Differential PECL to TTL Translator

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 $0.01 \mu F$ 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

LOGIC DIAGRAM AND PINOUT ASSIGNMENT





MC10ELT21

MC100ELT21

PIN	FUNCTION
Q	TTL Output
D	Diff PECL Inputs
VCC	+5.0V Supply
VBB	Reference Output
GND	Ground



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MC10ELT21 MC100ELT21

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
VCC	DC Supply Voltage (Referenced to GND)	7.0	V
T _A	Operating Temperature Range (In Free-Air)	-40 to 85	°C
TSTG	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	Тур	Max	Unit	Condition	
V _{OH}	Output HIGH Voltage	2.4			V	I _{OH} = -3.0mA	
V _{OL}	Output LOW Voltage			0.5	V	$I_{OL} = 24 mA$	
Іссн	Power Supply Current		20	29	mA		
ICCL	Power Supply Current		22	32	mA		
IOS	Output Short Circuit Current	-150		-60	mA		

PECL INPUT DC CHARACTERISTICS (V_{CC} = 4.75V to 5.25V; $T_A = -40^{\circ}C$ to 85°C)

		-40	D∘C	0°C		25°C			85°C			
Symbol	Characteristic	Min	Max	Min	Max	Min	Тур	Max	Min	Max	Unit	Condition
ЧН	Input HIGH Current		150		150			150		150	μΑ	
۱ _{IL}	Input LOW Current	0.5		0.5		0.5			0.5		μΑ	
VCMR	Common Mode Range	2.2	VCC	2.2	VCC	2.2		VCC	2.2	VCC	V	
Vpp	Minimum Peak-to-Peak Input 1	200		200		200			200		mV	
VIH	Input HIGH 10ELT Voltage 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
VIL	Input LOW 10ELT Voltage 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}	Reference10ELTOutput100ELT	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; $T_A = -40^{\circ}C$ to 85°C)

		–40°C		0°C		25°C			85°C			
Symbol	Characteristic	Min	Max	Min	Max	Min	Тур	Max	Min	Max	Unit	Condition
^t PLH	Propagation Delay1	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	$C_L = 20 pF$



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