

QUAD DIFFERENTIAL LINE DRIVER

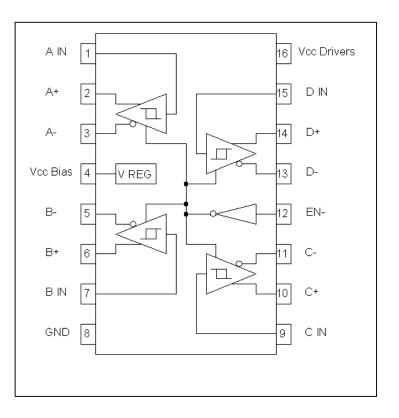
WITH SEPARATE LOGIC BIAS AND DRIVER BIAS SUPPLIES, AND ENABLE FUNCTION ET7272

FEATURES

- Supply Voltage Range 3.5V to 30V
- Operation to 800KHz
- CMOS and TTL Compatible Inputs
- Separate logic bias and driver supply pins
- Optional single supply operation for moderate power applications
- High Impedance Buffered Inputs with Hysteresis
 may be driven directly by phototransistors
- Tri-State outputs
- 80mA peak SINK/SOURCE current
- Outputs Protected by Thermal Shut-Down

APPLICATIONS

- Optical Encoders
- Industrial Controls



DESCRIPTION

These line drivers are pin compatible with 26LS31 in applications where pin 4 = 5V and pin 12 = GND. Internal clamp diodes allow trouble-free operation when driving cable lengths exceeding 100m. Split supplies are provided to minimize standby power dissipation in high voltage applications. The logic should be powered from a regulated 5V supply at the VccBias pin. The output stages may then be powered by a separate supply at VccDrivers, up to 30V. Output voltage swings of 0.3V to VCC-1.9V are typical. The outputs are protected against shorts to ground, shorts to Vcc and to other outputs, by a two-fold scheme of current limiting and thermal shutdown. This assures highly reliable operation in harsh environments. Heat-sinking may be accomplished at pin 8 which is directly connected to the ASIC substrate.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Units	Ref.
Operating Temperature	T _A	-55	115	°C	
Range					
Supply Voltage Range(both)	V _{CC}	4.5	30	V	

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ELECTRICAL CHARACTERISTICS

Unless otherwise specified, $T_A = 25^{\circ}C$ and EN- <0.8V.

Parameters	Symbol	Min.	Тур.	Max.	Units	Test Conditions
Overtemp Operate Point (junction) ¹	T _{JOP}		172		°C	
Overtemp Release Point (junction) ¹	T _{JRP}		136		°C	
Vcc Bias Voltage Range	Vccb	3.5	5	30	V	
Vcc Drivers Voltage Range	Vccd	4.5	5	30	V	
Supply Current VccB1 (BIAS)	IccB1		11.9	16.0	mA	VccB and VccD = 5V
Supply Current VccD1 (DRIVERS)	ICCD1		2.4	3.3	mA	VccB and VccD = 5V
Supply Current VccB2	Іссв2		2.5	3.4	mA	VccB and VccD = 5V, EN- > 2V
Supply Current VccD2	ICCD2		0.0	0.1	mA	VccB and VccD = 5V, EN- > 2V
Supply Current VccB3	Іссв3		12.1	18.5	mA	VccB and VccD = 30V
Supply Current VccD3	ICCD3		2.4	3.3	mA	VccB and VccD = 30V
Supply Current VccB4	ICCB4		2.6	3.5	mA	VccB and VccD = 5V, EN- > 2V
Supply Current VccD4	ICCD4		0.0	0.1	mA	VccB and VccD = 5V, EN- > 2V
Enable Input Threshold	V _{THE}	0.8	1.5	2	V	
Enable Low Level Input Current	IILE	-10	0	10	μA	$V_{IN} = 0V, VCCB = 5V$
Enable High Level Input Current	I _{IHE}	-	108	150	μA	$V_{IN} = 5V, VCCB = 5V$
High Impedance Output Leakage	I _{OZ}	-4.0	0.0	4.0	μA	VccD =30V, EN- > 2V, Output at 15V
Input Positive-Going Threshold	Vt+	1.05	1.25	1.45	V	Vccb = 5V
Input Negative-Going Threshold	VT-	0.75	0.95	1.15	V	Vccb = 5V
Input Hysteresis	V _H	-	0.3	-	V	Vccb = 5V
Low Level Input Current	IIL		-0.1	-4.0	μA	$V_{IN} = 0V, VCCB = 5V$
High Level Input Current	I _{IH}		0	4.0	μA	$V_{IN} = 5V, VCCB = 5V$
Low Level Output1	V _{OL} 1		375	500	mV	$I_{OL} = 20$ mA, VccD = 5V
Low Level Output2	V _{OL} 2		370	500	mV	$I_{OL} = 20 \text{mA}, \text{VccD} = 30 \text{V}$
High Level Output1	V _{OH} 1	2.4	2.8		V	I _{OH} = -20mA, VccD = 5V
High Level Output2	V _{OH} 2	27.7	28.1		V	I _{OH} = -20mA, VccD=30V

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AC SWITCHING CHARACTERISTICS

Values given at $V_{CCB} = 5V$, $V_{CCD} = 24V$, $T_A = 25^{\circ}C$, $C_L = 1000pF$ on all outputs, and EN- <0.8V.

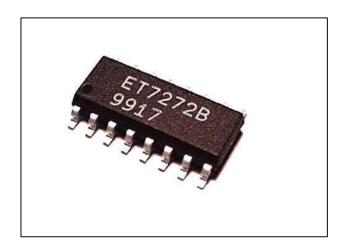
Parameters	Symbol	Min.	Тур.	Max	Units	Test Conditions
				•		
Propagation delay, rising input 50% point to zero crossing of differential outputs	T _{PLH}		450	630	ns	
Propagation delay, falling input 50% point to zero crossing of differential outputs	T _{PHL}		450	630	ns	
Output Rise Time	T _R		700	980	ns	
Output Fall Time	T _F		700	980	ns	

NOTES:

- 1. This is not a test parameter, but for information only.
- It may be necessary to clamp the outputs with Schottky diodes when driving extemely long cables with high capacitance between outputs. These diodes should have a forward voltage of less than 0.4V, and be connected with cathode to the output and anode to ground.

PACKAGE Chip Only 16 Lead SOIC





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