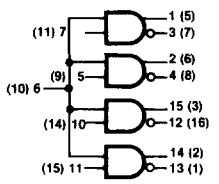
F10124 • F10524
QUAD TTL TO ECL TRANSLATOR

DESCRIPTION — The F10124 and F10524 are Quad Translators, designed to convert TTL logic levels to 10K ECL logic levels. The inputs are compatible with standard or with Schottky TTL. A Common Enable input (E_C), when LOW, holds all inverting outputs HIGH and holds all True outputs LOW. The differential outputs allow each circuit to be used as an inverting/non-inverting translator or as a differential line driver. The output levels are voltage compensated.

When the circuit is used in the differential mode, the F10124, due to its high common mode rejection, overcomes voltage gradients between the TTL and ECL ground systems.

LOGIC DIAGRAM



V_{CC} = 9 (13)
V_{EE} = 8 (12)
GND = 16 (4)

Logic Equations
2 = 5•6
4 = 5•6

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

SYMBOL	CHARACTERISTIC	LIMITS B	LIMITS TYP	LIMITS A	UNITS	T_A	CONDITIONS
I_{IH}	Input Current HIGH	+1.9 +1.8 +1.8		5.0 5.0 5.0	V	0°C 25°C 75°C	Guaranteed Input Voltage HIGH for All Inputs
V_{IL}	Input Voltage LOW	0 0 0		+1.1 +1.1 +0.95	V	0°C 25°C 75°C	Guaranteed Input Voltage LOW for All Inputs
V_{CD}	Clamp Input Voltage	−1.5			V	25°C	$I_{IN} = -10$ mA
V_{BD}	Input Breakdown Voltage	+5.5			V	25°C	$I_{IN} = +1.0$ mA, Other Inputs V_{IN} = GND
I_{IH}	Input Current HIGH			50	μA	25°C	$V_{IN} = +2.4$ V, E_C $V_{IN} = +0.4$ V
I_{IHX}	Input Current HIGH E_C			200	μA	25°C	E_C $V_{IN} = +2.4$ V All Other Inputs $V_{IN} = +0.4$ V
I_{ILX}	Input Current LOW E_C	−12.8		mA	25°C		E_C $V_{IN} = +0.4$ V, All Other Inputs $V_{IN} = +4.0$ V
I_{IL}	Input Current LOW	−3.2			mA	25°C	$V_{IN} = +0.4$ V, E_C $V_{IN} = +4.0$ V
I_{EE}	Power Supply Current	−34	−26		mA	25°C	Inputs and Outputs Open
I_{CCH}	Power Supply Current		+13	+16	mA	25°C	All Inputs $V_{IN} = +4.0$ V
I_{CCL}	Power Supply Current		+18	+25	mA	25°C	All Inputs V_{IN} = GND

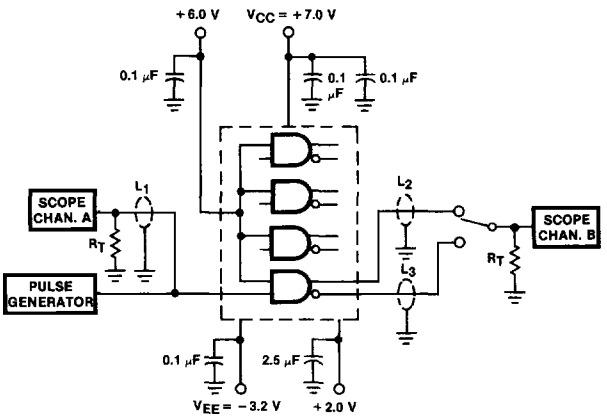
DC CHARACTERISTICS: $V_{EE} = -5.2$ V, $V_{CC} = GND$

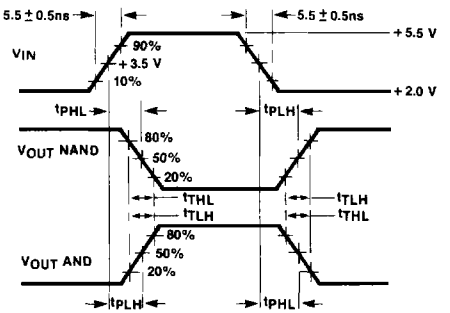
SYMBOL	CHARACTERISTIC	LIMITS			UNITS	T_A	CONDITIONS
		B	TYP	A			
I_{IL}	Input Current LOW	−3.2			mA	25°C	$V_{IN} = +0.4$ V, E_C $V_{IN} = +4.0$ V
I_{EE}	Power Supply Current	−34	−26		mA	25°C	Inputs and Outputs Open
I_{CCH}	Power Supply Current		+13	+16	mA	25°C	All Inputs $V_{IN} = +4.0$ V
I_{CCL}	Power Supply Current		+18	+25	mA	25°C	All Inputs $V_{IN} = GND$

SWITCHING CHARACTERISTICS: $V_{EE} = -5.2$ V, $T_A = 25°C$

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		B	TYP	A		
t_{PLH}, t_{PHL}	Propagation Delay	1.5	3.0	6.0	ns	See Figure 1
t_{TLH}, t_{THL}	Output Transition Time LOW to HIGH, HIGH to LOW (20% to 80%) (80% to 20%)	1.1	2.5	3.9	ns	

SWITCHING TEST CIRCUIT AND WAVEFORMS





NOTES:

L_1, L_2 and L_3 are equal lengths of 50 Ω impedance lines.
R_T equals 50 Ω termination of scope

Fig. 1