

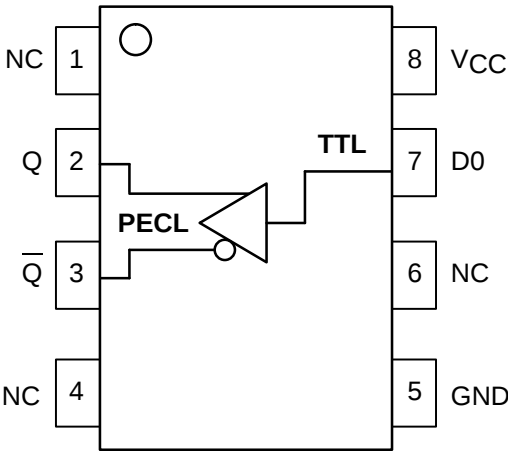
TTL to Differential PECL Translator

The MC10ELT20/100ELT20 is a TTL to differential PECL translator. Because PECL (Positive ECL) levels are used only +5V and ground are required. The small outline 8-lead SOIC package and the single gate of the ELT20 makes it ideal for those applications where space, performance and low power are at a premium. Because the mature MOSAIC 1.5 process is used, low cost can be added to the list of features.

The ELT20 is available in both ECL standards: the 10ELT is compatible with positive MECL 10H logic levels while the 100ELT is compatible with positive ECL 100K logic levels.

- 1.5ns Typical Propagation Delay
- Differential PECL Outputs
- Small Outline SOIC Package
- PNP TTL Inputs for Minimal Loading
- Flow Through Pinouts

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



MC10ELT20 MC100ELT20



D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

PIN DESCRIPTION

PIN	FUNCTION
Q	Diff PECL Outputs
D	TTL Input
V _{CC}	+5.0V Supply
GND	Ground



MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V _{CC}	DC Supply Voltage (Referenced to GND)	7.0	V
V _{IN}	Input Voltage	0 to V _{CC}	V
I _{OUT}	Current Applied to Output in Low Output State Continuous Surge	50 100	mA
T _A	Operating Temperature Range (In Free-Air)	–40 to 85	°C
T _{STG}	Storage Temperature Range	–55 to +150	°C

* Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

TTL INPUT DC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; T_A = –40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
I _{IH}	Input HIGH Current			20	μA	V _{IN} = 2.7V
I _{IHH}	Input HIGH Current			100	μA	V _{IN} = 7.0V
I _{IL}	Input LOW Current			–0.6	mA	V _{IN} = 0.5V
V _{IK}				–1.2	V	I _{IN} = –18mA
V _{IH}	Input HIGH Voltage	2.0			V	
V _{IL}	Input LOW Voltage			0.8	V	

PECL OUTPUT DC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; T_A = –40°C to 85°C)

Symbol	Characteristic	–40°C		0°C		25°C			85°C		Unit	Condition
		Min	Max	Min	Max	Min	Typ	Max	Min	Max		
V _{OH}	Output HIGH Voltage	10ELT ¹ 3.920	4.11	3.980	4.16	4.020	4.10	4.19	4.080	4.27	V	V _{CC} = 5.0V
		100ELT ¹ 3.915	4.12	3.975	4.12	3.975	4.05	4.12	3.975	4.12		
V _{OL}	Output LOW Voltage	10ELT ¹ 3.05	3.350	3.05	3.37	3.05	3.25	3.37	3.05	3.40	V	V _{CC} = 5.0V
		100ELT ¹ 3.17	3.445	3.19	3.38	3.19	3.30	3.38	3.19	3.35		
I _{CC}	Power Supply Current		16		16			16		16	mA	

1. Levels will vary 1:1 with V_{CC}.

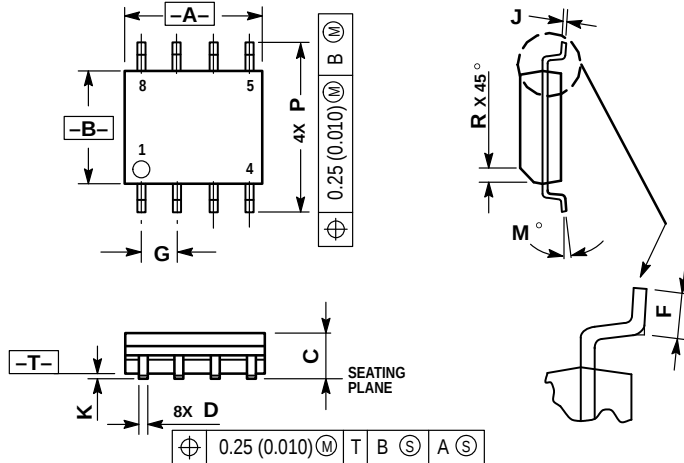
AC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; T_A = –40°C to 85°C)

Symbol	Characteristic	–40°C		0°C		25°C			85°C		Unit	Condition
		Min	Max	Min	Max	Min	Typ	Max	Min	Max		
t _{PLH}	Propagation Delay ¹	0.6	1.2	0.65	1.45	0.9	1.2	1.5	0.6	1.35	ns	
t _{PHL}	Propagation Delay ¹	0.4	1.0	0.45	1.05	0.5	0.8	1.1	0.7	1.30	ns	
t _r /t _f	Output Rise/Fall Time	0.15	1.5	0.15	1.5	0.15		1.5	0.15	1.5	ns	20–80%
f _{MAX}	Maximum Input Frequency	100		100		100			100		MHz	

1. Specifications for standard TTL input signal.

OUTLINE DIMENSIONS

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05
ISSUE P



NOTES:

1. DIMENSIONS A AND B ARE DATUMS AND T IS A DATUM SURFACE.
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
3. DIMENSIONS ARE IN MILLIMETER.
4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
6. DIMENSION D DOES NOT INCLUDE MOLD PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	4.80	5.00
B	3.80	4.00
C	1.35	1.75
D	0.35	0.49
F	0.40	1.25
G	1.27	BSC
J	0.18	0.25
K	0.10	0.25
M	0°	7°
P	5.80	6.20
R	0.25	0.50

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447 or 602-303-5454

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,
3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-81-3521-8315

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602-244-6609
INTERNET: <http://Design-NET.com>

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

