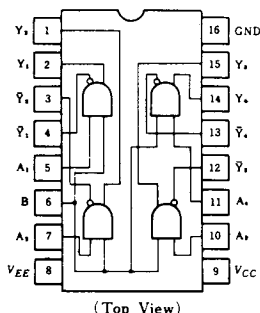
Quadruple TTL to ECL Translators

The HD10124 is a quad translator for interfacing data and control signals between a saturated logic section and the ECL section of digital systems. The device has TTL compatible inputs, and ECL complementary open-emitter outputs that allow use as an inverting/noninverting translator or as a differential line driver. When the common strobe input is at the low logic level, it forces all true outputs to a ECL high logic state.

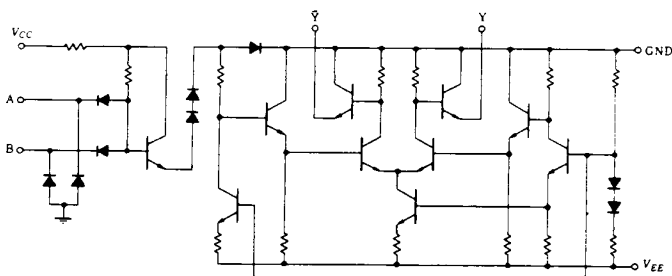
Power supply requirements are ground, +5.0V, and -5.2V. The DC levels are standard or Schottky TTL in, ECL 10K out.

An advantage of this device is that TTL level information can be transmitted differentially, via balanced twisted pair lines, to the ECL equipment, where the signal can be received by any of the ECL receivers or the HD10125 ECL to TTL translator.

PIN ARRANGEMENT



CIRCUIT SCHEMATIC

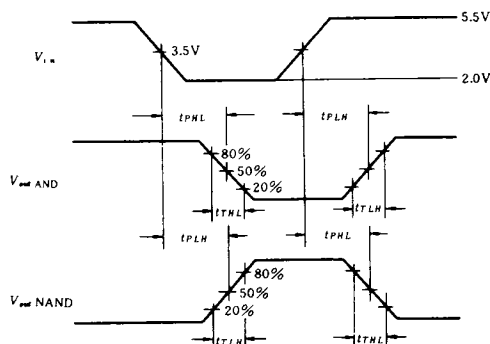
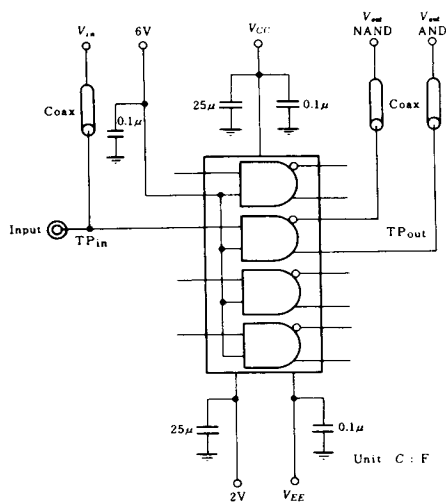


DC CHARACTERISTICS ($V_{EE} = -5.2V$, $V_{CC} = +5.0V$, $T_a = -30 \sim +85^\circ C$)

Item	Symbol	Test Condition	min	typ	max	Unit
Supply Current	I_{EE}		25°C	—	66	mA
	I_{CCH}	All inputs = 4V	25°C	—	16	mA
	I_{CCL}	All inputs = 0V	25°C	—	25	mA
Input Current	I_{IH}	$V_{IH} = 2.4V$, Other inputs = 0.4V	25°C	—	50	μA
				—	200	
	I_{IL}	$V_{IL} = 0.4V$, Other inputs = 4V	25°C	-3.2	—	mA
				-12.8	—	
	I_I	$V_{IH} = 5.5V$, Other inputs = 0V	25°C	—	1	mA
Input Clamp Voltage	V_{IK}	$I_{IN} = -10mA$, Other inputs open	25°C	-1.5	—	V
Output Voltage	V_{OH}	$V_{IH} = 4V$ or $V_{IL} = 0.4V$	-30°C	-1.060	—	V
			25°C	-0.960	—	
			85°C	-0.890	—	
	V_{OL}	$V_{IH} = 4V$ or $V_{IL} = 0.4V$	-30°C	-1.890	—	V
			25°C	-1.850	—	
			85°C	-1.825	—	
Output Threshold Voltage	V_{OHA}	$V_{INA} = 2.0V$ or $V_{ILA} = 1.10V$	-30°C	-1.080	—	V
		$V_{INA} = 1.80V$ or $V_{ILA} = 1.10V$	25°C	-0.980	—	
		$V_{INA} = 1.80V$ or $V_{ILA} = 0.90V$	85°C	-0.910	—	
	V_{OLA}	$V_{ILA} = 1.10V$ or $V_{INA} = 2.0V$	-30°C	—	-1.655	V
		$V_{ILA} = 1.10V$ or $V_{INA} = 1.80V$	25°C	—	-1.630	
		$V_{ILA} = 0.90V$ or $V_{INA} = 1.80V$	85°C	—	-1.595	

■ AC CHARACTERISTICS ($V_{EE} = -3.2V$, $V_{CC} = +7.0V$, $GND = +2.0V$, $T_a = -30 \sim +85^\circ C$)

Item		Symbol	Test Condition	min	typ	max	Unit	
Propagation Delay Time	In-phase	t_{PLH}	$R_L=50\Omega$	-30°C	1.0	—	6.8	ns
				25°C	1.5	3.5	6.0	
		85°C		1.0	—	6.8		
		t_{PHL}		-30°C	1.0	—	6.8	ns
				25°C	1.5	3.5	6.0	
				85°C	1.0	—	6.8	
	Out-of-phase	t_{PLH}		-30°C	1.0	—	6.0	ns
				25°C	1.5	3.5	6.0	
		85°C		1.5	—	6.8		
		t_{PHL}		-30°C	1.5	—	6.8	ns
				25°C	1.5	3.5	6.0	
				85°C	1.0	—	6.0	
Rise/Fall Time	t_{TLH}	-30°C	1.0	—	4.2	ns		
		25°C	1.1	2.5	3.9			
		85°C	1.1	—	4.3			
	t_{THL}	-30°C	1.0	—	4.2	ns		
		25°C	1.1	2.5	3.9			
		85°C	1.1	—	4.3			

■ TEST CIRCUIT

Notes)

1. 50Ω termination to ground located in each scope channel input. All input and output cables to the scope are equal lengths of 50Ω coaxial cable.
2. Wire length should be $< 6.35\text{mm}$ (1/4 inch) from TPin to input pin and TPout to output pin.
3. Input Pulse; $t_{TLH} = t_{THL} = 5.5 \pm 0.5\text{ns}$ (10 to 90%)
4. Unused outputs connected to a 50Ω resistor to ground.