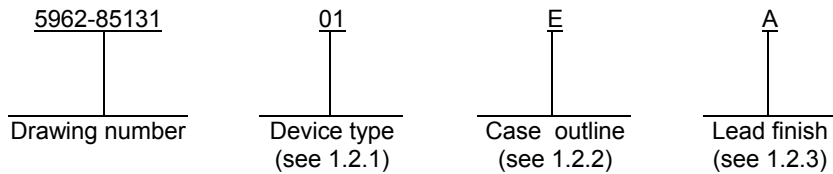


| REVISIONS                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    |                                   |    |               |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----------------------------------|----|---------------|----|----|----|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----|----|-------------------|----|---------------|----|----|----|----|
| LTR                                                                                                                                                        | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |    |                                   |    |               |    |    |    |                                                                                                                                            | DATE (YR-MO-DA)           |    |    |                   |    | APPROVED      |    |    |    |    |
| A                                                                                                                                                          | Add case outlines, terminal connections and thermal resistance values for case outlines 2 and 3. For device type 01, 02, and 03, add subgroup 3 to $I_{IH}$ and $I_{IL}$ test, add $R_{DS1}$ test, add $V_{ISO}$ test, delete $V_{CT}$ test, change $R_L$ and $C_L$ test conditions for $t_{ON(A)}$ and $t_{OFF(A)}$ tests, change $C_L$ test condition for $t_{ON(EN)}$ and $t_{OFF(EN)}$ tests, change value of $I_D$ for $R_{DS1}$ test, change value of $I_D$ and $V_S$ for $R_{DS2}$ test, add test condition circuits. Editorial changes throughout. |    |    |                                   |    |               |    |    |    |                                                                                                                                            | 88-08-26                  |    |    |                   |    | D. A. DiCENZO |    |    |    |    |
| B                                                                                                                                                          | Add device types 07, 08, and 09. Table I changes. Editorial changes throughout.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    |                                   |    |               |    |    |    |                                                                                                                                            | 93-06-28                  |    |    |                   |    | M. A. FRYE    |    |    |    |    |
| C                                                                                                                                                          | Changes in accordance with NOR 5962-R061-95.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |    |                                   |    |               |    |    |    |                                                                                                                                            | 95-01-25                  |    |    |                   |    | M. A. FRYE    |    |    |    |    |
| D                                                                                                                                                          | Changes in accordance with NOR 5962-R032-96.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |    |                                   |    |               |    |    |    |                                                                                                                                            | 96-01-09                  |    |    |                   |    | M. A. FRYE    |    |    |    |    |
| E                                                                                                                                                          | Incorporate NOR's and current requirements. Editorial changes throughout. - drw                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    |                                   |    |               |    |    |    |                                                                                                                                            | 02-12-30                  |    |    |                   |    | R. MONNIN     |    |    |    |    |
| F                                                                                                                                                          | Make change to the $t_{ON(A)}$ and $t_{OFF(A)}$ subgroup 9 test limit for devices 01, 02, and 03 as specified under Table I. - ro                                                                                                                                                                                                                                                                                                                                                                                                                          |    |    |                                   |    |               |    |    |    |                                                                                                                                            | 07-09-13                  |    |    |                   |    | R. HEBER      |    |    |    |    |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    |                                   |    |               |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |
| REV                                                                                                                                                        | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | F  | F  |                                   |    |               |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |
| SHEET                                                                                                                                                      | 35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 36 | 37 |                                   |    |               |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |
| REV                                                                                                                                                        | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | F  | F  | F                                 | F  | F             | F  | F  | F  | F                                                                                                                                          | F                         | F  | F  | F                 | F  | F             | F  | F  | F  | F  |
| SHEET                                                                                                                                                      | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 16 | 17 | 18                                | 19 | 20            | 21 | 22 | 23 | 24                                                                                                                                         | 25                        | 26 | 27 | 28                | 29 | 30            | 31 | 32 | 33 | 34 |
| REV STATUS                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | REV                               |    | F             | F  | F  | F  | F                                                                                                                                          | F                         | F  | F  | F                 | F  | F             | F  | F  | F  | F  |
| OF SHEETS                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | SHEET                             |    | 1             | 2  | 3  | 4  | 5                                                                                                                                          | 6                         | 7  | 8  | 9                 | 10 | 11            | 12 | 13 | 14 |    |
| PMIC N/A                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | PREPARED BY<br>MARCIA B. KELLEHER |    |               |    |    |    | <b>DEFENSE SUPPLY CENTER COLUMBUS</b><br><b>COLUMBUS, OHIO 43218-3990</b><br><a href="http://www.dscc.dla.mil">http://www.dscc.dla.mil</a> |                           |    |    |                   |    |               |    |    |    |    |
| <b>STANDARD MICROCIRCUIT DRAWING</b><br><br>THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE<br><br>AMSC N/A |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | CHECKED BY<br>RAY MONNIN          |    |               |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | APPROVED BY<br>D. A. DiCENZO      |    |               |    |    |    | <b>MICROCIRCUIT, LINEAR, CMOS, MULTIPLEXER / DEMULTIPLEXER, MONOLITHIC SILICON</b>                                                         |                           |    |    |                   |    |               |    |    |    |    |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | DRAWING APPROVAL DATE<br>86-06-30 |    |               |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    | REVISION LEVEL<br>F               |    |               |    |    |    | SIZE<br>A                                                                                                                                  | CAGE CODE<br><b>67268</b> |    |    | <b>5962-85131</b> |    |               |    |    |    |    |
|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |    |                                   |    | SHEET 1 OF 37 |    |    |    |                                                                                                                                            |                           |    |    |                   |    |               |    |    |    |    |

## 1. SCOPE

1.1 Scope. This drawing describes device requirements for MIL-STD-883 compliant, non-JAN class level B microcircuits in accordance with MIL-PRF-38535, appendix A.

1.2 Part or Identifying Number (PIN). The complete PIN is as shown in the following example:



1.2.1 Device type(s). The device type(s) identify the circuit function as follows:

| <u>Device type</u> | <u>Generic number</u> | <u>Circuit function</u>                                      |
|--------------------|-----------------------|--------------------------------------------------------------|
| 01                 | HI546                 | Single 16-channel MUX/DEMUX with overvoltage protection      |
| 02                 | HI547                 | Differential 8-channel MUX/DEMUX with overvoltage protection |
| 03                 | HI549                 | Differential 4-channel MUX/DEMUX with overvoltage protection |
| 04                 | HI5116                | Single 16-channel MUX/DEMUX with overvoltage protection      |
| 05                 | HI5216                | Differential 8-channel MUX/DEMUX with overvoltage protection |
| 06                 | HI5208                | Differential 4-channel MUX/DEMUX with overvoltage protection |
| 07                 | HI506                 | Single 16-channel MUX/DEMUX                                  |
| 08                 | HI507                 | Differential 8-channel MUX/DEMUX                             |
| 09                 | HI509                 | Differential 4-channel MUX/DEMUX                             |

1.2.2 Case outline(s). The case outline(s) are as designated in MIL-STD-1835 and as follows:

| <u>Outline letter</u> | <u>Descriptive designator</u> | <u>Terminals</u> | <u>Package style</u>         |
|-----------------------|-------------------------------|------------------|------------------------------|
| E                     | GDIP-T16 or CDIP-T16          | 16               | Dual-in-line                 |
| X                     | GDIP-T28 or CDIP-T28          | 28               | Dual-in-line                 |
| 2                     | CQCC1-N20                     | 20               | Square leadless chip carrier |
| 3                     | CQCC1-N28                     | 28               | Square leadless chip carrier |

1.2.3 Lead finish. The lead finish is as specified in MIL-PRF-38535, appendix A.

|                                                                                                         |                  |                     |                   |
|---------------------------------------------------------------------------------------------------------|------------------|---------------------|-------------------|
| <b>STANDARD<br/>MICROCIRCUIT DRAWING</b><br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br><b>A</b> |                     | <b>5962-85131</b> |
|                                                                                                         |                  | REVISION LEVEL<br>F | SHEET<br><b>2</b> |

### 1.3 Absolute maximum ratings.

|                                                                                 |                                                                |
|---------------------------------------------------------------------------------|----------------------------------------------------------------|
| Supply voltage between +V and -V .....                                          | +44 V                                                          |
| Supply voltage between +V and ground:                                           |                                                                |
| Device types 01-03, 07-09 .....                                                 | +22 V                                                          |
| Device types 04-06 .....                                                        | +20 V                                                          |
| Supply voltage between -V and ground:                                           |                                                                |
| Device types 01-03, 07-09 .....                                                 | -25 V                                                          |
| Device types 04-06 .....                                                        | -20 V                                                          |
| Digital input voltage range ( $V_A$ , $V_{EN}$ ):                               |                                                                |
| Device types 01-03, 07-09 .....                                                 | [ (-V) -4 V ] to (+V) +4 V ]<br>or 20 mA whichever comes first |
| Device types 04-06 .....                                                        | -V to +V or 20 mA whichever comes first                        |
| Analog input voltage range ( $V_S$ ):                                           |                                                                |
| Device types 01-03 .....                                                        | [ (-V) -20 V ] to (+V) +20 V ]                                 |
| Device types 04-06 .....                                                        | [ (-V) -25 V ] to (+V) +25 V ]                                 |
| Device types 07-09 .....                                                        | [ (-V) -2 V ] to (+V) +2 V ]                                   |
| Continuous current, source or drain .....                                       | 20 mA                                                          |
| Peak current, source or drain, pulsed, 1 ms,<br>10 percent duty cycle max ..... | 40 mA                                                          |
| Storage temperature range .....                                                 | -65°C to +150°C                                                |
| Maximum power dissipation ( $P_D$ ):                                            |                                                                |
| Case E .....                                                                    | 1.25 W                                                         |
| Case X .....                                                                    | 2 W                                                            |
| Case 2 .....                                                                    | 1.32 W                                                         |
| Case 3 .....                                                                    | 1.23 W                                                         |
| Derating factor:                                                                |                                                                |
| Case E .....                                                                    | 12.5 mW/°C above $T_A = +75^\circ\text{C}$                     |
| Case X .....                                                                    | 20 mW/°C above $T_A = +75^\circ\text{C}$                       |
| Case 2 .....                                                                    | 13.2 mW/°C above $T_A = +75^\circ\text{C}$                     |
| Case 3 .....                                                                    | 12.3 mW/°C above $T_A = +75^\circ\text{C}$                     |
| Thermal resistance, junction-to-case ( $\theta_{JC}$ ):                         |                                                                |
| Cases E, X, 2, and 3.....                                                       | See MIL-STD-1835                                               |
| Thermal resistance, junction-to-ambient ( $\theta_{JA}$ ):                      |                                                                |
| Case E .....                                                                    | 80°C/W                                                         |
| Case X .....                                                                    | 50°C/W                                                         |
| Case 2 .....                                                                    | 76°C/W                                                         |
| Case 3 .....                                                                    | 81°C/W                                                         |
| Lead temperature (soldering, 10 seconds) .....                                  | +275°C                                                         |
| Junction temperature ( $T_J$ ) .....                                            | +175°C                                                         |

### 1.4 Recommended operating conditions.

|                                                     |                 |
|-----------------------------------------------------|-----------------|
| Supply voltage between +V and ground .....          | +15 V           |
| Supply voltage between -V and ground .....          | -15 V           |
| $V_{REF}$ (device types 01 and 02 only) .....       | open            |
| $V_{AL}(\text{max})$ .....                          | 0.8 V           |
| $V_{AH}(\text{min})$ :                              |                 |
| Device types 01-03 .....                            | 4.0 V           |
| Device types 04-09 .....                            | 2.4 V           |
| $V_{EN}$ :                                          |                 |
| Device types 01-03 .....                            | 4.0 V           |
| Device types 04-09 .....                            | 2.4 V           |
| Ambient operating temperature range ( $T_A$ ) ..... | -55°C to +125°C |

|                                                                                                               |                  |                            |                   |
|---------------------------------------------------------------------------------------------------------------|------------------|----------------------------|-------------------|
| <b>STANDARD</b><br><b>MICROCIRCUIT DRAWING</b><br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br><b>A</b> |                            | <b>5962-85131</b> |
|                                                                                                               |                  | REVISION LEVEL<br><b>F</b> | SHEET<br><b>3</b> |

## 2. APPLICABLE DOCUMENTS

2.1 Government specification, standards, and handbooks. The following specification, standards, and handbooks form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

### DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-38535 - Integrated Circuits, Manufacturing, General Specification for.

### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard Microcircuits.

MIL-STD-1835 - Interface Standard Electronic Component Case Outlines.

### DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-103 - List of Standard Microcircuit Drawings.

MIL-HDBK-780 - Standard Microcircuit Drawings.

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-38535, appendix A for non-JAN class level B devices and as specified herein. Product built to this drawing that is produced by a Qualified Manufacturer Listing (QML) certified and qualified manufacturer or a manufacturer who has been granted transitional certification to MIL-PRF-38535 may be processed as QML product in accordance with the manufacturers approved program plan and qualifying activity approval in accordance with MIL-PRF-38535. This QML flow as documented in the Quality Management (QM) plan may make modifications to the requirements herein. These modifications shall not affect form, fit, or function of the device. These modifications shall not affect the PIN as described herein. A "Q" or "QML" certification mark in accordance with MIL-PRF-38535 is required to identify when the QML flow option is used.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535, appendix A and herein.

3.2.1 Case outlines. The case outlines shall be in accordance with 1.2.2 herein.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 1.

3.2.3 Truth tables. The truth tables shall be as specified on figure 2.

3.3 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in table I and shall apply over the full ambient operating temperature range.

3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table I.

|                                                                                                 |           |                     |            |
|-------------------------------------------------------------------------------------------------|-----------|---------------------|------------|
| STANDARD<br>MICROCIRCUIT DRAWING<br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br>A |                     | 5962-85131 |
|                                                                                                 |           | REVISION LEVEL<br>F | SHEET<br>4 |

TABLE I. Electrical performance characteristics.

| Test                                                              | Symbol               | Conditions <u>1/</u><br>-55°C ≤ T <sub>A</sub> ≤ +125°C<br>-V = -15 V, +V = +15 V<br>unless otherwise specified | Group A<br>subgroups | Device<br>type                          | Limits |      | Unit |
|-------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------|--------|------|------|
|                                                                   |                      |                                                                                                                 |                      |                                         | Min    | Max  |      |
| Input leakage current <u>2/</u>                                   | I <sub>IH</sub>      | Measure inputs sequentially,<br>connect all unused inputs to<br>GND                                             | 1, 2, 3              | 01, 02,<br>03, 04,<br>05, 07,<br>08, 09 |        | 1.0  | μA   |
|                                                                   |                      |                                                                                                                 | 1, 3                 | 06                                      | -1.0   | 1.0  |      |
|                                                                   |                      |                                                                                                                 | 2                    |                                         | -10.0  | 10.0 |      |
|                                                                   | I <sub>IL</sub>      |                                                                                                                 | 1, 2, 3              | 01, 02,<br>03, 04,<br>05, 07,<br>08, 09 |        | 1.0  |      |
|                                                                   |                      |                                                                                                                 | 1, 3                 | 06                                      | -1.0   | 1.0  |      |
|                                                                   |                      |                                                                                                                 | 2                    |                                         | -10.0  | 10.0 |      |
| Leakage current into the<br>source terminal of an<br>“OFF” switch | +I <sub>S(OFF)</sub> | V <sub>S</sub> = +10 V, V <sub>EN</sub> = 0.8 V,<br>all unused inputs = -10 V,<br><br>V <sub>D</sub> = -10 V    | 1                    | 01, 02,<br>03, 07,<br>08, 09            | -10    | +10  | nA   |
|                                                                   |                      |                                                                                                                 |                      | 04, 05,<br>06                           | -1     | +1   |      |
|                                                                   |                      |                                                                                                                 | 2, 3                 | All                                     | -50    | +50  |      |
|                                                                   | -I <sub>S(OFF)</sub> | V <sub>S</sub> = -10 V, V <sub>EN</sub> = 0.8 V,<br>all unused inputs = +10 V,<br><br>V <sub>D</sub> = +10 V    | 1                    | 01, 02,<br>03, 07,<br>08, 09            | -10    | +10  |      |
|                                                                   |                      |                                                                                                                 |                      | 04, 05,<br>06                           | -1     | +1   |      |
|                                                                   |                      |                                                                                                                 | 2, 3                 | All                                     | -50    | +50  |      |
| Leakage current into the<br>drain terminal of an<br>“OFF” switch  | +I <sub>D(OFF)</sub> | V <sub>D</sub> = +10 V, V <sub>EN</sub> = 0.8 V,<br>all unused inputs = -10 V                                   | 1                    | 01, 02,<br>03, 07,<br>08, 09            | -10    | +10  | nA   |
|                                                                   |                      |                                                                                                                 |                      | 04, 05                                  | -2     | +2   |      |
|                                                                   |                      |                                                                                                                 |                      | 06                                      | -1     | +1   |      |
|                                                                   |                      |                                                                                                                 | 2, 3                 | 01, 04,<br>07                           | -300   | +300 |      |
|                                                                   |                      |                                                                                                                 |                      | 02, 08                                  | -200   | +200 |      |
|                                                                   |                      |                                                                                                                 |                      | 03, 06,<br>09                           | -100   | +100 |      |
|                                                                   |                      |                                                                                                                 |                      | 05                                      | -150   | +150 |      |
|                                                                   |                      |                                                                                                                 |                      |                                         |        |      |      |

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - continued.

| Test                                                             | Symbol                | Conditions <u>1</u> /<br>-55°C ≤ T <sub>A</sub> ≤ +125°C<br>-V = -15 V, +V = +15 V<br>unless otherwise specified | Group A<br>subgroups                                              | Device<br>type               | Limits                                                                       |      | Unit                         |                              |     |     |
|------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------|------|------------------------------|------------------------------|-----|-----|
|                                                                  |                       |                                                                                                                  |                                                                   |                              | Min                                                                          | Max  |                              |                              |     |     |
| Leakage current into the<br>drain terminal of an<br>“OFF” switch | -I <sub>D</sub> (OFF) | V <sub>D</sub> = -10 V, V <sub>EN</sub> = 0.8 V,<br>all unused inputs = +10 V                                    | 1                                                                 | 01, 02,<br>03, 07,<br>08, 09 | -10                                                                          | +10  | nA                           |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 04, 05                       | -2                                                                           | +2   |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 06                           | -1                                                                           | +1   |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  | 2, 3                                                              | 01, 04,<br>07                | -300                                                                         | +300 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 02, 08                       | -200                                                                         | +200 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 03, 06,<br>09                | -100                                                                         | +100 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 05                           | -150                                                                         | +150 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  | Leakage current from an<br>“ON” driver into the<br>switch (drain) | +I <sub>D</sub> (ON)         | V <sub>D</sub> = +10 V, V <sub>S</sub> = +10 V,<br>all unused inputs = -10 V | 1    |                              | 01, 02,<br>03, 07,<br>08, 09 | -10 | +10 |
| 04, 05,<br>06                                                    | -2                    | +2                                                                                                               |                                                                   |                              |                                                                              |      |                              |                              |     |     |
| 2, 3                                                             | 01, 04,<br>07         | -300                                                                                                             |                                                                   |                              |                                                                              | +300 |                              |                              |     |     |
|                                                                  | 02, 08                | -200                                                                                                             |                                                                   |                              |                                                                              | +200 |                              |                              |     |     |
|                                                                  | 03, 06,<br>09         | -100                                                                                                             |                                                                   |                              |                                                                              | +100 |                              |                              |     |     |
|                                                                  | 05                    | -150                                                                                                             |                                                                   |                              |                                                                              | +150 |                              |                              |     |     |
|                                                                  | -I <sub>D</sub> (ON)  | V <sub>D</sub> = -10 V, V <sub>S</sub> = -10 V,<br>all unused inputs = +10 V                                     |                                                                   |                              |                                                                              | 1    | 01, 02,<br>03, 07,<br>08, 09 | -10                          | +10 |     |
|                                                                  |                       |                                                                                                                  |                                                                   |                              |                                                                              |      | 04, 05,<br>06                | -2                           | +2  |     |
| 2, 3                                                             |                       |                                                                                                                  |                                                                   | 01, 04,<br>07                | -300                                                                         | +300 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 02, 08                       | -200                                                                         | +200 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 03, 06,<br>09                | -100                                                                         | +100 |                              |                              |     |     |
|                                                                  |                       |                                                                                                                  |                                                                   | 05                           | -150                                                                         | +150 |                              |                              |     |     |

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - continued.

| Test                                                                                       | Symbol                              | Conditions <u>1/</u><br>-55°C ≤ T <sub>A</sub> ≤ +125°C<br>-V = -15 V, +V = +15 V<br>unless otherwise specified         | Group A<br>subgroups | Device<br>type               | Limits |      | Unit |
|--------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|--------|------|------|
|                                                                                            |                                     |                                                                                                                         |                      |                              | Min    | Max  |      |
| Overvoltage protected,<br>leakage current into<br>the drain terminal of<br>an “OFF” switch | +I <sub>D(OFF)</sub><br>overvoltage | V <sub>S</sub> = +33 V, V <sub>D</sub> = 0 V,<br>V <sub>EN</sub> = 0.8 V, V <sub>S</sub> applied<br>at ≤ 25% duty cycle | 1, 2, 3              | 01, 02,<br>03,               | -2.0   | +2.0 | μA   |
|                                                                                            |                                     | V <sub>S</sub> = +25 V, V <sub>D</sub> = 0 V,<br>V <sub>EN</sub> = 0.8 V                                                | 1, 3                 | 04, 05,<br>06                | -2.0   | +2.0 |      |
|                                                                                            |                                     |                                                                                                                         | 2                    |                              | -5     | +5   |      |
|                                                                                            | -I <sub>D(OFF)</sub><br>overvoltage | V <sub>S</sub> = -33 V, V <sub>D</sub> = 0 V,<br>V <sub>EN</sub> = 0.8 V, V <sub>S</sub> applied<br>at ≤ 25% duty cycle | 1, 2, 3              | 01, 02,<br>03,               | -2.0   | +2.0 |      |
|                                                                                            |                                     | V <sub>S</sub> = -25 V, V <sub>D</sub> = 0 V,<br>V <sub>EN</sub> = 0.8 V                                                | 1, 3                 | 04, 05,<br>06                | -2.0   | +2.0 |      |
|                                                                                            |                                     |                                                                                                                         | 2                    |                              | -5     | +5   |      |
| Positive supply current                                                                    | +I                                  | V <sub>A</sub> = 0 V, V <sub>EN</sub> = 4.0 V                                                                           | 1, 2, 3              | 01, 02,<br>03                |        | 2.0  | mA   |
|                                                                                            |                                     | V <sub>A</sub> = 0 V, V <sub>EN</sub> = 2.4 V                                                                           |                      | 04, 05                       |        | 2.0  |      |
|                                                                                            |                                     |                                                                                                                         |                      | 07, 08                       |        | 3.0  |      |
|                                                                                            |                                     |                                                                                                                         |                      | 09                           |        | 2.4  |      |
|                                                                                            |                                     | V <sub>A</sub> = 5 V, V <sub>EN</sub> = 2.4 V                                                                           |                      | 06                           |        | 2.0  |      |
| Negative supply current                                                                    | -I                                  | V <sub>A</sub> = 0 V, V <sub>EN</sub> = 4.0 V                                                                           | 1, 2, 3              | 01, 02,<br>03                | -1.0   |      | mA   |
|                                                                                            |                                     | V <sub>A</sub> = 0 V, V <sub>EN</sub> = 2.4 V                                                                           |                      | 04, 05,<br>07, 08,<br>09     | -1.0   |      |      |
|                                                                                            |                                     | V <sub>A</sub> = 5 V, V <sub>EN</sub> = 2.4 V                                                                           |                      | 06                           | -1.0   |      |      |
| Standby positive<br>supply current                                                         | +I <sub>SBY</sub>                   | V <sub>A</sub> = 0 V, V <sub>EN</sub> = 0 V                                                                             | 1, 2, 3              | 01, 02,<br>03, 04,<br>05, 06 |        | 2.0  | mA   |
|                                                                                            |                                     |                                                                                                                         |                      | 07, 08                       |        | 3.0  |      |
|                                                                                            |                                     |                                                                                                                         |                      | 09                           |        | 2.4  |      |
| Standby negative<br>supply current                                                         | -I <sub>SBY</sub>                   | V <sub>A</sub> = 0 V, V <sub>EN</sub> = 0 V                                                                             | 1, 2, 3              | All                          | -1.0   |      | mA   |

See footnotes at end of table.

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SHEET  
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TABLE I. Electrical performance characteristics - continued.

| Test                                                        | Symbol                         | Conditions <u>1/</u><br>-55°C ≤ T <sub>A</sub> ≤ +125°C<br>-V = -15 V, +V = +15 V<br>unless otherwise specified | Group A<br>subgroups | Device<br>type          | Limits |     | Unit |
|-------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------|-------------------------|--------|-----|------|
|                                                             |                                |                                                                                                                 |                      |                         | Min    | Max |      |
| Switch "ON" resistance                                      | +R <sub>DS1</sub>              | V <sub>S</sub> = +10 V, I <sub>D</sub> = -100 μA                                                                | 1                    | 01, 02,<br>03           |        | 1.5 | kΩ   |
|                                                             |                                |                                                                                                                 | 2, 3                 |                         |        | 1.8 |      |
|                                                             |                                | V <sub>S</sub> = +10 V, I <sub>D</sub> = +100 μA                                                                | 1                    | 04, 05,<br>06           |        | 1.5 |      |
|                                                             |                                |                                                                                                                 | 2, 3                 |                         |        | 2.0 |      |
|                                                             |                                | V <sub>S</sub> = +10 V, I <sub>D</sub> = -1 mA                                                                  | 1                    | 07, 08,<br>09           |        | 300 | Ω    |
|                                                             |                                |                                                                                                                 | 2, 3                 |                         |        | 400 |      |
|                                                             | -R <sub>DS1</sub>              | V <sub>S</sub> = -10 V, I <sub>D</sub> = +100 μA                                                                | 1                    | 01, 02,<br>03           |        | 1.5 | kΩ   |
|                                                             |                                |                                                                                                                 | 2, 3                 |                         |        | 1.8 |      |
|                                                             |                                | V <sub>S</sub> = -10 V, I <sub>D</sub> = -100 μA                                                                | 1                    | 04, 05,<br>06           |        | 1.5 |      |
|                                                             |                                |                                                                                                                 | 2, 3                 |                         |        | 2.0 |      |
|                                                             |                                | V <sub>S</sub> = -10 V, I <sub>D</sub> = +1 mA                                                                  | 1                    | 07, 08,<br>09           |        | 300 | Ω    |
|                                                             |                                |                                                                                                                 | 2, 3                 |                         |        | 400 |      |
|                                                             | +R <sub>DS2</sub><br><u>3/</u> | +V = +10 V, -V = -10 V,<br>V <sub>S</sub> = +5.0 V, I <sub>D</sub> = +100 μA                                    | 1, 3                 | 04, 05,<br>06           |        | 2.2 | kΩ   |
|                                                             |                                |                                                                                                                 | 2                    |                         |        | 2.4 |      |
|                                                             |                                | +V = +10 V, -V = -10 V,<br>V <sub>S</sub> = -5.0 V, I <sub>D</sub> = -100 μA                                    | 1, 3                 | 04, 05,<br>06           |        | 2.2 |      |
|                                                             |                                |                                                                                                                 | 2                    |                         |        | 2.4 |      |
| Difference in switch<br>"ON" resistance<br>between channels | ΔR <sub>DS1</sub>              | (+R <sub>DS1</sub> max) – (+R <sub>DS1</sub> min) x<br>100 +R <sub>DS1</sub> Ave, T <sub>A</sub> = +25°C        | 1                    | 01, 02,<br>03           |        | 7   | %    |
|                                                             |                                | (-R <sub>DS1</sub> max) – (-R <sub>DS1</sub> min) x<br>100 -R <sub>DS1</sub> Ave, T <sub>A</sub> = +25°C        |                      |                         |        | 7   |      |
| Capacitance:<br>Address                                     | C <sub>A</sub>                 | +V = -V = 0 V, f = 1 MHz,<br>T <sub>A</sub> = +25°C, see 4.3.1c                                                 | 4                    | 01, 02,<br>03           |        | 15  | pF   |
|                                                             |                                |                                                                                                                 |                      | 04, 05,<br>06 <u>3/</u> |        | 10  |      |
|                                                             |                                |                                                                                                                 |                      | 07, 08                  |        | 12  |      |
|                                                             |                                |                                                                                                                 |                      | 09                      |        | 10  |      |

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - continued.

| Test                            | Symbol           | Conditions <sup>1/</sup><br>-55°C ≤ T <sub>A</sub> ≤ +125°C<br>-V = -15 V, +V = +15 V<br>unless otherwise specified                                                   | Group A<br>subgroups | Device<br>type               | Limits |     | Unit |
|---------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|--------|-----|------|
|                                 |                  |                                                                                                                                                                       |                      |                              | Min    | Max |      |
| Capacitance:<br>Output switch   | C <sub>OS</sub>  | +V = -V = 0 V, f = 1 MHz,<br>T <sub>A</sub> = +25°C, see 4.3.1c                                                                                                       | 4                    | 01                           |        | 85  | pF   |
|                                 |                  |                                                                                                                                                                       |                      | 02, 08                       |        | 50  |      |
|                                 |                  |                                                                                                                                                                       |                      | 03, 09                       |        | 25  |      |
|                                 |                  |                                                                                                                                                                       |                      | 04, 05,<br>06 <sup>3/</sup>  |        | 85  |      |
|                                 |                  |                                                                                                                                                                       |                      | 07                           |        | 90  |      |
| Capacitance:<br>Input switch    | C <sub>IS</sub>  | +V = -V = 0 V, f = 1 MHz,<br>T <sub>A</sub> = +25°C, see 4.3.1c                                                                                                       | 4                    | 01, 02,<br>03                |        | 15  | pF   |
|                                 |                  |                                                                                                                                                                       |                      | 04, 05,<br>06 <sup>3/</sup>  |        | 10  |      |
|                                 |                  |                                                                                                                                                                       |                      | 07, 08,<br>09                |        | 12  |      |
| Charge transfer error           | V <sub>CTE</sub> | V <sub>S</sub> = GND, T <sub>A</sub> = +25°C, <sup>3/</sup><br>V <sub>GEN</sub> = 0 V to 5 V                                                                          | 7                    | All                          |        | 10  | mV   |
| Off isolation                   | V <sub>ISO</sub> | V <sub>EN</sub> = 0.8 V, V <sub>S</sub> = 7 V <sub>rms</sub> ,<br>R <sub>L</sub> = 1 kΩ, C <sub>L</sub> = 15 pF,<br>f = 100 kHz, T <sub>A</sub> = +25°C <sup>3/</sup> | 7                    | 01, 02,<br>03, 07,<br>08, 09 |        | -50 | dB   |
| Single channel isolation        | V <sub>ISO</sub> | V <sub>EN</sub> = 0 V, V <sub>GEN</sub> = 1 V <sub>p-p</sub> ,<br>R <sub>L</sub> = 200 Ω, f = 200 kHz,<br>T <sub>A</sub> = +25°C <sup>3/</sup>                        | 7                    | 04, 05,<br>06                |        | -50 | dB   |
| Crosstalk between<br>channels   | V <sub>CT</sub>  | V <sub>GEN</sub> = 1 V <sub>p-p</sub> , f = 200 kHz,<br>T <sub>A</sub> = +25°C <sup>3/</sup>                                                                          | 7                    | 04, 05,<br>06                |        | -50 | dB   |
| Break-before-make<br>time delay | t <sub>D</sub>   | T <sub>A</sub> = +25°C, see figure 3                                                                                                                                  | 9                    | 01, 02,<br>03,               | 5      |     | ns   |
|                                 |                  |                                                                                                                                                                       |                      | 04, 05,<br>06 <sup>3/</sup>  | 5      |     |      |
|                                 |                  | R <sub>L</sub> = 1 kΩ, C <sub>L</sub> = 50 pF,<br>T <sub>A</sub> = +25°C, see figure 3                                                                                |                      | 07, 08,<br>09                | 25     |     |      |

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - continued.

| Test                                                                 | Symbol               | Conditions <sup>1/</sup><br>-55°C ≤ T <sub>A</sub> ≤ +125°C<br>-V = -15 V, +V = +15 V<br>unless otherwise specified | Group A<br>subgroups | Device<br>type               | Limits |       | Unit |
|----------------------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|--------|-------|------|
|                                                                      |                      |                                                                                                                     |                      |                              | Min    | Max   |      |
| Propagation delay times:<br>Address inputs to I/O<br>channels times: | t <sub>ON(A)</sub>   | R <sub>L</sub> = 10 kΩ, C <sub>L</sub> = 50 pF,<br><br>see figure 4                                                 | 9                    | 01, 02,<br>03                |        | 750   | ns   |
|                                                                      | t <sub>OFF(A)</sub>  |                                                                                                                     |                      | 07, 08,<br>09                |        | 500   |      |
|                                                                      |                      | R <sub>L</sub> = 1 kΩ, C <sub>L</sub> = 100 pF,<br>see figure 4                                                     | 10, 11               | 01, 02,<br>03, 07,<br>08, 09 |        | 1,000 |      |
|                                                                      |                      |                                                                                                                     | 9                    | 04, 05,<br>06                |        | 1,000 |      |
|                                                                      |                      |                                                                                                                     | 10, 11               |                              |        | 1,500 |      |
|                                                                      |                      |                                                                                                                     |                      |                              |        |       |      |
| Enable to I/O                                                        | t <sub>ON(EN)</sub>  | R <sub>L</sub> = 1 kΩ, C <sub>L</sub> = 50 pF,<br>see figure 4                                                      | 9                    | 01, 02,<br>03, 07,<br>08, 09 |        | 500   | ns   |
|                                                                      | t <sub>OFF(EN)</sub> |                                                                                                                     | 10, 11               |                              |        | 1,000 |      |
|                                                                      |                      | R <sub>L</sub> = 1 kΩ, C <sub>L</sub> = 100 pF,<br>See figure 4                                                     | 9                    | 04, 05,<br>06                |        | 700   |      |
|                                                                      |                      |                                                                                                                     | 10, 11               |                              |        | 1,000 |      |

<sup>1/</sup> For device types 01 and 02, V<sub>REF</sub> = open. For device types 01, 02, and 03, V<sub>EN</sub> = 4.0 V unless otherwise specified. For device types 04, 05, 06, 07, 08 and 09, V<sub>EN</sub> = 2.4 V unless otherwise specified. For device types 04, 05, and 06, current flowing in either direction between any associated input and output terminals of the switch shall be 30 mA.

<sup>2/</sup> Input current of one input mode.

<sup>3/</sup> Guaranteed, if not tested, to the limits specified.

3.5 Marking. Marking shall be in accordance with MIL-PRF-38535, appendix A. The part shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's PIN may also be marked. For packages where marking of the entire SMD PIN number is not feasible due to space limitations, the manufacturer has the option of not marking the "5962-" on the device.

3.5.1 Certification/compliance mark. A compliance indicator "C" shall be marked on all non-JAN devices built in compliance to MIL-PRF-38535, appendix A. The compliance indicator "C" shall be replaced with a "Q" or "QML" certification mark in accordance with MIL-PRF-38535 to identify when the QML flow option is used.

3.6 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply in MIL-HDBK-103 (see 6.6 herein). The certificate of compliance submitted to DSCC-VA prior to listing as an approved source of supply shall affirm that the manufacturer's product meets the requirements of MIL-PRF-38535, appendix A and the requirements herein.

3.7 Certificate of conformance. A certificate of conformance as required in MIL-PRF-38535, appendix A shall be provided with each lot of microcircuits delivered to this drawing.

3.8 Notification of change. Notification of change to DSCC-VA shall be required for any change that affects this drawing.

3.9 Verification and review. DSCC, DSCC's agent, and the acquiring activity retain the option to review the manufacturer's facility and applicable required documentation. Offshore documentation shall be made available onshore at the option of the reviewer.

|                                                                                                               |                  |                            |                    |
|---------------------------------------------------------------------------------------------------------------|------------------|----------------------------|--------------------|
| <b>STANDARD</b><br><b>MICROCIRCUIT DRAWING</b><br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br><b>A</b> |                            | <b>5962-85131</b>  |
|                                                                                                               |                  | REVISION LEVEL<br><b>F</b> | SHEET<br><b>10</b> |

|                 |                 |        |        |        |        |            |        |        |        |        |
|-----------------|-----------------|--------|--------|--------|--------|------------|--------|--------|--------|--------|
| Case outlines   | E               | X      | X      | X      | X      | 2          | 3      | 3      | 3      | 3      |
| Device types    | 03, 06, 09      | 01     | 02     | 04, 07 | 05, 08 | 03, 06, 09 | 01     | 02     | 07     | 08     |
| Terminal number | Terminal symbol |        |        |        |        |            |        |        |        |        |
| 1               | A0              | V+     | V+     | V+     | V+     | NC         | V+     | V+     | V+     | V+     |
| 2               | Enable          | NC     | OUT B  | NC     | OUT B  | A0         | NC     | OUT B  | NC     | OUT B  |
| 3               | V-              | NC     | NC     | NC     | NC     | Enable     | NC     | NC     | NC     | NC     |
| 4               | IN 1A           | IN 16  | IN 8B  | IN 16  | IN 8B  | V-         | IN 16  | IN 8B  | IN 16  | IN 8B  |
| 5               | IN 2A           | IN 15  | IN 7B  | IN 15  | IN 7B  | IN 1A      | IN 15  | IN 7B  | IN 15  | IN 7B  |
| 6               | IN 3A           | IN 14  | IN 6B  | IN 14  | IN 6B  | NC         | IN 14  | IN 6B  | IN 14  | IN 6B  |
| 7               | IN 4A           | IN 13  | IN 5B  | IN 13  | IN 5B  | IN 2A      | IN 13  | IN 5B  | IN 13  | IN 5B  |
| 8               | OUT A           | IN 12  | IN 4B  | IN 12  | IN 4B  | IN 3A      | IN 12  | IN 4B  | IN 12  | IN 4B  |
| 9               | OUT B           | IN 11  | IN 3B  | IN 11  | IN 3B  | IN 4A      | IN 11  | IN 3B  | IN 11  | IN 3B  |
| 10              | IN 4B           | IN 10  | IN 2B  | IN 10  | IN 2B  | OUT A      | IN 10  | IN 2B  | IN 10  | IN 2B  |
| 11              | IN 3B           | IN 9   | IN 1B  | IN 9   | IN 1B  | NC         | IN 9   | IN 1B  | IN 9   | IN 1B  |
| 12              | IN 2B           | GND    | GND    | GND    | GND    | OUT B      | GND    | GND    | GND    | GND    |
| 13              | IN 1B           | VREF   | VREF   | NC     | NC     | IN 4B      | VREF   | VREF   | NC     | NC     |
| 14              | V+              | A3     | NC     | A3     | NC     | IN 3B      | A3     | NC     | A3     | NC     |
| 15              | GND             | A2     | A2     | A2     | A2     | IN 2B      | A2     | A2     | A2     | A2     |
| 16              | A1              | A1     | A1     | A1     | A1     | NC         | A1     | A1     | A1     | A1     |
| 17              | ---             | A0     | A0     | A0     | A0     | IN 1B      | A0     | A0     | A0     | A0     |
| 18              | ---             | Enable | Enable | Enable | Enable | V+         | Enable | Enable | Enable | Enable |
| 19              | ---             | IN 1   | IN 1A  | IN 1   | IN 1A  | GND        | IN 1   | IN 1A  | IN 1   | IN 1A  |
| 20              | ---             | IN 2   | IN 2A  | IN 2   | IN 2A  | A1         | IN 2   | IN 2A  | IN 2   | IN 2A  |
| 21              | ---             | IN 3   | IN 3A  | IN 3   | IN 3A  | ---        | IN 3   | IN 3A  | IN 3   | IN 3A  |
| 22              | ---             | IN 4   | IN 4A  | IN 4   | IN 4A  | ---        | IN 4   | IN 4A  | IN 4   | IN 4A  |
| 23              | ---             | IN 5   | IN 5A  | IN 5   | IN 5A  | ---        | IN 5   | IN 5A  | IN 5   | IN 5A  |
| 24              | ---             | IN 6   | IN 6A  | IN 6   | IN 6A  | ---        | IN 6   | IN 6A  | IN 6   | IN 6A  |
| 25              | ---             | IN 7   | IN 7A  | IN 7   | IN 7A  | ---        | IN 7   | IN 7A  | IN 7   | IN 7A  |
| 26              | ---             | IN 8   | IN 8A  | IN 8   | IN 8A  | ---        | IN 8   | IN 8A  | IN 8   | IN 8A  |
| 27              | ---             | V-     | V-     | V-     | V-     | ---        | V-     | V-     | V-     | V-     |
| 28              | ---             | OUT    | OUT A  | OUT    | OUT A  | ---        | OUT    | OUT A  | OUT    | OUT A  |

FIGURE 1. Terminal connections.

|                                                                                                         |                  |                            |                    |
|---------------------------------------------------------------------------------------------------------|------------------|----------------------------|--------------------|
| <b>STANDARD<br/>MICROCIRCUIT DRAWING</b><br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br><b>A</b> |                            | <b>5962-85131</b>  |
|                                                                                                         |                  | REVISION LEVEL<br><b>F</b> | SHEET<br><b>11</b> |

Device types 01, 04, and 07

| A3 | A2 | A1 | A0 | EN | CHANNEL<br>SELECTED |
|----|----|----|----|----|---------------------|
| X  | X  | X  | X  | L  | NONE                |
| L  | L  | L  | L  | H  | 1                   |
| L  | L  | L  | H  | H  | 2                   |
| L  | L  | H  | L  | H  | 3                   |
| L  | L  | H  | H  | H  | 4                   |
| L  | H  | L  | L  | H  | 5                   |
| L  | H  | L  | H  | H  | 6                   |
| L  | H  | H  | L  | H  | 7                   |
| L  | H  | H  | H  | H  | 8                   |
| H  | L  | L  | L  | H  | 9                   |
| H  | L  | L  | H  | H  | 10                  |
| H  | L  | H  | L  | H  | 11                  |
| H  | L  | H  | H  | H  | 12                  |
| H  | H  | L  | L  | H  | 13                  |
| H  | H  | L  | H  | H  | 14                  |
| H  | H  | H  | L  | H  | 15                  |
| H  | H  | H  | H  | H  | 16                  |

Device types 02, 05, and 08

| A2 | A1 | A0 | EN | CHANNEL<br>SELECTED |
|----|----|----|----|---------------------|
| X  | X  | X  | L  | NONE                |
| L  | L  | L  | H  | 1A, 1B              |
| L  | L  | H  | H  | 2A, 2B              |
| L  | H  | L  | H  | 3A, 3B              |
| L  | H  | H  | H  | 4A, 4B              |
| H  | L  | L  | H  | 5A, 5B              |
| H  | L  | H  | H  | 6A, 6B              |
| H  | H  | L  | H  | 7A, 7B              |
| H  | H  | H  | H  | 8A, 8B              |

Device types 03, 06, and 09

| A1 | A0 | EN | CHANNEL<br>SELECTED |
|----|----|----|---------------------|
| X  | X  | L  | NONE                |
| L  | L  | H  | 1A, 1B              |
| L  | H  | H  | 2A, 2B              |
| H  | L  | H  | 3A, 3B              |
| H  | H  | H  | 4A, 4B              |

FIGURE 2. Truth tables.

|                                                                                                               |                  |                            |                    |
|---------------------------------------------------------------------------------------------------------------|------------------|----------------------------|--------------------|
| <b>STANDARD</b><br><b>MICROCIRCUIT DRAWING</b><br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br><b>A</b> |                            | <b>5962-85131</b>  |
|                                                                                                               |                  | REVISION LEVEL<br><b>F</b> | SHEET<br><b>12</b> |

Device type 01

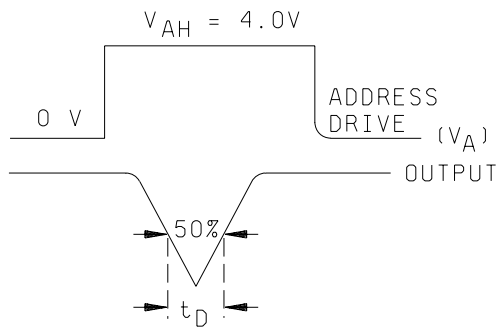
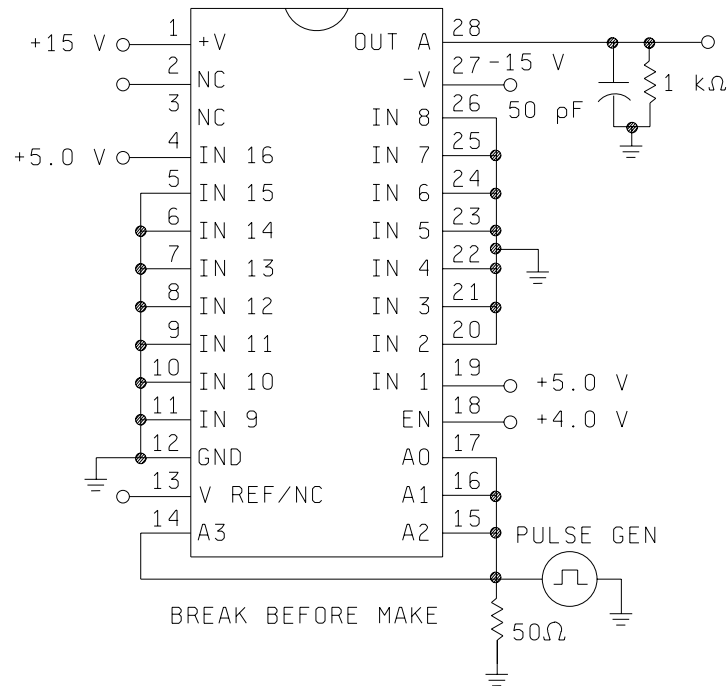


FIGURE 3. Break-before-make test circuit and waveforms.

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COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**13**

Device type 02

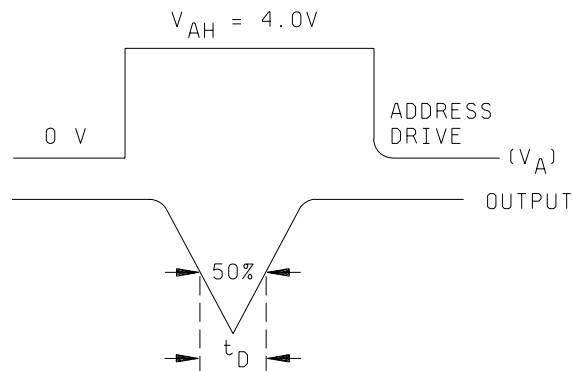
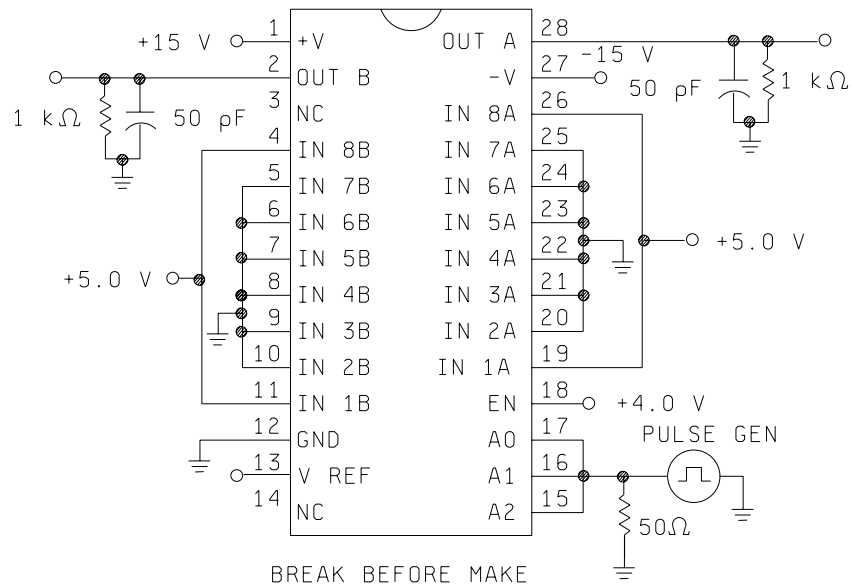


FIGURE 3. Break-before-make test circuit and waveforms – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**14**

Device type 03

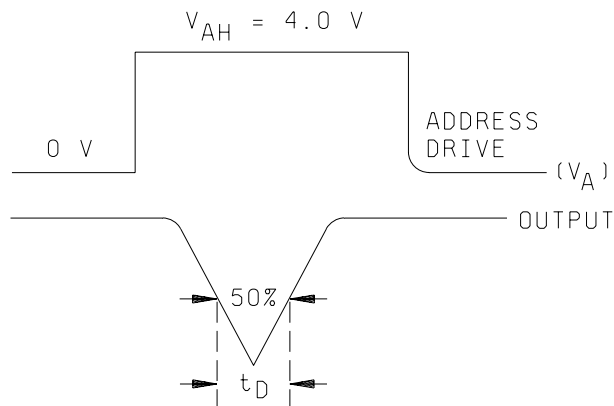
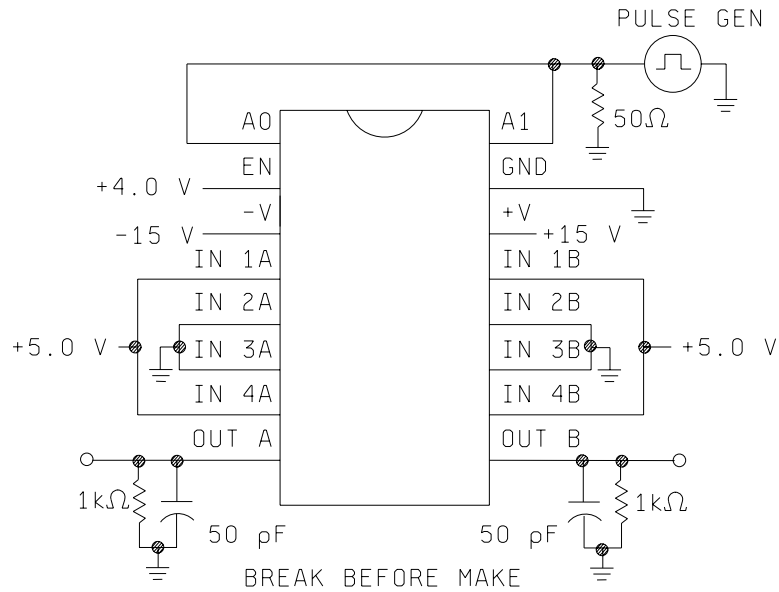


FIGURE 3. Break-before-make test circuit and waveforms – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**15**

Device types 04, 05, and 06

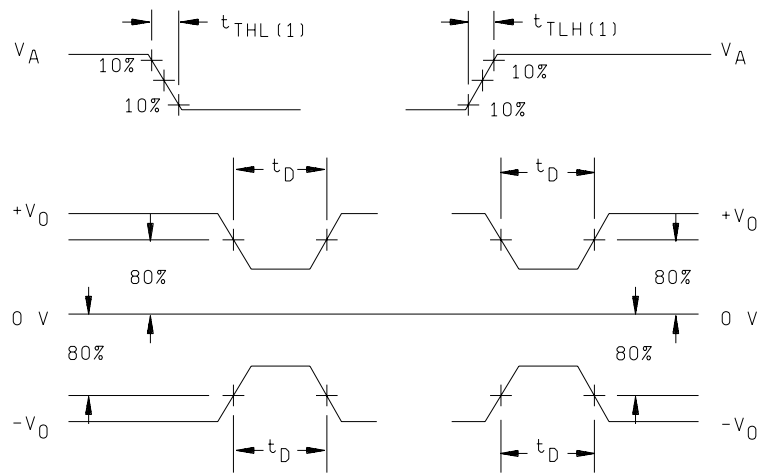
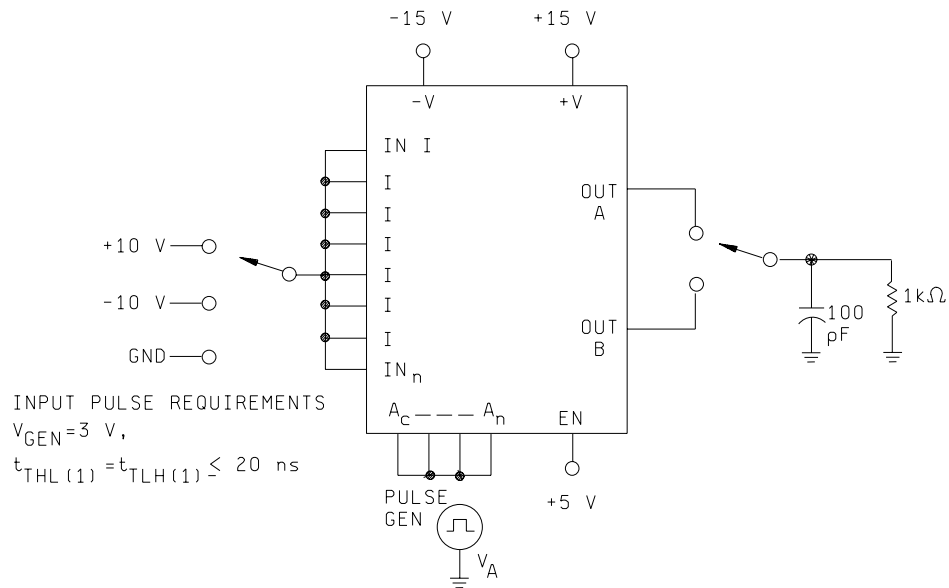


FIGURE 3. Break-before-make test circuit and waveforms – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
 DEFENSE SUPPLY CENTER COLUMBUS  
 COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**16**

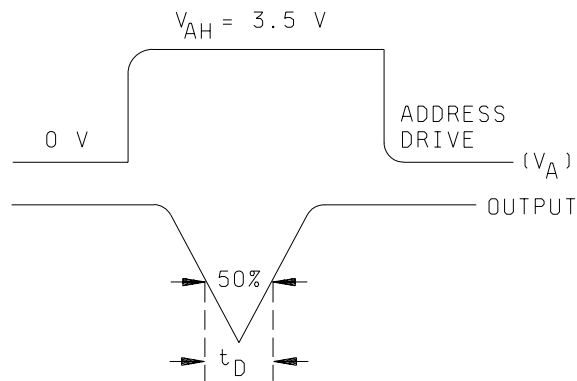
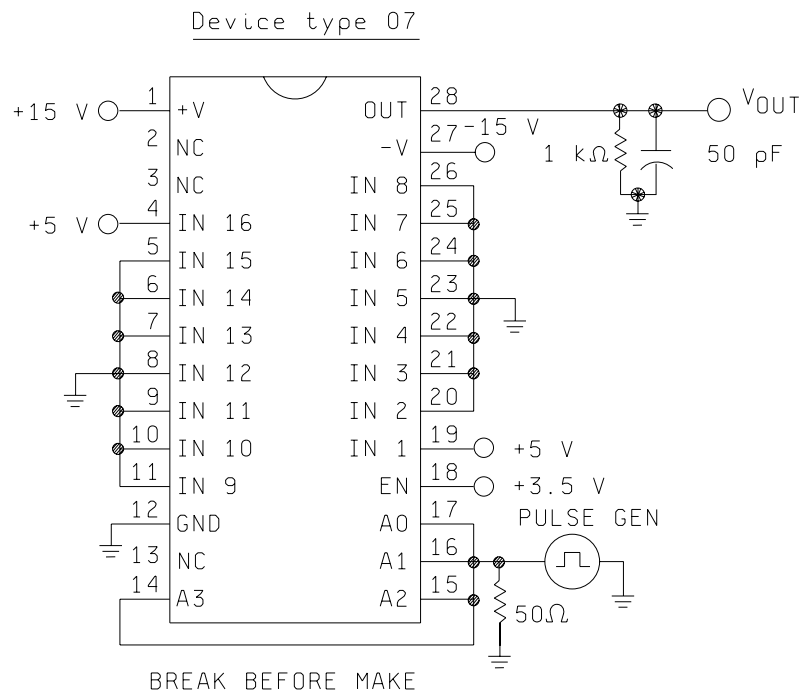


FIGURE 3. Break-before-make test circuit and waveforms – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**17**

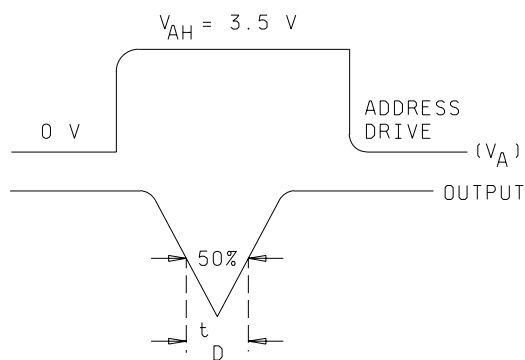
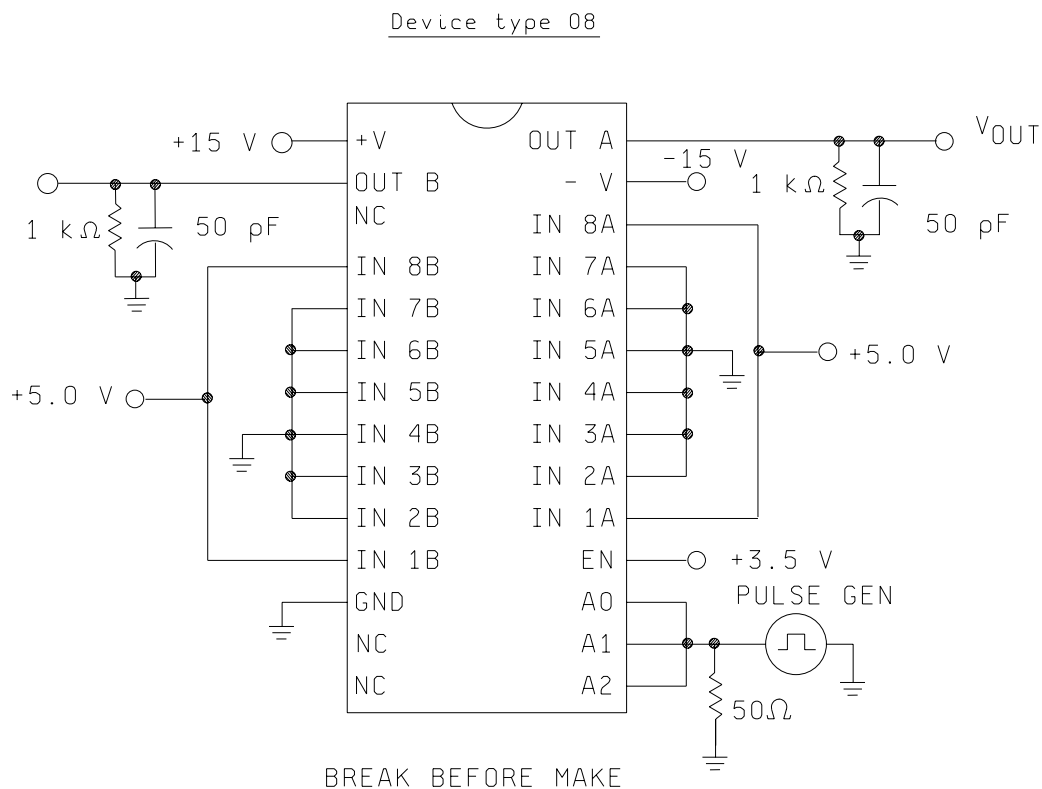


FIGURE 3. Break-before-make test circuit and waveforms – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**18**

Device type 09

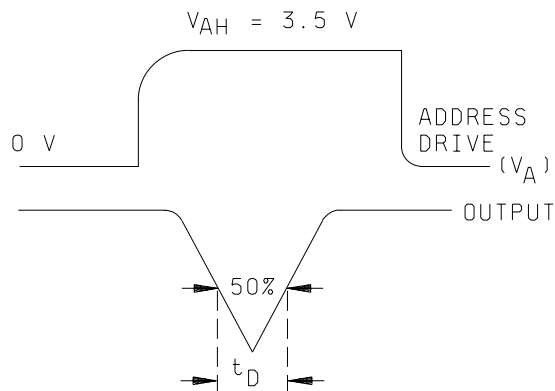
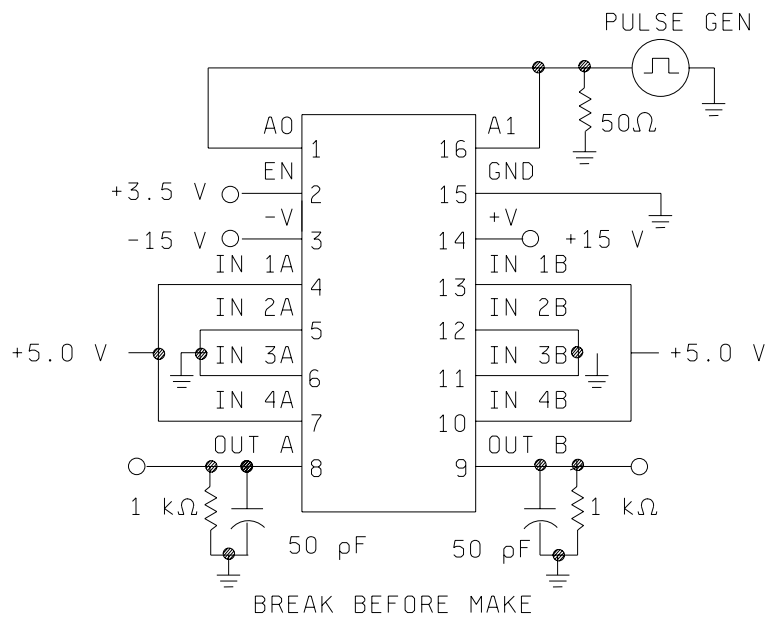


FIGURE 3. Break-before-make test circuit and waveforms – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**19**

Device type 01

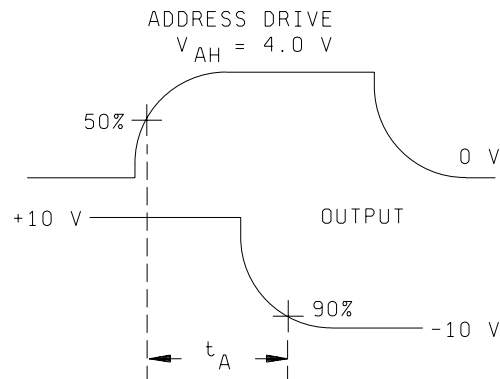
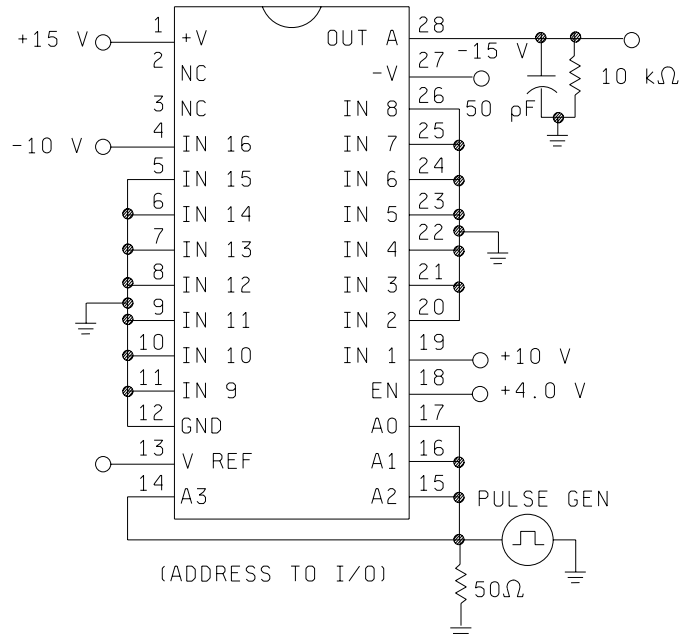


FIGURE 4. Switching times test circuits.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**20**

Device type 01

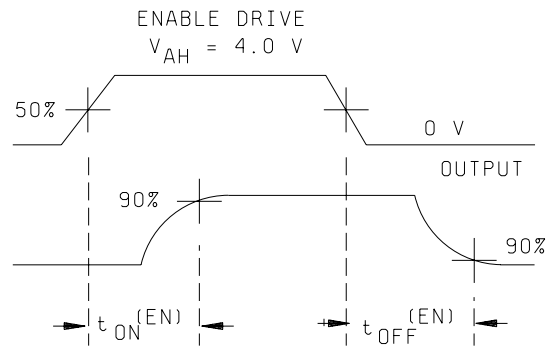
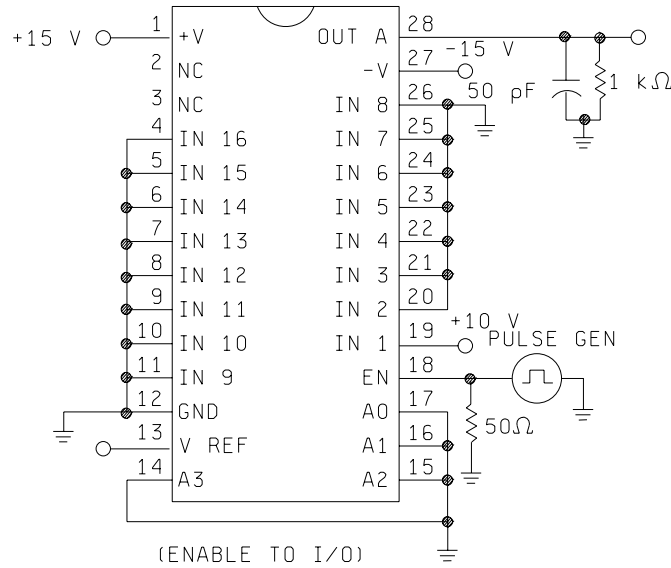


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**21**

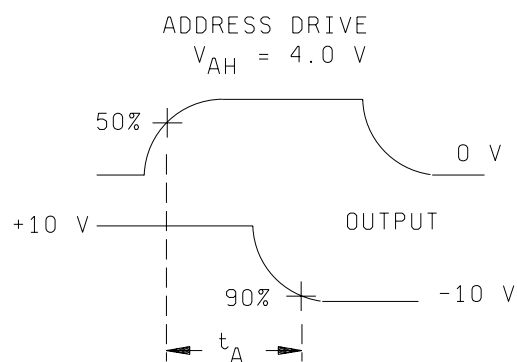
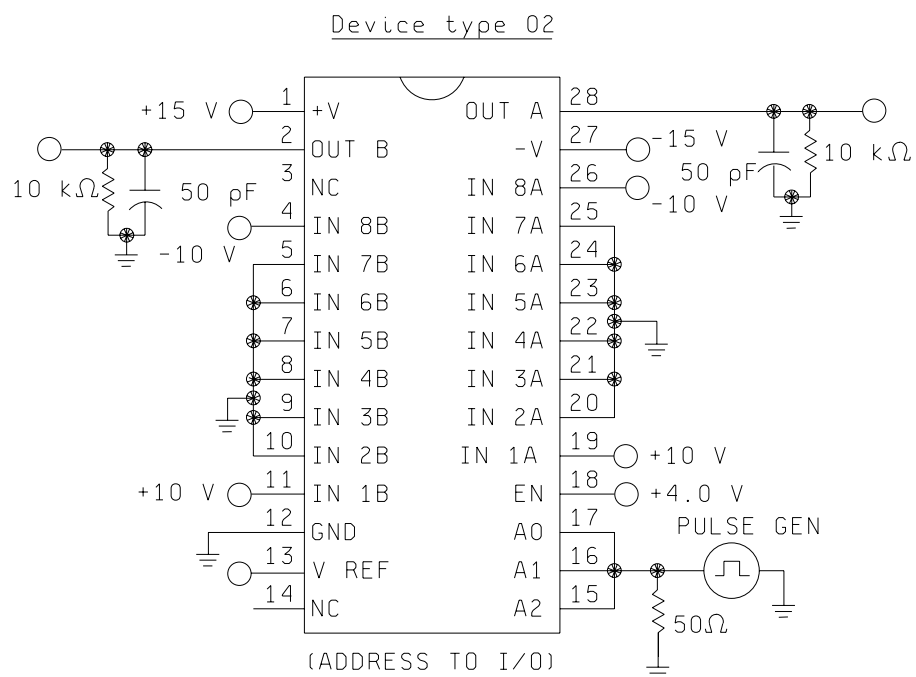


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**22**

Device type 02

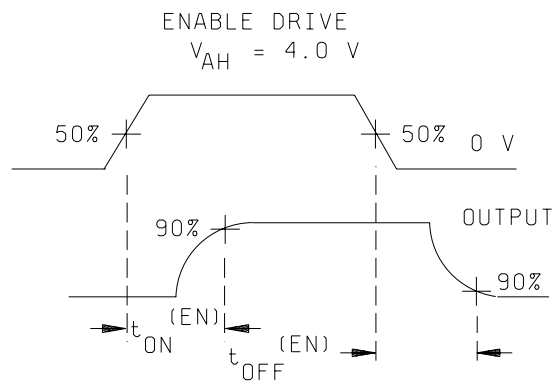
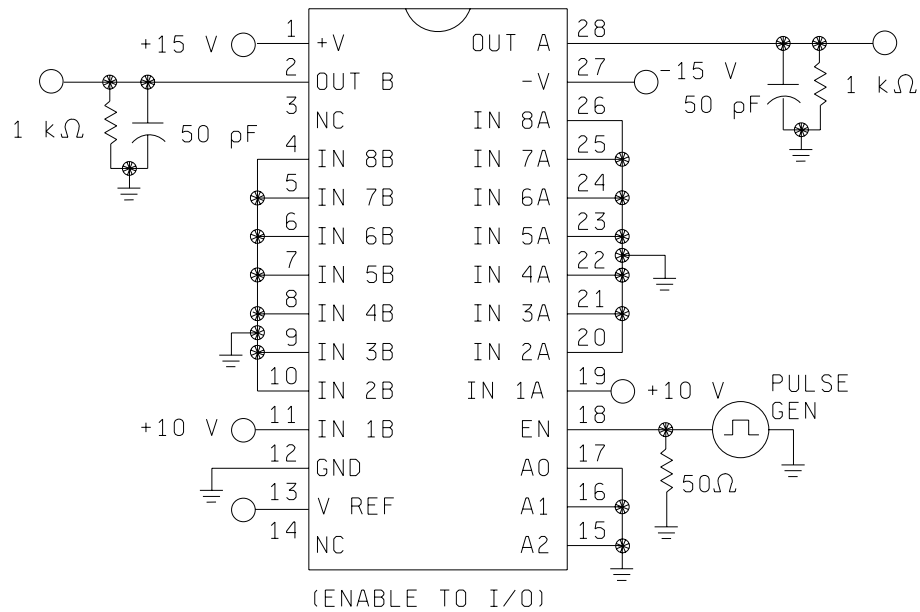


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

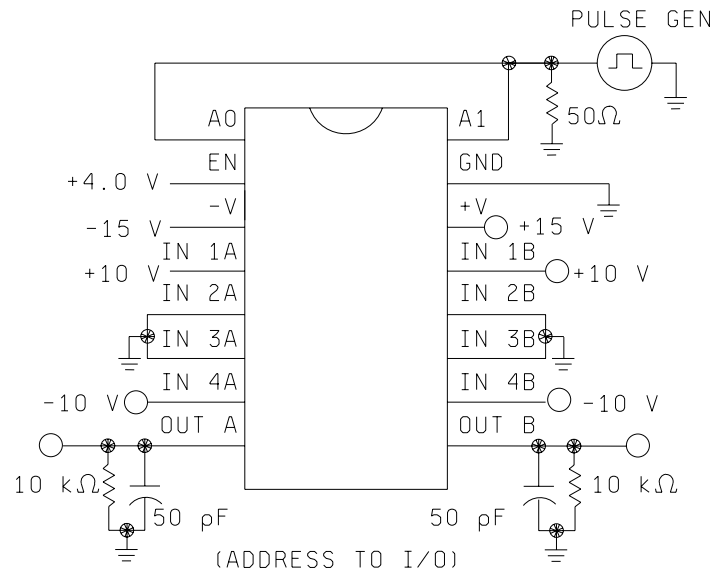
SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**23**

Device type 03



ADDRESS DRIVE

$V_{AH} = 4.0 \text{ V}$  for device type 03

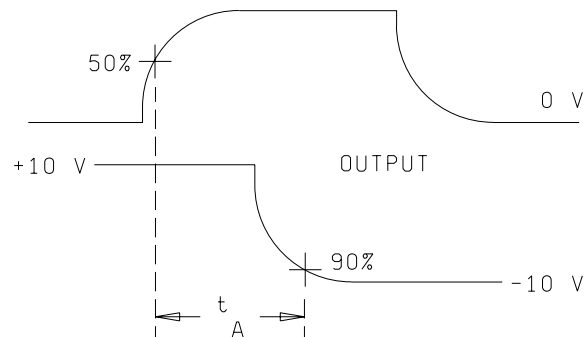


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

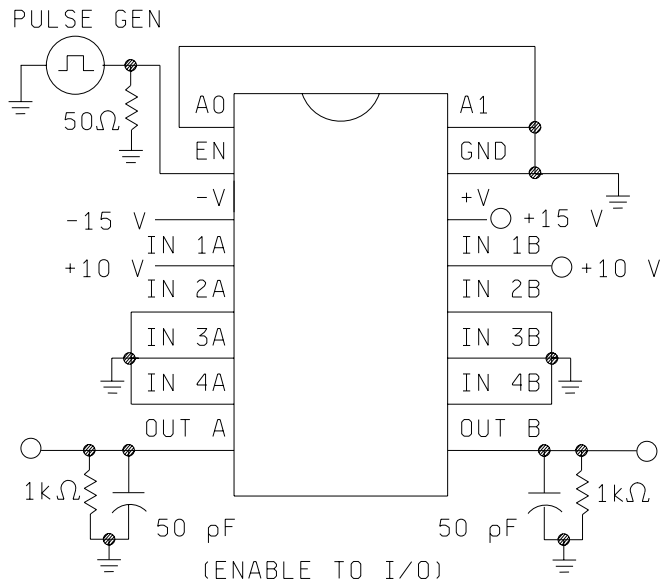
SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**24**

Device type 03



ENABLE DRIVE

$V_{AH} = 4.0 \text{ V}$  for device type 03

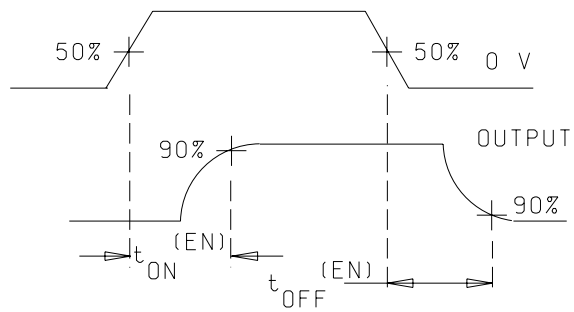


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**25**

Device type 04

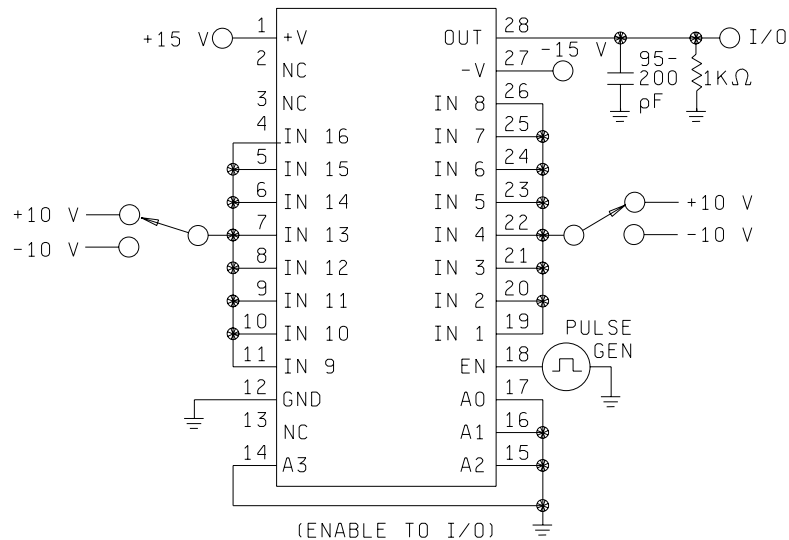
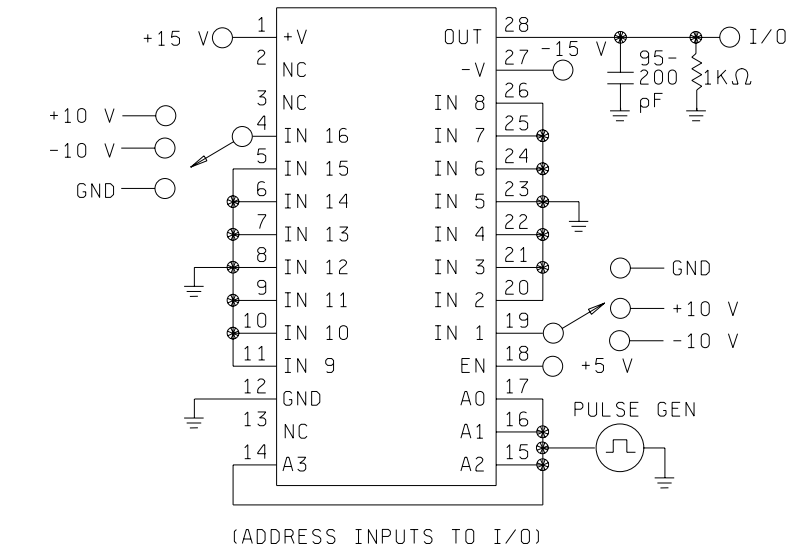


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**26**

Device type 05

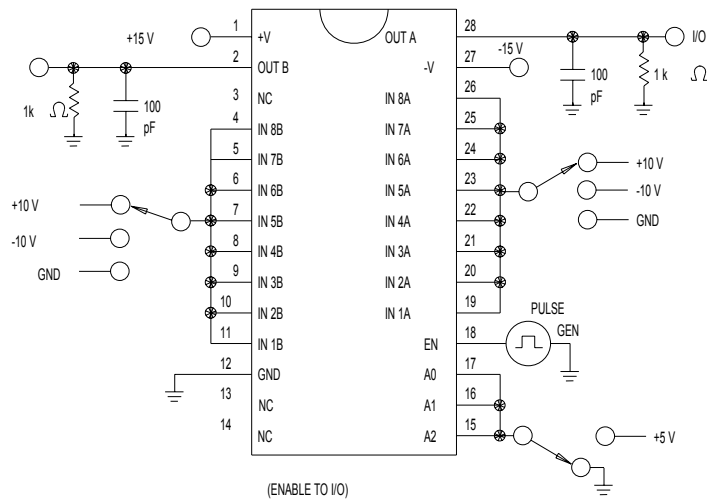
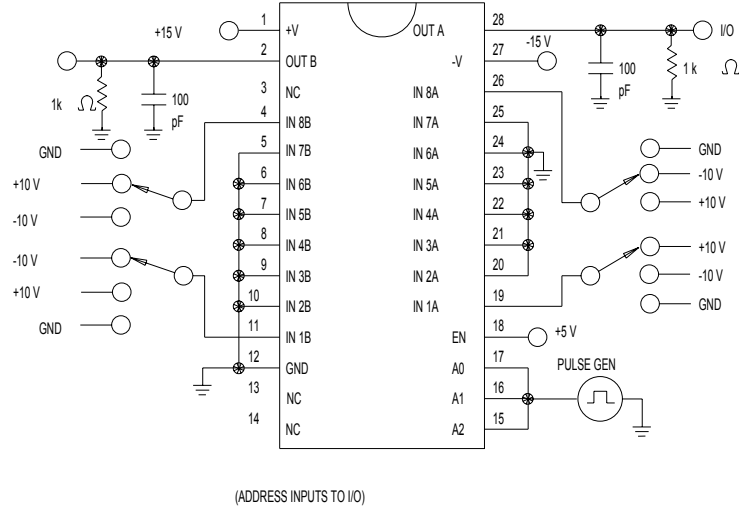


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

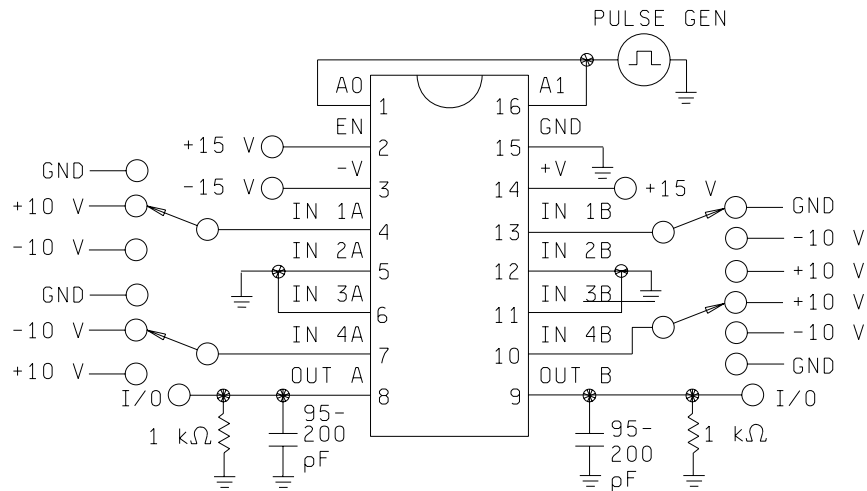
SIZE  
**A**

REVISION LEVEL  
**F**

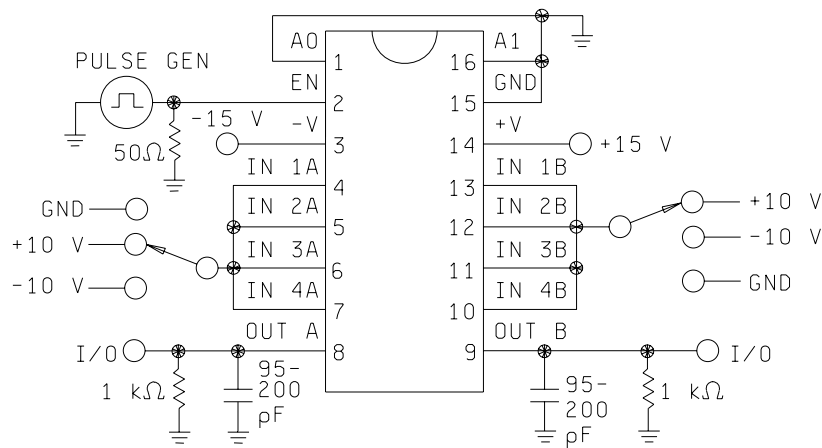
**5962-85131**

SHEET  
**27**

Device type 06



(ADDRESS INPUTS TO I/O)



(ENABLE TO I/O)

FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**28**

Device type 07

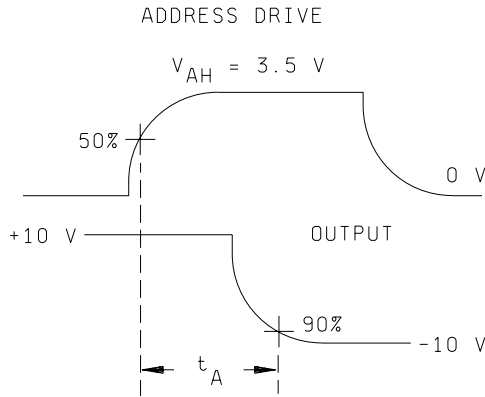
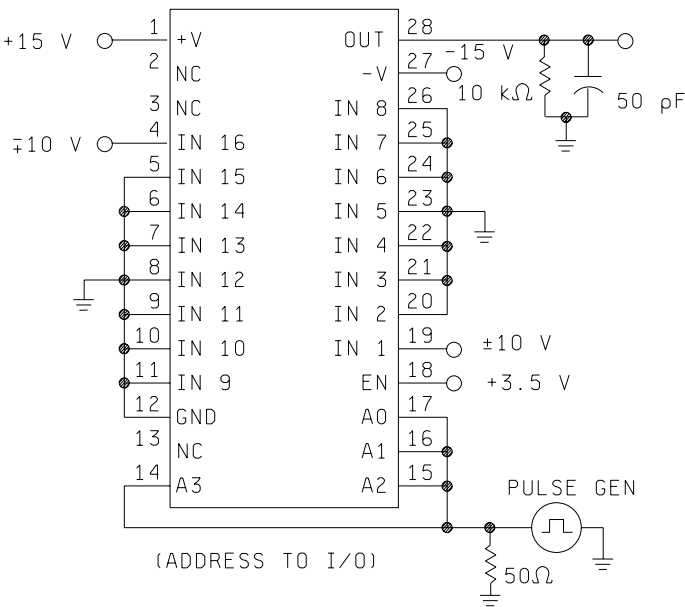


FIGURE 4. Switching times test circuits – continued.

|                                                                                                 |           |                     |             |
|-------------------------------------------------------------------------------------------------|-----------|---------------------|-------------|
| STANDARD<br>MICROCIRCUIT DRAWING<br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br>A |                     | 5962-85131  |
|                                                                                                 |           | REVISION LEVEL<br>F | SHEET<br>29 |

Device type 07

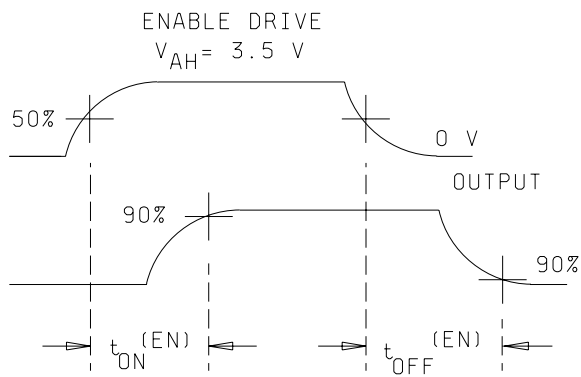
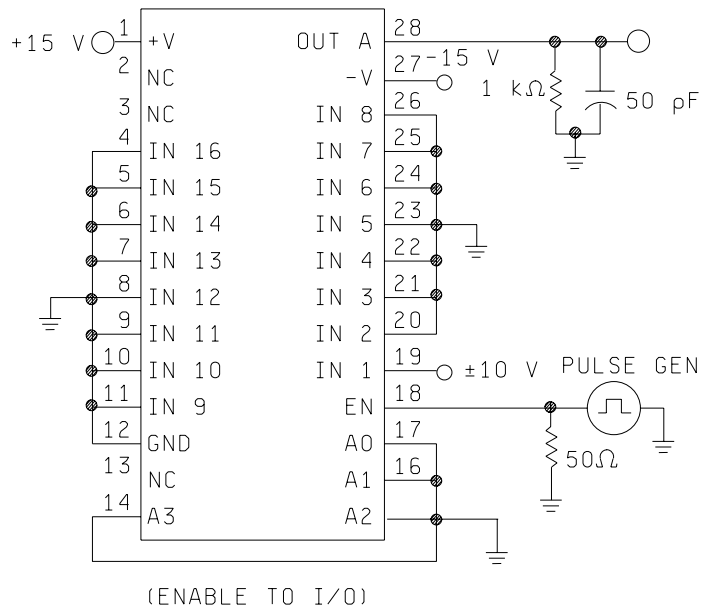
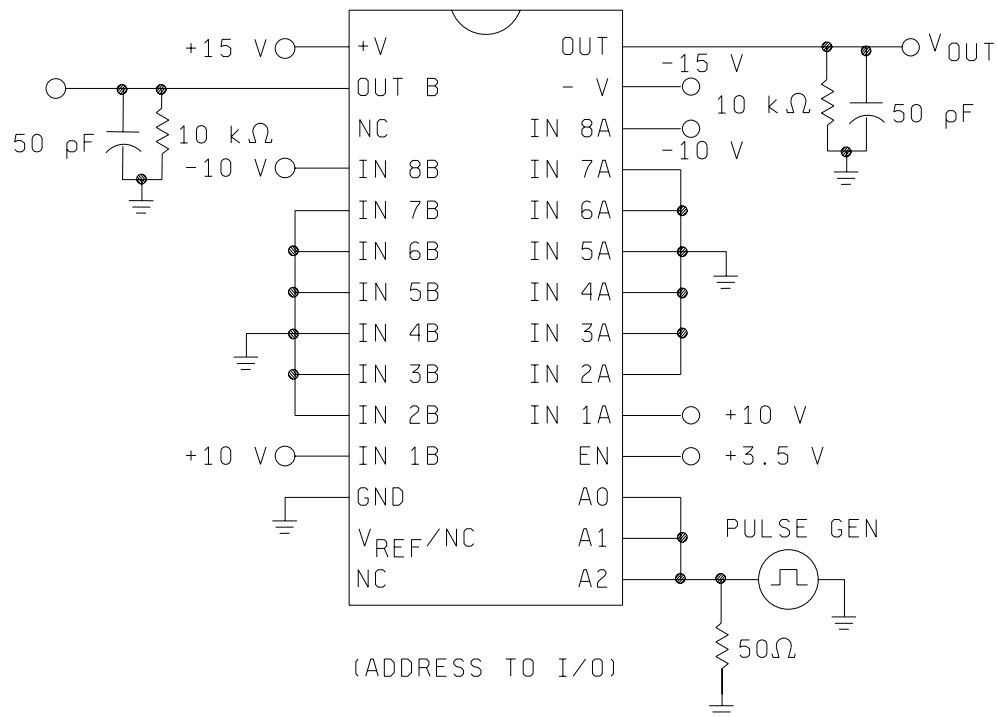


FIGURE 4. Switching times test circuits – continued.

|                                                                                                 |           |                     |             |
|-------------------------------------------------------------------------------------------------|-----------|---------------------|-------------|
| STANDARD<br>MICROCIRCUIT DRAWING<br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br>A |                     | 5962-85131  |
|                                                                                                 |           | REVISION LEVEL<br>F | SHEET<br>30 |

Device type 08



(ADDRESS TO I/O)

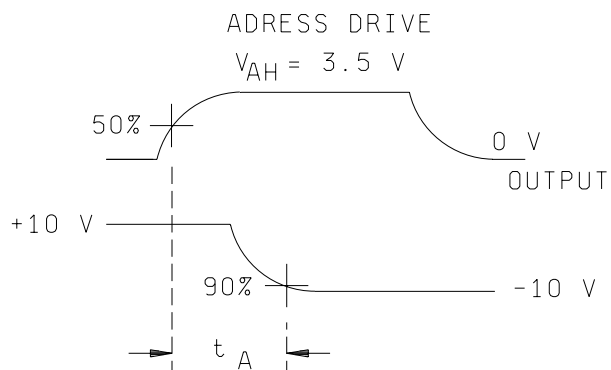


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

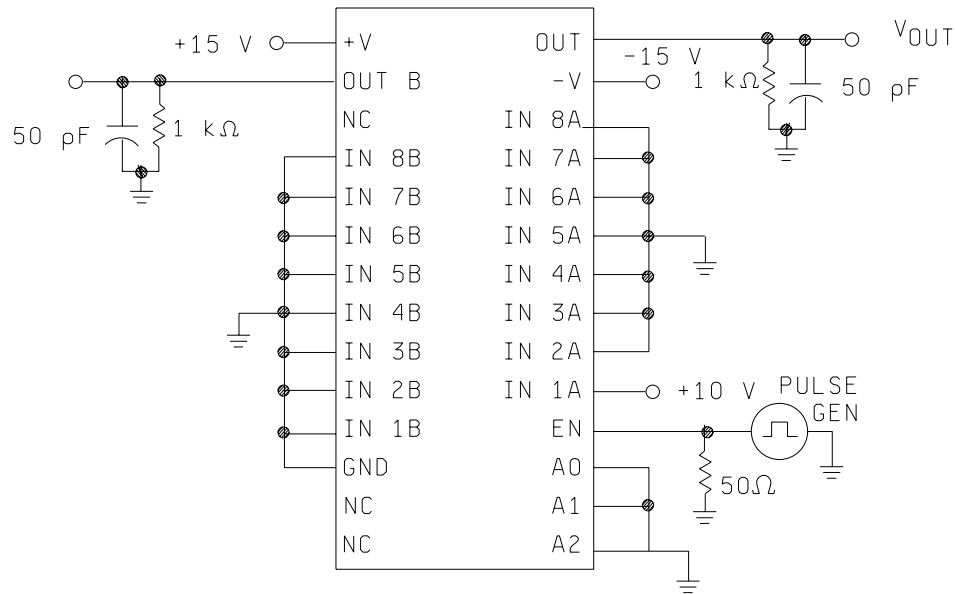
SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**31**

Device type 08



(ENABLE TO I/O)

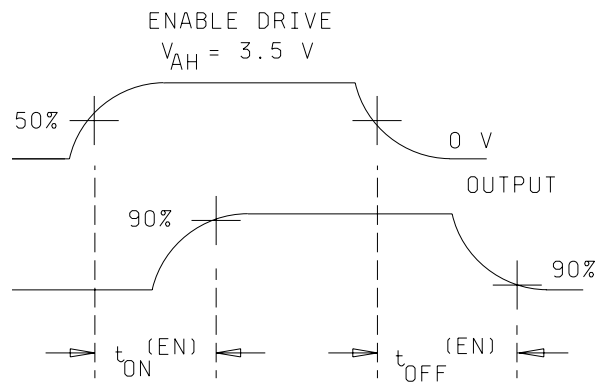


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**32**

Device type 09

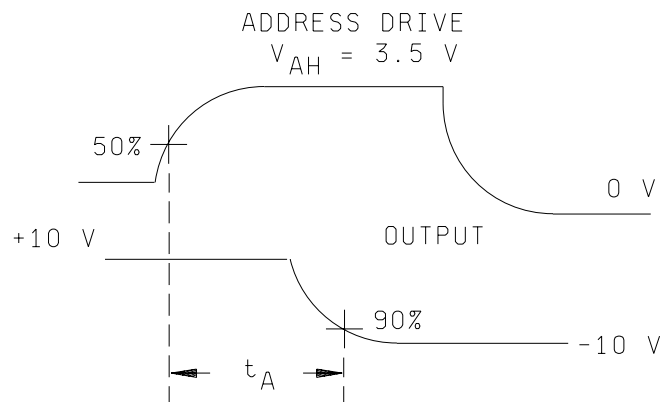
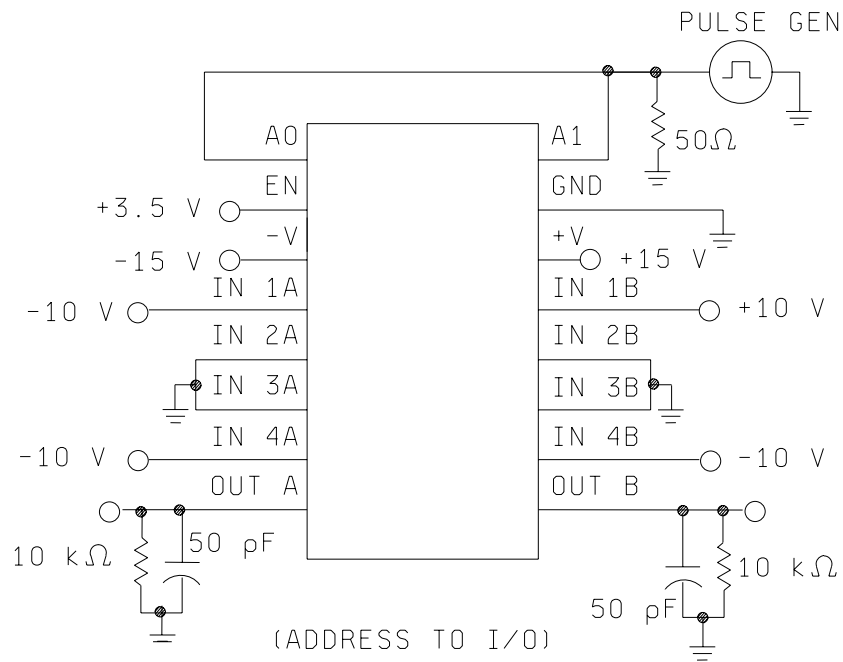


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**33**

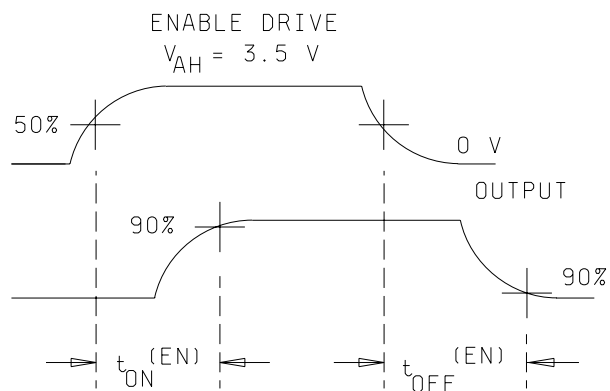
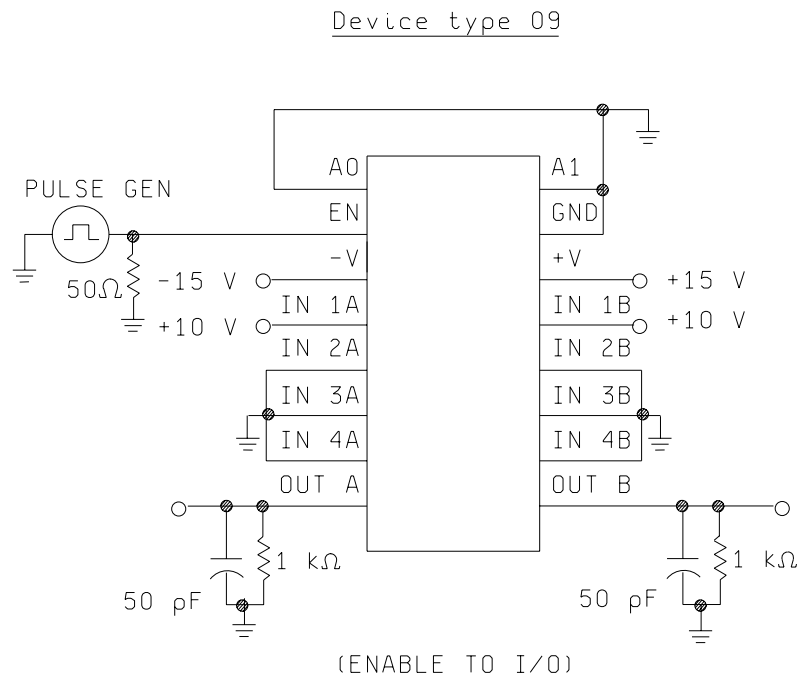


FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

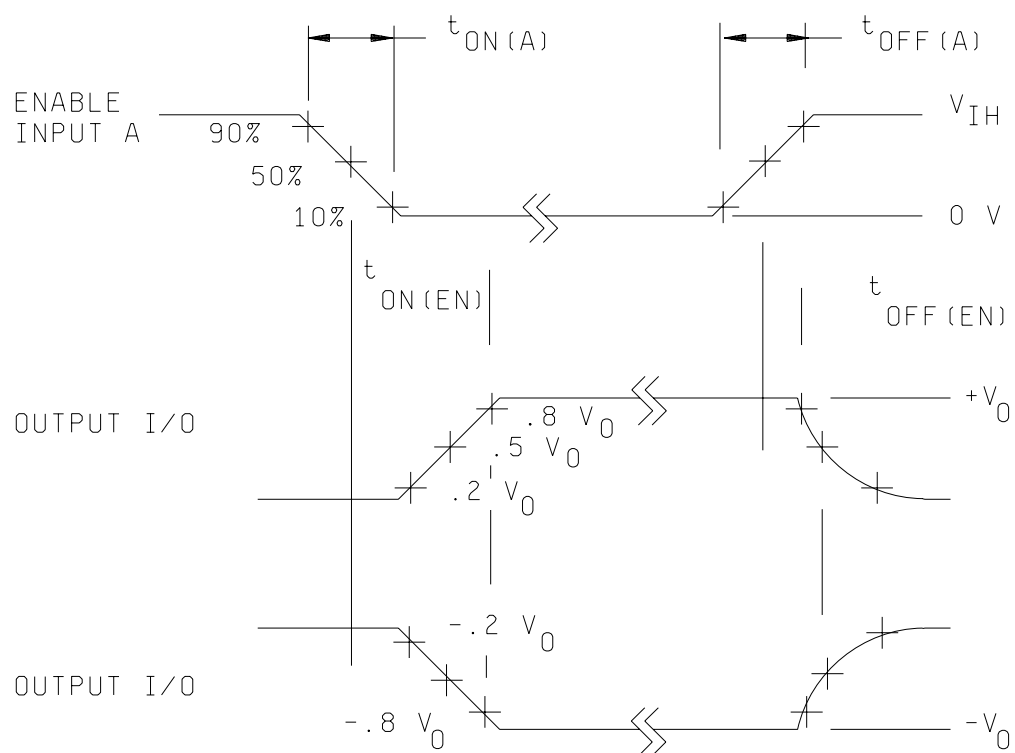
SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**34**

Device types 04, 05, and 06



INPUT PULSE REQUIREMENTS

$V_{GEN} = 3\text{ V}$

$t_{THL(1)} = t_{TLH(1)} \leq 20\text{ ns}$

FIGURE 4. Switching times test circuits – continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DEFENSE SUPPLY CENTER COLUMBUS  
COLUMBUS, OHIO 43218-3990

SIZE  
**A**

REVISION LEVEL  
**F**

**5962-85131**

SHEET  
**35**

#### 4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38535, appendix A.

4.2 Screening. Screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection. The following additional criteria shall apply:

a. Burn-in test, method 1015 of MIL-STD-883.

(1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in method 1015 of MIL-STD-883.

(2)  $T_A = +125^{\circ}\text{C}$ , minimum.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

4.3 Quality conformance inspection. Quality conformance inspection shall be in accordance with method 5005 of MIL-STD-883 including groups A, B, C, and D inspections. The following additional criteria shall apply.

##### 4.3.1 Group A inspection.

a. Tests shall be as specified in table II herein.

b. Subgroups 5, 6, and 8 in table I, method 5005 of MIL-STD-883 shall be omitted.

c. Subgroup 4 capacitance measurements shall be measured only for the initial test and after process or design changes which may affect capacitance.

d. Subgroups 7 shall include verification of the truth table.

##### 4.3.2 Groups C and D inspections.

a. End-point electrical parameters shall be as specified in table II herein.

b. Steady-state life test conditions, method 1005 of MIL-STD-883.

(1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in method 1005 of MIL-STD-883.

(2)  $T_A = +125^{\circ}\text{C}$ , minimum.

(3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

|                                                                                                 |           |                     |             |
|-------------------------------------------------------------------------------------------------|-----------|---------------------|-------------|
| STANDARD<br>MICROCIRCUIT DRAWING<br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br>A |                     | 5962-85131  |
|                                                                                                 |           | REVISION LEVEL<br>F | SHEET<br>36 |

TABLE II. Electrical test requirements.

| MIL-STD-883 test requirements                                      | Subgroups<br>(in accordance with<br>MIL-STD-883, method 5005,<br>table I) |
|--------------------------------------------------------------------|---------------------------------------------------------------------------|
| Interim electrical parameters<br>(method 5004)                     | 1                                                                         |
| Final electrical test parameters<br>(method 5004)                  | 1*,2,3,9                                                                  |
| Group A test requirements<br>(method 5005)                         | 1,2,3,4,7,9,10**,11**                                                     |
| Groups C and D end-point<br>electrical parameters<br>(method 5005) | 1                                                                         |

\* PDA applies to subgroup 1.

\*\* Subgroups 10 and 11, if not tested, shall be guaranteed to the specified limits in table I.

## 5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38535, appendix A.

## 6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.2 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor-prepared specification or drawing.

6.3 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished using DD Form 1692, Engineering Change Proposal.

6.4 Record of users. Military and industrial users shall inform Defense Supply Center Columbus (DSCC) when a system application requires configuration control and the applicable SMD. DSCC will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronics devices (FSC 5962) should contact DSCC-VA, telephone (614) 692-0544.

6.5 Comments. Comments on this drawing should be directed to DSCC-VA, Columbus, Ohio 43218-3990, or telephone (614) 692-0547.

6.6 Approved sources of supply. Approved sources of supply are listed in MIL-HDBK-103. The vendors listed in MIL-HDBK-103 have agreed to this drawing and a certificate of compliance (see 3.6 herein) has been submitted to and accepted by DSCC-VA.

|                                                                                                         |                  |                            |                    |
|---------------------------------------------------------------------------------------------------------|------------------|----------------------------|--------------------|
| <b>STANDARD<br/>MICROCIRCUIT DRAWING</b><br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br><b>A</b> |                            | <b>5962-85131</b>  |
|                                                                                                         |                  | REVISION LEVEL<br><b>F</b> | SHEET<br><b>37</b> |

## STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 07-09-13

Approved sources of supply for SMD 5962-85131 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38535 during the next revision. MIL-HDBK-103 and QML-38535 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DSCC-VA. This information bulletin is superseded by the next dated revision of MIL-HDBK-103 and QML-38535. DSCC maintains an online database of all current sources of supply at <http://www.dscclia.mil/Programs/Smcr/>.

| Standard microcircuit drawing<br>PIN <u>1</u> / | Vendor<br>CAGE<br>number | Vendor<br>similar<br>PIN <u>2</u> / | Reference<br>military specification |
|-------------------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
| 5962-85131013A                                  | 34371                    | HI4-546/883                         |                                     |
| 5962-8513101XA                                  | 34371                    | HI1-546/883                         | M38510/19002BXA                     |
| 5962-85131023A                                  | 34371                    | HI4-547/883                         |                                     |
| 5962-8513102XA                                  | 34371                    | HI1-547/883                         | M38510/19004BXA                     |
| 5962-85131032A                                  | <u>3</u> /               | HI4-549/883                         |                                     |
| 5962-8513103EA                                  | 34371                    | HI1-549/883                         | M38510/19006BEA                     |
| 5962-8513104XA                                  | <u>3</u> /               | IH5116MJI                           | M38510/19002BXA                     |
| 5962-8513105XA                                  | <u>3</u> /               | IH5216MJI                           | M38510/19004BXA                     |
| 5962-85131062C                                  | 1ES66                    | MAX359MLP/883B                      |                                     |
| 5962-8513106EA                                  | 1ES66                    | MAX359MJE/883B                      | M38510/19006BEA                     |
|                                                 | <u>3</u> /               | IH5208MJE                           |                                     |
| 5962-85131073A                                  | 34371                    | HI4-506/883                         |                                     |
| 5962-85131073C                                  | 1ES66                    | DG506AAZ/883B                       |                                     |
| 5962-8513107XA                                  | 34371                    | HI1-506/883                         | M38510/19001BXA                     |
| 5962-85131083A                                  | <u>3</u> /               | HI4-507/883                         |                                     |
| 5962-85131083C                                  | 1ES66                    | DG507AAZ/883B                       |                                     |
| 5962-8513108XA                                  | <u>3</u> /               | HI1-507/883                         | M38510/19003BXA                     |
| 5962-85131092A                                  | 34371                    | HI4-509/883                         |                                     |
| 5962-85131092C                                  | 1ES66                    | DG509AAZ/883B                       |                                     |
| 5962-8513109EA                                  | <u>3</u> /               | HI1-509/883                         | M38510/19008BEA                     |

1/ The lead finish shown for each PIN representing a hermetic package is the most readily available from the manufacturer listed for that part. If the desired lead finish is not listed contact the vendor to determine its availability.

2/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

3/ Not available from an approved source of supply.

STANDARD MICROCIRCUIT DRAWING BULLETIN - CONTINUED

Vendor CAGE  
number

Vendor name  
and address

34371

Intersil Corporation  
1001 Murphy Ranch Road  
Milpitas, CA 95035-6803  
Point of contact: 1650 Robert J. Conlan Blvd.  
Palm Bay, FL 32905

1ES66

Maxim Integrated Products  
120 San Gabriel Drive  
Sunnyvale, CA 94086-5125

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