



ECL to TTL Translator (+ 5.0 Vdc Power Supply)

**ELECTRICALLY TESTED PER:
MPG 10H750**

The 10H750 is a member of Motorola's 10H family of high performance ECL logic. It consists of 4 translator with differential inputs and TTL outputs. The 3-state outputs can be disabled by applying a HIGH TTL logic level on the common OE input.

The 10H750 is designed to be used primarily in systems incorporating both ECL and TTL logic operating off a common power supply. The separate V_{CC} power pins are not connected internally and thus isolate the noisy TTL V_{CC} runs from the relatively quiet ECL V_{CC} runs on the printed circuit board. The differential inputs allow the 10H750 to be used as an inverting or non-inverting translator, a differential line receiver or as a high performance comparator.

- Propagation Delay, 3.5 ns Typical
- MECL 10K-Compatible

FUNCTION	PIN ASSIGNMENTS			BURN-IN (CONDITION C)
	DIL	FLATS	LCC	
ECL V_{CC}	1	5	2	V_{CC}
AOUT	2	6	3	GND
A _{IN}	3	7	4	V_{CC}
$\overline{A}_{IN}$	4	8	5	GND
$\overline{B}_{IN}$	5	9	7	GND
B _{IN}	6	10	8	V_{CC}
BOUT	7	11	9	GND
GND	8	12	10	GND
$\overline{OE}$	9	13	12	GND
DOUT	10	14	13	GND
D _{IN}	11	15	14	V_{CC}
$\overline{D}_{IN}$	12	16	15	GND
$\overline{C}_{IN}$	13	1	17	GND
C _{IN}	14	2	18	V_{CC}
COUT	15	3	19	GND
TTL V_{CC}	16	4	20	V_{CC}

BURN - IN CONDITIONS:
 $V_{CC} = + 6.0 \text{ V MAX/} + 5.0 \text{ V MIN}$

Military 10H750

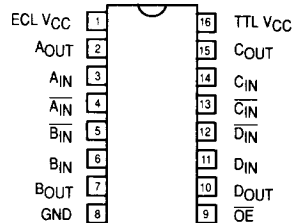


AVAILABLE AS

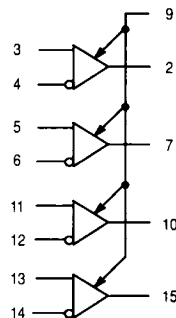
- 1) JAN: N/A
 - 2) SMD: N/A
 - 3) 883: 10H750/BXAJC
- X = CASE OUTLINE AS FOLLOWS:**

**PACKAGE: CERDIP: E
CERFLAT: F
LCC: 2**

**The letter "M" appears before
the slash on LCC.**

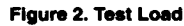


LOGIC DIAGRAM



$V_{CC} (+ 5.0 \text{ V}) = \text{Pins 1, and 16}$
 $\text{GND} = \text{Pin 8}$

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- Application Note:** Pin 9 is an $\overline{\text{OE}}$ and the 10H750 is disabled when $\overline{\text{OE}}$ is at V_{IH} or higher



10H750 QUIESCENT LIMIT TABLE *

Test Temperature	Test Voltage Values (Volts) (V _{DIFF} in millivolts)														Test Current (milliamps)			
	V _{IH1}	V _{IL1}	V _{IH2}	V _{IL2}	PS1	PS2	V _{CC}	V _{CC1}	V _{CC2}	V _{IHH}	V _{ILH}	V _{IHL}	V _{ILL}	V _R	V _{comm.mode} + 2.8 – + 5.0	V _{DIFF}	I _{OH}	I _{OL}
T _A = 25 °C	+ 2.0	+ 0.8	+ 4.2	+ 3.15	+ 4.11	+ 3.31	+ 5.0	+ 5.5	+ 4.5	+ 5.0	+ 4.65	+ 3.15	+ 2.8	+ 3.71	+ 2.8 – + 5.0	+ 350	- 3.0	+ 20
T _A = 125 °C	+ 2.0	+ 0.8	+ 4.2	+ 3.15	+ 4.22	+ 3.345	+ 5.0	+ 5.5	+ 4.5	+ 5.0	+ 4.65	+ 3.15	+ 2.8	+ 3.82	+ 2.8 – + 5.0	+ 350	- 3.0	+ 20
T _A = 55 °C	+ 2.0	+ 0.8	+ 4.2	+ 3.15	+ 4.03	+ 3.285	+ 5.0	+ 5.5	+ 4.5	+ 5.0	+ 4.65	+ 3.15	+ 2.8	+ 3.63	+ 2.8 – + 5.0	+ 350	- 3.0	+ 20

Symbol	Parameter	Limits						Units	TEST VOLTAGE APPLIED TO PINS BELOW											
		+ 25 °C		+ 125 °C					Pinouts referenced are for DIL package, check Pin Assignments VCC1 & 2 = (Pin 1, 16), GND = (Pin 8), Output Load = See Figure 1.											
				Subgroup 1		Subgroup 2														
	Functional Parameters:	Min	Max	Min	Max	Min	Max		V _{IH}	V _{IHH}	V _{IHL}	V _{IL}	V _{ILL}	V _{ILH}	V _{CC2}	V _{CC1}	I _{OH/L}	P. U. T.		
V _{OH}	High Output Voltage	2.5		2.5		2.5		V	3, 6 11, 14	3, 6 11, 14	3, 6 11, 14	4, 5 12, 13	4, 5 12, 13	4, 5 12, 13	1, 16	1, 16	2, 7 10, 15	2, 7 10, 15		
V _{OL}	Low Output Voltage		0.5		0.5		0.5	V	2, 3	2	2	3		3	3	8	4	4, 5 12, 13		
I _{OZH} I _{OZL}	Output Disable Current (High/ Low)	+50 -50		+50 -50				mA	2, 7 10, 15			2, 7 10, 15			1, 16		2, 7 10, 15			
I _{CC1} I _{CC2}	Power Supply Current (TTL/ ECL)	20 12		20 12				mA		4, 5 12, 13		9		3, 6 11, 14	1, 16		1, 16			
I _{CC}	Input Leakage Current	32		32				mA		4, 5 12, 13		9		3, 6 11, 14	1, 16		1, 16			
I _{OS}	Short Circuit (**) Current	-60	-150	-60	-150	-60	-150	mA	3, 6 11, 14			4, 5, 9 12, 13			1, 16		2, 7 10, 15			
I _{IH}	Input Current	20		20				μA	9						1, 16		9			
I _{INH}	Input Current	50		50				μA		3-6 11-14				3, 6 11, 14	1, 16		3-6 11-14			
I _{IL}	Input Current		-0.6		-0.6		-0.6	μA				9			1, 16		9			
I _{INL}	Input Current	50		50				μA		3-6 11-14				3, 6 11, 14	1, 16		3-6 11-14			

* ELECTRICAL CHARACTERISTICS

Each MECL 10H series circuit 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. Outputs are terminated through a 100 Ω resistor to -2.0 volts. ** For I_{OS}: Pins 2, 7, 10, 15 = GND

10H750 QUIESCENT LIMIT TABLE *

Test Temperature	Test Voltage Values (Volts) (V _{DIFF} in millivolts)																Test Current (milliamps)	
	V _{IH1}	V _{IL1}	V _{IH2}	V _{IL2}	PS1	PS2	V _{CC}	V _{CC1}	V _{CC2}	V _{IHH}	V _{ILH}	V _{IHL}	V _{ILL}	V _R	V _{comm.mode}	V _{DIFF}	I _{OH}	I _{OL}
T _A = 25 °C	+2.0	+0.8	+4.2	+3.15	+4.11	+3.31	+5.0	+5.5	+4.5	+5.0	+4.65	+3.15	+2.8	+3.71	+2.8 – +5.0	+350	– 3.0	+20
T _A = 125 °C	+2.0	+0.8	+4.2	+3.15	+4.22	+3.345	+5.0	+5.5	+4.5	+5.0	+4.65	+3.15	+2.8	+3.82	+2.8 – +5.0	+350	– 3.0	+20
T _A = –55 °C	+2.0	+0.8	+4.2	+3.15	+4.03	+3.285	+5.0	+5.5	+4.5	+5.0	+4.65	+3.15	+2.8	+3.63	+2.8 – +5.0	+350	– 3.0	+20

Symbol	Parameter	Limits						Units	TEST VOLTAGE APPLIED TO PINS BELOW									
	Functional Parameters:	+ 25 °C		+ 125 °C				- 55 °C	Pinouts referenced are for DIL package, check Pin Assignments VCC = 2.0 V, Output Load = 100 Ω to GND									
		Subgroup 9		Subgroup 10		Subgroup 11												
		Min	Max	Min	Max	Min	Max		VIN	Vout	VCC	VR	PS1	PS2	P.U.T.			
t _{pd}	Propagation Delay Data	1.5	5.0	1.5	5.2	1.5	5.0	ns	3, 4, 5 11 - 13	2, 7 10, 15	1, 16	3, 4, 5 11 - 13	3 - 6, 9 11 - 14	3 - 6, 9 11 - 14	2, 7, 10, 15			
t _{pd} HZ	Outside Disable Time	2.0	6.0	2.0	6.2	2.0	6.0	ns	3, 4, 5 11 - 13	2, 7 10, 15	1, 16	3, 4, 5 11 - 13	3 - 6, 9 11 - 14	3 - 6, 9 11 - 14	2, 7, 10, 15			
t _{pd} HZ	Outside Disable Time	2.0	6.0	2.0	6.2	2.0	6.0	ns	3, 4, 5 11 - 13	2, 7 10, 15	1, 16	3, 4, 5 11 - 13	3 - 6, 9 11 - 14	3 - 6, 9 11 - 14	2, 7, 10, 15			
t _{pd} ZL	Output Enable Time	2.0	8.0	2.0	8.2	2.0	8.0	ns	3, 4, 5 11 - 13	2, 7 10, 15	1, 16	3, 4, 5 11 - 13	3 - 6, 9 11 - 14	3 - 6, 9 11 - 14	2, 7, 10, 15			
t _{pd} ZH	Output Enable Time	2.0	8.0	2.0	8.2	2.0	8.0	ns	3, 4, 5 11 - 13	2, 7 10, 15	1, 16	3, 4, 5 11 - 13	3 - 6, 9 11 - 14	3 - 6, 9 11 - 14	2, 7, 10, 15			

* ELECTRICAL CHARACTERISTICS

Each MECL 10H series circuit 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. Outputs are terminated through a 100 Ω resistor to -2.0 volts.

Note

Subgroups A10 and A11, (AC testing) at -55°C and +125°C guaranteed, but not tested.