

MC10H601, MC100H601

9-Bit ECL to 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.

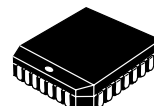
The 10H version is compatible with MECL 10H ECL logic levels. The 100H version is compatible with 100K levels.

- 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



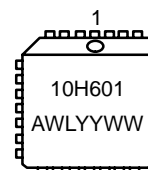
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**PLCC-28
FN SUFFIX
CASE 776**

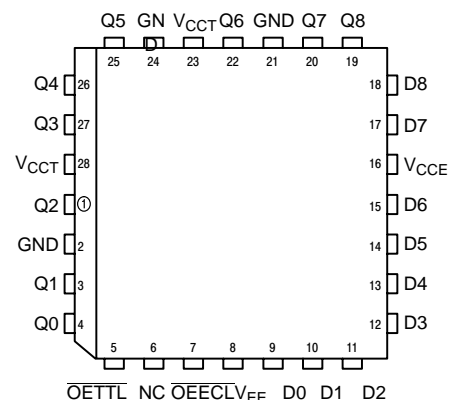
MARKING DIAGRAM



A = Assembly Location
WL = Wafer Lot
YY = Year
WW = Work Week

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)
Q0-Q8	Data Outputs (TTL)
\overline{OEECL}	3-State Control (ECL)
\overline{OETTL}	3-State Control (TTL)



Pinout: 28-Lead PLCC (Top View)

ORDERING INFORMATION

Device	Package	Shipping
MC10H601FN	PLCC-28	37 Units/Rail
MC100H601FN	PLCC-28	37 Units/Rail

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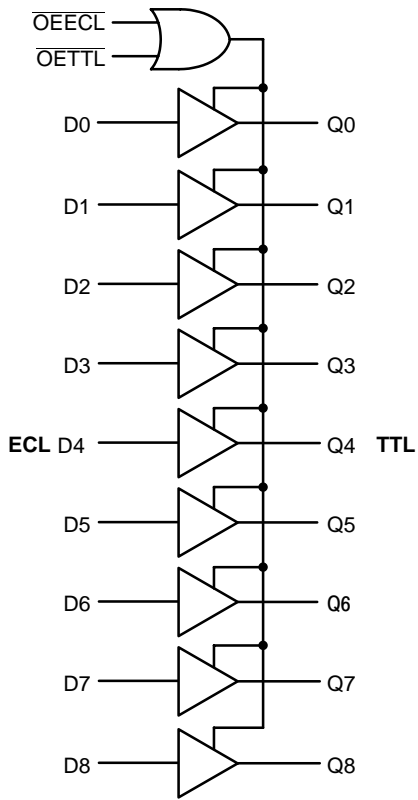


Figure 1. Logic Diagram

TRUTH TABLE

$\overline{OE}ECL$	$OETT L$	D	Q
L	L	L	L
L	L	H	H
H	X	X	Z
X	H	X	Z

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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
		Min	Max	Min	Max	Min	Max	
I_{EE}	Power Supply Current		-51		-51		-51	mA
I_{INH} I_{INL}	Input HIGH Current Input LOW Current	0.5	255	0.5	175	0.5	175	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

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

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
		Min	Max	Min	Max	Min	Max	
I_{EE}	Power Supply Current		-51		-51		-53	mA
I_{INH} I_{INL}	Input HIGH Current Input LOW Current	0.5	255	0.5	175	0.5	175	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

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

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	Condition	0°C		25°C		85°C		Unit
			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	$V_{IN} = 2.7\text{ V}$ $V_{IN} = 7.0\text{ V}$		20 100		20 100		20 100	μA
I_{IL}	Input LOW Current	$V_{IN} = 0.5\text{ V}$		-0.6		-0.6		-0.6	mA
I_{OS}	Output Short Circuit Current	$V_{OUT} = 0\text{ V}$	-100	-225	-100	-225	-100	-225	mA
I_{OZH} I_{OZL}	Output Disable Current HIGH Output Disable Current LOW	$V_{OUT} = 2.7\text{ V}$ $V_{OUT} = 0.5\text{ V}$	-50	50	-50	50	-50	50	μA
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	$I_{OH} = -3.0\text{ mA}$ $I_{OH} = -15\text{ mA}$	2.5 2.0		2.5 2.0		2.5 2.0		V
V_{OLT}	Output LOW Voltage	$I_{OL} = 48\text{ mA}$		0.55		0.55		0.55	V
V_{IK}	Input Clamp Voltage	$I_{IN} = -18\text{ mA}$		-1.2		-1.2		-1.2	V

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

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

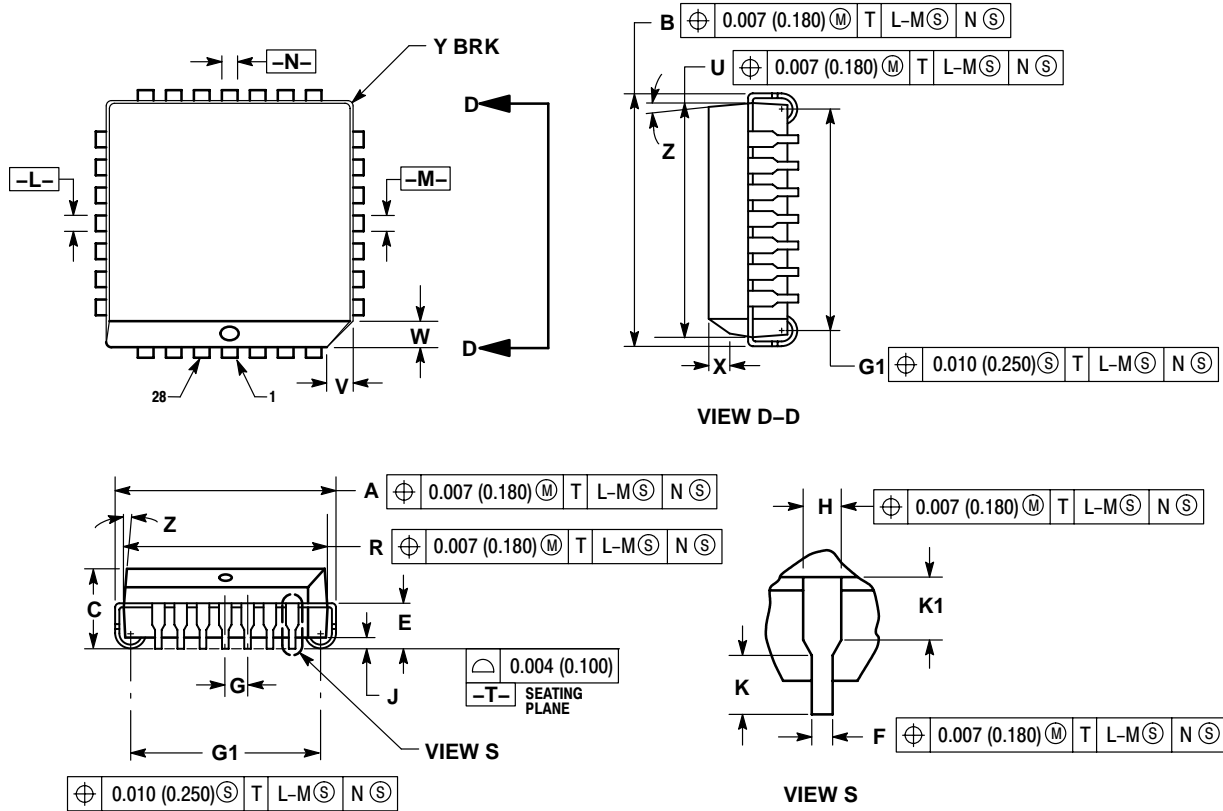
Symbol	Parameter	Condition	0°C		25°C		85°C		Unit
			Min	Max	Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay to Output	$C_L = 50\text{ pF}$ $C_L = 200\text{ pF}$	1.7 3.4	4.8 9.6	1.7 3.4	4.8 9.6	1.7 3.4	4.8 9.6	ns ns
t_{PLZ} t_{PHZ}	Output Disable Time	\overline{OEECL} $C_L = 50\text{ pF}$ $C_L = 200\text{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

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lpm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

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PACKAGE DIMENSIONS

PLCC-28
FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776-02
ISSUE E



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°	2°	10°
G1	0.410	0.430	10.42	10.92
K1	0.040	---	1.02	---

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