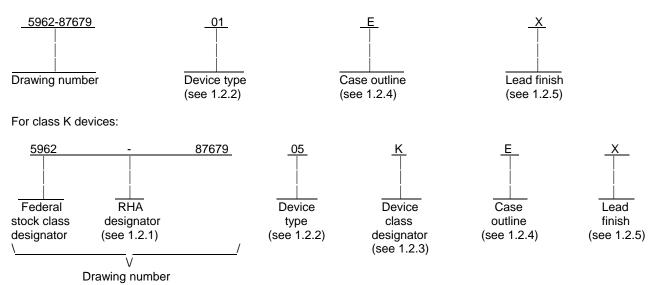
|  |   |   |                |  |                   |                    |                 |                   | EVIS     | IONS                    |          |        | <u> </u>               |   |          |          | +        |          |             |         |
|--|---|---|----------------|--|-------------------|--------------------|-----------------|-------------------|----------|-------------------------|----------|--------|------------------------|---|----------|----------|----------|----------|-------------|---------|
| LTR  |   |   |                | DESCRIPTION  |                   |                    |                 |                   |          | DA                      | TE (YI   | R-MO-  | ·DA)                   | <u> </u>  | APPF     | ROVED    | )        |          |             |         |
| A  | tech  | nical ch                                    | ange           | types 02 and 03. Made changes to 1.3 and 1.4.<br>ges to table I. Made changes to figures 1 and 2<br>ing to reflect MIL-H-38534 processing. |                   |                    |                 |                   |          | ade                     | 90-11-19 |        |                        | Monica Poelking   |          | ng       |          |          |             |         |
| В  | Adde  | ed vend                                     | or C           | AGE 3  | 1757.             | Edito              | rial ch         | anges             | throu    | ghout.                  |          |        |                        | 91-0  | )9-17    |          | N        | lonica   | Poelki      | ng      |
| С  | 8767  | ed vend<br>79012X<br>prial cha              | venc           | or spe   | cified            | to inc             |                 |                   |          |                         |          | 62-    |                        | 92-0  | )5-14    |          |          | Grego    | ory Lud     | е       |
| D  | Cha   | nges in                                     | acco           | rdance   | e with            | NOR                | 5962-F          | R264-9            | 92.      |                         |          |        |                        | 92-0  | )7-27    |          |          | Alan I   | Barone      | 9       |
| Е  | Add   | case ou                                     | utline         | s T, U,  | , X, ar           | nd Y. I            | Rewrit          | e entir           | e doci   | ument.                  |          |        |                        | 93-0  | )8-02    |          | ĸ        | (. A. C  | ottong      | im      |
| F  |   | ed devid<br>graph 1                         |                |  |                   |                    |                 |                   | case     | outline                 | F to     |        |                        | 96-0  | )2-29    |          | k        | (. A. C  | ottong      | im      |
| G  | Cha   | nges in                                     | acco           | rdance   | e with            | NOR                | 5962-F          | R162-9            | 96.      |                         |          |        |                        | 96-0  | )6-24    |          | Ken      | idall A. | . Cotto     | ngim    |
| н  | Adde  | ed class                                    | s K de         | evices.  | Red               | rew er             | ntire do        | ocume             | nts      | ld                      |          |        |                        | 98-0  | )4-09    |          | ĸ        | (. A. C  | ottnog      | im      |
| J  | Tab<br>colui  | igraph 1<br>le I, Inp<br>mn, cha<br>ercent. | ut to<br>inge; | output<br>relativ  | : insul<br>ve hur | ation le<br>midity | eakag<br>= 45 p | e curre<br>ercent | ent tes  | st (I <sub>I/O</sub> ), | condit   | ions   |                        | 04-1  | 10-21    |          | R        | aymon    | nd Mon      | nin     |
| SHEET<br>REV<br>SHEET  | J<br>15   |   |                |  |                   |                    |                 |                   |          |                         |          |        |                        |   |          |          | <u> </u> | <u> </u> |             |         |
| -  |   |   |                | 0.57   | ,                 |                    |                 |                   | <u> </u> |                         | -        |        | <u> </u>               |   | <u> </u> | <u> </u> | <u> </u> | <u> </u> | ,           |         |
| REV STAT   |   |   |                | RE\<br>SHE   |                   |                    | J<br>1          | J<br>2            | J<br>3   | J<br>4                  | J<br>5   | J<br>6 | J<br>7                 | J<br>8  | J<br>9   | J<br>10  | J<br>11  | J<br>12  | J<br>13     | J<br>14 |
| PMIC N/A   | ~   |   |                | PRE  | PARE              | D BY               |                 |                   |          |                         | U U      |        | 1'                     |   |          |          | <u> </u> |          | 1.0         | '-      |
|  |   |   |                |  |                   | Sborn              | е               |                   |          |                         | DE       | EFEN   |                        | -   | -        |          |          | -        | US          |         |
| MICR   | ANDAR<br>COCIRC<br>RAWING                                 | UIT   |                |  | CKED<br>ve L.     | ) BY<br>Dunca      | ın              |                   |          |                         |          | CC     | OLUM                   | POST OFFICE BOX 3990<br>DLUMBUS, OHIO 43218-3990<br>http://www.dscc.dla.mil |          |          | 3-3990   |          |             |         |
| Dr   |   |   |                |  |                   | ED BY<br>Poelkin   |                 |                   |          |                         |          |        |                        | CUIT, HYBRID, LINEAR, DUAL<br>CHANNEL, OPTICALLY<br>SOLATOR                 |          |          |          |          |             |         |
| THIS I<br>AV<br>FOR I  | ORAWIN<br>AILABLI<br>JSE BY<br>ARTMEN                     | E<br>ALL                                    | (              | Mo   |                   |                    |                 |                   |          |                         |          |        |                        | ATO   | R        |          |          |          |             |         |
| THIS I<br>AV<br>FOR I<br>DEP/<br>AND AGE                               | AILABL  | e<br>All<br>NTS<br>Of The                   |                | 30   |                   | APPI<br>88-0       | ROVA<br>16-03   | L DAT             | Ē        |                         |          |        |                        | 4TO   | R        |          |          |          |             |         |
| This i<br>Av<br>For i<br>Dep/<br>And Age<br>Departme                   | AILABL  | E<br>ALL<br>NTS<br>OF THE<br>DEFEN          |                | DRA  | WING              | 88-0               | 6-03            | L DAT             | Ē        |                         |          |        |                        | DDE   | R        | 59       | 62-      | ·87(     | 679         | )       |
| This i<br>Av<br>For i<br>Dep/<br>And Age<br>Departme                   | AILABL<br>USE BY<br>ARTMEN<br>NCIES<br>ENT OF             | E<br>ALL<br>NTS<br>OF THE<br>DEFEN          |                | DRA  | WING              | 88-0               | 96-03<br>EL     | L DAT             | Ē        | CO<br>SII               |          |        | SOL/<br>GE CC<br>67268 | DDE<br>3  |          | 59       | 62-      | 870      | 679         | )       |
| THIS I<br>AV<br>FOR I<br>DEP/<br>AND AGE<br>DEPARTME<br>AI<br>DSCC FOR | AILABL<br>JSE BY<br>ARTMEN<br>ENCIES<br>ENT OF<br>MSC N/A | E<br>ALL<br>NTS<br>OF THE<br>DEFEN          |                | DRA  | WING              | 88-0               | 96-03<br>EL     | L DAT             | Ē        | CO<br>Siz               |          |        | SOL/<br>GE CC<br>67268 | DDE   | R<br>15  | 59       |          |          |             |         |
| This i<br>AV<br>For i<br>DEP/<br>AND AGE<br>DEPARTME<br>AI             | AILABL<br>JSE BY<br>ARTMEN<br>ENCIES<br>ENT OF<br>MSC N/A | E<br>ALL<br>NTS<br>OF THE<br>DEFEN          |                | DRA  | WING              | 88-0               | 96-03<br>EL     | L DAT             | Ē        | CO<br>Siz               |          |        | SOL/<br>GE CC<br>67268 | DDE<br>3  |          | 59       |          |          | 6 <b>79</b> |         |
| THIS I<br>AV<br>FOR I<br>DEP/<br>AND AGE<br>DEPARTME<br>AI<br>DSCC FOR | AILABL<br>JSE BY<br>ARTMEN<br>ENCIES<br>ENT OF<br>MSC N/A | E<br>ALL<br>NTS<br>OF THE<br>DEFEN          |                | DRA  | WING              | 88-0               | 96-03<br>EL     | L DAT             | E        | CO<br>Siz               |          |        | SOL/<br>GE CC<br>67268 | DDE<br>3  |          | 59       |          |          |             |         |
| THIS I<br>AV<br>FOR I<br>DEP/<br>AND AGE<br>DEPARTME<br>AI<br>DSCC FOR | AILABL<br>JSE BY<br>ARTMEN<br>ENCIES<br>ENT OF<br>MSC N/A | E<br>ALL<br>NTS<br>OF THE<br>DEFEN          |                | DRA  | WING              | 88-0               | 96-03<br>EL     | LDAT              | Ē        | CO<br>Siz               |          |        | SOL/<br>GE CC<br>67268 | DDE<br>3  |          | 59       |          |          |             |         |

# 1. SCOPE

1.1 <u>Scope</u>. This drawing documents five product assurance classes as defined in paragraph 1.2.3 and MIL-PRF-38534. A choice of case outlines and lead finishes which are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of radiation hardness assurance levels are reflected in the PIN.

1.2 <u>PIN</u>. The PIN shall be as shown in the following example:

For class H devices:



1.2.1 <u>Radiation hardness assurance (RHA) designator</u>. Device classes H and K RHA marked devices shall meet the MIL-PRF-38534 specified RHA levels and shall be marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

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

| Device type    | Generic number                                    | Circuit function   |
|----------------|---|--|
| 01<br>02<br>03 | 4N55, 66024-001A<br>HCPL-5531<br>HCPL-6531, 66125 | Dual channel, optocoupler with separate supply voltage and ground connections<br>Dual channel, optocoupler with common supply voltage and ground connections<br>Dual channel, optocoupler with separate supply voltage connections |
| 04             | HCPL-6551   | Quad channel, optocoupler with common supply voltage and ground connections  |
| 05             |   | Dual channel, optocoupler with separate supply voltage and ground connections  |
| 06             | HCPL-553K, 66124-300                              | Dual channel, optocoupler with common supply voltage and ground connections  |
| 07             | HCPL-653K   | Dual channel, optocoupler with separate supply voltage connections   |
| 08             | HCPL-655K   | Quad channel, optocoupler with common supply voltage and ground connections  |

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1.2.3 <u>Device class designator</u>. This device class designator shall be a single letter identifying the product assurance level. All levels are defined by the requirements of MIL-PRF-38534 and require QML Certification as well as qualification (Class H, K, and E) or QML Listing (Class G and D). The product assurance levels are as follows:

| Device class  |   | Device perform  | ance documentation  |   |  |  |  |
|---|---|---|---|---|--|--|--|
| к   | Highest reliability cla applications.   | ass available. Th   | is level is intended for use i  | n space                                 |  |  |  |
| H Standard military quality class level. This level is intended for use in applica where non-space high reliability devices are required.   |   |   |   |   |  |  |  |
| G Reduced testing version of the standard military quality class. This level uses the<br>Class H screening and In-Process Inspections with a possible limited temperature<br>range, manufacturer specified incoming flow, and the manufacturer guarantees (b<br>may not test) periodic and conformance inspections (Group A, B, C, and D).  |   |   |   |   |  |  |  |
| E   | with exception(s) tal<br>be specified in the c  | Designates devices which are based upon one of the other classes (K, H, or G) with exception(s) taken to the requirements of that class. These exception(s) must be specified in the device acquisition document; therefore the acquisition document should be reviewed to ensure that the exception(s) taken will not adversely affect system performance. |   |   |  |  |  |
| D   | Manufacturer specif<br>internal, QML certifi  | fied quality class.<br>ed flow. This pro  | Quality level is defined by duct may have a limited ten   | the manufacturers nperature range.      |  |  |  |
| 1.2.4 Case outline(s). The cas  | se outline(s) shall be as designa   | ated in MIL-STD-  | 1835 and as follows:  |   |  |  |  |
| Outline letter  | Descriptive designator  | Terminals   | s <u>Package s</u>  | <u>tyle</u>                             |  |  |  |
| E<br>P<br>T<br>U<br>X<br>Y<br>2<br>F<br>1.2.5 <u>Lead finish</u> . The lead fin<br>1.3 <u>Absolute maximum ratings</u>  | -   | 16<br>8<br>16<br>16<br>8<br>8<br>20<br>16<br>-PRF-38534.  | Dual-in-lin<br>Dual-in-lin<br>Dual-in-lin<br>Dual-in-lin<br>Dual-in-lin<br>Square lea<br>Flat packa | e<br>e<br>e<br>e<br>adless chip carrier |  |  |  |
| Supply voltage range (each channel)-0.5 V dc to +20 V dcOutput voltage range (each channel)-0.5 V dc to +20 V dcReverse input voltage (each channel)5.0 V dcDevice types 02, 03, 04, 06, 07, and 083.0 V dcOutput current (each channel)8 mA dcInput current (each channel)20 mA dcPeak input current (each channel)2/Output power dissipation (each channel)3/Input power dissipation (each channel)3/Storage temperature (soldering, 10 seconds) $4/$ 40 mction temperature (T <sub>J</sub> ) $4/$  |   |   |   |   |  |  |  |
| 3/ Output power is collector power power is collector power power power is collector power powe | e 01, 03, 05, and 07 device type<br>ver plus V <sub>CC</sub> supply power for th<br>bes 01 and 05 only.<br>This applies to device types 0 | nat channel. Dera   |   | /e +100°C.                              |  |  |  |
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|   |   |   |   |   |  |  |  |

<u>1/</u> <u>2/</u> <u>3</u>/

<u>4</u>/

#### 1.4 Recommended operating conditions.

Supply voltage range ( $V_{CC}$ ) (each channel)..... Low level input current (each channel)..... Case operating temperature range ( $T_C$ ).....

2.0 V dc minimum to 18.0 V dc maximum 250  $\mu A$  dc maximum -55°C to +125°C

# 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-38534 - Hybrid Microcircuits, General Specification for.

#### DEPARTMENT OF DEFENSE STANDARDS

| MIL-STD-883  | - | Test Method Standard Microcircuits.                        |
|--------------|---|--|
| MIL-STD-1835 | - | Interface Standard for 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 www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 <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 performance requirements for device classes D, E, G, H, and K shall be in accordance with MIL-PRF-38534. Compliance with MIL-PRF-38534 may include the performance of all tests herein or as designated in the device manufacturer's Quality Management (QM) plan or as designated for the applicable device class. The manufacturer may eliminate, modify or optimize the tests and inspections herein, however the performance requirements as defined in MIL-PRF-38534 shall be met for the applicable device class. In addition, the modification in the QM plan shall not affect the form, fit, or function of the device for the applicable device class.

3.2 <u>Design, construction, and physical dimensions</u>. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38534 and herein.

3.2.1 <u>Case outline(s)</u>. The case outline(s) shall be in accordance with 1.2.4 herein and figure 1.

3.2.2 <u>Terminal connections</u>. The terminal connections shall be as specified on figure 2.

3.2.3 Switching test circuit and waveform(s). The switching test circuit and waveform(s) shall be as specified on figure 3.

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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 specified 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 defined in table I.

3.5 <u>Marking of device(s)</u>. Marking of device(s) shall be in accordance with MIL-PRF-38534. The device shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's vendor similar PIN may also be marked.

3.6 <u>Data</u>. In addition to the general performance requirements of MIL-PRF-38534, the manufacturer of the device described herein shall maintain the electrical test data (variables format) from the initial quality conformance inspection group A lot sample, for each device type listed herein. Also, the data should include a summary of all parameters manually tested, and for those which, if any, are guaranteed. This data shall be maintained under document revision level control by the manufacturer and be made available to the preparing activity (DSCC-VA) upon request.

3.7 <u>Certificate of compliance</u>. A certificate of compliance shall be required from a manufacturer in order to supply to this drawing. The certificate of compliance (original copy) submitted to DSCC-VA shall affirm that the manufacturer's product meets the performance requirements of MIL-PRF-38534 and herein.

3.8 <u>Certificate of conformance</u>. A certificate of conformance as required in MIL-PRF-38534 shall be provided with each lot of microcircuits delivered to this drawing.

#### 4. VERIFICATION

4.1 <u>Sampling and inspection</u>. Sampling and inspection procedures shall be in accordance with MIL-PRF-38534 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein.

- 4.2 <u>Screening</u>. Screening shall be in accordance with MIL-PRF-38534. 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 either DSCC-VA or the acquiring activity upon request. Also, 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<sub>A</sub> as specified in accordance with table I of method 1015 of MIL-STD-883.
  - 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.

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|   |                    | TABLE I. Electrical perfor   | mance charact    | eristics.             |      |         |       |
|---|--------------------|--|------------------|-----------------------|------|---------|-------|
| Test  | Symbol             | Conditions $\frac{1}{125\%}$   | Group A          | Device                | Lim  | nits    | Unit  |
|   |                    | $\label{eq:constraint} \begin{array}{l} -55^\circ C \leq T_C \leq +125^\circ C \\ \text{unless otherwise specified} \end{array}$                 | subgroups type   |                       | Min  | Max     |       |
| <u>INPUT</u><br>Forward voltage<br>(each channel)           | V <sub>F</sub>     | I <sub>F</sub> = 20 mA   | 1,2,3            | 01,05                 |      | 1.80    | V dc  |
|   |                    |  |                  | 02,03,04,<br>06,07,08 |      | 1.90    |       |
| Reverse breakdown   | BV <sub>R</sub>    | I <sub>R</sub> = 10 μA   | 1,2,3            | 01,05                 | 5.0  |         | V dc  |
| voltage<br>(each channel)                                   |                    |  |                  | 02,03,04,<br>06,07,08 | 3.0  |         |       |
| COUPLED   |                    |  |                  |                       |      |         |       |
| High level output<br>current (each channel)                 | I <sub>ОН</sub>    | V <sub>O</sub> = V <sub>CC</sub> = 18 V <u>2</u> /   | 1,2,3            | All                   |      | 100     | μA dc |
| Output leakage current (each channel)                       | I <sub>OLEAK</sub> | V <sub>O</sub> = V <sub>CC</sub> = 18 V <u>3</u> /   | 1,2,3            | All                   |      | 250     | μA dc |
| Current transfer ratio (each channel) <u>4</u> /            | CTR                | $\label{eq:V_CC} \begin{array}{l} V_{\text{CC}} = 4.5 \ \text{V}, \ V_{\text{O}} = 0.4 \ \text{V}, \\ I_{\text{F}} = 16 \ \text{mA} \end{array}$ | 1,2,3            | All                   | 9    |         | %     |
| Input to output<br>insulation leakage<br>current <u>5</u> / | I <sub>I/O</sub>   | $T_{C} = +25^{\circ}C, V_{I/O} = 1500 \text{ V},$<br>Relative humidity $\leq 65$<br>percent, t = 5 s   | 1                | All                   |      | 1.0     | μA dc |
| Supply current<br>(each channel)<br>High level              | I <sub>CCH</sub>   | <u>2</u> /   | 1,2,3            | 01,03,05,<br>07       |      | 10      | μA dc |
|   |                    | 7/   | 1,2,3            | 04,08                 |      | 40      |       |
|   |                    |  |                  | 02,06                 |      | 20      |       |
| Low level   | I <sub>CCL</sub>   | $I_{F1} = I_{F2} = 20 \text{ mA},$<br>$I_{F3} = I_{F4} = 20 \text{ mA} \frac{6}{2}$  | 1,2,3            | 01,03,05,<br>07       |      | 200     | μA dc |
|   |                    |  |                  | 04,08                 |      | 800     | _     |
|   |                    |  |                  | 02,06                 |      | 400     |       |
| See footnotes at end of t                                   | able.              |  |                  |                       |      |         |       |
| -   |                    | D<br>RAWING  | SIZE<br><b>A</b> |                       |      | 5962-8  | 37679 |
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| TABLE I. Electrical performance characteristics - Continued. |                  |   |           |        |     |      |    |  |  |  |
|--|------------------|---|-----------|--------|-----|------|----|--|--|--|
| Test   | Symbol           | Conditions $\underline{1}/$<br>-55°C ≤ T <sub>C</sub> ≤ +125°C                    | Group A   | Device | Lim | Unit |    |  |  |  |
|  |                  | unless otherwise specified  | subgroups | type   | Min | Max  |    |  |  |  |
| Propagation delay time<br>(each channel)<br>High to low      | t <sub>PHL</sub> | $I_F = 16$ mA, $R_L = 8.2$ kΩ,<br>$V_{CC} = 5.0$ V, $C_L = 50$ pF<br>See figure 3 | 9,10,11   | All    |     | 2    | μs |  |  |  |
| Low to high t <sub>PLH</sub>                                 |                  | $I_F = 16$ mA, $R_L = 8.2$ kΩ,<br>$V_{CC} = 5.0$ V, $C_L = 50$ pF<br>See figure 3 | 9,10,11   | All    |     | 6    | μs |  |  |  |

<u>1/</u> <u>2</u>/  $V_{CC}$  = 18 V dc unless otherwise specified.

 $I_F = 0$  mA for channel under test and  $I_F = 20$  mA for the other channels.

<u>3</u>/  $I_F = 250 \ \mu A$  for channel under test and  $I_F = 20 \ mA$  for the other channels.

4/ Current transfer ratio is defined as the ratio of output collector current I<sub>o</sub> to the forward LED input current, I<sub>F</sub>, times 100 percent.

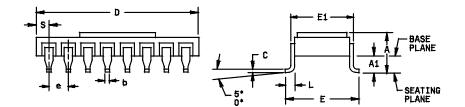
<u>5</u>/ All devices are considered two terminal devices: Measured between all input leads or terminals shorted together and all output leads or terminals shorted together.

 $I_{F3}$  and  $I_{F4}$  apply to device types 04 and 08 only. <u>6</u>/

7/  $I_F = 0$  mA for channel under test and  $I_F = 0$  mA for the other channels.

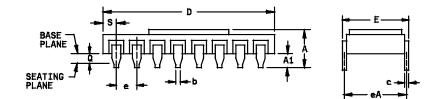
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|----------------------------------|-----------|----------------|------------|
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Case outline T.



| Symbol | Millim | neters | Inc  | hes  |
|--------|--------|--------|------|------|
|        | Min    | Max    | Min  | Max  |
| А      |        | 4.57   |      | .180 |
| A1     | 1.40   | 1.65   | .055 | .065 |
| b      | 0.41   | 0.51   | .016 | .020 |
| С      | 0.18   | 0.33   | .007 | .013 |
| D      | 20.07  | 20.83  | .790 | .820 |
| е      | 2.29   | 2.79   | .090 | .110 |
| E      | 9.65   | 9.91   | .380 | .390 |
| E1     |        | 8.13   |      | .320 |
| L      | 1.07   | 1.32   | .042 | .052 |
| S      | 0.89   | 1.52   | .035 | .060 |

Case outline U.



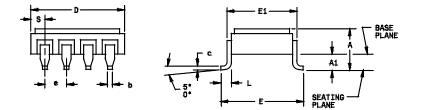
| Symbol | Millimeters |       | Inc  | hes  |
|--------|-------------|-------|------|------|
|        | Min         | Max   | Min  | Max  |
| Α      |             | 4.32  |      | .170 |
| A1     | 1.14        | 1.40  | .045 | .055 |
| b      | 0.41        | 0.51  | .016 | .020 |
| С      | 0.18        | 0.33  | .007 | .013 |
| D      | 20.07       | 20.83 | .790 | .820 |
| е      | 2.29        | 2.79  | .090 | .110 |
| E      |             | 8.13  |      | .320 |
| eA     | 7.37        | 7.87  | .290 | .310 |
| Q      | 0.51        |       | .020 |      |
| S      | 0.89        | 1.52  | .035 | .060 |

## NOTES:

- 1. The U.S. government preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
- 2. Pin 1 is indicated by the ESD triangle(s) marked on top of the package.

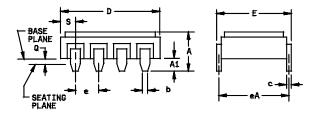
FIGURE 1. Case outline(s).

| STANDARD<br>MICROCIRCUIT DRAWING | SIZE<br>A |                | 5962-87679 |
|----------------------------------|-----------|----------------|------------|
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| Symbol | Millimeters |      | Inc  | hes  |
|--------|-------------|------|------|------|
|        | Min         | Max  | Min  | Max  |
| A      |             | 4.57 |      | .180 |
| A1     | 1.40        | 1.65 | .055 | .065 |
| b      | 0.41        | 0.51 | .016 | .020 |
| С      | 0.18        | 0.33 | .007 | .013 |
| D      | 9.40        | 9.91 | .370 | .390 |
| е      | 2.29        | 2.79 | .090 | .110 |
| E      | 9.65        | 9.91 | .380 | .390 |
| E1     |             | 8.13 |      | .320 |
| Ĺ      | 1.07        | 1.32 | .042 | .052 |
| S      | 0.89        | 1.27 | .035 | .050 |

Case outline Y.



| Symbol | Millim | neters | Inc  | hes  |
|--------|--------|--------|------|------|
|        | Min    | Max    | Min  | Max  |
| A      |        | 4.32   |      | .170 |
| A1     | 1.14   | 1.40   | .045 | .055 |
| b      | 0.41   | 0.51   | .016 | .020 |
| С      | 0.18   | 0.33   | .007 | .013 |
| D      | 9.40   | 9.91   | .370 | .390 |
| е      | 2.29   | 2.79   | .090 | .110 |
| E      |        | 8.13   |      | .320 |
| eA     | 7.37   | 7.87   | .290 | .310 |
| Q      | 0.51   |        | .020 |      |
| S      | 0.89   | 1.27   | .035 | .050 |

#### NOTES:

- 1. The U.S. government preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
- 2. Pin 1 is indicated by a dot marked on top of the package.

FIGURE 1. <u>Case outline(s)</u> - Continued.

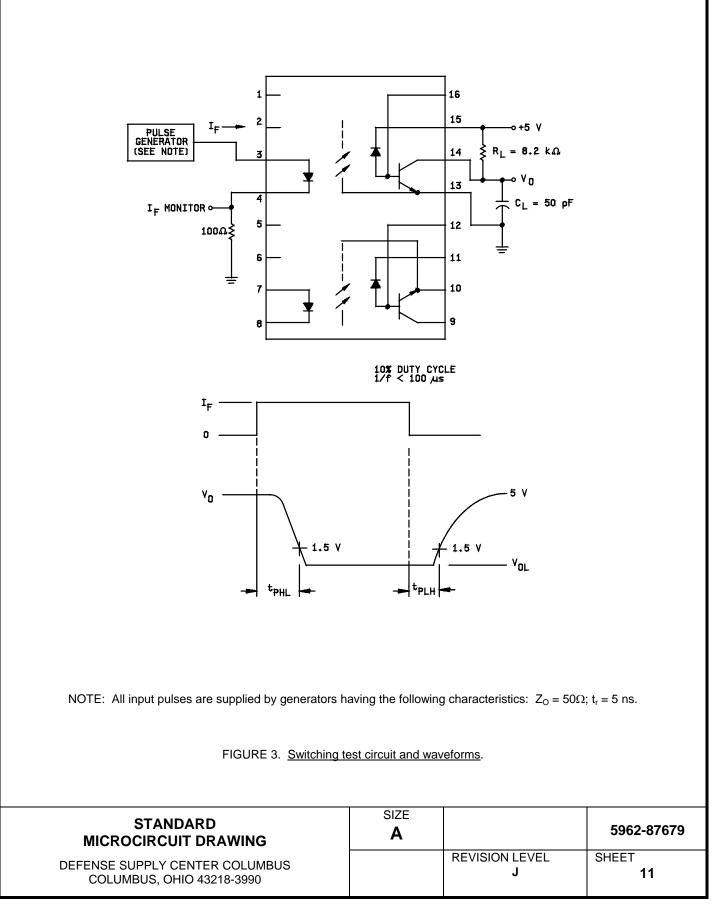
| STANDARD<br>MICROCIRCUIT DRAWING | SIZE<br>A |                | 5962-87679 |
|----------------------------------|-----------|----------------|------------|
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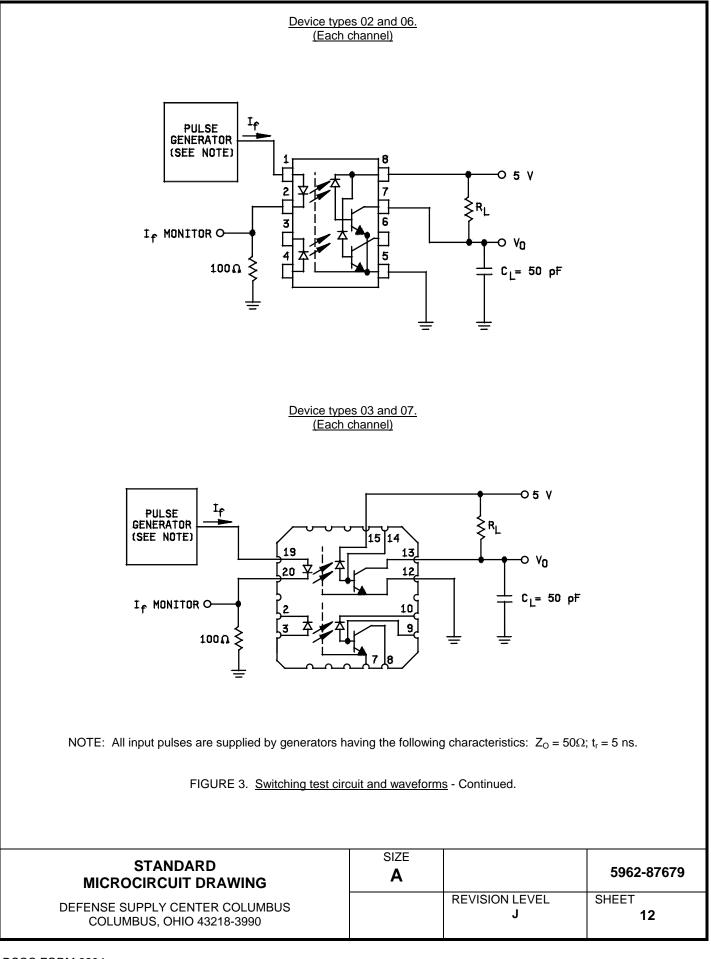
| Device types    | 01 and 05        | 02 and 06       | 03 and 07        | 04 and 08       |
|-----------------|------------------|-----------------|------------------|-----------------|
| Case outlines   | E, T, and U      | P, X, and Y     | 2                | F               |
| Terminal number |                  | Termina         | l symbol         |                 |
|                 |                  |                 |                  |                 |
| 1               | NC               | +VF1 (anode)    | NC               | -VF1 (cathode)  |
| 2               | NC               | -VF1 (cathode)  | -VF1 (cathode)   | +VF1 (anode)    |
| 3               | +VF1 (anode)     | -VF2 (cathode)  | +VF1 (anode)     | +VF2 (anode)    |
| 4               | -VF1 (cathode)   | +VF2 (anode)    | NC               | -VF2 (cathode)  |
| 5               | NC               | GND             | NC               | -VF3 (cathode)  |
| 6               | NC               | VO2             | NC               | +VF3 (anode)    |
| 7               | +VF2 (anode)     | VO1             | Ground 1         | +VF4 (anode)    |
| 8               | -VF2 (cathode)   | V <sub>cc</sub> | VO1              | -VF4 (cathode)  |
| 9               | VO2              |                 | VB1              | NC              |
| 10              | Ground 2         |                 | V <sub>CC1</sub> | GROUND          |
| 11              | V <sub>CC2</sub> |                 | NC               | VO4             |
| 12              | VB2              |                 | Ground 2         | VO3             |
| 13              | Ground 1         |                 | VO2              | VO2             |
| 14              | VO1              |                 | VB2              | VO1             |
| 15              | V <sub>CC1</sub> |                 | V <sub>CC2</sub> | V <sub>cc</sub> |
| 16              | VB1              |                 | NC               | NC              |
| 17              |                  |                 | NC               |                 |
| 18              |                  |                 | NC               |                 |
| 19              |                  |                 | +VF2 (anode)     |                 |
| 20              |                  |                 | -VF2 (cathode)   |                 |
|                 |                  |                 |                  |                 |

FIGURE 2. Terminal connections.

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Device types 01 and 05. (Each channel)





Device types 04 and 08. (Each channel) 16 15 +5 V റ 14 8.2 kn 0 V<sub>0</sub> PULSE GENERATOR SEE NOTE T 13 IF MONITOR O  $\subset C_L = 50 Pf$ 12 100£≶ 11 10 GND 9 NOTE: All input pulses are supplied by generators having the following characteristics:  $Z_0 = 50\Omega$ ;  $t_r = 5$  ns. FIGURE 3. Switching test circuit and waveforms - Continued. SIZE **STANDARD** 5962-87679 Α **MICROCIRCUIT DRAWING** SHEET **REVISION LEVEL** DEFENSE SUPPLY CENTER COLUMBUS J 13 COLUMBUS, OHIO 43218-3990

| TABLE II. Electrical test requirem | ents. |
|------------------------------------|-------|
|------------------------------------|-------|

| MIL-PRF-38534 test requirements  | Subgroups<br>(in accordance with<br>MIL-PRF-38534, group A<br>test table) |
|--|---|
| Interim electrical parameters  | 1   |
| Final electrical parameters  | 1*,2,3,9  |
| Group A test requirements  | 1,2,3,9,10,11   |
| Group C end-point electrical<br>parameters   | 1,2,3   |
| End-point electrical parameters<br>for radiation hardness assurance<br>(RHA) devices | Not applicable  |

\* PDA applies to subgroup 1.

4.3 <u>Conformance and periodic inspections</u>. Conformance inspection (CI) and periodic inspection (PI) shall be in accordance with MIL-PRF-38534 and as specified herein.

4.3.1 Group A inspection (CI). Group A inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, 6, 7, and 8 shall be omitted.
- 4.3.2 Group B inspection (PI). Group B inspection shall be in accordance with MIL-PRF-38534.
- 4.3.3 Group C inspection (PI). Group C inspection shall be in accordance with MIL-PRF-38534 and as follows:
  - a. End-point electrical parameters shall be as specified in table II herein.
  - b. Steady-state life test, 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 either DSCC-VA or the acquiring activity upon request. Also, 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<sub>A</sub> as specified in accordance with table I of method 1005 of MIL-STD-883.
    - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.
- 4.3.4 Group D inspection (PI). Group D inspection shall be in accordance with MIL-PRF-38534.
- 4.3.5 Radiation Hardness Assurance (RHA) inspection. RHA inspection is not currently applicable to this drawing.

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# 5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38534.

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 as specified in MIL-PRF-38534.

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 microelectronic 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, Post Office Box 3990, Columbus, Ohio 43218-3990, or telephone (614) 692-1081.

6.6 <u>Sources of supply</u>. Sources of supply are listed in MIL-HDBK-103 and QML-38534. The vendors listed in MIL-HDBK-103 and QML-38534 have submitted a certificate of compliance (see 3.7 herein) to DSCC-VA and have agreed to this drawing.

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# STANDARD MICROCIRCUIT DRAWING BULLETIN

# DATE: 04-10-21

Approved sources of supply for SMD 5962-87679 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38534 during the next revisions. MIL-HDBK-103 and QML-38534 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 information is superseded by the next dated revisions of MIL-HDBK-103 and QML-38534.

| Standard             | Vendor     | Vendor            |
|----------------------|------------|-------------------|
| microcircuit drawing | CAGE       | similar           |
| PIN <u>1</u> /       | number     | PIN <u>2</u> /    |
| 5962-8767901EA       | 31757      | 66024-001A        |
| 5962-8767901EA       | 50434      | 4N55/883B#200     |
| 5962-8767901EC       | 31757      | 66024-001A        |
| 5962-8767901EC       | 50434      | 4N55/883B         |
| 5962-8767901TA       | 31757      | 66024-001J        |
| 5962-8767901TA       | 50434      | 4N55/883B#300     |
| 5962-8757901TC       | 31757      | 66024-001J        |
| 5962-8767901UA       | 50434      | 4N55/883B#100     |
| 5962-8767901UC       | 50434      | 4N55/883B#100     |
| 5962-87679012A       | <u>3</u> / | 66125-001         |
| 5962-8767902PA       | 31757      | 66126-103         |
| 5962-8767902PA       | 50434      | HCPL-5531#200 (*) |
| 5962-8767902PC       | 31757      | 66126-103         |
| 5962-8767902PC       | 50434      | HCPL-5531 (*)     |
| 5962-8767902XA       | 31757      | 66126-103J        |
| 5962-8767902XA       | 50434      | HCPL-5531#300 (*) |
| 5962-8767902XC       | 31757      | 66126-103J        |
| 5962-8767902YA       | 50434      | HCPL-5531#100 (*) |
| 5962-8767902YC       | 50434      | HCPL-5531#100 (*) |
| 5962-87679032A       | 31757      | 66125-001         |
| 5962-87679032A       | 50434      | HCPL-6531         |
| 5962-87679032C       | 31757      | 66125-001         |
| 5962-8767904FC       | 50434      | HCPL-6551 (*)     |
| 5962-8767905KEA      | 31757      | 66024-300A        |
| 5962-8767905KEA      | 50434      | HCPL-257K#200 (*) |
| 5962-8767905KEC      | 31757      | 66024-300A        |
| 5962-8767905KEC      | 50434      | HCPL-257K         |
| 5962-8767905KTA      | 31757      | 66024-300T        |
| 5962-8767905KTA      | 50434      | HCPL-257K#300     |
| 5962-8767905KTC      | 31757      | 66024-300T        |
| 5962-8767905KUA      | 50434      | HCPL-257K#100     |
| 5962-8767905KUC      | 50434      | HCPL-257K#100     |

See footnotes at end of table.

### STANDARD MICROCIRCUIT DRAWING BULLETIN - Continued.

# DATE: 04-10-21

| Standard             | Vendor | Vendor            |
|----------------------|--------|-------------------|
| microcircuit drawing | CAGE   | similar           |
| PIN <u>1</u> /       | number | PIN <u>2</u> /    |
| 5962-8767906KPA      | 31757  | 66126-300         |
| 5962-8767906KPA      | 50434  | HCPL-553K#200 (*) |
| 5962-8767906KPC      | 31757  | 66126-300         |
| 5962-8767906KPC      | 50434  | HCPL-553K (*)     |
| 5962-8767906KXA      | 31757  | 66126-300J        |
| 5962-8767906KXA      | 50434  | HCPL-553K#300 (*) |
| 5962-8767906KXC      | 31757  | 66126-300J        |
| 5962-8767906KYA      | 50434  | HCPL-553K#100 (*) |
| 5962-8767906KYC      | 50434  | HCPL-553K#100 (*) |
| 5962-8767907K2A      | 31757  | 66125-300         |
| 5962-8767907K2A      | 50434  | HCPL-653K         |
| 5962-8767908KFC      | 50434  | HCPL-655K (*)     |

- 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 a QML source.

Vendor CAGE number 31757 Micropac Industries, Incorporated 905 East Walnut Street

50434

Garland, TX 75040 Agilent Technologies Semiconductor Products Group 350 West Trimble Road

San Jose, CA 95131

Vendor name and address

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