

| REVISIONS |   |          |           |
|-----------|---|----------|-----------|
| LTR       | DESCRIPTION   | DATE     | APPROVED  |
| A         | Add lead finish E device.<br>Under Table I, Three state mode power supply current parameter, make correction by deleting EN = 1 and replacing with EN = 0 for both places. - ro | 18-02-08 | C. SAFFLE |



Prepared in accordance with ASME Y14.24

Vendor item drawing

|                     |      |   |   |   |   |   |   |   |   |   |    |    |   |  |  |  |  |  |  |  |
|---------------------|------|---|---|---|---|---|---|---|---|---|----|----|---|--|--|--|--|--|--|--|
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| REV STATUS OF PAGES | REV  | A | A | A | A | A | A | A | A | A | A  | A  | A |  |  |  |  |  |  |  |
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|  |                               |   |
|--|-------------------------------|---|
| PMIC N/A   | PREPARED BY<br>Phu H. Nguyen  | DLA LAND AND MARITIME<br>COLUMBUS, OHIO 43218-3990<br><a href="http://www.dla.mil/landandmaritime">http://www.dla.mil/landandmaritime</a> |
| Original date of drawing<br>YY-MM-DD<br><br>12-10-12 | CHECKED BY<br>Phu H. Nguyen   | TITLE<br>MICROCIRCUIT, LINEAR, LOW VOLTAGE,<br>1.15 V TO 5.5 V, 4-CHANNEL, BIDIRECTIONAL<br>LOGIC LEVEL TRANSLATOR, MONOLITHIC<br>SILICON |
|  | APPROVED BY<br>Thomas M. Hess |   |
|  | SIZE<br>A                     | CODE IDENT. NO.<br>16236  |
|  | REV<br>A                      | DWG NO.<br><b>V62/12631</b>   |
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DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.

1. SCOPE

1.1 Scope. This drawing documents the general requirements of a high performance low voltage, 1.15 V to 5.5 V, 4-channel bidirectional logic level translator microcircuit, with an operating temperature range of -55°C to +125°C.

1.2 Vendor Item Drawing Administrative Control Number. The manufacturer's PIN is the item of identification. The vendor item drawing establishes an administrative control number for identifying the item on the engineering documentation:

|                  |   |                            |                             |                            |
|------------------|---|----------------------------|-----------------------------|----------------------------|
| <u>V62/12631</u> | - | <u>01</u>                  | <u>X</u>                    | <u>B</u>                   |
| Drawing number   |   | Device type<br>(See 1.2.1) | Case outline<br>(See 1.2.2) | Lead finish<br>(See 1.2.3) |

1.2.1 Device type(s).

| <u>Device type</u> | <u>Generic</u> | <u>Circuit function</u>  |
|--------------------|----------------|--|
| 01                 | ADG3304-EP     | Low voltage, 1.15 V to 5.5 V, 4-channel bidirectional logic level translator |

1.2.2 Case outline(s). The case outline(s) are as specified herein.

| <u>Outline letter</u> | <u>Number of pins</u> | <u>JEDEC PUB 95</u> | <u>Package style</u>              |
|-----------------------|-----------------------|---------------------|-----------------------------------|
| X                     | 14                    | JEDEC MO-153-AB-1   | Thin shrink small outline package |

1.2.3 Lead finishes. The lead finishes are as specified below or other lead finishes as provided by the device manufacturer:

| <u>Finish designator</u> | <u>Material</u>          |
|--------------------------|--------------------------|
| A                        | Hot solder dip           |
| B                        | Tin-lead plate           |
| C                        | Gold plate               |
| D                        | Palladium                |
| E                        | Gold flash palladium     |
| F                        | Tin-lead alloy (BGA/CGA) |
| Z                        | Other                    |

|   |                  |                                |                             |
|---|------------------|--------------------------------|-----------------------------|
| <b>DLA LAND AND MARITIME<br/>COLUMBUS, OHIO</b> | SIZE<br><b>A</b> | CODE IDENT NO.<br><b>16236</b> | DWG NO.<br><b>V62/12631</b> |
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1.3 Absolute maximum ratings. 1/

|  |                                      |
|--|--------------------------------------|
| V <sub>CCA</sub> to GND .....  | -0.3 V to +7.0 V                     |
| V <sub>CCY</sub> to GND .....  | V <sub>CCA</sub> to +7.0 V           |
| Digital inputs (A) .....   | -0.3 V to (V <sub>CCA</sub> + 0.3 V) |
| Digital inputs (Y) .....   | -0.3 V to (V <sub>CCY</sub> + 0.3 V) |
| EN to GND .....  | -0.3 V to +7.0 V                     |
| Operating temperature range .....  | -55°C to +125°C                      |
| Storage temperature range .....  | -65°C to 150°C                       |
| Junction temperature .....   | 150°C                                |
| θ <sub>JA</sub> Thermal impedance (4 layer board) , Case outline X ..... | 112.6°C/W                            |
| Lead temperature, soldering:   |                                      |
| Vapor phase (60 seconds) .....   | 215°C                                |
| Infrared (15 seconds) .....  | 220°C                                |

1/ Stresses beyond those listed under “absolute maximum rating” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
| <b>DLA LAND AND MARITIME<br/>COLUMBUS, OHIO</b> | <b>SIZE<br/>A</b> | <b>CODE IDENT NO.<br/>16236</b> | <b>DWG NO.<br/>V62/12631</b> |
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## 2. APPLICABLE DOCUMENTS

JEDEC Solid State Technology Association

JEDEC PUB 95 – Registered and Standard Outlines for Semiconductor Devices

(Applications for copies should be addressed to the JEDEC – Solid State Technology Association, 3103 North 10th Street, Suite 240–S, Arlington, VA 22201-2107. or online at <https://www.jedec.org>).

## 3. REQUIREMENTS

3.1 Marking. Parts shall be permanently and legibly marked with the manufacturer's part number as shown in 6.3 herein and as follows:

- A. Manufacturer's name, CAGE code, or logo
- B. Pin 1 identifier
- C. ESDS identification (optional)

3.2 Unit container. The unit container shall be marked with the manufacturer's part number and with items A and C (if applicable) above.

3.3 Electrical characteristics. The maximum and recommended operating conditions and electrical performance characteristics are as specified in 1.3, 1.4, and table I herein.

3.4 Design, construction, and physical dimension. The design, construction, and physical dimensions are as specified herein.

3.5 Diagrams.

3.5.1 Case outline. The case outline shall be as shown in 1.2.2 and figure 1.

3.5.2 Terminal connections. The terminal connections shall be as shown in figure 2.

3.5.3 Terminal function. The terminal function shall be as shown in figure 3.

3.5.4 Truth table. The truth table shall be as shown in figure 4.

3.5.5 Functional block diagram. The functional block diagram shall be as shown in figure 5.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
| <b>DLA LAND AND MARITIME<br/>COLUMBUS, OHIO</b> | <b>SIZE<br/>A</b> | <b>CODE IDENT NO.<br/>16236</b> | <b>DWG NO.<br/>V62/12631</b> |
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TABLE I. Electrical performance characteristics. 1/

| Test                        | Symbol                | Test conditions<br>2/   | Limits                  |        |                         | Unit |
|-----------------------------|-----------------------|---|-------------------------|--------|-------------------------|------|
|                             |                       |   | Min                     | Typ 3/ | Max                     |      |
| <b>LOGIC INPUTS/OUTPUTS</b> |                       |   |                         |        |                         |      |
| <b>A side</b>               |                       |   |                         |        |                         |      |
| Input high voltage 4/       | V <sub>IHA</sub>      | V <sub>CCA</sub> = 1.2 V + 0.1 V/-0.05 V  | V <sub>CCA</sub> x 0.88 |        |                         | V    |
|                             |                       | V <sub>CCA</sub> = 1.8 V ±0.15 V  | V <sub>CCA</sub> x 0.72 |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 2.5 V ±0.2 V   | 1.7                     |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 3.3 V ±0.3 V   | 2.2                     |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 5 V ±0.5 V   | V <sub>CCA</sub> x 0.7  |        |                         |      |
| Input low voltage 4/        | V <sub>ILA</sub>      | V <sub>CCA</sub> = 1.2 V + 0.1 V/-0.05 V  |                         |        | V <sub>CCA</sub> x 0.35 |      |
|                             |                       | V <sub>CCA</sub> = 1.8 V ±0.15 V  |                         |        | V <sub>CCA</sub> x 0.35 |      |
|                             |                       | V <sub>CCA</sub> = 2.5 V ±0.2 V   |                         |        | 0.7                     |      |
|                             |                       | V <sub>CCA</sub> = 3.3 V ±0.3 V   |                         |        | 0.8                     |      |
|                             |                       | V <sub>CCA</sub> = 5 V ±0.5 V   |                         |        | V <sub>CCA</sub> x 0.30 |      |
| Output high voltage         | V <sub>OHA</sub>      | V <sub>Y</sub> = V <sub>CCY</sub> , I <sub>OH</sub> = 20 µA   | V <sub>CCA</sub> - 0.4  |        |                         |      |
| Output low voltage          | V <sub>OLA</sub>      | V <sub>Y</sub> = 0 V, I <sub>OL</sub> = 20 µA   |                         |        | 0.4                     |      |
| Capacitance 4/              | C <sub>A</sub>        | f = 1 MHz, EN = 0   |                         | 9      |                         | pF   |
| Leakage current             | I <sub>LA, HI-Z</sub> | V <sub>A</sub> = 0 V/V <sub>CCA</sub> , EN = 0  |                         |        | ±1                      | µA   |
| <b>Y side</b>               |                       |   |                         |        |                         |      |
| Input high voltage 4/       | V <sub>IHY</sub>      | V <sub>CCY</sub> = 1.8 V ±0.15 V  | V <sub>CCY</sub> x 0.67 |        |                         | V    |
|                             |                       | V <sub>CCY</sub> = 2.5 V ±0.2 V   | 1.7                     |        |                         |      |
|                             |                       | V <sub>CCY</sub> = 3.3 V ±0.3 V   | 2                       |        |                         |      |
|                             |                       | V <sub>CCY</sub> = 5 V ±0.5 V   | V <sub>CCY</sub> x 0.7  |        |                         |      |
| Input low voltage 4/        | V <sub>Ily</sub>      | V <sub>CCY</sub> = 1.8 V ±0.15 V  |                         |        | V <sub>CCY</sub> x 0.35 |      |
|                             |                       | V <sub>CCY</sub> = 2.5 V ±0.2 V   |                         |        | 0.7                     |      |
|                             |                       | V <sub>CCY</sub> = 3.3 V ±0.3 V   |                         |        | 0.8                     |      |
|                             |                       | V <sub>CCY</sub> = 5 V ±0.5 V   |                         |        | V <sub>CCY</sub> x 0.25 |      |
| Output high voltage         | V <sub>OHy</sub>      | V <sub>A</sub> = V <sub>CCA</sub> , I <sub>OH</sub> = 20 µA   | V <sub>CCY</sub> - 0.4  |        |                         |      |
| Output low voltage          | V <sub>OLY</sub>      | V <sub>A</sub> = 0 V, I <sub>OL</sub> = 20 µA   |                         |        | 0.4                     |      |
| Capacitance 3/              | C <sub>Y</sub>        | f = 1 MHz, EN = 0   |                         | 6      |                         | pF   |
| Leakage current             | I <sub>LY, HI-Z</sub> | V <sub>Y</sub> = 0 V/V <sub>CCY</sub> , EN = 0  |                         |        | ±1                      | µA   |
| <b>Enable (EN)</b>          |                       |   |                         |        |                         |      |
| Input high voltage 4/       | V <sub>IHA</sub>      | V <sub>CCA</sub> = 1.2 V + 0.1 V/-0.05 V  | V <sub>CCA</sub> x 0.88 |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 1.8 V ±0.15 V  | V <sub>CCA</sub> x 0.72 |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 2.5 V ±0.2 V   | 1.7                     |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 3.3 V ±0.3 V   | 2.2                     |        |                         |      |
|                             |                       | V <sub>CCA</sub> = 5 V ±0.5 V   | V <sub>CCA</sub> x 0.7  |        |                         |      |
| Input low voltage 4/        | V <sub>ILA</sub>      | V <sub>CCA</sub> = 1.2 V + 0.1 V/-0.05 V  |                         |        | V <sub>CCA</sub> x 0.35 |      |
|                             |                       | V <sub>CCA</sub> = 1.8 V ±0.15 V  |                         |        | V <sub>CCA</sub> x 0.35 |      |
|                             |                       | V <sub>CCA</sub> = 2.5 V ±0.2 V   |                         |        | 0.7                     |      |
|                             |                       | V <sub>CCA</sub> = 3.3 V ±0.3 V   |                         |        | 0.8                     |      |
|                             |                       | V <sub>CCA</sub> = 5 V ±0.5 V   |                         |        | V <sub>CCA</sub> x 0.30 |      |
| Leakage current             | I <sub>LEN</sub>      |   |                         |        | ±1                      | µA   |
| Capacitance 3/              | C <sub>EN</sub>       |   |                         | 3      |                         | pF   |
| Enable time 4/              | t <sub>EN</sub>       | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, V <sub>A</sub> = 0 V/V <sub>CCA</sub> (A→Y),<br>V <sub>Y</sub> = 0 V/V <sub>CCY</sub> (Y→A) |                         | 1      | 1.8                     | µs   |

See footnote at end of table.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
| <b>DLA LAND AND MARITIME<br/>COLUMBUS, OHIO</b> | <b>SIZE<br/>A</b> | <b>CODE IDENT NO.<br/>16236</b> | <b>DWG NO.<br/>V62/12631</b> |
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TABLE I. Electrical performance characteristics - Continued. 1/

| Test  | Symbol                  | Test conditions<br>2/  | Limits |        |     | Unit |
|---|-------------------------|--|--------|--------|-----|------|
|   |                         |  | Min    | Typ 3/ | Max |      |
| <b>SWITCHING CHARACTERISTICS 4/</b>   |                         |  |        |        |     |      |
| <b>3.3 V ± 0.3 V ≤ V<sub>CCA</sub> ≤ V<sub>CCY</sub>, V<sub>CCY</sub> = 5 V ± 0.5 V</b>     |                         |  |        |        |     |      |
| A → Y level translation   |                         | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 50 pF |        |        |     |      |
| Propagation delay   | t <sub>P, A→Y</sub>     |  |        | 6      | 15  | ns   |
| Rise time   | t <sub>R, A→Y</sub>     |  |        | 2      | 5   | ns   |
| Fall time   | t <sub>F, A→Y</sub>     |  |        | 2      | 5   | ns   |
| Maximum data rate   | D <sub>MAX, A→Y</sub>   |  |        | 50     |     | Mbps |
| Channel to channel skew   | t <sub>SKEW, A→Y</sub>  |  |        | 2      |     | ns   |
| Part to part skew   | t <sub>PSKEW, A→Y</sub> |  |        | 3      |     | ns   |
| Y → A level translation   |                         | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 15 pF |        |        |     |      |
| Propagation delay   | t <sub>P, Y→A</sub>     |  |        | 4      | 10  | ns   |
| Rise time   | t <sub>R, Y→A</sub>     |  |        | 1      | 5   | ns   |
| Fall time   | t <sub>F, Y→A</sub>     |  |        | 3      | 10  | ns   |
| Maximum data rate   | D <sub>MAX, Y→A</sub>   |  |        | 50     |     | Mbps |
| Channel to channel skew   | t <sub>SKEW, Y→A</sub>  |  |        | 2      |     | ns   |
| Part to part skew   | t <sub>PSKEW, Y→A</sub> |  |        | 2      |     | ns   |
| <b>1.8 V ± 0.15 V ≤ V<sub>CCA</sub> ≤ V<sub>CCY</sub>, V<sub>CCY</sub> = 3.3 V ± 0.3 V</b>  |                         |  |        |        |     |      |
| A → Y translation   |                         | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 50 pF |        |        |     |      |
| Propagation delay   | t <sub>P, A→Y</sub>     |  |        | 8      | 15  | ns   |
| Rise time   | t <sub>R, A→Y</sub>     |  |        | 2      | 8   | ns   |
| Fall time   | t <sub>F, A→Y</sub>     |  |        | 2      | 8   | ns   |
| Maximum data rate   | D <sub>MAX, A→Y</sub>   |  |        | 50     |     | Mbps |
| Channel to channel skew   | t <sub>SKEW, A→Y</sub>  |  |        | 2      |     | ns   |
| Part to part skew   | t <sub>PSKEW, A→Y</sub> |  |        | 4      |     | ns   |
| Y → A translation   |                         | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 15 pF |        |        |     |      |
| Propagation delay   | t <sub>P, Y→A</sub>     |  |        | 5      | 12  | ns   |
| Rise time   | t <sub>R, Y→A</sub>     |  |        | 2      | 5   | ns   |
| Fall time   | t <sub>F, Y→A</sub>     |  |        | 2      | 5   | ns   |
| Maximum data rate   | D <sub>MAX, Y→A</sub>   |  |        | 50     |     | Mbps |
| Channel to channel skew   | t <sub>SKEW, Y→A</sub>  |  |        | 2      |     | ns   |
| Part to part skew   | t <sub>PSKEW, Y→A</sub> |  |        | 3      |     | ns   |
| <b>1.15 V to 1.3 V ≤ V<sub>CCA</sub> ≤ V<sub>CCY</sub>, V<sub>CCY</sub> = 3.3 V ± 0.3 V</b> |                         |  |        |        |     |      |
| A → Y translation   |                         | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 50 pF |        |        |     |      |
| Propagation delay   | t <sub>P, A→Y</sub>     |  |        | 9      | 27  | ns   |
| Rise time   | t <sub>R, A→Y</sub>     |  |        | 3      | 8   | ns   |
| Fall time   | t <sub>F, A→Y</sub>     |  |        | 2      | 8   | ns   |
| Maximum data rate   | D <sub>MAX, A→Y</sub>   |  |        | 40     |     | Mbps |
| Channel to channel skew   | t <sub>SKEW, A→Y</sub>  |  |        | 2      |     | ns   |
| Part to part skew   | t <sub>PSKEW, A→Y</sub> |  |        | 10     |     | ns   |
| Y → A translation   |                         | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 15 pF |        |        |     |      |
| Propagation delay   | t <sub>P, Y→A</sub>     |  |        | 5      | 13  | ns   |
| Rise time   | t <sub>R, Y→A</sub>     |  |        | 2      | 6   | ns   |
| Fall time   | t <sub>F, Y→A</sub>     |  |        | 2      | 6   | ns   |
| Maximum data rate   | D <sub>MAX, Y→A</sub>   |  |        | 40     |     | Mbps |
| Channel to channel skew   | t <sub>SKEW, Y→A</sub>  |  |        | 2      |     | ns   |
| Part to part skew   | t <sub>PSKEW, Y→A</sub> |  |        | 4      |     | ns   |

See footnote at end of table.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
| <b>DLA LAND AND MARITIME<br/>COLUMBUS, OHIO</b> | <b>SIZE<br/>A</b> | <b>CODE IDENT NO.<br/>16236</b> | <b>DWG NO.<br/>V62/12631</b> |
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TABLE I. Electrical performance characteristics - Continued. 1/

| Test  | Symbol                                       | Test conditions<br>2/  | Limits       |            |      | Unit |
|---|--|--|--------------|------------|------|------|
|   |  |  | Min          | Typ 3/     | Max  |      |
| <b>SWITCHING CHARACTERISTICS – Continued. 4/</b>  |  |  |              |            |      |      |
| <b>1.15 V to 1.3 V ≤ V<sub>CCA</sub> ≤ V<sub>CCY</sub>, V<sub>CCY</sub> = 1.8 V ± 0.3 V</b> |  |  |              |            |      |      |
| A → Y translation   |  | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 50 pF   |              |            |      |      |
| Propagation delay   | t <sub>P, A→Y</sub>                          |  | 12           | 35         | ns   |      |
| Rise time   | t <sub>R, A→Y</sub>                          |  | 7            | 18         | ns   |      |
| Fall time   | t <sub>F, A→Y</sub>                          |  | 3            | 8          | ns   |      |
| Maximum data rate   | D <sub>MAX, A→Y</sub>                        |  | 25           |            | Mbps |      |
| Channel to channel skew   | t <sub>SKEW, A→Y</sub>                       |  | 2            |            | ns   |      |
| Part to part skew   | t <sub>PSKEW, A→Y</sub>                      |  | 15           |            | ns   |      |
| Y → A translation   |  | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 15 pF   |              |            |      |      |
| Propagation delay   | t <sub>P, Y→A</sub>                          |  | 14           | 40         | ns   |      |
| Rise time   | t <sub>R, Y→A</sub>                          |  | 5            | 24         | ns   |      |
| Fall time   | t <sub>F, Y→A</sub>                          |  | 2.5          | 10         | ns   |      |
| Maximum data rate   | D <sub>MAX, Y→A</sub>                        |  | 25           |            | Mbps |      |
| Channel to channel skew   | t <sub>SKEW, Y→A</sub>                       |  | 3            |            | ns   |      |
| Part to part skew   | t <sub>PSKEW, Y→A</sub>                      |  | 23.5         |            | ns   |      |
| <b>2.5 V ± 0.2 V ≤ V<sub>CCA</sub> ≤ V<sub>CCY</sub>, V<sub>CCY</sub> = 3.3 V ± 0.3 V</b>   |  |  |              |            |      |      |
| A → Y translation   |  | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 50 pF   |              |            |      |      |
| Propagation delay   | t <sub>P, A→Y</sub>                          |  | 7            | 15         | ns   |      |
| Rise time   | t <sub>R, A→Y</sub>                          |  | 2.5          | 6          | ns   |      |
| Fall time   | t <sub>F, A→Y</sub>                          |  | 2            | 8          | ns   |      |
| Maximum data rate   | D <sub>MAX, A→Y</sub>                        |  | 60           |            | Mbps |      |
| Channel to channel skew   | t <sub>SKEW, A→Y</sub>                       |  | 1.5          |            | ns   |      |
| Part to part skew   | t <sub>PSKEW, A→Y</sub>                      |  | 4            |            | ns   |      |
| Y → A translation   |  | R <sub>S</sub> = R <sub>T</sub> = 50 Ω, C <sub>L</sub> = 15 pF   |              |            |      |      |
| Propagation delay   | t <sub>P, Y→A</sub>                          |  | 5            | 12         | ns   |      |
| Rise time   | t <sub>R, Y→A</sub>                          |  | 1            | 6          | ns   |      |
| Fall time   | t <sub>F, Y→A</sub>                          |  | 3            | 8          | ns   |      |
| Maximum data rate   | D <sub>MAX, Y→A</sub>                        |  | 60           |            | Mbps |      |
| Channel to channel skew   | t <sub>SKEW, Y→A</sub>                       |  | 2            |            | ns   |      |
| Part to part skew   | t <sub>PSKEW, Y→A</sub>                      |  | 3            |            | ns   |      |
| <b>POWER REQUIREMENTS</b>   |  |  |              |            |      |      |
| Power supply voltages   | V <sub>CCA</sub><br>V <sub>CCY</sub>         | V <sub>CCA</sub> < V <sub>CCY</sub>  | 1.15<br>1.65 | 5.5<br>5.5 | V    |      |
| Quiescent power supply current  | I <sub>CCA</sub><br>I <sub>CCY</sub>         | V <sub>A</sub> = 0 V/V <sub>CCA</sub> , V <sub>Y</sub> = 0 V/V <sub>CCY</sub> ,<br>V <sub>CCA</sub> = V <sub>CCY</sub> = 5.5 V, EN = 1<br>V <sub>A</sub> = 0 V/V <sub>CCA</sub> , V <sub>Y</sub> = 0 V/V <sub>CCY</sub> ,<br>V <sub>CCA</sub> = V <sub>CCY</sub> = 5.5 V, EN = 1 | 0.17<br>0.27 | 5<br>5     | μA   |      |
| Three state mode power supply current   | I <sub>HI-Z, A</sub><br>I <sub>HI-Z, Y</sub> | V <sub>CCA</sub> = V <sub>CCY</sub> = 5.5 V, EN = 0<br>V <sub>CCA</sub> = V <sub>CCY</sub> = 5.5 V, EN = 0   | 0.1<br>0.1   | 5<br>5     | μA   |      |

1/ Testing and other quality control techniques are used to the extent deemed necessary to assure product performance over the specified temperature range. Product may not necessarily be tested across the full temperature range and all parameters may not necessarily be tested. In the absence of specific parametric testing, product performance is assured by characterization and/or design.

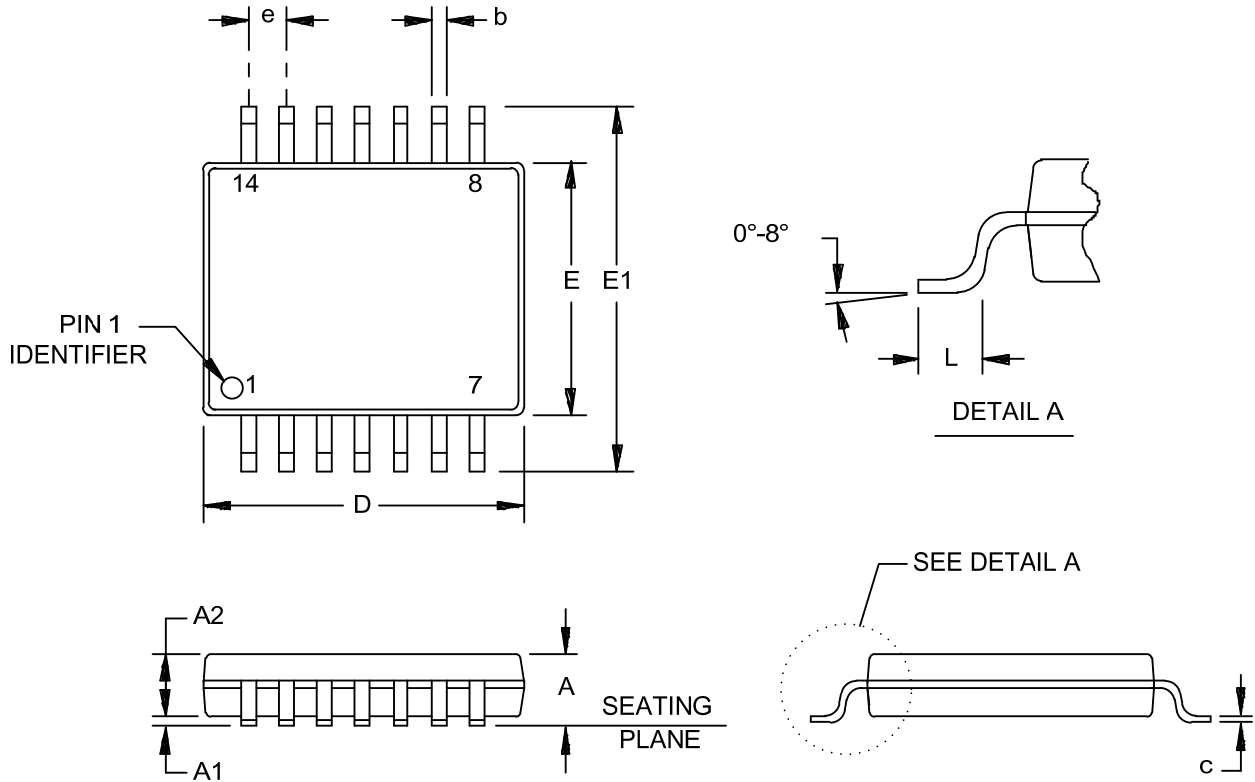
2/ 1.65 V ≤ V<sub>CCY</sub> ≤ 5.5 V, 1.15 V ≤ V<sub>CCA</sub> ≤ V<sub>CCY</sub>, GND = 0 V, -55°C ≤ T<sub>A</sub> ≤ +125°C, unless otherwise specified.

3/ T<sub>A</sub> = 25°C for typical values.

4/ Guaranteed by design, not subject to production tested.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
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Case X



| Dimensions |             |      |        |             |      |
|------------|-------------|------|--------|-------------|------|
| Symbol     | Millimeters |      | Symbol | Millimeters |      |
|            | Min         | Max  |        | Min         | Max  |
| A          |             | 1.20 | D      | 4.90        | 5.10 |
| A1         | 0.05        | 0.15 | E      | 4.30        | 4.50 |
| A2         | 0.80        | 1.05 | E1     | 6.40 BSC    |      |
| b          | 0.19        | 0.30 | e      | 0.65 BSC    |      |
| c          | 0.09        | 0.20 | L      | 0.45        | 0.75 |

**NOTES:**

1. All linear dimensions are in millimeters.
2. Falls within JEDEC MO-153-AB-1.

FIGURE 1. Case outline.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
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| Case outline X  |                  |                 |                  |
|-----------------|------------------|-----------------|------------------|
| Terminal number | Terminal symbol  | Terminal number | Terminal symbol  |
| 1               | V <sub>CCA</sub> | 14              | V <sub>CCY</sub> |
| 2               | A1               | 13              | Y1               |
| 3               | A2               | 12              | Y2               |
| 4               | A3               | 11              | Y3               |
| 5               | A4               | 10              | Y4               |
| 6               | NC               | 9               | NC               |
| 7               | GND              | 8               | EN               |

FIGURE 2. Terminal connections.

| Terminal |                  | Description  |
|----------|------------------|--|
| Number   | Mnemonic         |  |
| 1        | V <sub>CCA</sub> | Power supply voltage input for A1 to A4 I/O pins ( $1.15\text{ V} \leq V_{CCA} \leq V_{CCY}$ )     |
| 2        | A1               | Input/Output A1. Reference to V <sub>CCA</sub>   |
| 3        | A2               | Input/Output A2. Reference to V <sub>CCA</sub>   |
| 4        | A3               | Input/Output A3. Reference to V <sub>CCA</sub>   |
| 5        | A4               | Input/Output A4. Reference to V <sub>CCA</sub>   |
| 6        | NC               | No Connect   |
| 7        | GND              | Ground   |
| 8        | EN               | Active high enable input   |
| 9        | NC               | No Connect   |
| 10       | Y4               | Input/Output Y4. Reference to V <sub>CCY</sub>   |
| 11       | Y3               | Input/Output Y3. Reference to V <sub>CCY</sub>   |
| 12       | Y2               | Input/Output Y2. Reference to V <sub>CCY</sub>   |
| 13       | Y1               | Input/Output Y1. Reference to V <sub>CCY</sub>   |
| 14       | V <sub>CCY</sub> | Power supply voltage input for Y1 to Y4 I/O pins ( $1.65\text{ V} \leq V_{CC} \leq 5.5\text{ V}$ ) |

FIGURE 3. Terminal function.

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
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| EN | Y I/O Pins                 | A I/O Pins                 |
|----|----------------------------|----------------------------|
| 0  | Hi-Z <u>1/</u>             | Hi-Z <u>1/</u>             |
| 1  | Normal operation <u>2/</u> | Normal operation <u>2/</u> |

1. High impedance state.
2. In normal operation, the device performs level translation.

FIGURE 4. Truth table

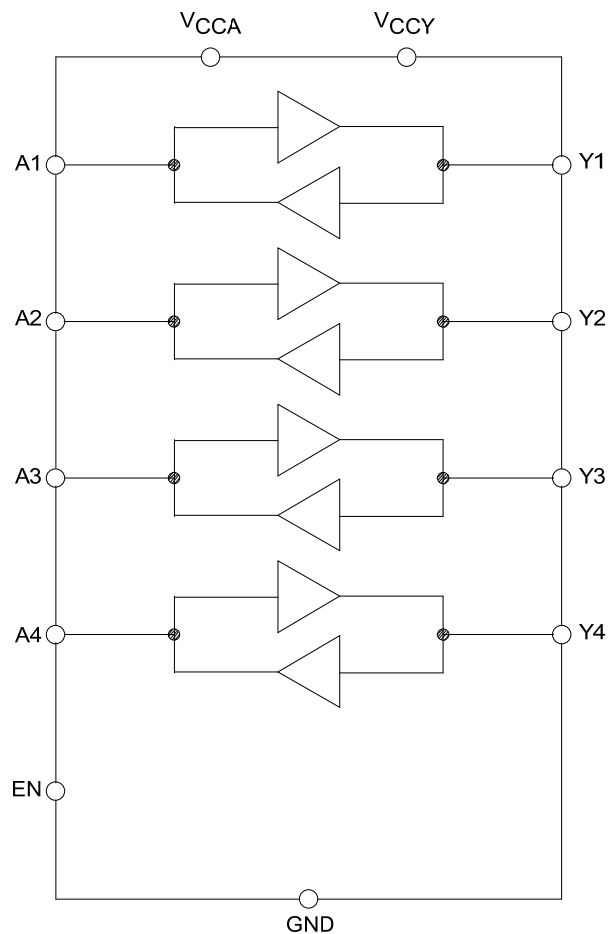


FIGURE 5. Functional block diagram.

|   |                  |                                |                             |
|---|------------------|--------------------------------|-----------------------------|
| DLA LAND AND MARITIME<br>COLUMBUS, OHIO | SIZE<br><b>A</b> | CODE IDENT NO.<br><b>16236</b> | DWG NO.<br><b>V62/12631</b> |
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4. VERIFICATION

4.1 Product assurance requirements. The manufacturer is responsible for performing all inspection and test requirements as indicated in their internal documentation. Such procedures should include proper handling of electrostatic sensitive devices, classification, packaging, and labeling of moisture sensitive devices, as applicable.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Preservation, packaging, labeling, and marking shall be in accordance with the manufacturer's standard commercial practices for electrostatic discharge sensitive devices.

6. NOTES

6.1 ESDS. Devices are electrostatic discharge sensitive and are classified as ESDS class 1 minimum.

6.2 Configuration control. The data contained herein is based on the salient characteristics of the device manufacturer's data book. The device manufacturer reserves the right to make changes without notice. This drawing will be modified as changes are provided.

6.3 Suggested source(s) of supply. Identification of the suggested source(s) of supply herein is not to be construed as a guarantee of present or continued availability as a source of supply for the item. DLA Land and Maritime maintains an online database of all current sources of supply at <https://landandmaritimeapps.dla.mil/programs/smcr/>.

| Vendor item drawing administrative control number <u>1/</u> | Device manufacturer CAGE code | Vendor part number |
|---|-------------------------------|--------------------|
| V62/12631-01XB  | 24355                         | ADG3304SRU-EP-RL7  |
| V62/12631-01XE  | 24355                         | ADG3304SRUZ-EP-RL7 |

1/ The vendor item drawing establishes an administrative control number for identifying the item on the engineering documentation.

CAGE code

24355

Source of supply

Analog Devices  
 Route 1 Industrial Park  
 P.O. Box 9106  
 Norwood, MA 02062  
 Point of contact: Raheen Business Park  
 Limerick, Ireland

|   |                   |                                 |                              |
|---|-------------------|---------------------------------|------------------------------|
| <b>DLA LAND AND MARITIME<br/>COLUMBUS, OHIO</b> | <b>SIZE<br/>A</b> | <b>CODE IDENT NO.<br/>16236</b> | <b>DWG NO.<br/>V62/12631</b> |
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