

MC10H600, MC100H600

9-Bit TTL to ECL Translator

The MC10H/100H600 is a 9-bit, dual supply TTL to ECL translator. Devices in the ON Semiconductor 9-bit translator series utilize the PLCC-28 for optimal power pinning, signal flow-through and electrical performance.

The H600 features both ECL and TTL logic enable controls for maximum 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
- Flow-Through Configuration
- Extra TTL and ECL Power/Ground Pins to Minimize Switching Noise
- ECL and TTL Enable Inputs
- Dual Supply
- 3.5 ns Max D to Q
- PNP TTL Inputs for Low Loading
- Choice of ECL Compatibility: MECL 10H (10Hxxx) or 100K (100Hxxx)

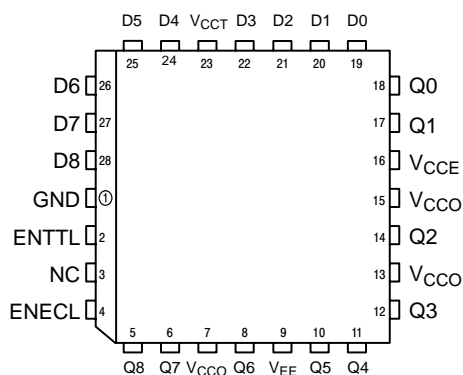


Figure 1. Pinout: PLCC-28 (Top View)

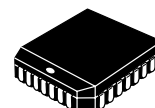
PIN NAMES

PIN	FUNCTION
GND	TTL Ground (0 V)
V _{CCE}	ECL V _{CC} (0 V)
V _{CCO}	ECL V _{CC} (0 V) – Outputs
V _{CCT}	TTL Supply (+5.0 V)
V _{EE}	ECL Supply (-5.2/-4.5 V)
D0–D8	Data Inputs (TTL)
Q0–Q8	Data Outputs (ECL)
ENECL	Enable Control (ECL)
ENTTL	Enable Control (TTL)



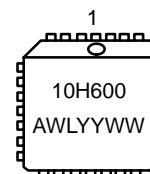
ON Semiconductor®

<http://onsemi.com>



PLCC-28
FN SUFFIX
CASE 776

MARKING DIAGRAM



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

ORDERING INFORMATION

Device	Package	Shipping
MC10H600FN	PLCC-28	37 Units/Rail
MC100H600FN	PLCC-28	37 Units/Rail

MC10H600, MC100H600

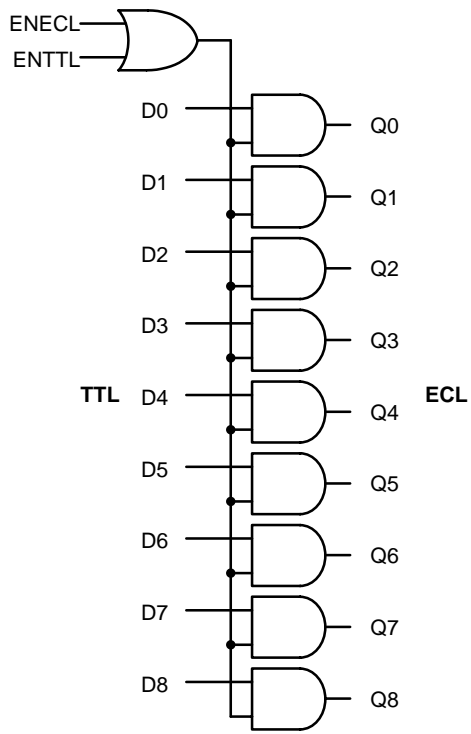


Figure 2. Logic Symbol

TRUTH TABLE

ENECL	ENTTL	D	Q
H	X	H	H
H	X	L	L
X	H	H	H
X	H	L	L
L	L	X	L

MC10H600, MC100H600

DC 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)

Symbol	Parameter	0°C		25°C		75°C		Unit
		Min	Max	Min	Max	Min	Max	

Power Supply Current

I_{EE}	ECL	10H 100H		-125 -122		-125 -123		-125 -132	mA
I_{CCH} I_{CCL}	TTL			48 50		48 50		48 50	mA

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.

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

Symbol	Parameter	Condition	0°C		25°C		75°C		Unit
			Min	Max	Min	Max	Min	Max	
I_{INH} I_{IL}	Input HIGH Current Input LOW Current		0.5	225	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	-1070 -1950	-735 -1450	mV
V_{OH} V_{OL}	Output HIGH Voltage Output LOW Voltage	50 Ω to -2.0 V	-1020 -1950	-840 -1630	-980 -1950	-810 -1630	-920 -1950	-735 -1600	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: $V_{CCT} = 5.0\text{ V} \pm 10\%$; $V_{EE} = -4.2\text{ V}$ to -5.5 V

Symbol	Parameter	Condition	0°C		25°C		75°C		Unit
			Min	Max	Min	Max	Min	Max	
I_{INH} I_{IL}	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
V_{OH} V_{OL}	Output HIGH Voltage Output LOW Voltage	50 Ω to -2.0 V	-1025 -1810	-880 -1620	-1025 -1810	-880 -1620	-1025 -1810	-880 -1620	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.

MC10H600, MC100H600

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

Symbol	Parameter	Condition	0°C		25°C		75°C		Unit
			Min	Max	Min	Max	Min	Max	
V_{IH} V_{IL}	Input HIGH Voltage Input LOW Voltage		2.0	0.8	2.0	0.8	2.0	0.8	V V
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
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.

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

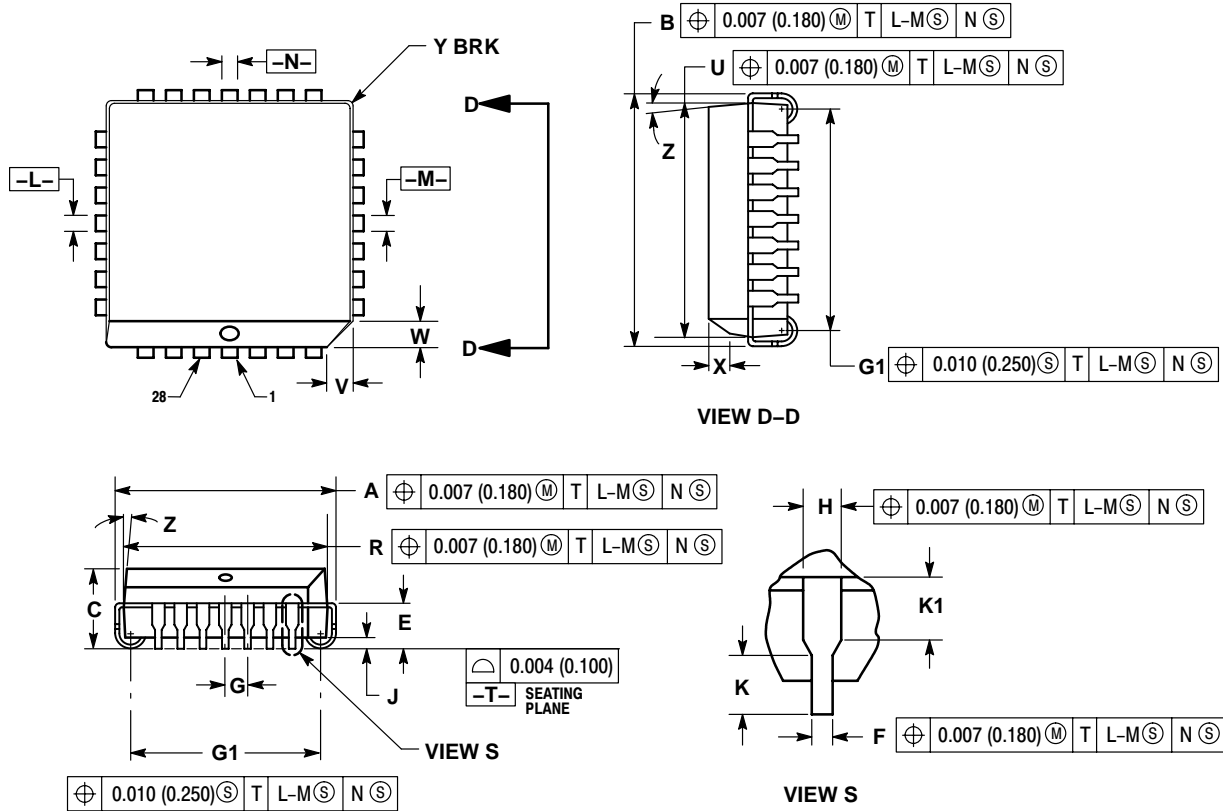
Symbol	Parameter		Condition	0°C		25°C		75°C		Unit
				Min	Max	Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation Delay to Output	D	50 Ω to -2.0 V	1.4	3.0	1.5	3.2	1.7	3.5	ns
		ENECL/ ENTTL		1.8	3.7	1.9	3.9	2.0	4.1	ns
t_R t_F	Output Rise/Fall Time 20%–80%			0.5	1.5	0.5	1.5	0.5	1.5	ns

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

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