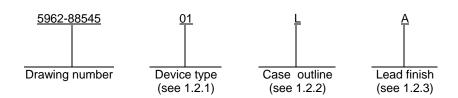
|   |   |           |         |        |        |               | R        | EVISI  | ONS  |          |      |                |       |                 |        |          |      |    |    |
|---|---|-----------|---------|--------|--------|---------------|----------|--------|--|----------|------|----------------|-------|-----------------|--------|----------|------|----|----|
| LTR   |   |           |         | ۵      | DESCF  | RIPTIO        | N        |        |  |          |      | DA             | TE (Y | R-MO-           | -DA)   | APPROVED |      | )  |    |
| A   | Changes   | s in acco | ordance | e with | NOR    | 5962-F        | R216-9   | 92.    |  |          |      | 92-06-22       |       | Michael A. Frye |        |          |      |    |    |
| В   | Updated drawing to current requirements. Editorial c throughout gap                   |           |         |        |        |               | orial cl | nanges | 6  | 01-04-04 |      |                | Ray   | Raymond Monnin  |        |          |      |    |    |
| С   | Added "Memory" in the SMD title block. Also, boilerp<br>part of five year review. tcr |           |         |        |        | oilerpl       | ate up   | date a | Ind  |          | 07-0 | )2-28          |       | Rob             | ert M. | Heber    |      |    |    |
| THE ORIGINA   | AL FIRST F  | PAGE C    | DF THI  | S DR/  |        | G HAS         | BEEN     | REPI   | -ACEE  | ).       |      |                |       |                 |        |          |      |    |    |
| SHEET   |   |           |         |        |        |               |          |        |  |          |      |                |       |                 |        |          |      |    |    |
| REV   |   |           |         |        |        |               |          |        |  |          |      |                |       |                 |        |          |      |    |    |
| SHEET   |   |           |         | ,      |        |               | 0        | 0      |  | 0        |      |                |       |                 |        |          |      | 0  |    |
| REV STATUS  | 5   |           | RE\     |        |        | C             | C<br>2   | C      | C<br>4   | C        | C    | C              | C     | C               | C      | C        | C    | C  | C  |
| OF SHEETS   |   |           |         | EET    |        | 1             | 2        | 3      | 4  | 5        | 6    | 7              | 8     | 9               | 10     | 11       | 12   | 13 | 14 |
| PMIC N/A  |   |           | PRE     |        | ED BY  | h S. Ri       | ce       |        | DEFENSE SUPPLY CENTER COLUMBUS   |          |      |                |       |                 |        |          |      |    |    |
| MICRO   | NDARD<br>CIRCUI <sup>®</sup><br>WING  | т         | CHE     | CKEI   |        | Reusi         | ng       |        | COLUMBUS, OHIO 43218-3990<br>http://www.dscc.dla.mil                                     |          |      |                |       |                 |        |          |      |    |    |
| THIS DRAWING IS<br>AVAILABLE<br>FOR USE BY ALL<br>DEPARTMENTS<br>AND AGENCIES OF THE<br>DEPARTMENT OF DEFENSE<br>AMSC N/A |   |           | APF     |        | ED B   | (<br>Reusi    | ng       |        | MICROCIRCUITS, MEMORY, DIGITAL, CMOS,<br>64K X 4 SRAM (LOW POWER), MONOLITHIC<br>SILICON |          |      |                |       |                 |        |          |      |    |    |
|   |   |           | DRA     | WINC   |        | ROVA<br>)8-04 | L DAT    | E      |  |          |      |                |       |                 |        |          |      |    |    |
|   |   |           | REV     | ISION  | N LEVI | EL<br>C       |          |        |  | ZE       |      | GE CO<br>67268 |       |                 | 5      | 962-     | 8854 | 15 |    |
|   |   |           |         |        |        |               |          |        | SHEET 1 OF 14  |          |      |                |       |                 |        |          |      |    |    |

1.1 <u>Scope</u>. 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 <u>Device type(s)</u>. The device type(s) identify the circuit function as follows:

| Device type | Generic number | Circuit function            | Access time |
|-------------|----------------|-----------------------------|-------------|
| 01          | 5C256L4        | 64K X 4 low power CMOS SRAM | 35 ns       |
| 02          | 5C256L4        | 64K X 4 low power CMOS SRAM | 45 ns       |
| 03          | 5C256L4        | 64K X 4 low power CMOS SRAM | 55 ns       |
| 04          | 5C256L4        | 64K X 4 low power CMOS SRAM | 70 ns       |

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

| Outline letter | Descriptive designator | <u>Terminals</u> | Package style                     |
|----------------|------------------------|------------------|-----------------------------------|
| L              | GDIP3-T24 or CDIP4-T24 | 24               | Dual-in-line                      |
| Х              | CQCC3-N28              | 28               | Rectangular leadless chip carrier |
| Y              | CDFP4-F28              | 28               | Flat package                      |

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

# 1.3 Absolute maximum ratings.

| Voltage on any input relative to V <sub>SS</sub><br>Voltage applied to outputs | -0.5 V dc to +7.0 V dc<br>-0.5 V dc to +6.0 V dc |
|--|--|
| Storage temperature range  | -65°C to +150°C                                  |
| Maximum power dissipation (P <sub>D</sub> )                                    | 1.0 W  |
| Lead temperature (soldering, 10 seconds)                                       | +260°C   |
| Thermal resistance, junction-to-case $(\theta_{JC})$                           |  |
| Junction temperature (T <sub>J</sub> )   | +150°C <u>1</u> /                                |

1.4 <u>Recommended operating conditions</u>.

| Supply voltage (V <sub>CC</sub> )                  | 4.5 V dc to 5.5 V dc           |
|--|--------------------------------|
| Supply voltage (V <sub>SS</sub> )                  | 0 V dc                         |
| Input high voltage (V <sub>III</sub> )             | 2.2 V dc to $V_{CC}$ +0.5 V dc |
| Input low voltage (V <sub>IL</sub> )               | -0.5 V dc to +0.8 V dc 2/      |
| Case operating temperature range (T <sub>c</sub> ) | -55°C to +125°C                |

1/ Maximum junction temperature shall not be exceeded except for allowable short duration burn-in screening conditions in accordance with method 5004 of MIL-STD-883.

 $2/V_{IL}$  minimum = -3.0 V dc for pulse width less than 20 ns.

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### 2. APPLICABLE DOCUMENTS

2.1 <u>Government specification, standards, and handbooks</u>. 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 <u>http://assist.daps.dla.mil/quicksearch/</u> or <u>http://assist.daps.dla.mil</u> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 <u>Order of precedence</u>. 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 <u>Item requirements</u>. 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 <u>Design, construction, and physical dimensions</u>. 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 <u>Terminal connections</u>. The terminal connections shall be as specified on figure 1.

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

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3.2.4 <u>Die overcoat</u>. Polyimide and silicone coatings are allowable as an overcoat on the die for alpha particle protection only. Each coated microcircuit inspection lot (see inspection lot as defined in MIL-PRF-38535) shall be subjected to and pass the internal moisture content test at 5000 ppm (see method 1018 of MIL-STD-883). The frequency of the internal water vapor testing shall not be decreased unless approved by the preparing activity for class M. The TRB will ascertain the requirements as provided by MIL-PRF-38535 for clases Q and V. Samples may be pulled anytime after seal.

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

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

3.5 <u>Marking</u>. 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 <u>Certification/compliance mark</u>. 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 <u>Certificate of compliance</u>. 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 <u>Certificate of conformance</u>. 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 <u>Verification and review</u>. 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.

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|   | T                | ABLE I. Electrical performance  | e characteristics                      | <u>.</u> . |        |      |      |
|---|------------------|---|--|------------|--------|------|------|
| Test  | Symbol           | $\begin{array}{c} \text{Conditions} \\ \text{-55^{\circ}C} \leq \text{T}_{\text{C}} \leq +125^{\circ}\text{C} \\ \text{V}_{\text{CC}} = 4.5 \text{ V to 5.5 V} \\ \text{V}_{\text{SS}} = 0 \text{ V} \end{array}$                 | ≤ +125°C Group A<br>to 5.5 V subgroups |            | Limits |      | Unit |
|   |                  | unless otherwise specified  |  |            | Min    | Max  |      |
| Operating supply current <u>1</u> /           | I <sub>CC1</sub> | $t_{AVAV} = t_{AVAV}$ (minimum),<br>$V_{CC} = 5.5 \text{ V}, \ \overline{CE} = V_{IL},$<br>all other inputs at $V_{IL}$   | 1, 2, 3                                | All        |        | 100  | mA   |
| Standby power supply current, TTL <u>1</u> /  | I <sub>CC2</sub> | $\label{eq:cell} \begin{array}{l} \hline CE \end{tabular} \geq V_{\text{IH}} \text{, all other inputs} \\ \leq V_{\text{IL}} \text{ or } \geq V_{\text{IH}}, \ V_{\text{CC}} = 5.5 \ \text{V}, \\ f = 0 \ \text{MHz} \end{array}$ | 1, 2, 3                                | All        |        | 25   | mA   |
| Standby power supply current, CMOS <u>1</u> / | I <sub>CC3</sub> | $\overline{CE} \ge (V_{CC} - 0.2 \text{ V}), \text{ f} = 0 \text{ MH};$<br>$V_{CC} = 5.5 \text{ V}, \text{ all other inputs}$<br>$\le 0.2 \text{ V or} \ge (V_{CC} - 0.2 \text{ V})$  | 1, 2, 3                                | All        |        | 3    | mA   |
| Data retention current <u>1</u> /             | I <sub>CC4</sub> | $V_{CC} = 2.0 V$  | 1, 2, 3                                | All        |        | 900  | μA   |
| Input leakage current,<br>any input           | I <sub>ILK</sub> | $V_{CC} = 5.5 V,$<br>$V_{IN} = 0 V \text{ to } 5.5 V$   | 1, 2, 3                                | All        |        | ±10  | μΑ   |
| Off-state output leakage current              | Ι <sub>ΟLK</sub> | $V_{CC} = 5.5 V,$<br>$V_{IN} = 0 V \text{ to } 5.5 V$   | 1, 2, 3                                | All        |        | ±10  | μA   |
| Data retention voltage                        | V <sub>DR</sub>  | $\label{eq:VIN} \begin{split} V_{\text{IN}} &\leq 0.2 \text{ V or } \geq (V_{\text{CC}} - 0.2 \text{ V}) \\ \hline \overline{\text{CE}} &\geq (V_{\text{CC}} - 0.2 \text{ V}) \end{split}$  | 1, 2, 3                                | All        | 2.0    |      | V    |
| Output high voltage                           | V <sub>OH</sub>  | $I_{OUT} = -4.0 \text{ mA}, V_{CC} = 4.5 \text{ V},$<br>$V_{IL} = 0.8 \text{ V}, V_{IH} = 2.2 \text{ V}$  | 1, 2, 3                                | All        | 2.4    |      | V    |
| Output low voltage                            | V <sub>OL</sub>  | $I_{OUT} = 8.0 \text{ mA}, V_{CC} = 4.5 \text{ V}, \\ V_{IL} = 0.8 \text{ V}, V_{IH} = 2.2 \text{ V}$   | 1, 2, 3                                | All        |        | 0.4  | V    |
| Input capacitance                             | C <sub>IN</sub>  | $V_{IN} = 0 V$<br>f = 1.0 MHz, T <sub>C</sub> = +25°C,<br>See 4.3.1c  | 4                                      | All        |        | 10.0 | pF   |
| Output capacitance                            | C <sub>OUT</sub> | $V_{IN} = 0 V$<br>f = 1.0 MHz, T <sub>C</sub> = +25°C,<br>See 4.3.1c  | 4                                      | All        |        | 12.0 | рF   |

See footnotes at end of table.

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|                                  | TABLE                          | I. Electrical performa   | nce characteristics      | <u>s</u> – Con | tinued.          |          |      |         |
|----------------------------------|--------------------------------|--|--------------------------|----------------|------------------|----------|------|---------|
| Test                             | Symbol                         | $\begin{array}{c} Conditions\\ -55^{\circ}C \leq T_{C} \leq +1\\ V_{CC} = 4.5 \ V \ to \ s\\ V_{SS} = 0 \ V \end{array}$ | 25°C Grou<br>5.5 V subgr |                | Device<br>type   |          | nits | Unit    |
|                                  |                                | unless otherwise s   | -                        |                |                  | Min      | Max  |         |
| Chip enable access time          | t <sub>ELQV</sub>              | See figure 4   | 9, 10                    | D, 11          | 01               |          | 35   | ns      |
|                                  |                                |  |                          |                | 02               |          | 45   |         |
|                                  |                                |  |                          |                | 03               |          | 55   |         |
|                                  |                                |  |                          |                | 04               |          | 70   |         |
| Read cycle time                  | t <sub>AVAV</sub>              | See figure 4 <u>3</u> /  | 9, 10                    | ), 11          | 01               | 35       |      | ns      |
|                                  |                                |  |                          |                | 02               | 45       |      |         |
|                                  |                                |  |                          |                | 03               | 55       |      |         |
|                                  |                                |  |                          |                | 04               | 70       |      |         |
| Address access time              | t <sub>AVQV</sub>              | See figure 4 <u>4</u> /  | 9, 10                    | D, 11          | 01               |          | 35   | ns      |
|                                  |                                |  |                          |                | 02               |          | 45   |         |
|                                  |                                |  |                          |                | 03               |          | 55   |         |
|                                  |                                |  |                          |                | 04               |          | 70   |         |
| Output hold after address change | t <sub>AVQX</sub>              | See figure 4   | 9, 10                    | D, 11          | All              | 3.0      |      | ns      |
| Chip enable to output active     | t <sub>ELQX</sub>              | See figure 4 <u>5</u> /,   | <u>6/</u> 9, 10          | D, 11          | All              | 3.0      |      | ns      |
| Chip disable to output           | t <sub>EHQZ</sub>              | See figure 4 5/  | ', <u>6</u> / 9, 10      | ), 11          | 01, 02           | 0        | 20   | ns      |
| inactive                         |                                |  |                          |                | 03               | 0        | 25   |         |
|                                  |                                |  |                          |                | 04               | 0        | 30   |         |
| Chip enable to power up          | t <sub>ELPU</sub>              | See figure 4 <u>5</u> /  | 9, 10                    | ), 11          | All              | 0        |      | ns      |
| Chip enable to power down        | t <sub>EHPD</sub>              | See figure 4 5/  | 9, 10                    | ), 11          | 01               |          | 35   | ns      |
|                                  |                                |  |                          |                | 02               |          | 45   |         |
|                                  |                                |  |                          |                | 03               |          | 55   |         |
|                                  |                                |  |                          |                | 04               |          | 70   |         |
| Write cycle time                 | t <sub>AVAV</sub>              | See figure 5   | 9, 10                    | ), 11          | 01               | 35       |      | ns      |
|                                  |                                |  |                          |                | 02               | 45       |      |         |
|                                  |                                |  |                          |                | 03               | 55       |      |         |
|                                  |                                |  |                          |                | 04               | 70       |      |         |
| Write pulse width                | t <sub>WLWH</sub>              | See figure 5   | 9, 10                    | D, 11          | 01               | 30       |      | ns      |
|                                  |                                |  |                          |                | 02               | 40       |      |         |
|                                  |                                |  |                          |                | 03               | 50       |      |         |
|                                  |                                |  |                          |                | 04               | 55       |      |         |
| Chip enable to end of            | t <sub>ELEH</sub>              | See figure 5   | 9, 10                    | ), 11          | 01               | 30       |      | ns      |
| write                            |                                |  |                          |                | 02               | 40       |      |         |
|                                  |                                |  |                          |                | 03               | 50       |      |         |
|                                  |                                |  |                          |                | 04               | 55       |      |         |
| Data setup to end of write       | t <sub>DVWH</sub>              | See figure 5   | 9, 10                    | D, 11          | 01, 02<br>03, 04 | 20<br>25 |      | ns      |
| Data hold after end of write     | t <sub>WHDX</sub>              | See figure 5   | 9, 10                    | D, 11          | All              | 0        |      | ns      |
|                                  | See footnotes at end of table. |  |                          |                |                  |          |      |         |
| STAN<br>MICROCIRC                | IDARD                          | WING   | SIZE<br>A                |                |                  |          | 5962 | 2-88545 |
|                                  |                                |  |                          | <del> </del>   |                  |          | +    |         |

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|  | TABLE I. Electrical performance characteristics – Continued. |   |                      |                |                            |      |      |
|--|--|---|----------------------|----------------|----------------------------|------|------|
| Test                                   | Symbol   | $\begin{array}{c} \mbox{Conditions}  \underline{2} / \\ -55^{\circ} \mbox{C} \leq T_{C} \leq +125^{\circ} \mbox{C} \\ \mbox{V}_{CC} = 4.5 \mbox{ V to } 5.5 \mbox{ V} \\ \mbox{V}_{SS} = 0 \mbox{ V} \end{array}$ | Group A<br>subgroups | Device<br>type | Lin                        | nits | Unit |
|  |  | unless otherwise specified  |                      |                | Min                        | Max  |      |
| Address setup to end of                | t <sub>AVWH</sub>  | See figure 5  | 9, 10, 11            | 01             | 30                         |      | ns   |
| write                                  |  |   |                      | 02             | 40                         |      |      |
|  |  |   |                      | 03             | 50                         |      |      |
|  |  |   |                      | 04             | 55                         |      |      |
| Address setup to<br>beginning of write | t <sub>AVWL</sub>  | See figure 5<br>(write cycle number 1)  | 9, 10, 11            | All            | 0                          |      | ns   |
|  | t <sub>AVEL</sub>  | See figure 5<br>(write cycle number 2)  | 9, 10, 11            | All            | 0                          |      | ns   |
| Address hold after<br>end of write     | t <sub>WHAV</sub>  | See figure 5  | 9, 10, 11            | All            | 5.0                        |      | ns   |
| Write enable to output                 | t <sub>WLQZ</sub>  | See figure 5 <u>5</u> /, <u>6</u> /   | 9, 10, 11            | 01, 02         | 0                          | 20   | ns   |
| disable                                |  |   |                      | 03             | 0                          | 25   |      |
|  |  |   |                      | 04             | 0                          | 30   |      |
| Output active after<br>end of write    | t <sub>wHQX</sub>  | See figure 5 <u>5</u> /, <u>6</u> /, <u>7</u> /   | 9, 10, 11            | All            | 0                          |      | ns   |
| Deselect time                          | t <sub>EHVCCL</sub>  | See figure 6 <u>5</u> /, <u>8</u> /   | 9, 10, 11            | All            | t <sub>AVAV</sub><br>(min) |      | ns   |
| Recovery time                          | t <sub>VCCHEL</sub>  | See figure 6 <u>5</u> /, <u>8</u> /   | 9, 10, 11            | All            | t <sub>AVAV</sub><br>(min) |      | ns   |

<u>1</u>/ I<sub>CC</sub> is dependent upon output loading and cycle rate. The specified values apply with output(s) unloaded.
<u>2</u>/ AC measurements assume signal transition times of 5 ns or less, timing reference levels of 1.5 V, input pulse levels of 0 V to 3.0 V and output loading of 30 pF load capacitance. Output timing reference is 1.5 V, see figure 3.

 $\underline{3}$ / For read cycles 1 and 2,  $\overline{WE}$  is high for entire cycle.

 $\underline{4}$  Device is continuously selected,  $\overline{CE}$  low.

- 5/ Parameter if not tested, shall be guaranteed to the limits specified in table I.
- 6/ Measured ±500 mV from steady state output voltage. Load capacitance is 5.0 pF, see figure 3.
- <u>7</u>/ If  $\overline{WE}$  is low when  $\overline{CE}$  goes low, the output remains in the high impedance state.

 $\underline{8}$ / Supply recovery rate should not exceed 10 µs per volt from V<sub>DR</sub> to V<sub>CC</sub> minimum.

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| Device type     |                  | All              |                                    |
|-----------------|------------------|------------------|------------------------------------|
| Case outline    | L                | Y                |                                    |
| Terminal number | Terminal Symbol  |                  |                                    |
| 1               | A <sub>6</sub>   | NC               | NC                                 |
| 2               | A <sub>7</sub>   | A <sub>6</sub>   | A <sub>0</sub>                     |
| 3               | A <sub>8</sub>   | A <sub>7</sub>   | A <sub>1</sub>                     |
| 4               | A <sub>9</sub>   | A <sub>8</sub>   | A <sub>2</sub>                     |
| 5               | A <sub>10</sub>  | A <sub>9</sub>   | A <sub>3</sub>                     |
| 6               | A <sub>11</sub>  | A <sub>10</sub>  | A <sub>4</sub>                     |
| 7               | A <sub>12</sub>  | A <sub>11</sub>  | A <sub>5</sub>                     |
| 8               | A <sub>13</sub>  | A <sub>12</sub>  | A <sub>6</sub>                     |
| 9               | A <sub>14</sub>  | A <sub>13</sub>  | A <sub>7</sub>                     |
| 10              | A <sub>15</sub>  | A <sub>14</sub>  | A <sub>8</sub>                     |
| 11              | CE               | A <sub>15</sub>  | A <sub>9</sub>                     |
| 12              | $V_{SS}$         | CE               | CE                                 |
| 13              | WE               | NC               | NC                                 |
| 14              | I/O <sub>4</sub> | V <sub>SS</sub>  | V <sub>SS</sub>                    |
| 15              | I/O <sub>3</sub> | NC               | WE                                 |
| 16              | I/O <sub>2</sub> | WE               | I/O <sub>1</sub>                   |
| 17              | I/O <sub>1</sub> | I/O <sub>4</sub> | I/O <sub>2</sub>                   |
| 18              | A <sub>0</sub>   | I/O <sub>3</sub> | I/O <sub>3</sub>                   |
| 19              | A <sub>1</sub>   | I/O <sub>2</sub> | I/O <sub>4</sub>                   |
| 20              | A <sub>2</sub>   | I/O <sub>1</sub> | NC                                 |
| 21              | A <sub>3</sub>   | A <sub>0</sub>   | NC                                 |
| 22              | A <sub>4</sub>   | A <sub>1</sub>   | A <sub>10</sub>                    |
| 23              | A <sub>5</sub>   | A <sub>2</sub>   | A <sub>11</sub>                    |
| 24              | V <sub>CC</sub>  | A <sub>3</sub>   | A <sub>12</sub>                    |
| 25              |                  | A <sub>4</sub>   | A <sub>13</sub>                    |
| 26              |                  | A <sub>5</sub>   | A <sub>14</sub><br>A <sub>15</sub> |
| 27              |                  | NC               |                                    |
| 28              |                  | V <sub>CC</sub>  | V <sub>CC</sub>                    |

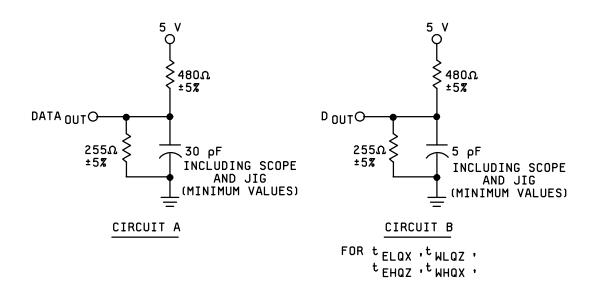
| FIGURE 1. T | erminal | connections. |
|-------------|---------|--------------|
|-------------|---------|--------------|

| CE | WE | Mode         | I/O              | Power   |
|----|----|--------------|------------------|---------|
| Н  | Х  | Not selected | High Z           | Standby |
| L  | L  | Write        | D <sub>IN</sub>  | Active  |
| L  | Н  | Read         | D <sub>OUT</sub> | Active  |

H = Logic "1" state L = Logic "0" state X = Don't care

FIGURE 2. Truth table.

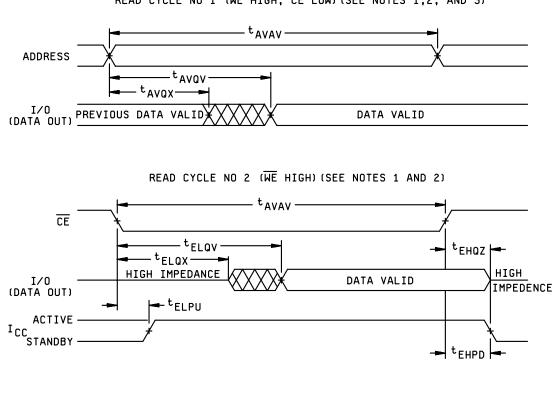
| STANDARD<br>MICROCIRCUIT DRAWING | SIZE<br>A |                | 5962-88545 |
|----------------------------------|-----------|----------------|------------|
| DEFENSE SUPPLY CENTER COLUMBUS   |           | REVISION LEVEL | SHEET      |
| COLUMBUS, OHIO 43218-3990        |           | C              | 8          |



| AC test conditions               |              |  |  |  |
|----------------------------------|--------------|--|--|--|
| Input pulse levels               | GND to 3.0 V |  |  |  |
| Input rise fall times            | 5 ns         |  |  |  |
| Input timing reference<br>levels | 1.5 V        |  |  |  |
| Output reference levels          | 1.5 V        |  |  |  |

FIGURE 3. Output load circuit.

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|----------------------------------|-----------|----------------|------------|
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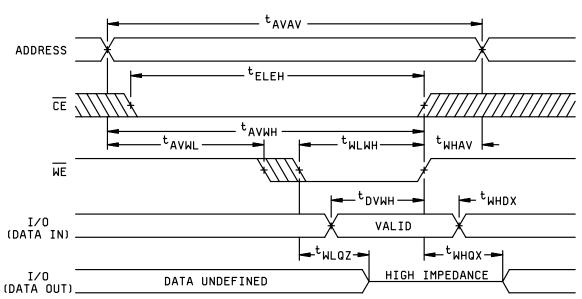
# READ CYCLE NO 1 ( $\overline{WE}$ HIGH, $\overline{CE}$ LOW) (SEE NOTES 1,2, AND 3)

# NOTES:

- 1.  $\overline{\text{WE}}$  is high for entire cycle.
- 2.  $\overline{CE}$  and  $\overline{WE}$  must transition between V<sub>IH</sub> (min) to V<sub>IL</sub> (max) or V<sub>IL</sub> (max) to V<sub>IH</sub> (min) in a monotonic fashion.
- 3. Device is continuously selected,  $\overline{CE}$  low.

FIGURE 4. Read cycle timing diagrams.

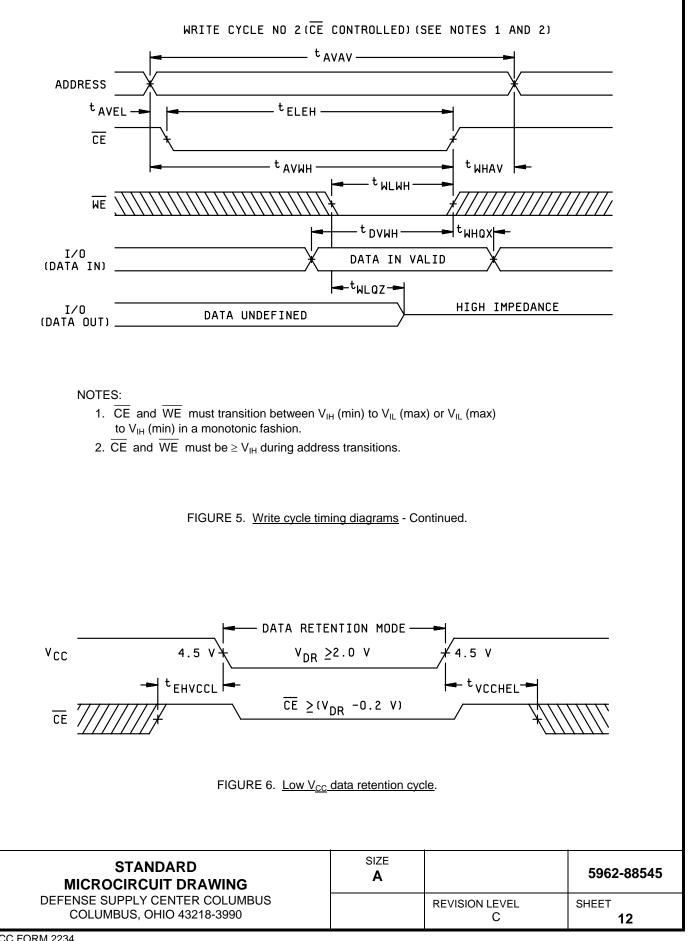
| STANDARD<br>MICROCIRCUIT DRAWING                            | SIZE<br>A |                     | 5962-88545  |
|---|-----------|---------------------|-------------|
| DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 |           | REVISION LEVEL<br>C | SHEET<br>10 |



WRITE CYCLE NO 1 (WE CONTROLLED) (SEE NOTES 1 AND 2)

FIGURE 5. Write cycle timing diagrams.

| STANDARD<br>MICROCIRCUIT DRAWING                            | SIZE<br>A |                     | 5962-88545  |
|---|-----------|---------------------|-------------|
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# 4. VERIFICATION

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

4.2 <u>Screening</u>. 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 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)  $T_A = +125^{\circ}C$ , 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.

| MIL-STD-883 test requirements                                      | Subgroups<br>(in accordance with<br>MIL-STD-883, method 5005, |
|--|---|
|  | table I)  |
| Interim electrical parameters (method 5004)                        |   |
| Final electrical test parameters (method 5004)                     | 1*, 2, 3, 7*, 8A, 8B, 9, 10, 11                               |
| Group A test requirements<br>(method 5005)                         | 1, 2, 3, 4**, 7, 8A, 8B, 9, 10,<br>11                         |
| Groups C and D end-point<br>electrical parameters<br>(method 5005) | 2, 3, 7, 8A, 8B   |

# TABLE II. Electrical test requirements.

\* PDA applies to subgroups 1 and 7.

\*\* See 4.3.1c.

4.3 <u>Quality conformance inspection</u>. 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 and 6 in table I, method 5005 of MIL-STD-883 shall be omitted.
- c. Subgroup 4 (C<sub>IN</sub>/C<sub>OUT</sub> measurement) shall be measured only for the initial test and after process or design changes which may affect input or output capacitance.
- d. Subgroups 7 and 8 shall include verification of the truth table.

| STANDARD<br>MICROCIRCUIT DRAWING<br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br>A |                     | 5962-88545  |
|---|-----------|---------------------|-------------|
|   |           | REVISION LEVEL<br>C | SHEET<br>13 |

# 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 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)  $T_A = +125^{\circ}C$ , minimum.
  - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

# 5. PACKAGING

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

# 6. NOTES

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

6.2 <u>Replaceability</u>. Microcircuits covered by this drawing will replace the same generic device covered by a contractorprepared specification or drawing.

6.3 <u>Configuration control of SMD's</u>. 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 <u>Record of users</u>. 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 <u>Comments</u>. Comments on this drawing should be directed to DSCC-VA, Columbus, Ohio 43218-3990, or telephone (614) 692-0547.

6.6 <u>Approved sources of supply</u>. 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.

| STANDARD<br>MICROCIRCUIT DRAWING<br>DEFENSE SUPPLY CENTER COLUMBUS<br>COLUMBUS, OHIO 43218-3990 | SIZE<br>A |                     | 5962-88545  |
|---|-----------|---------------------|-------------|
|   |           | REVISION LEVEL<br>C | SHEET<br>14 |

### STANDARD MICROCIRCUIT DRAWING BULLETIN

### DATE: 07-02-28

Approved sources of supply for SMD 5962-88545 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 <a href="http://www.dscc.dla.mil/Programs/Smcr/">http://www.dscc.dla.mil/Programs/Smcr/</a>.

| Standard             | Vendor     | Vendor              |
|----------------------|------------|---------------------|
| microcircuit drawing | CAGE       | similar             |
| PIN <u>1</u> /       | number     | PIN <u>2</u> /      |
| 5962-8854501LA       | 0EU86      | MT5C2564C-35L/883C  |
|                      | 0C7V7      | CY7C194L-35DMB      |
|                      | 3DTT2      | P4C1258L-35CMB      |
|                      | <u>3</u> / | OW6208CD3-35        |
|                      | <u>3</u> / | IDT71258L35CB       |
|                      | <u>3</u> / | EDI8465LP35QB       |
| 5962-8854501XA       | 0EU86      | MT5C2564EC-35L/883C |
|                      | 0C7V7      | CY7C194L-35LMB      |
|                      | 3DTT2      | P4C1258L-35LMB      |
|                      | <u>3</u> / | OW6208CC3-35        |
|                      | <u>3</u> / | EDI8464LP35LB       |
| 5962-8854501YA       | 0EU86      | MT5C2564F-35L/883C  |
|                      | 0C7V7      | CY7C194L-35KMB      |
|                      | 3DTT2      | P4C1258L-35FSMB     |
|                      | <u>3</u> / | EDI8465LP35FB       |
| 5962-8854502LA       | 0EU86      | MT5C2564C-45L/883C  |
|                      | 0C7V7      | CY7C194L-45DMB      |
|                      | 3DTT2      | P4C1258L-45CMB      |
|                      | <u>3</u> / | OW6208CD3-45        |
|                      | <u>3</u> / | IDT71258L45CB       |
|                      | <u>3</u> / | EDI8465LP45QB       |
| 5962-8854502XA       | 0EU86      | MT5C2564EC-45L/883C |
|                      | 0C7V7      | CY7C194L-45LMB      |
|                      | 3DTT2      | P4C1258L-45LMB      |
|                      | <u>3</u> / | OW6208CC3-45        |
|                      | <u>3</u> / | EDI8464LP45LB       |
| 5962-8854502YA       | 0EU86      | MT5C2564F-45L/883C  |
|                      | 0C7V7      | CY7C194L-45KMB      |
|                      | 3DTT2      | P4C1258L-45FSMB     |
|                      | <u>3</u> / | EDI8465LP45FB       |

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|                      | İ          | VING BULLETIN - Continued. |
|----------------------|------------|----------------------------|
| Standard             | Vendor     | Vendor                     |
| microcircuit drawing | CAGE       | similar                    |
| PIN <u>1</u> /       | number     | PIN <u>2</u> /             |
| 5962-8854503LA       | 0EU86      | MT5C2564C-55L/883C         |
|                      | 0C7V7      | CY7C194L-55DMB             |
|                      | 3DTT2      | P4C1258L-55CMB             |
|                      | <u>3</u> / | OW6208CD3-55               |
|                      | <u>3</u> / | IDT71258L55CB              |
|                      | <u>3</u> / | EDI8465LP55QB              |
| 5962-8854503XA       | 0EU86      | MT5C2564EC-55L/883C        |
|                      | 0C7V7      | CY7C194L-55LMB             |
|                      | 3DTT2      | P4C1258L-55LMB             |
|                      | <u>3</u> / | OW6208CC3-55               |
|                      | <u>3</u> / | EDI8464LP55LB              |
| 5962-8854503YA       | 0EU86      | MT5C2564F-55L/883C         |
|                      | 0C7V7      | CY7C194L-55KMB             |
|                      | 3DTT2      | P4C1258L-55FSMB            |
|                      | <u>3</u> / | EDI8465LP55FB              |
| 5962-8854504LA       | 0EU86      | MT5C2564C-70L/883C         |
|                      | 0C7V7      | CY7C194L-70DMB             |
|                      | 3DTT2      | P4C1258L-70CMB             |
|                      | <u>3</u> / | OW6208CD3-70               |
|                      | 3/         | IDT71258L70CB              |
|                      | <u>3</u> / | EDI8465LP70QB              |
| 5962-8854504XA       | 0EU86      | MT5C2564EC-70L/883C        |
|                      | 0C7V7      | CY7C194L-70LMB             |
|                      | 3DTT2      | P4C1258L-70LMB             |
|                      | 3/         | OW6208CC3-70               |
|                      | 3/         | EDI8464LP70LB              |
| 5962-8854504YA       | 0EU86      | MT5C2564F-70L/883C         |
|                      | 0C7V7      | CY7C194L-70KMB             |
|                      | 3DTT2      | P4C1258L-70FSMB            |
|                      | 3/         | EDI8465LP70FB              |
| 1/ The lead finish   |            | ch PIN representing        |

STANDARD MICROCIRCUIT DRAWING BULLETIN - Continued.

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

 $\underline{3}$ / Not available from an approved source of supply.

| Vendor CAGE<br>number | Vendor name<br>and address  |
|-----------------------|---|
| 0EU86                 | Austin Semiconductor International L.P.<br>8701 Cross Park Drive<br>Austin, TX 78754-4566 |
| 0C7V7                 | QP Semiconductor<br>2945 Oakmead Village Ct.<br>Santa Clara, CA 95051-0812                |
| 3DTT2                 | Pyramid Semiconductor Corp<br>1340 Bordeaux Drive<br>Sunnyvale, Ca 94089-1005             |

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