

QUAD DIFFERENTIAL LINE DRIVER

SEPARATE LOGIC BIAS AND DRIVER BIAS, WITH TRI-STATE OUTPUTS

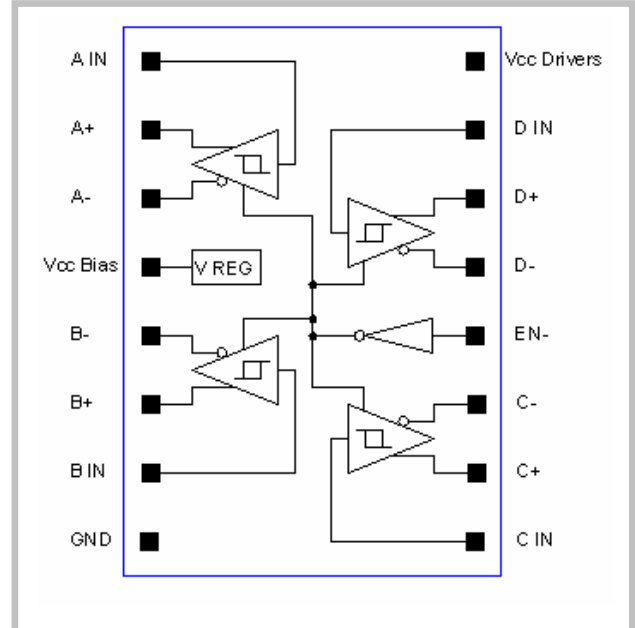
ET7272B

FEATURES

- Supply (Bias) 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
- Tri-State outputs
- 80mA peak SINK/SOURCE current

This part is available in 16L SOIC or 20L TSSOP (all Pb-free) packages, or as die.

<u>PACKAGE</u>	<u>SUFFIX</u>	<u>(Pb-free)</u>
Die Only	-C	-----
16 Lead SOIC	-SOP	-SOP-LF
20 Lead TSSOP	-TSS	-TSS-LF



APPLICATIONS:

- 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.

The outputs may be placed into a high impedance state by application of a logic high at the EN- pin. For normal operation, this pin should be at logic low or grounded.

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ELECTRICAL CHARACTERISTICS

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

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Overtemp Operate Point (junction)	T_{JOP}		172		$^\circ\text{C}$	Note 1
Overtemp Release Point (junction)	T_{JRP}		136		$^\circ\text{C}$	Note 1
Vcc Bias Voltage Range	V_{CCB}	3.5	5	30	V	
Vcc Drivers Voltage Range	V_{CCD}	4.5	5	30	V	
Supply Current V_{CCB1} (BIAS)	I_{CCB1}		11.9	16.0	mA	V_{CCB} and $V_{CCD} = 5\text{V}$
Supply Current V_{CCD1} (DRIVERS)	I_{CCD1}		2.4	3.3	mA	V_{CCB} and $V_{CCD} = 5\text{V}$
Supply Current V_{CCB2}	I_{CCB2}		2.5	3.4	mA	V_{CCB} and $V_{CCD} = 5\text{V}$, $EN- > 2\text{V}$
Supply Current V_{CCD2}	I_{CCD2}		0.0	0.1	mA	V_{CCB} and $V_{CCD} = 5\text{V}$, $EN- > 2\text{V}$
Supply Current V_{CCB3}	I_{CCB3}		12.1	18.5	mA	V_{CCB} and $V_{CCD} = 30\text{V}$
Supply Current V_{CCD3}	I_{CCD3}		2.4	3.3	mA	V_{CCB} and $V_{CCD} = 30\text{V}$
Supply Current V_{CCB4}	I_{CCB4}		2.6	3.5	mA	V_{CCB} and $V_{CCD} = 5\text{V}$, $EN- > 2\text{V}$
Supply Current V_{CCD4}	I_{CCD4}		0.0	0.1	mA	V_{CCB} and $V_{CCD} = 5\text{V}$, $EN- > 2\text{V}$
Enable Input Threshold	V_{THE}	0.8	1.5	2	V	
Enable Low Level Input Current	I_{ILE}	-10	0	10	μA	$V_{IN} = 0\text{V}$, $V_{CCB} = 5\text{V}$
Enable High Level Input Current	I_{IHE}	-	108	150	μA	$V_{IN} = 5\text{V}$, $V_{CCB} = 5\text{V}$
High Impedance Output Leakage	I_{OZ}	-4.0	0.0	4.0	μA	$V_{CCD} = 30\text{V}$, $EN- > 2\text{V}$, Output at 15V
Input Positive-Going Threshold	V_{T+}	1.05	1.25	1.45	V	$V_{CCB} = 5\text{V}$
Input Negative-Going Threshold	V_{T-}	0.75	0.95	1.15	V	$V_{CCB} = 5\text{V}$
Input Hysteresis	V_H	-	0.3	-	V	$V_{CCB} = 5\text{V}$
Low Level Input Current	I_{IL}		-0.1	-4.0	μA	$V_{IN} = 0\text{V}$, $V_{CCB} = 5\text{V}$
High Level Input Current	I_{IH}		0	4.0	μA	$V_{IN} = 5\text{V}$, $V_{CCB} = 5\text{V}$
Low Level Output1	V_{OL1}		375	500	mV	$I_{OL} = 20\text{mA}$, $V_{CCD} = 5\text{V}$
Low Level Output2	V_{OL2}		370	500	mV	$I_{OL} = 20\text{mA}$, $V_{CCD} = 30\text{V}$
High Level Output1	V_{OH1}	2.4	2.8		V	$I_{OH} = -20\text{mA}$, $V_{CCD} = 5\text{V}$
High Level Output2	V_{OH2}	27.7	28.1		V	$I_{OH} = -20\text{mA}$, $V_{CCD} = 30\text{V}$

NOTES:

1. This is not a test parameter, but for information only.

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ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Units	Ref.
Operating Temperature Range	T_A	-55	115	°C	Note 1.
Supply (Driver) Voltage Range	V_{CCD}	4.5	30	V	

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.	Typ.	Max.	Units	Test Conditions
Propagation delay, rising input 50% point to zero crossing of differential outputs	T_{PLH}		450	630	ns	See above.
Propagation delay, falling input 50% point to zero crossing of differential outputs	T_{PHL}		450	630	ns	See above.
Output Rise Time	T_R		700	980	ns	See above.
Output Fall Time	T_F		700	980	ns	See above.

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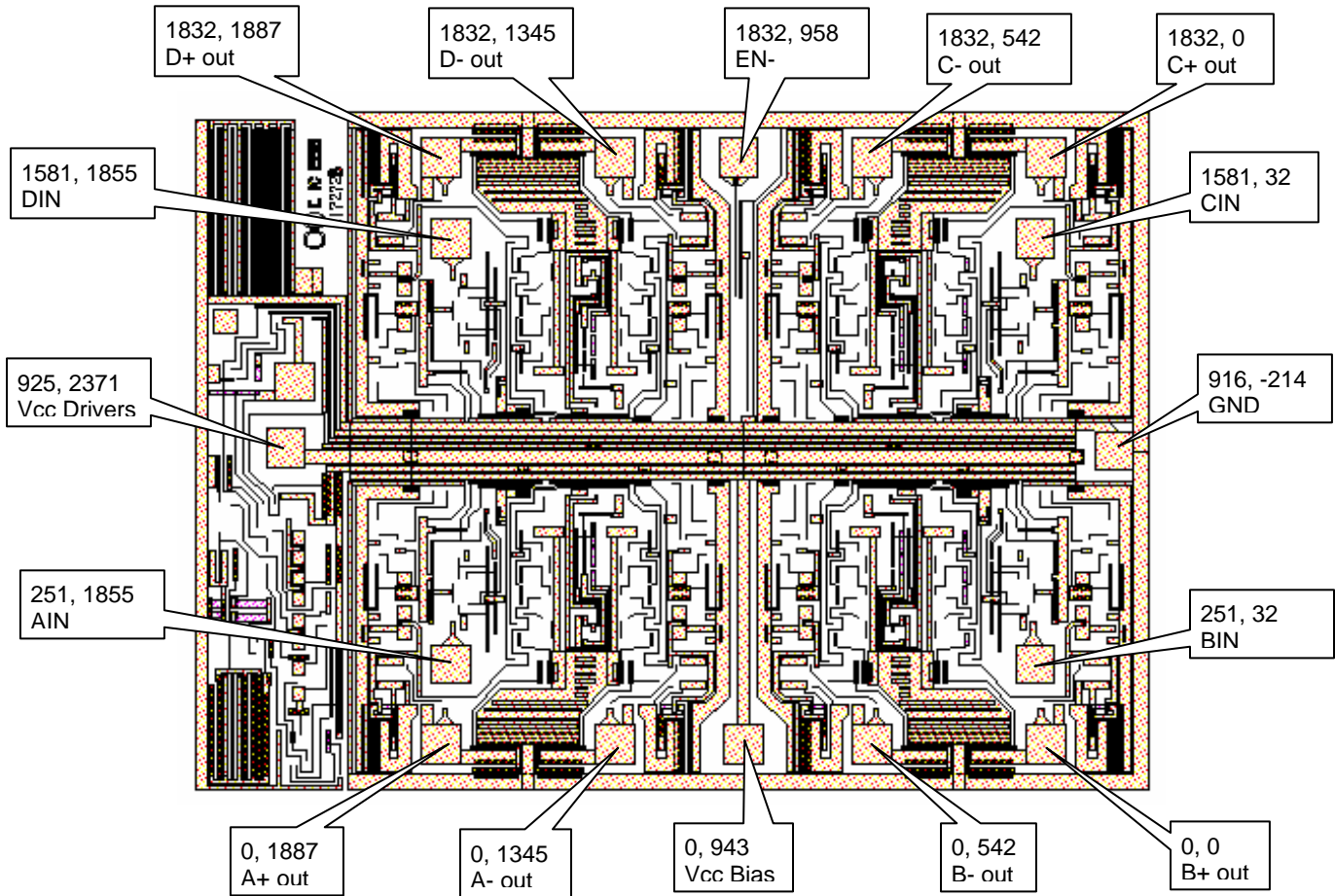
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ET7272B-C

Size = 2261 μ x 3150 μ (.089" x .124")

Thickness = 305 μ (.012")

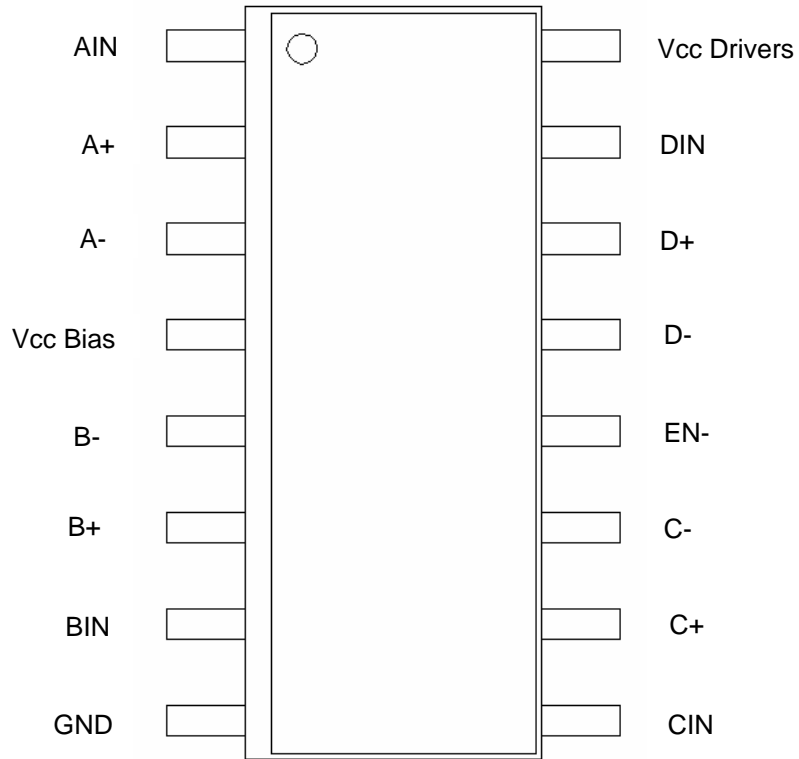
(pad coordinates below in microns)



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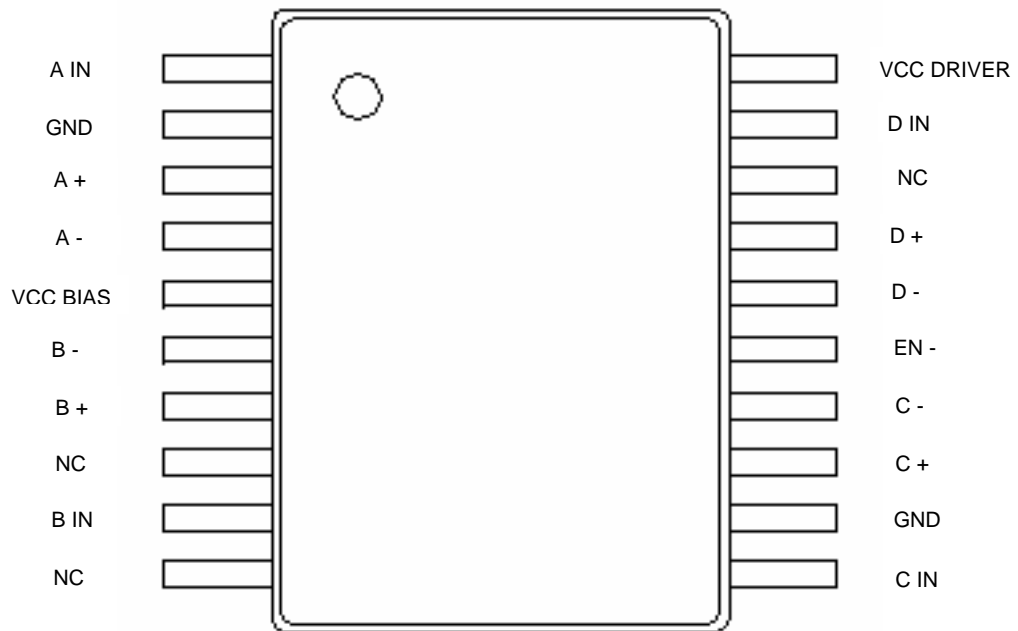
ET7272B-SOP
Package Drawing for 16L SOIC



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ET7272B-TSS
Package Drawing for 20L TSSOP



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