

9-Bit Latch ECL/TTL Translator

The MC10H/100H603 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. Latching is controlled by Latch Enable (LEN), and Master Reset (MR) resets the latches. A HIGH on OEECL sends the outputs into the high impedance state. All control inputs are ECL level.

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
- Dual Supply
- 6.0 ns Max Delay into 50 pF, 12 ns into 200 pF (all outputs switching)
- PNP TTL Inputs for Low Loading

MC10H603
MC100H603



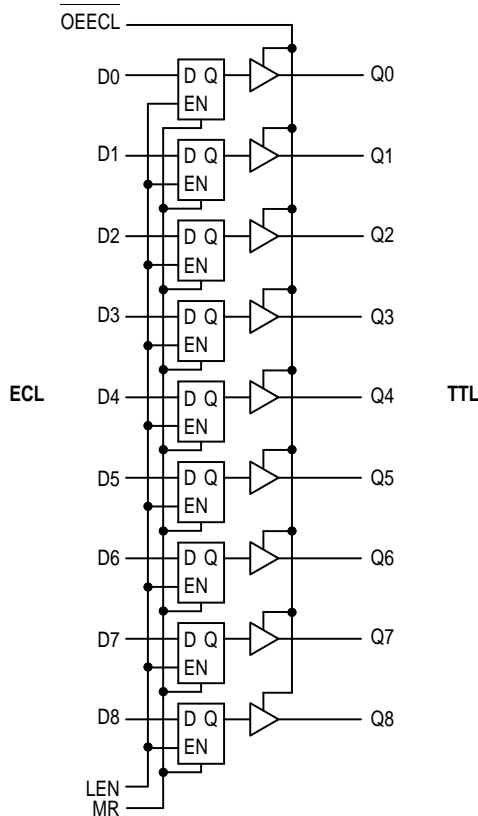
PIN NAMES

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)
OEECL	3-State Control (ECL)
LEN	Latch Enable (ECL)
MR	Master Reset (ECL)

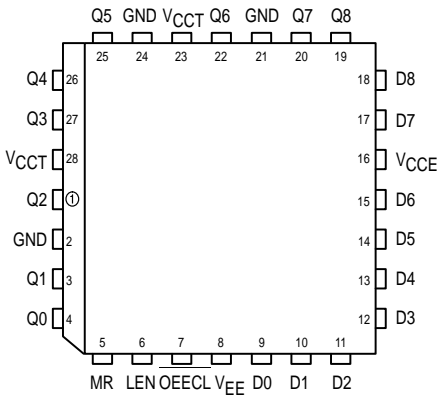
TRUTH TABLE

D	LEN	MR	OEECL	Q
L	L	L	L	L
H	L	L	L	H
X	H	L	L	Q ₀
X	X	H	L	L
X	X	X	H	Z

LOGIC SYMBOL



Pinout: 28-Lead PLCC (Top View)



MC10H603 MC100H603

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

Symbol	Parameter		0°C		25°C		75°C		Unit	Condition
			Min	Max	Min	Max	Min	Max		
I _{EE}	Power Supply Current	ECL	-45	-63	-45	-64	-45	-68	mA	
I _{CCH}		TTL	80	110	80	110	80	110	mA	
I _{CCL}			80	110	80	110	80	110	mA	
I _{CCZ}			80	110	80	110	80	110	mA	
I _{OS}	Output Short Circuit Current		-100	-225	-100	-225	-100	-225	mA	V _{OUT} = 0 V
I _{OZH}	Output Disable Current	HIGH		50		50		50	μA	V _{OUT} = 2.7 V
I _{OZL}		LOW		-50		-50		-50	μA	V _{OUT} = 0.5 V

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

Symbol	Parameter		0°C		25°C		75°C		Unit	Condition
			Min	Max	Min	Max	Min	Max		
t _{PLH} t _{PHL}	Propagation Delay to Output	D	3.0	6.0	3.0	6.0	3.0	6.0	ns	C _L = 50 pF
			6.4	12	6.4	12	6.4	12	ns	C _L = 200 pF
LEN		3.5	6.5	3.5	6.5	3.5	6.5	ns	C _L = 50 pF	
		7.0	13	7.0	13	7.0	13	ns	C _L = 200 pF	
MR		3.0	6.0	3.0	6.0	3.0	6.0	ns	C _L = 50 pF	
		6.0	12	6.0	12	6.0	12	ns	C _L = 200 pF	
t _s t _h t _{w(L)}	Set-Up Time, D to LEN Hold Time, D to LEN LEN Pulse Width, LOW	1.5		1.5		1.5		ns		
t _{PLZ} t _{PHZ}	Output Disable Time	2.5	6.5	2.5	6.5	2.5	6.5	ns	C _L = 50 pF	
		4.2	13	4.2	13	4.2	13	ns	C _L = 200 pF	
t _{PZL} t _{PZH}	Output Enable Time	2.0	5.0	2.0	5.0	2.0	5.0	ns	C _L = 50 pF	
		4.0	10	4.0	10	4.0	10	ns	C _L = 200 pF	
t _R t _F	Output Rise/Fall Time 1.0 V–2.0 V	0.2	1.2	0.2	1.2	0.2	1.2	ns	C _L = 50 pF	
		0.2	3.0	0.2	3.0	0.2	3.0	ns	C _L = 200 pF	

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

Symbol	Parameter	0°C		25°C		75°C		Unit	Condition
		Min	Max	Min	Max	Min	Max		
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	-1070 -1950	-735 -1450	mV	

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

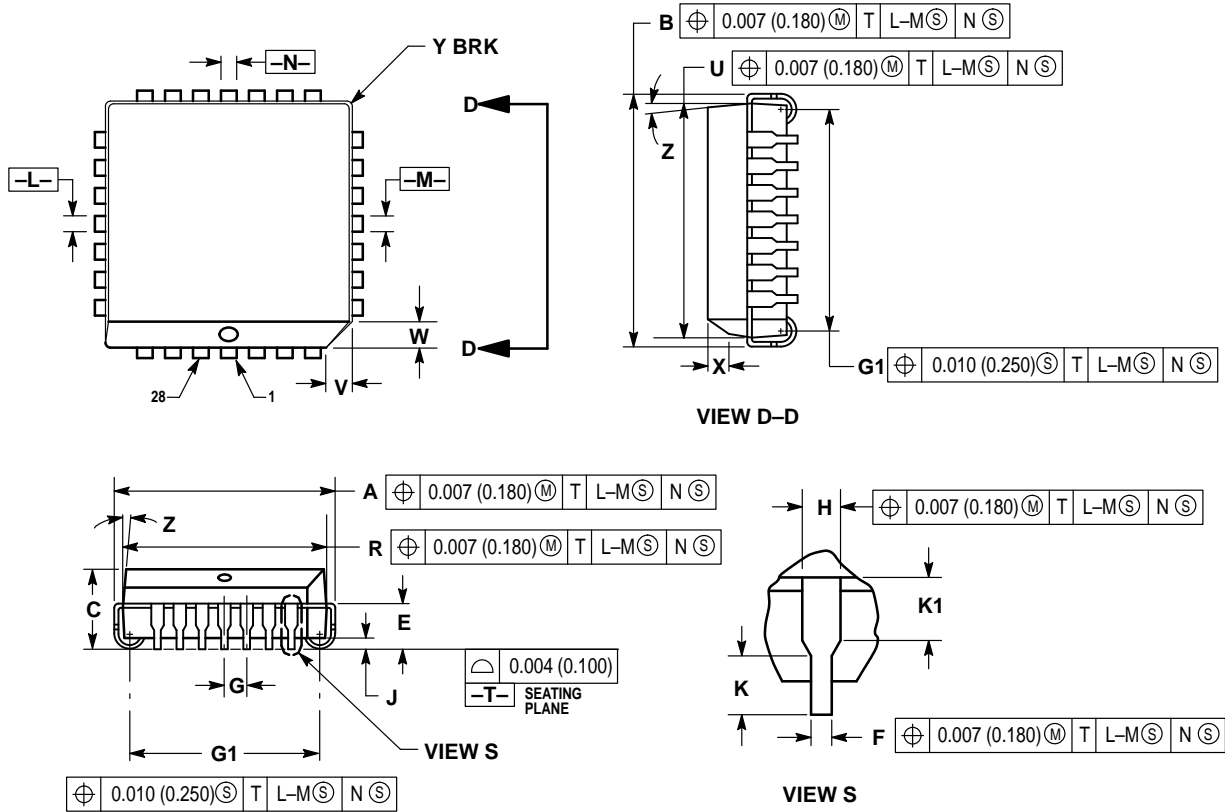
Symbol	Parameter	0°C		25°C		75°C		Unit	Condition
		Min	Max	Min	Max	Min	Max		
I_{IH} I_{IL}	Input HIGH Current Input LOW Current	0.5	225	0.5	145	0.5	145	μA μA	
V_{IH} V_{IL}	Input HIGH Voltage Input LOW Voltage	-1165 -1810	-880 -1475	-1165 -1810	-880 -1475	-1165 -1810	-880 -1475	mV	

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

Symbol	Parameter	0°C		25°C		75°C		Unit	Condition
		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		20 100		20 100		20 100	μA	$V_{IN} = 2.7\text{ V}$ $V_{IN} = 7.0\text{ V}$
I_{IL}	Input LOW Current		-0.6		-0.6		-0.6	mA	$V_{IN} = 0.5\text{ V}$
V_{IK}	Input Clamp Voltage		-1.2		-1.2		-1.2	V	$I_{IN} = -18\text{ mA}$
V_{OH}	Output HIGH Voltage	2.5 2.0		2.5 2.0		2.5 2.0		V V	$I_{OH} = -3.0\text{ mA}$ $I_{OH} = -15\text{ mA}$
V_{OL}	Output LOW Voltage		0.55		0.55		0.55	V	$I_{OL} = 48\text{ mA}$

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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