

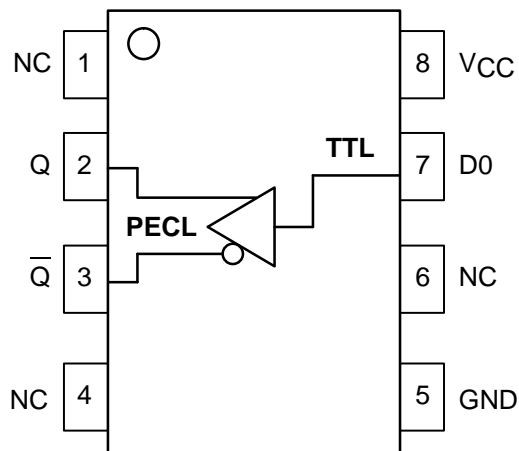
# TTL to Differential PECL Translator

The MC10ELT/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 <sub>CC</sub>	+5.0V Supply
GND	Ground



# MC10ELT20 MC100ELT20

## MAXIMUM RATINGS\*

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	DC Supply Voltage (Referenced to GND)	7.0	V
V <sub>IN</sub>	Input Voltage	0 to V <sub>CC</sub>	V
I <sub>OUT</sub>	Current Applied to Output in Low Output State	50 100	mA
	Continuous Surge		
T <sub>A</sub>	Operating Temperature Range (In Free-Air)	-40 to 85	°C
T <sub>STG</sub>	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<sub>CC</sub> = 4.75V to 5.25V; T<sub>A</sub> = -40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>IN</sub> = 2.7V
I <sub>IHH</sub>	Input HIGH Current			100	μA	V <sub>IN</sub> = 7.0V
I <sub>IL</sub>	Input LOW Current			-0.6	mA	V <sub>IN</sub> = 0.5V
V <sub>IK</sub>				-1.2	V	I <sub>IN</sub> = -18mA
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	
V <sub>IL</sub>	Input LOW Voltage			0.8	V	

## PECL OUTPUT DC CHARACTERISTICS (V<sub>CC</sub> = 4.75V to 5.25V; T<sub>A</sub> = -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 <sub>OH</sub>	Output HIGH Voltage	10ELT <sup>1</sup>	3.920	4.11	3.980	4.16	4.020	4.10	4.19	4.080	4.27	V	V <sub>CC</sub> = 5.0V
		100ELT <sup>1</sup>	3.915	4.12	3.975	4.12	3.975	4.05	4.12	3.975	4.12		
V <sub>OL</sub>	Output LOW Voltage	10ELT <sup>1</sup>	3.05	3.350	3.05	3.37	3.05	3.25	3.37	3.05	3.40	V	V <sub>CC</sub> = 5.0V
		100ELT <sup>1</sup>	3.17	3.445	3.19	3.38	3.19	3.30	3.38	3.19	3.35		
I <sub>CC</sub>	Power Supply Current		16		16			16		16	mA		

1. Levels will vary 1:1 with V<sub>CC</sub>.

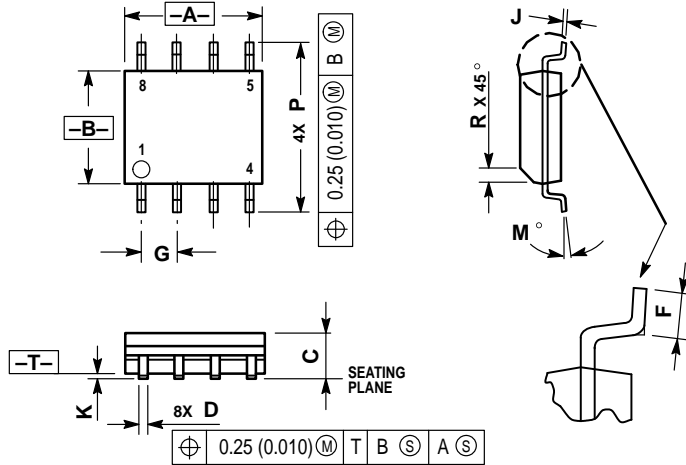
## AC CHARACTERISTICS (V<sub>CC</sub> = 4.75V to 5.25V; T<sub>A</sub> = -40°C to 85°C)

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

1. Specifications for standard TTL input signal.

OUTLINE DIMENSIONS

D SUFFIX  
PLASTIC SOIC PACKAGE  
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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

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