Differential PECL to TTL Translator

MC10ELT21
MC100ELT21

The MC10ELT/100ELT21 is a differential PECL to TTL 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 ELT21 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.

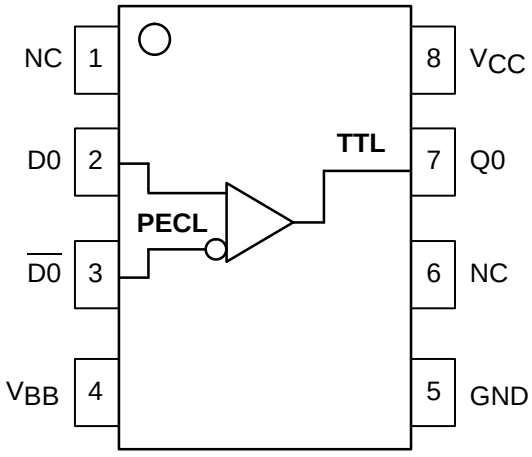
The V_{BB} output allows the ELT21 to also be used in a single-ended input mode. In this mode the V_{BB} output is tied to the IN input for a non-inverting buffer or the IN input for an inverting buffer. If used the V_{BB} pin should be bypassed to ground via a 0.01µF capacitor.

The ELT21 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.

- 3.5ns Typical Propagation Delay
- Differential PECL Inputs
- Small Outline SOIC Package
- 24mA TTL Output
- Flow Through Pinouts

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



PIN DESCRIPTION

PIN	FUNCTION
Q	TTL Output
D	Diff PECL Inputs
V_{CC}	+5.0V Supply
V_{BB}	Reference Output
GND	Ground

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND)	7.0	V
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 OUTPUT DC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; T_A = –40°C to 85°C)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
V_{OH}	Output HIGH Voltage	2.4			V	I_{OH} = –3.0mA
V_{OL}	Output LOW Voltage			0.5	V	I_{OL} = 24mA
I_{CCH}	Power Supply Current		20	29	mA	
I_{CCL}	Power Supply Current		22	32	mA	
I_{OS}	Output Short Circuit Current	–150		–60	mA	

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

		–40°C		0°C		25°C			85°C			
Symbol	Characteristic	Min	Max	Min	Max	Min	Typ	Max	Min	Max	Unit	Condition
I_{IH}	Input HIGH Current		150		150			150		150	µA	
I_{IL}	Input LOW Current	0.5		0.5		0.5			0.5		µA	
V_{CMR}	Common Mode Range	2.2	V_{CC}	2.2	V_{CC}	2.2		V_{CC}	2.2	V_{CC}	V	
V_{PP}	Minimum Peak-to-Peak Input[1]	200		200		200			200		mV	
V_{IH}	Input HIGH Voltage 10ELT 100ELT	3.770 3.835	4.110 4.120	3.830 3.835	4.16 4.12	3.870 3.835		4.19 4.12	3.930 3.835	4.265 4.120	V	V_{CC} = 5.0V
V_{IL}	Input LOW Voltage 10ELT 100ELT	3.05 3.19	3.500 3.525	3.05 3.19	3.520 3.525	3.05 3.19		3.520 3.525	3.05 3.19	3.550 3.525	V	V_{CC} = 5.0V
V_{BB}	Reference Output 10ELT 100ELT	3.57 3.62	3.70 3.74	3.62 3.62	3.73 3.74	3.65 3.62		3.75 3.74	3.69 3.62	3.81 3.75	V	V_{CC} = 5.0V

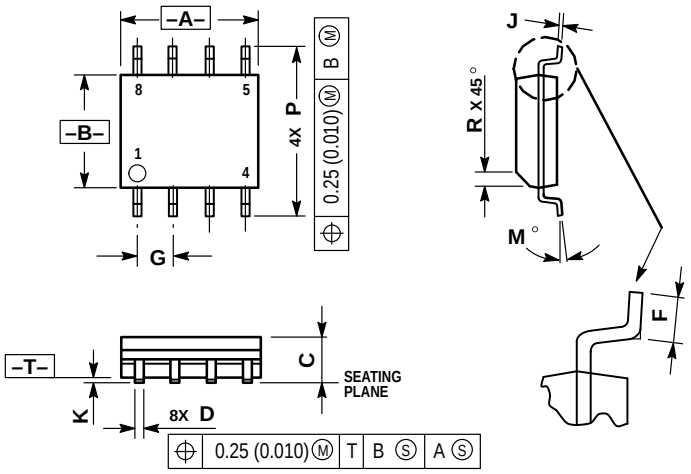
1. 200mV input guarantees full logic swing at the output.

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

		–40°C		0°C		25°C			85°C			
Symbol	Characteristic	Min	Max	Min	Max	Min	Typ	Max	Min	Max	Unit	Condition
t_{PLH}	Propagation Delay[1]	2.0	5.5	2.0	5.5	2.0		5.5	2.0	5.5	ns	C_L = 20pF
t_{PHL}	Propagation Delay[1]	2.0	5.5	2.0	5.5	2.0		5.5	2.0	5.5	ns	C_L = 20pF

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.

	MILLIMETERS	
DIM	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

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

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

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

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