

# 9-Bit ECL/TTL Translator

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

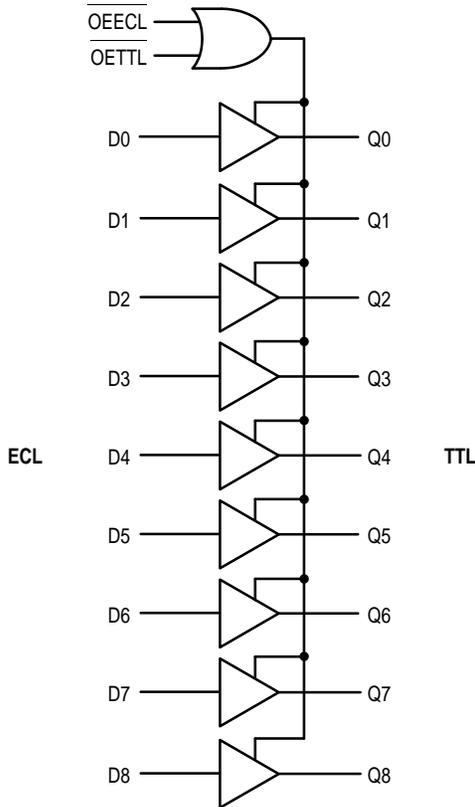


Figure 2. Logic Diagram

## MC10H601 MC100H601



**FN SUFFIX**  
28-LEAD PLASTIC PLCC PACKAGE  
CASE 776-02

### PIN NAMES

PIN	FUNCTION
GND	TTL Ground (0 V)
V <sub>CCE</sub>	ECL V <sub>CC</sub> (0 V)
V <sub>CCT</sub>	TTL Supply (+5.0 V)
VEE	ECL Supply (-5.2/-4.5 V)
D0-D8	Data Inputs (ECL)
Q0-Q8	Data Outputs (TTL)
OEECL	3-State Control (ECL)
OETTL	3-State Control (TTL)

### TRUTH TABLE

OEECL	OETTL	D	Q
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

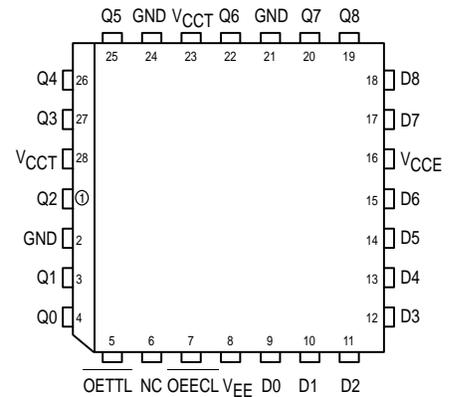


Figure 1. 28-Lead Pinout (Top View)



MC10H601 MC100H601

**10H ECL DC CHARACTERISTICS:**  $V_{CC} = 5.0\text{ V} \pm 10\%$ ;  $V_{EE} = -5.2\text{ V} \pm 5\%$

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	$\mu\text{A}$ $\mu\text{A}$	
$V_{IH}$ $V_{IL}$	Input HIGH Voltage Input LOW Voltage	-1170 -1950	-840 -1480	-1130 -1950	-810 -1480	-1060 -1950	-720 -1445	mV	

**100H ECL DC CHARACTERISTICS:**  $V_{CC} = 5.0\text{ V} \pm 10\%$ ;  $V_{EE} = -4.2\text{ V}$  to  $-5.5\text{ V}$

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	$\mu\text{A}$ $\mu\text{A}$	
$V_{IH}$ $V_{IL}$	Input HIGH Voltage Input LOW Voltage	-1165 -1810	-880 -1475	-1165 -1810	-880 -1475	-1165 -1810	-880 -1475	mV	

**TTL DC CHARACTERISTICS:**  $V_{CC} = 5.0\text{ V} \pm 10\%$ ;  $V_{EE} = -5.2\text{ V} \pm 5\%$  (10H version);  
 $V_{EE} = -4.2\text{ V}$  to  $-5.5\text{ V}$  (100H version)

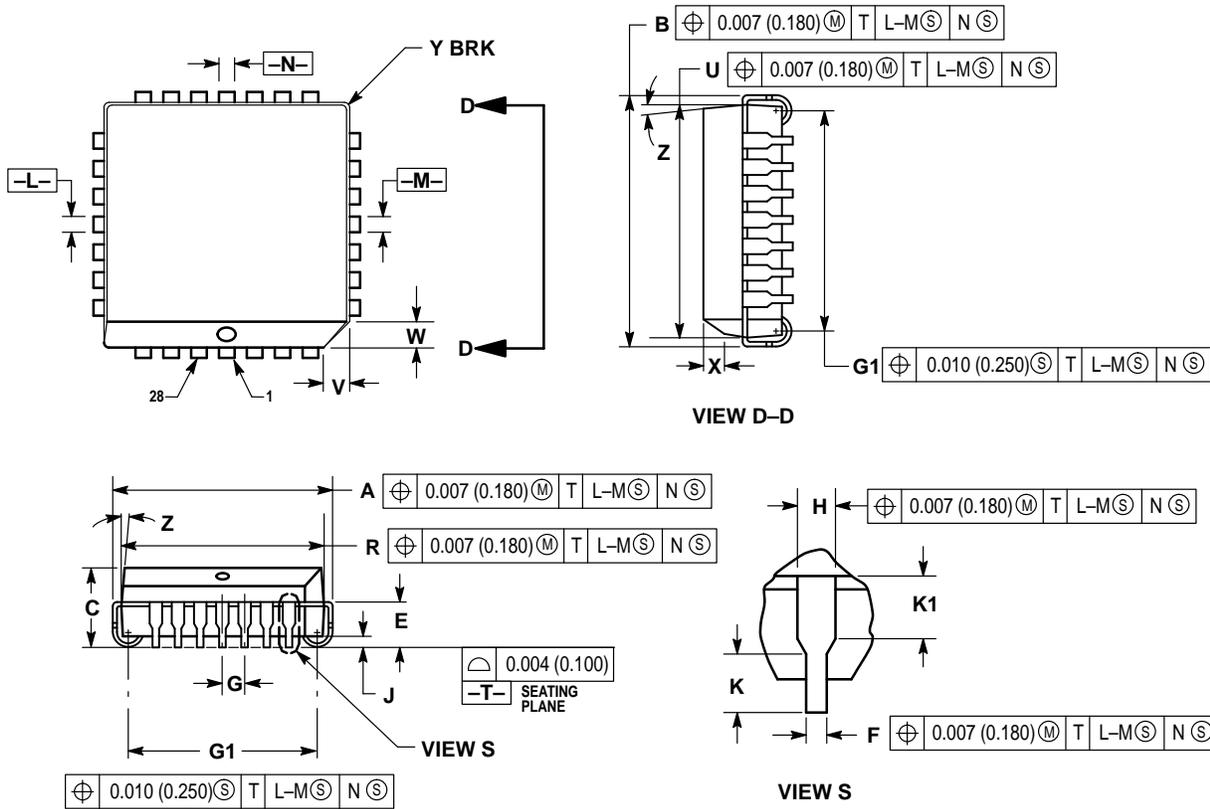
Symbol	Parameter	0°C		25°C		85°C		Unit	Condition
		Min	Max	Min	Max	Min	Max		
$I_{CCH}$	Power Supply Current		110		110		110	mA	
$I_{CCL}$			110		110		110		
$I_{CCZ}$			105		105		105		
$I_{IH}$	Input HIGH Current		20 100		20 100		20 100	$\mu\text{A}$	$V_{IN} = 2.7\text{ V}$ $V_{IN} = 7.0\text{ V}$
$I_{IL}$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

**AC CHARACTERISTICS:**  $V_{CC} = 5.0\text{ V} \pm 10\%$ ;  $V_{EE} = -5.2\text{ V} \pm 5\%$  (10H version);  
 $V_{EE} = -4.2\text{ V}$  to  $-5.5\text{ V}$  (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	$C_L = 50\text{ pF}$ $C_L = 200\text{ pF}$
$t_{PLZ}$ $t_{PHZ}$		Output Disable Time	3.7 5.4	6.5 13	3.7 5.4	6.5 13	3.7 5.4	6.5 13	ns
$t_{PLZ}$ $t_{PHZ}$	Output Enable Time		4.3 7.0	7.5 15	4.3 7.0	7.5 15	4.3 7.0	7.5 15	ns
$t_{PZL}$ $t_{PZH}$		Output Enable Time	3.5 5.0	6.0 12	3.5 5.0	6.0 12	3.5 5.0	6.0 12	ns
$t_{PZL}$ $t_{PZH}$	Output Enable Time		4.2 6.0	7.0 14	4.2 6.0	7.0 14	4.2 6.0	7.0 14	ns
$t_R$ $t_F$		Output Rise/Fall Time 1.0 V–2.0 V		1.2 3.0		1.2 3.0		1.2 3.0	ns

OUTLINE DIMENSIONS

FN SUFFIX  
 PLASTIC PLCC PACKAGE  
 CASE 776-02  
 ISSUE D



NOTES:

- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
- DIMENSION G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
- DIMENSIONS R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- 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.
- 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).

DIM	INCHES		MILLIMETERS	
	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°	
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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