9-Bit ECL/TTL Translator

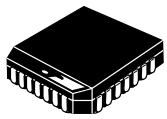
MC10H601
MC100H601

The MC10H/100H601 is a 9–bit, dual supply ECL to TTL translator. Devices in the Motorola 9–bit translator series utilize the 28–lead PLCC for optimal power pinning, signal flow–through and electrical performance.

The devices feature a 48 mA TTL output stage, and AC performance is specified into both a 50 pF and 200 pF load capacitance. For the 3–state output disable, both ECL and TTL control inputs are provided, allowing maximum design flexibility.

The 10H version is compatible with MECL 10H ECL logic levels. The 100H version is compatible with 100K levels.

- 9–Bit Ideal for Byte–Parity Applications
- 3–State TTL Outputs
- Flow–Through Configuration
- Extra TTL and ECL Power Pins to Minimize Switching Noise
- ECL and TTL 3–State Control Inputs
- Dual Supply
- 4.8 ns Max Delay into 50 pF, 9.6 ns into 200 pF (all outputs switching)
- PNP TTL Inputs for Low Loading



FN SUFFIX
28–LEAD PLASTIC PLCC PACKAGE
CASE 776–02

PIN NAMES

PIN	FUNCTION
GND	TTL Ground (0 V)
V_{CCE}	ECL V_{CC} (0 V)
V_{CCT}	TTL Supply (+5.0 V)
V_{EE}	ECL Supply (–5.2/–4.5 V)
D0–D8	Data Inputs (ECL)
$\underline{Q0–Q8}$	Data Outputs (TTL)
$\underline{OEECL}$	3–State Control (ECL)
OETTL	3–State Control (TTL)

TRUTH TABLE

$\overline{OEECL}$	$\overline{OETTL}$	D	Q
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

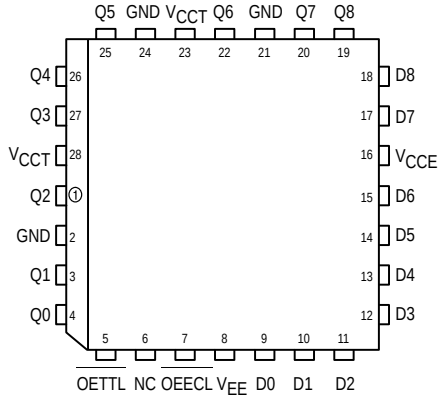


Figure 1. 28–Lead Pinout (Top View)

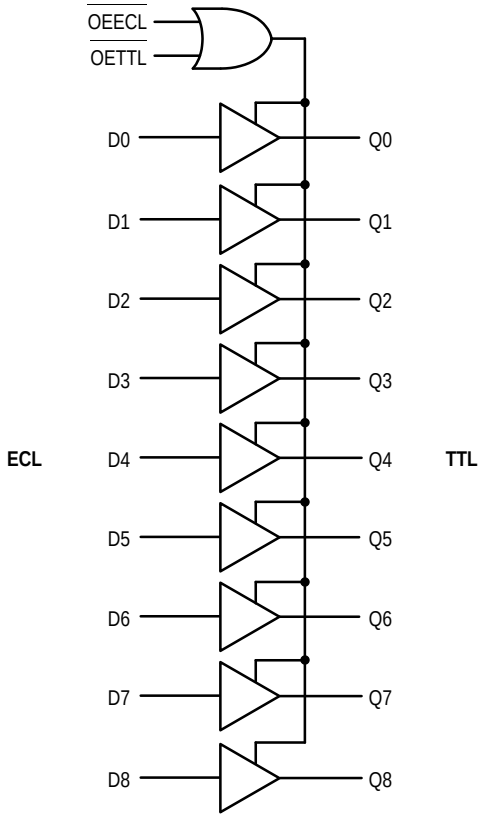


Figure 2. Logic Diagram

10H ECL DC CHARACTERISTICS: V_{CCT} = 5.0 V ± 10%; V_{EE} = –5.2 V ± 5%

Symbol	Parameter	0°C		25°C		85°C		Unit	Condition
		Min	Max	Min	Max	Min	Max		
I_{EE}	Power Supply Current		–51		–51		–51	mA	
I_{IH} I_{IL}	Input HIGH Current Input LOW Current	 0.5	225	 0.5	145	 0.5	145	µA µA	
V_{IH} V_{IL}	Input HIGH Voltage Input LOW Voltage	–1170 –1950	–840 –1480	–1130 –1950	–810 –1480	–1060 –1950	–720 –1445	mV	

100H ECL DC CHARACTERISTICS: V_{CCT} = 5.0 V ± 10%; V_{EE} = –4.2 V to –5.5 V

Symbol	Parameter	0°C		25°C		85°C		Unit	Condition
		Min	Max	Min	Max	Min	Max		
I_{EE}	Power Supply Current		–51		–51		–53	mA	
I_{IH} I_{IL}	Input HIGH Current Input LOW Current	 0.5	225	 0.5	145	 0.5	145	µA µA	
V_{IH} V_{IL}	Input HIGH Voltage Input LOW Voltage	–1165 –1810	–880 –1475	–1165 –1810	–880 –1475	–1165 –1810	–880 –1475	mV	

TTL DC CHARACTERISTICS: V_{CCT} = 5.0 V ± 10%; V_{EE} = –5.2 V ± 5% (10H version);
V_{EE} = –4.2 V to –5.5 V (100H version)

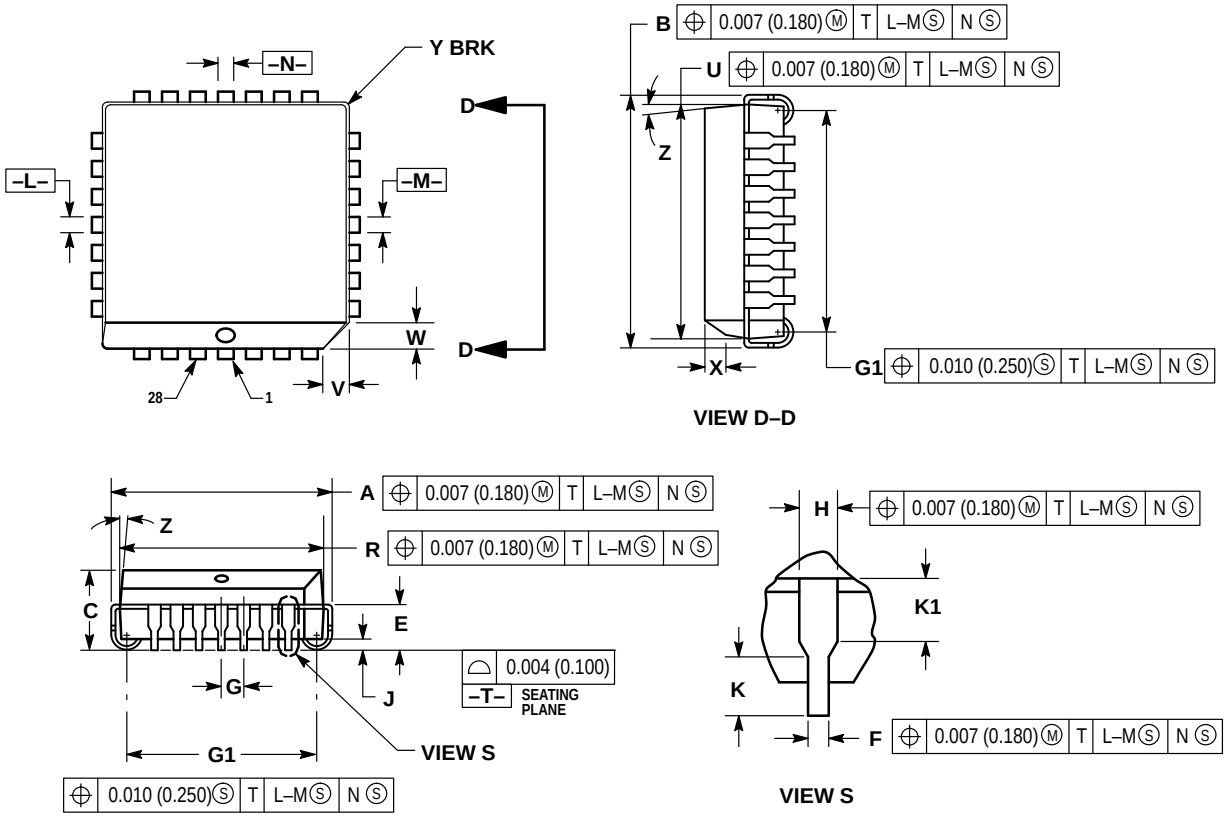
Symbol	Parameter	0°C		25°C		85°C		Unit	Condition
		Min	Max	Min	Max	Min	Max		
I_{CCH}	Power Supply Current		110		110		110	mA	
I_{CCL}			110		110		110		
I_{CCZ}	Power Supply Current		105		105		105		
I_{IH}	Input HIGH Current		20 100		20 100		20 100	µA	V_{IN} = 2.7 V V_{IN} = 7.0 V
I_{IL}	Input LOW Current		–0.6		–0.6		–0.6	mA	V_{IN} = 0.5 V
I_{OS}	Output Short Circuit Current	–100	–225	–100	–225	–100	–225	mA	V_{OUT} = 0 V
I_{OZH} I_{OZL}	Output Disable Current HIGH Output Disable Current LOW		50 –50		50 –50		50 –50	µA	V_{OUT} = 2.7 V V_{OUT} = 0.5 V
V_{IHT} V_{ILT}	Input HIGH Voltage Input LOW Voltage	2.0	 0.8	2.0	 0.8	2.0	 0.8	V	
V_{OHT}	Output HIGH Voltage	2.5 2.0		2.5 2.0		2.5 2.0		V	I_{OH} = –3.0 mA I_{OH} = –15 mA
V_{OLT}	Output LOW Voltage		0.55		0.55		0.55	V	I_{OL} = 48 mA
V_{IK}	Input Clamp Voltage		–1.2		–1.2		–1.2	V	I_{IN} = –18 mA

AC CHARACTERISTICS: V_{CCT} = 5.0 V ± 10%; V_{EE} = –5.2 V ± 5% (10H version);
V_{EE} = –4.2 V to –5.5 V (100H version)

Symbol	Parameter		0°C		25°C		85°C		Unit	Condition
			Min	Max	Min	Max	Min	Max		
t_{PLH} t_{PHL}	Propagation Delay to Output		1.7 3.4	4.8 9.6	1.7 3.4	4.8 9.6	1.7 3.4	4.8 9.6	ns ns	C_L = 50 pF C_L = 200 pF
t_{PLZ} t_{PHZ}	Output Disable Time	OEECL	3.7 5.4	6.5 13	3.7 5.4	6.5 13	3.7 5.4	6.5 13	ns ns	C_L = 50 pF C_L = 200 pF
t_{PLZ} t_{PHZ}		OETTL	4.3 7.0	7.5 15	4.3 7.0	7.5 15	4.3 7.0	7.5 15	ns ns	C_L = 50 pF C_L = 200 pF
t_{PZL} t_{PZH}	Output Enable Time	OEECL	3.5 5.0	6.0 12	3.5 5.0	6.0 12	3.5 5.0	6.0 12	ns ns	C_L = 50 pF C_L = 200 pF
t_{PZL} t_{PZH}		OETTL	4.2 6.0	7.0 14	4.2 6.0	7.0 14	4.2 6.0	7.0 14	ns ns	C_L = 50 pF C_L = 200 pF
t_R t_F	Output Rise/Fall Time 1.0 V–2.0 V			1.2 3.0		1.2 3.0		1.2 3.0	ns ns	C_L = 50 pF C_L = 200 pF

OUTLINE DIMENSIONS

FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776–02
ISSUE D



NOTES:
1. DATUMS –L–, –M–, AND –N– DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
2. DIMENSION G1, TRUE POSITION TO BE MEASURED AT DATUM –T–, SEATING PLANE.
3. DIMENSIONS R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
5. CONTROLLING DIMENSION: INCH.
6. THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
7. DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.485	0.495	12.32	12.57
B	0.485	0.495	12.32	12.57
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	—	0.51	—
K	0.025	—	0.64	—
R	0.450	0.456	11.43	11.58
U	0.450	0.456	11.43	11.58
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	—	0.020	—	0.50
Z	2 °	10 °	2 °	10 °
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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