



T73LVP21

LVPECL to TTL/CMOS Translator

GENERAL DESCRIPTION

The TLSI T73LVP21 is a general purpose differential LVPECL (Positive ECL) to TTL/CMOS translator operating from a single 3.3V supply. Both small outline 6-pin SOT and 8-pin SOIC packages make it ideal for applications which require the translation of a clock and a data signal.

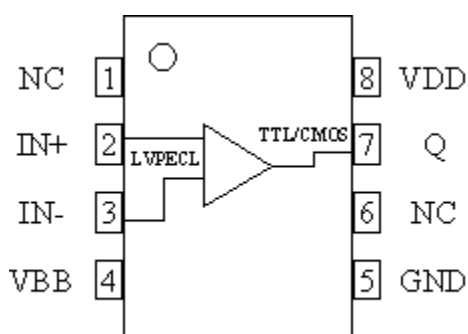
The T73LVP21 can be used in either a differential or single-end input mode by use the VBB pin see note 1

FEATURES

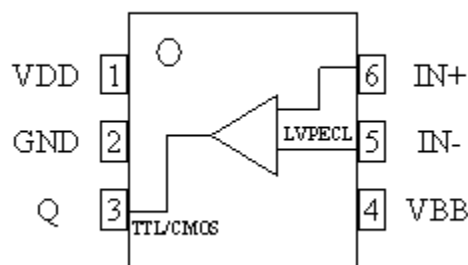
- 1.1 ns Typical Propagation Delay
- Maximum Operating Frequency > 500 MHz
- Operating Temperature -40°C to +85°C
- 24 mA LVTTTL Outputs
- Operating Range: VCC = 3.0V to 3.6V
- Open Input Default State
- ESD rating > 2000V (Human Body Model)
- Tiny 6 pin SOT-23 Package

FUNCTIONAL BLOCK DIAGRAM & PIN ASSIGNMENT

8 Pin SOIC



6 Pin SOT



PIN DESCRIPTION OF 8-LEAD PACKAGE

Name	Description	Pin #
V _{BB}	Output Reference Voltage	4
IN+	LVPECL data positive input	2
IN-	LVPECL data negative input	3
V _{DD}	Connect to 3.3V	8
Q	TTL/CMOS data output	7
GND	Connect to ground	5
NC	No connection	1, 6

PIN DESCRIPTION OF 6-LEAD PACKAGE

Name	Description	Pin #
V _{BB}	Output Reference Voltage	4
IN+	LVPECL data positive input	6
IN-	LVPECL data negative input	5
V _{DD}	Connect to 3.3V	1
Q	TTL/CMOS data output	3
GND	Connect to ground	2

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Condition	Min	Typ	Max	Units
V _{DD}	Supply voltage	Refer to GND	-0.5		3.8	V
V _{IN}	Input voltage	Refer to GND	-0.5		3.8	V
I _{OUT}	Output current	Continuous Surge			50 100	mA mA
T _{STG}	Storage Temperature Range		-60		+150	°C
T _A	Operating Temperature		-40		+85	°C
T _{SOL}	Wave solder				+265	°C

ATTRIBUTES

Characteristics	Value
ESD protection Human Body Model	> 1.2 kV
Machine Model	> 150 V
Charged Device Model	> 2 kV

OPERATING CONDITIONS

Symbol	Parameter	Condition	Min	Typ	Max	Units
V _{DD}	Power supply voltage		3.0		3.6	V
T _A	Ambient temperature		-40		85	°C
V _{IH}	Input HIGH voltage	-40 °C to +85 °C	2.01		2.42	V
V _{IL}	Input LOW voltage	-40 °C to +85 °C	1.35		1.68	V

DC CHARACTERISTICS V_{DD} = 3.3V, GND = 0V, T_A = -40°C to +85°C

Symbol	Parameter	Condition	Min	Typ	Max	Units
I _{CCH}	Power supply current (Output set to HIGH)		8		15	mA
I _{CCL}	Power supply current (Output set to LOW)		15		25	mA
V _{CMR}	Common mode range		2.2		V _{DD}	V
I _{IH}	Input HIGH current		90		90	μA
I _{IL}	Input LOW current		0.5		0.5	μA
V _{PP}	Min. peak-to-peak input		200		200	mV
V _{OH}	Output HIGH voltage	I _{OH} = -3.0 mA				
V _{OL}	Output LOW voltage	I _{OL} = -24 mA				
I _{OS}	Output short circuit current		-200		-80	mA

AC CHARACTERISTICS V_{DD} = 3.3V, GND = 0V, T_A = -40°C to +85°C

Symbol	Parameter	Condition	Min	Typ	Max	Units
t _{PLH}	Propagation delay	C _L = 20 pF		1.0	1.2	ns
t _{PHL}	Propagation delay	C _L = 20 pF		1.0	1.2	ns
t _r	Output rise time	0.8v – 2.0 V		0.2		ns
t _f	Output fall time	2.0 – 0.8 V		0.2		ns
f _{MAX}	Max input frequency			500		MHz

NOTE 1 VBB

When single-ended cap coupled, VBB output is tied to the D input and D is driven for anon-inverting buffer, or VBB output is tied to the D input and D is driven for an inverting buffer. When cap coupled differentially, VBB output is connected through a resistor to each input pin. If used, the VBB pin should be bypassed to VCC via a 0.01 _F capacitor. For a single-ended direct connection use an external voltage reference source such as a resistor divider. Do not use VBB for a single-ended direct connection or port to another device

ORDERING INFORMATION

Part Number	Marking	Shipping/Packaging	No. of Pins	Package	Temperature
T73LVP21S1	T73P21S1	Tubes	8	SOIC	-40°C to +85°C
T73LVP21S1X	T73P21S1	Tape & Reel	8	SOIC	-40°C to +85°C
T73LVP21S2	T73P21S2	Tubes	6	SOT	-40°C to +85°C
T73LVP21S2X	T73P21S2	Tape & Reel	6	SOT	-40°C to +85°C
T73LVP21/D		Dice			-40°C to +85°C