AEIC-2631-S16
Quad Differential Line Driver*

Data Sheet

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TECHNOLOGIES

Description

These line drivers are similar to the popular 26LS31 device, but without the enable function. They provide the additional supply voltage range necessary for use in many industrial control applications. AEIC-2631-S16 not only supports RS-422A, but use of supplies up to 30 V. Output voltage swings up to VCC -2 V are typical. The outputs are protected against shorts to ground by a two-fold scheme of current limiting and thermal shutdown.

Thermal shutdown is accomplished by monitoring junction temperature and comparing this to a band gap reference on chip. Input hysteresis of about 0.5 V provides good noise margin, even in noisy industrial control environments. Input to output propagation delays of less than 200 ns are typical for rising and falling edges of the input waveform, measured to the zero crossing of the differential outputs.

This part is available in 16L SOIC (Pb-free) package.

Applications

- Encoders
- Industrial controls

Features

- Supply Voltage Range 4.75 V to 30 V
- Operation to 800 KHz
- CMOS and TTL Compatible Inputs
- Support RS422A
- High Impedance Buffered Inputs with hysteresis
- Outputs short circuit protected
- 70 mA peak SINK current
- Outputs Protected by Thermal Shut-Down

Pin Assignment
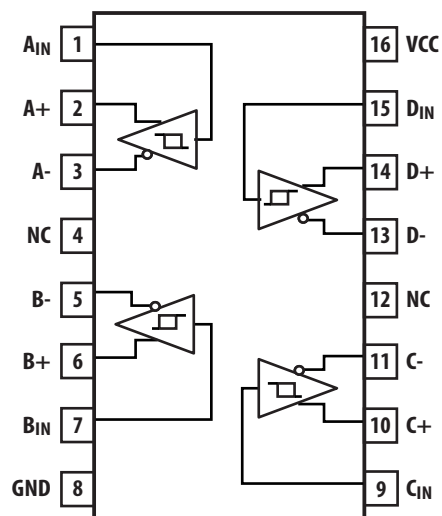
* Pin compatible with 26LS31 in applications which do not require an enable function.

Table 1. Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Units	Ref.
Operating Temperature Range	T_A	-55	125	°C	
Supply Voltage Range	V_{CCD}	4.75	30	V	

Table 2. Electrical Characteristics

Unless otherwise specified, typical values given at Vcc = 2 V, T_A = 25° C and EN- < 0.8 V

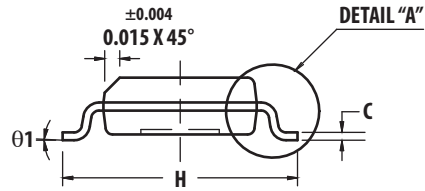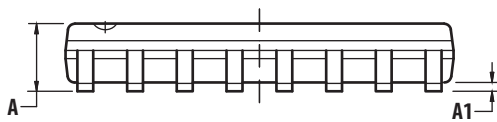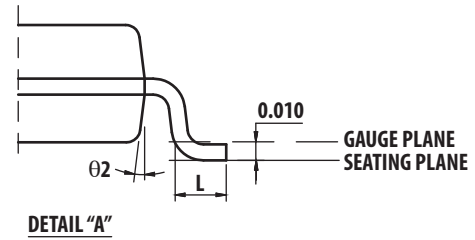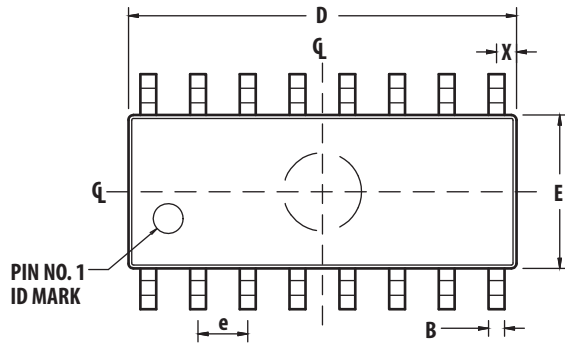| Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Overtemp Operate Point (junction)	T_{JOP}	-	155	-	°C	Note 1
Overtemp Release Point (junction)	T_{JRP}	-	105	-	°C	Note 1
Supply Current	I_{CC1}	7.0	11.0	17.0	mA	V_{CC} = 5 V (I_{CC1})
	I_{CC2}	9.0	13.0	20.0		V_{CC} = 30 V (I_{CC2})
Input Positive-Going Threshold	V_{T+}	1.1	1.5	1.9	V	
Input Negative-Going Threshold	V_{T-}	0.7	1.0	1.4	V	
Low Level Input Current	I_{IL}	-4.0	-0.13	-	µA	V_{IN} = 0 V, V_{CC} = 30 V
High Level Input Current	I_{IH}	-	0	4.0	µA	V_{IN} = 30 V, V_{CC} = 30 V
Low Level Output1	V_{OL1}	-	375	500	mV	I_{OL} = 20 mA, V_{CC} = 5 V
Low Level Output2	V_{OL2}	-	375	500	mV	I_{OL} = 20 mA, V_{CC} = 30 V
High Level Output1	V_{OH1}	2.5	2.8	-	V	I_{OH} = -20 mA, V_{CC} = 5 V
High Level Output2	V_{OH2}	27.8	28.0	-	V	I_{OH} = -20 mA, V_{CC} = 30 V

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

Table 3. AC Switching Characteristics

Values given at V_{CC} = 24 V, T_A = 25° C, C_L = 100 pF on all outputs.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Propagation delay, rising input 50% point to zero crossing of differential outputs	T_{PLH}	-	150	285	ns	See above.
Propagation delay, falling input 50% point to zero crossing of differential outputs	T_{PHL}	-	170	310	ns	See above.
Output Rise Time	T_R	-	95	310	ns	See above.
Output Fall Time	T_F	-	40	165	ns	See above.

Package Drawings (Dimensions in Inches)

PIN NO. 1 ID MARK

DETAIL "A"

0.010 — **GAUGE PLANE SEATING PLANE**

θ2, L

±0.004
0.015 X 45°

DETAIL "A"

θ1, H, C

Symbol	16 SOIC	
	Min	**Max**
A	0.054	0.068
A1	0.004	0.0098
B	0.014	0.019
D	0.386	0.393
E	0.150	0.157
H	0.229	0.244
e	0.050 BSC	
C	0.0075	0.0098
L	0.016	0.034
X	0.020 REF	
θ1	0°	8°
θ2	7° BSC	

Notes:
1. Lead coplanarity should be o to 0.004" max.
2. Package surface finishing: VD1 24~27 (Dual).
   Package surface finishing: VD1 13~15 (16L Soic(NB) Matrix).
3. All dimension excluding mold flashes.
4. The lead width, B to be determined at 0.0075" from the lead tip.

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