AEIC-7273-S16

Quad Differential Line Driver LC
With Open-Collector Outputs And Enable Function

Data Sheet

Description

These line drivers are similar in function to the AEIC-7272-S16, only in an open-collector format. The VCC pin powers the internal logic only. Output voltage is dependent on the customer supplied voltage, up to a maximum of 30 V. There is essentially no difference in output swing or performance with VCC (LOGIC) values from 3.5-30 V. Internal clamp diodes allow trouble-free operation when driving cable lengths exceeding 100 meters. The outputs are protected by initiating shutdown when junction temperatures exceed safe limits. This feature assures highly reliable operation in harsh environments. Heat sinking is aided by having pin 8 directly connected to the ASIC substrate inside the package.

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

Applications

- Encoders
- Industrial controls

Features

- Supply (Bias) Voltage Range 3.5 V to 30 V
- Operation to 800KHz
- CMOS and TTL Compatible Inputs
- Support RS422A
- High Impedance Buffered Inputs with hysteresis
- NPN Open-Collector outputs
- 80 mA peak SINK/SOURCE current
- Outputs Protected by Thermal Shut-Down

Pin Assignment

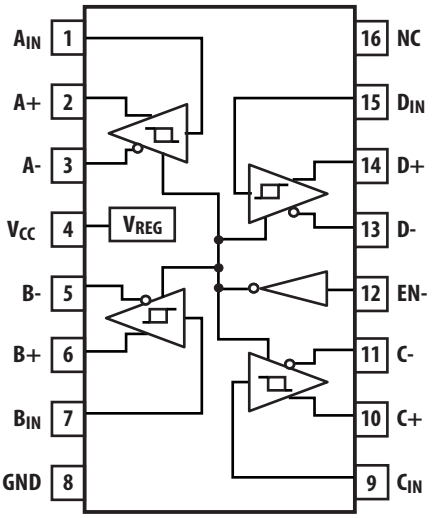


Table 1. Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Units	Notes
Operating Temperature Range	T_A	-55	125	°C	
Supply (Driver) Voltage Range	V_{CCD}	3.5	30	V	

Table 2. Electrical Characteristics

Unless otherwise specified, T_A = 25° C and EN- < 0.8 V.

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Overtemp Operate Point (junction)	T_{JOP}	–	172	–	°C	Note 1
Overtemp Release Point (junction)	T_{JRP}	–	136	–	°C	Note 1
Vcc Voltage Range	V_{CC}	3.5	5	30	V	
Supply Current V_{CC1}	I_{CC1}	–	11.9	16.0	mA	V_{CC} = 5 V
Supply Current V_{CC2}	I_{CC2}	–	2.5	3.4	mA	V_{CC} = 5 V, EN- > 2 V
Supply Current V_{CC3}	I_{CC3}	–	12.1	18.5	mA	V_{CC} = 30 V
Supply Current V_{CC4}	I_{CC2}	–	2.6	3.5	mA	V_{CC} = 30 V, EN- > 2 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 V, V_{CC} = 5 V
Enable High Level Input Current	I_{IHE}	–	108	150	µA	V_{IN} = 5 V, V_{CC} = 5 V
High Impedance Output Leakage	I_{OZ}	-4.0	0.0	4.0	µA	V_{CC} = 5 V, EN- > 2 V, Output at 15 V
Input Positive-Going Threshold	V_{T+}	1.05	1.25	1.45	V	
Input Negative-Going Threshold	V_{T-}	0.75	0.95	1.15	V	
Input Hysteresis	V_H	–	0.3	–	V	
Low Level Input Current	I_{IL}	-4.0	-0.1	–	µA	V_{IN} = 0 V, V_{CC} = 5 V
High Level Input Current	I_{IH}	–	0	4.0	µA	V_{IN} = 5 V, V_{CC} = 5 V
Low Level Output1	V_{OL1}	–	375	500	mV	I_{OL} = 20 mA, V_{CC} = 5 V, V_{OC} = 30 V
Low Level Output2	V_{OL2}	–	370	500	mV	I_{OL} = 20 mA, V_{CC} = 30 V, V_{OC} = 30 V
High Level Output Current1	I_{OH1}	–	0	10	µA	V_{CC} = 5 V, V_{OC} = 30 V
High Level Output Current2	I_{OH2}	–	0	10	µA	V_{CC} = 30 V, V_{OC} = 30 V

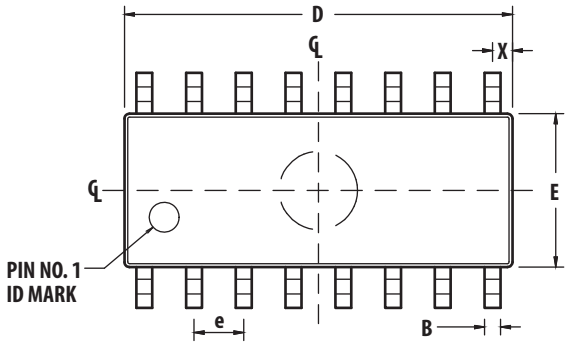
Notes :
1. This is not a test parameter, but for information only.
2. Unused inputs should be connected to ground.
3. Do not leave pin 12 open. In applications which do not use the enable function, this pin should be tied to ground.

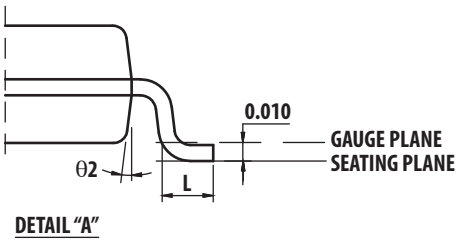
Table 3. AC Switching Characteristics

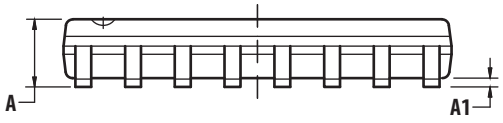
Load is 470 ohms and 1000 pF, output to its compliment and 470 ohms each output to Voc.

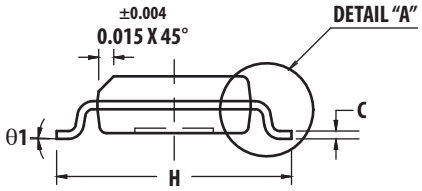
Parameters	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Propagation delay, rising input 50% point to zero crossing of differential outputs	T_{PLH}	–	232	325	ns	See above.
Propagation delay, falling input 50% point to zero crossing of differential outputs	T_{PHL}	–	236	330	ns	See above.
Output Rise Time	T_R	–	516	722	ns	See above.
Output Fall Time	T_F	–	516	722	ns	See above.

Package Drawings (Dimensions in Inches)









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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