

REVISIONS

| LTR | DESCRIPTION | DATE (YR-MO-DA) | APPROVED |
|-----|---|-----------------|----------------------|
| A | Add device type 02. Inactivate device type 01 (no approved source of supply). | 88-09-20 | M. A. Frye |
| B | Add device types 03 through 07. Add vendors CAGE 32116, 5Y243, 57363, and 88379. Changed to reflect MIL-H-38534 processing. Editorial changes throughout. | 89-12-04 | W. Heckman |
| C | Add device type 08. Add vendor CAGE 8K957. Editorial changes throughout. | 91-01-16 | W. Heckman |
| D | Corrections to table I and figure 3. Editorial changes throughout. | 92-03-03 | Alan Barone |
| E | Changes in accordance with NOR 5962-R189-92. | 92-04-27 | Gregory A. Lude |
| F | Redrawn with changes. Add case outlines U and Z. Add device type 09. Editorial changes throughout. | 92-11-11 | K. A. Cottongim |
| G | Changes in accordance with NOR 5962-R110-94. | 94-02-17 | Kendall A. Cottongim |
| H | Changes in accordance with NOR 5962-R013-96. | 95-12-15 | Kendall A. Cottongim |
| J | Not used. | | |
| K | Not used. | | |
| L | Incorporated NOR's 5962-R110-94 and 5962-R013-96. Made changes to table I for device type 07. Redraw entire document. | 96-06-20 | K. A. Cottongim |
| M | Inactivate device types 03, 04, and 07 for new design. Add device type 10. | 98-01-28 | K. A. Cottongim |
| N | Rewrite paragraphs 4.2.a.2. and 4.3.3.b.2 to add T _C . | 04-11-05 | Raymond Monnin |
| P | Table I, Total current, I _{CC1-SB} , I _{CC1-25} , I _{CC1-50} , I _{CC1-100} for device type 05; change the maximum limit from 25 mA to 60 mA. (4 places) -gz | 07-05-10 | Robert M. Heber |

THE ORIGINAL FIRST SHEET OF THIS DRAWING HAS BEEN REPLACED.

| | | | | | | | | | | | | | | | | | | | |
|--|-----------------------------------|---------------------------|-------------------|----|----|----|----|--|---|---|---|---|----|----|----|----|----|----|----|
| REV | | | | | | | | | | | | | | | | | | | |
| SHEET | | | | | | | | | | | | | | | | | | | |
| REV | P | P | P | P | P | P | P | | | | | | | | | | | | |
| SHEET | 15 | 16 | 17 | 18 | 19 | 20 | 21 | | | | | | | | | | | | |
| REV STATUS OF SHEETS | REV | | | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| | SHEET | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | 14 |
| PMIC N/A | PREPARED BY Donald R. Osborne | | | | | | | <p align="center">DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 http://www.dscc.dla.mil</p> | | | | | | | | | | | |
| <p align="center">STANDARD MICROCIRCUIT DRAWING</p> <p align="center">THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE</p> <p align="center">AMSC N/A</p> | CHECKED BY D. A. Di Cenzo | | | | | | | | | | | | | | | | | | |
| | APPROVED BY N. A. Hauck | | | | | | | | | | | | | | | | | | |
| | DRAWING APPROVAL DATE 87-08-06 | | | | | | | | | | | | | | | | | | |
| | REVISION LEVEL P | | | | | | | | | | | | | | | | | | |
| | SIZE A | CAGE CODE 67268 | 5962-87579 | | | | | | | | | | | | | | | | |
| SHEET | | | | | | | | | | | | | | | | | | | |
| 1 OF 21 | | | | | | | | | | | | | | | | | | | |

1.3 Absolute maximum ratings. 1/

| | |
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| Supply voltage range: | |
| V _{CC} (devices 01, 03, 04, 05, 07, 08, and 10) | -0.3 V dc to +18 V dc |
| V _{EE} (devices 01-04, 06, 07, 08, 09, and 10) | +0.3 V dc to -18 V dc |
| V _{CC1} (all devices) | -0.3 V dc to +7 V dc |
| Logic input voltage | -0.3 V dc to V _{CC1} |
| Receiver differential voltage | 40 V _{P-P} |
| Receiver common mode voltage range | -10 V dc to +10 V dc |
| Driver peak output current | 200 mA |
| Power dissipation (P _D) at T _C = +125°C: | |
| (devices 01 and 08) | 4 W |
| (device 02) | 3 W |
| (device 03) | 3.3 W 2/ |
| (devices 04 and 10) | 2 W 2/ |
| (device 05) | 0.96 W 2/ |
| (devices 06 and 09) | 1.65 W 2/ |
| (device 07) | 3 W |
| Storage temperature range | -65°C to +150°C |
| Lead temperature (soldering, 10 seconds) | +300°C |
| Junction temperature (T _J): | |
| (devices 01-04, 06, 07, 08, 09, and 10) | +160°C |
| (device 05) | +150°C |
| Thermal resistance, junction-to-case (θ _{JC}): | |
| (devices 01 and 05) | 8.8°C/W |
| (devices 02, 08, and 10) | 7.0°C/W |
| (device 03) | 47.2°C/W |
| (device 04) | 88°C/W |
| (devices 06 and 09) | 18°C/W |
| (device 07) | 60°C/W |
| Thermal resistance, junction-to-ambient (θ _{JA}): | |
| (devices 01 and 05) | 28.8°C/W |
| (devices 02, 08, and 10) | 27.0°C/W |
| (device 03) | 67.2°C/W |
| (device 04) | 108°C/W |
| (devices 06 and 09) | 35°C/W |
| (device 07) | 80°C/W |

1.4 Recommended operating conditions.

| | |
|--|----------------------------|
| Supply voltage range: | |
| V _{CC} (devices 01, 03, 04, 05, 07, and 10) | +14.25 V dc to +15.75 V dc |
| V _{CC} (device 08) | +11.25 V dc to +15.75 V dc |
| V _{EE} (devices 01-04, 06, 07, 09, and 10) | -14.25 V dc to -15.75 V dc |
| V _{EE} (device 08) | -11.25 V dc to -15.75 V dc |
| V _{CC1} (all devices) | +4.5 V dc to +5.5 V dc |
| Logic input voltage | 0 V dc to +5 V dc |
| Receiver differential voltage: | |
| (devices 01, 02, 03, 06, and 09) | 30 V _{P-P} |
| (devices 04, 05, 07, 08, and 10) | 40 V _{P-P} |
| Receiver common mode voltage range: | |
| (devices 01, 02, 03, 04, 06, and 09) | -5 V dc to +5 V dc |
| (devices 05, 07, 08, and 10) | -10 V dc to +10 V dc |
| Driver peak output current (all devices) | 180 mA |
| Serial data rate | 1.0 MHz maximum |
| Junction temperature (T _J): | |
| (devices 01, 02, 03, 05, 06, 08, 09, and 10) | +150°C |
| (devices 04 and 07) | +160°C |
| Case operating temperature range (T _C) | -55°C to +125°C |

1/ Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade the performance and affect reliability.

2/ One channel transmitting at 100 percent duty cycle and the second channel is at standby.

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| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 3 |

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-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.
 MIL-HDBK-1553 - Multiplex Applications Handbook.

(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 performance requirements for device class H 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 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38534 and herein.

3.2.1 Case outlines. The case outlines shall be in accordance with 1.2.2 herein and figure 1.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 2.

3.2.3 Timing waveforms. The timing waveforms shall be as specified on figure 3.

3.2.4 Typical bus connections. The typical bus connections shall be as specified on figure 4.

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 specified 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 defined in table I.

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|---|------------------|----------------------------|-------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 4 |

3.5 Marking of device(s). 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 Data. 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 Certificate of compliance. 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 Certificate of conformance. 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 Sampling and inspection. 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 Screening. 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_A or T_C as specified in the approved manufacturer's QM plan.
- 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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| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 5 |

TABLE I. Electrical performance characteristics.

| Test | Symbol | Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C unless otherwise specified | Group A subgroups | Device types | Limits | | Unit |
|------------------------------------|------------------|--|----------------------|-----------------------|--------|------|-------------------|
| | | | | | Min | Max | |
| RECEIVER | | | | | | | |
| Input level | V _I | Differential input, pin 15 to pin 16 <u>2/</u> | 4,5,6 | All | | 40 | V _{P-P} |
| Input common mode voltage range | V _{ICM} | Independent of xfmr or in accordance with MIL- HDBK-1553 section 5.1.2.2 <u>2/ 3/</u> | 4,5,6 | 01,02,03,04, 06,09 | -5 | +5 | mV(pk) |
| | | | | 05,07,08,10 | -10 | +10 | |
| Output low voltage | V _{OL} | I _{OL} = 16 mA I _{OL} = 4 mA I _{OL} = 8 mA | 1,2,3 | 01,02 | | 0.5 | V |
| | | | | 03,04,07,08, 10 | | 0.5 | |
| | | | | 05,06,09 | | 0.5 | |
| Output high voltage | V _{OH} | I _{OH} = -0.4 mA | 1,2,3 | All | 2.5 | | V |
| TRANSMITTER | | | | | | | |
| Input low voltage | V _{IL} | <u>4/</u> | 1,2,3 | All | | 0.7 | V |
| Input high voltage | V _{IH} | <u>4/</u> | 1,2,3 | All | 2 | | V |
| Input low current | I _{IL} | V _{IL} = 0.4 V | 1,2,3 | 01,06,09 | -1.6 | | mA |
| | | | | 02 | -0.72 | | |
| | | | | 03 | -3.2 | | |
| | | | | 04,05,08,10 | -0.4 | | |
| | | | | 07 | -1.0 | | |
| Input high current | I _{IH} | V _{IH} = 2.7 V | 1,2,3 | All | | 0.04 | mA |
| Output voltage | V _O | Across 35Ω load <u>5/</u> | 1,2,3 | 01,02,05,06, 08,09 | 6 | 9 | V _{P-P} |
| | | | | 03,04,07,10 | 6.5 | 9 | |
| Output noise voltage | V _{ON} | Across 35Ω load <u>5/</u> | 4,5,6 | All | | 10 | mV _{P-P} |

See footnotes at end of table.

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| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 6 |

TABLE I. Electrical performance characteristics - Continued.

| Test | Symbol | Conditions ^{1/} -55°C ≤ T _C ≤ +125°C unless otherwise specified | Group A subgroups | Device types | Limits | | Unit |
|----------------------------|------------------|---|----------------------|--------------------|--------|------|------|
| | | | | | Min | Max | |
| RECEIVER STROBE | | | | | | | |
| Input low voltage | V _{SIL} | 4/ | 1,2,3 | 01-03, 05-09,10 | | 0.7 | V |
| | | | | 04 | | 0.40 | |
| Input high voltage | V _{SIH} | 4/ | 1,2,3 | All | 2 | | V |
| Input low current | I _{SIL} | V _{SIL} = 0.4 V | 1,2,3 | 01,06,09 | -1.6 | | mA |
| | | | | 02,05 | -0.72 | | |
| | | | | 03 | -0.8 | | |
| | | | | 04,08,10 | -0.4 | | |
| | | | | 07 | -1.0 | | |
| Input high current | I _{SIH} | V _{SIH} = 2.7 V | 1,2,3 | All | | 0.04 | mA |
| TRANSMITTER INHIBIT | | | | | | | |
| Input low voltage | V _{IIL} | 4/ | 1,2,3 | All | | 0.7 | V |
| Input high voltage | V _{IIH} | 4/ | 1,2,3 | All | 2 | | |
| Input low current | I _{IIL} | V _{SIL} = 0.4 V | 1,2,3 | 01,03,06,09 | -1.6 | | mA |
| | | | | 02 | -0.72 | | |
| | | | | 04,05,08,10 | -0.4 | | |
| | | | | 07 | -1.0 | | |
| Input high current | I _{IIH} | V _{SIH} = 2.7 V | 1,2,3 | All | | 0.04 | mA |

See footnotes at end of table.

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| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 7 |

TABLE I. Electrical performance characteristics -Continued.

| Test | Symbol | Conditions 1/ -55°C ≤ T _C ≤ +125°C unless otherwise specified | Group A subgroups | Device types | Limits | | Unit |
|---------------------|----------------------|--|-----------------------------------|--|----------------------------------|--|------|
| | | | | | Min | Max | |
| POWER SUPPLY | | | | | | | |
| Total current | I _{CC} -SB | (standby mode) | 1,2,3 | 01 03,08 04,10 05 07 | | 55 32 1 25 44 | mA |
| | I _{EE} -SB | | 1,2,3 | 01,08 06,09 02 03 04,10 07 | | 55 30 35 26 16.5 70 | |
| | I _{CC1} -SB | | 1,2,3 | 01,06,09 02 03 04,10 05 07 08 | | 35 45 20 30 60 90 25 | |
| | I _{CC} -25 | (25% duty cycle into 35Ω load) | 4,5,6 | 01,04,08,10 03 05 07 | | 55 90 69 100 | |
| | I _{EE} -25 | | 4,5,6 | 01,06,08,09 02 <u>2/</u> 03 04,10 07 | | 100 80 26 21 70 | |
| | I _{CC1} -25 | | 4,5,6 | 01 02 <u>2/</u> 06,09 03 04,10 05 07 08 | | 35 45 45 20 30 60 90 25 | |
| | I _{CC} -50 | | (50% duty cycle into 35Ω load) | 4,5,6 | 01,08 03 04,10 05 07 | | |
| | I _{EE} -50 | 4,5,6 | | 01 08 02,06,09 03 04,10 07 | | 145 150 130 26 25 70 | |

See footnotes at end of table.

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| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 8 |

TABLE I. Electrical performance characteristics - Continued.

| Test | Symbol | Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C unless otherwise specified | Group A subgroups | Device types | Limits | | Unit |
|---|-----------------------|---|----------------------|---|----------------------------|--|-------------------|
| | | | | | Min | Max | |
| POWER SUPPLY - Continued. | | | | | | | |
| Total current | I _{CC1} -50 | (50% duty cycle into 35Ω load) | 4,5,6 | 01 02,06,09 03 04,10 05 07 08 | | 35 45 20 30 60 90 25 | mA |
| | I _{CC} -100 | (100% duty cycle into 35Ω load) | 1,2,3 | 01,08 03 04 05,10 07 | | 55 240 220 209 260 | |
| | I _{EE} -100 | | 1,2,3 | 01 02 <u>2/</u> 06,08,09 03 04,10 07 | | 255 255 255 26 30 70 | |
| | I _{CC1} -100 | | 1,2,3 | 01 <u>4/</u> 02 <u>2/</u> 03,08 04,10 05 06,09 07 | | 35 45 20 30 60 55 90 | |
| RECEIVER | | | | | | | |
| Input resistance | R _{IN} | 1 MHz sine wave <u>2/</u> | 4,5,6 | 01-09 | 7 | | kΩ |
| | | <u>6/ 7/ 8/</u> | | 10 | (See figure 4) | | |
| Input capacitance | C _{IN} | 1 MHz sine wave <u>2/</u> T _C = +25°C | 4 | 01-09 | | 5 | pF |
| | | <u>6/ 7/ 8/</u> | 4,5,6 | 10 | (See figure 4) | | |
| Threshold voltage | V _{TH} | <u>5/ 9/</u> | 1,2,3 | 08,10 | 0.56 | 1.1 | V _{P-P} |
| | | | | 01-05 | 0.56 | 1.0 | |
| | | | | 06,09 | 0.6 | 1.2 | |
| | | | | 07 | 0.86 | 1.1 | |
| | V _{TH} | Group C end-point <u>9/</u> electricals | 1,2,3 | All | 0.50 | 1.1 | V _{P-P} |
| See footnotes at end of table. | | | | | | | |
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | | | | SIZE A | | | 5962-87579 |
| | | | | | REVISION LEVEL P | SHEET 9 | |

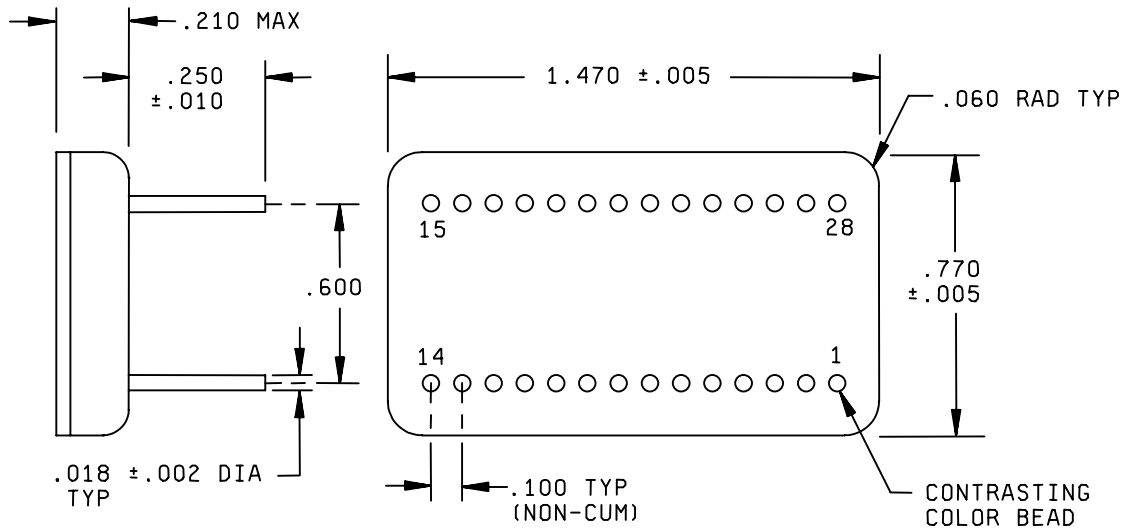
TABLE I. Electrical performance characteristics - Continued.

| Test | Symbol | Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C unless otherwise specified | Group A subgroups | Device types | Limits | | Unit |
|---|-------------------|--|----------------------|--------------------|----------------------------|-----|--------------------|
| | | | | | Min | Max | |
| TRANSMITTER | | | | | | | |
| Output resistance (transmitter off) | R _{OUT} | 1 MHz sine wave <u>2/</u> | 4,5,6 | 01-09 | 10 | | kΩ |
| | | <u>6/ 7/ 8/</u> | | 10 | (See figure 4) | | |
| Output capacitance (transmitter off) | C _{OUT} | 1 MHz sine wave <u>2/</u> T _C = +25°C | 4 | 01-09 | | 5 | pF |
| | | <u>6/ 7/ 8/</u> | 4,5,6 | 10 | (See figure 4) | | |
| Output offset voltage | V _{OS} | <u>2/ 10/</u> | 4,5,6 | All | -90 | +90 | mV(pk) |
| Peak amplitude variation | A _V | <u>11/</u> | 4,5,6 | All | -15 | +15 | % |
| RECEIVER | | | | | | | |
| Delay time, input to output | t _{DR} | Delay time from differential input zero crossing to DATA or $\overline{\text{DATA}}$. <u>2/</u> (See figure 3) | 9,10,11 | All | | 400 | ns |
| Strobe delay | t _{DS} | Delay time from strobe rising or falling edge to DATA or $\overline{\text{DATA}}$. <u>2/</u> (See figure 3) | 9,10,11 | 01-03,05-10 | | 200 | |
| | | | | 04 | | 250 | |
| TRANSMITTER | | | | | | | |
| Rise time | t _R | Output load = 35Ω (See figure 3) | 9,10,11 | All | 100 | 300 | ns |
| Fall time | t _F | Output load = 35Ω (See figure 3) | 9,10,11 | All | 100 | 300 | ns |
| Delay time | t _{DT} | (See figure 3) <u>2/</u> | 9,10,11 | 01-03, 05,06,09 | | 250 | ns |
| | | | | 04,08 | | 350 | |
| | | | | 07,10 | | 200 | |
| Inhibit delay inhibiting | t _{DI-H} | (See figure 3) <u>2/</u> | 9,10,11 | 01-09 | | 450 | ns |
| | | | | 10 | | 200 | |
| See footnotes at end of table. | | | | | | | |
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | | | SIZE A | | | | 5962-87579 |
| | | | | | REVISION LEVEL P | | SHEET 10 |

TABLE I. Electrical performance characteristics - Continued.

| Test | Symbol | Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C unless otherwise specified | Group A subgroups | Device types | Limits | | Unit |
|--|-------------------|---|----------------------|------------------|----------------------------|--------------------|------|
| | | | | | Min | Max | |
| TRANSMITTER - Continued. | | | | | | | |
| Inhibit delay active | t _{DT-L} | (See figure 3) <u>2/</u> | 9,10,11 | 01-05,08 | | 250 | ns |
| | | | | 06,09 | | 300 | |
| | | | | 07,10 | | 150 | |
| TRANSMITTER / RECEIVER | | | | | | | |
| Input impedance | Z _{oi} | In accordance with MIL-HDBK-1553, section 100, appendix A, test plan 5.1.2.3. (See figure 4) Transformer coupled stubs | 4,5,6 | 10 | 1.0 | | kΩ |
| | | | | | 2.0 | | |
| <p><u>1/</u> V_{CC} = 15 V dc, V_{EE} = -15 V dc, and V_{CC1} = +5 V dc. All specifications and limits are for a single channel with no connections made to the other channel.</p> <p><u>2/</u> This parameter is tested initially and after any process or design change which might affect this parameter.</p> <p><u>3/</u> Common mode rejection for device type 10 is as shown on figure 4.</p> <p><u>4/</u> These parameters are tested on a go-no-go basis in conjunction with other measured parameters and are not directly testable.</p> <p><u>5/</u> See figure 4 for device type 10.</p> <p><u>6/</u> Not measured directly, but as part of input impedance (Z_{IN}). Test in accordance with MIL-HDBK-1553, section 100, appendix A, test plan 5.1.2.3. See figure 4.</p> <p><u>7/</u> This parameter is 100 percent tested for device type 10.</p> <p><u>8/</u> See input impedance test (Z_{oi}) and figure 4.</p> <p><u>9/</u> Threshold is measured in direct coupled mode including the transformer. Threshold is the maximum level on the BUS at which there are no pulses on either receiver output. Divide by 1.4 to obtain threshold in transformer coupled mode. Add 0.14 V in direct coupled mode or 0.10 V in transformer coupled mode to obtain threshold at which no errors are observed when receiver is used with 15530 CMOS Manchester encoder-decoder.</p> <p><u>10/</u> Measured across 35Ω load, 2.5 μs after parity bit mid-bit zero crossing of a 660 μs message.</p> <p><u>11/</u> Measured across 35Ω load, variation of average peak amplitude.</p> | | | | | | | |
| <p align="center">STANDARD MICROCIRCUIT DRAWING</p> <p align="center">DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990</p> | | | | SIZE A | | 5962-87579 | |
| | | | | | REVISION LEVEL P | SHEET 11 | |

Case outline U.



| Inches | mm |
|--------|-------|
| .002 | 0.05 |
| .005 | 0.13 |
| .010 | 0.25 |
| .018 | 0.46 |
| .060 | 1.52 |
| .100 | 2.54 |
| .210 | 5.33 |
| .250 | 6.35 |
| .600 | 15.24 |
| .770 | 19.56 |
| 1.470 | 37.34 |

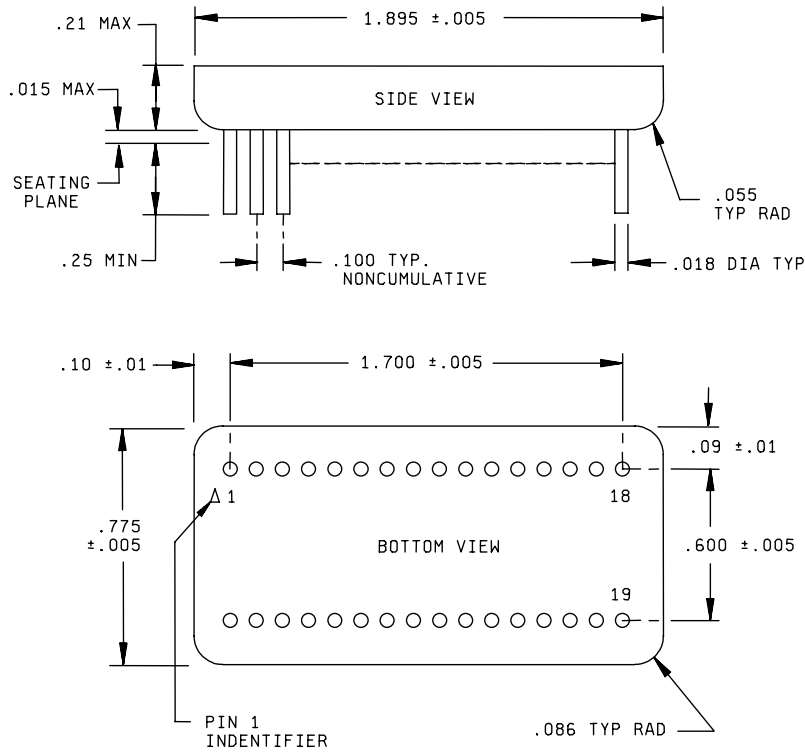
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead identification numbers are for reference only.
4. Lead spacing dimensions apply only at seating plane.

FIGURE 1. Case outline(s).

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 12 |

Case outline X.



| Inches | mm |
|--------|-------|
| .005 | 0.13 |
| .01 | 0.3 |
| .015 | 0.38 |
| .018 | 0.46 |
| .055 | 1.40 |
| .086 | 2.18 |
| .09 | 2.3 |
| .10 | 2.5 |
| .100 | 2.54 |
| .600 | 15.24 |
| .775 | 19.68 |
| 1.700 | 43.18 |
| 1.895 | 48.13 |

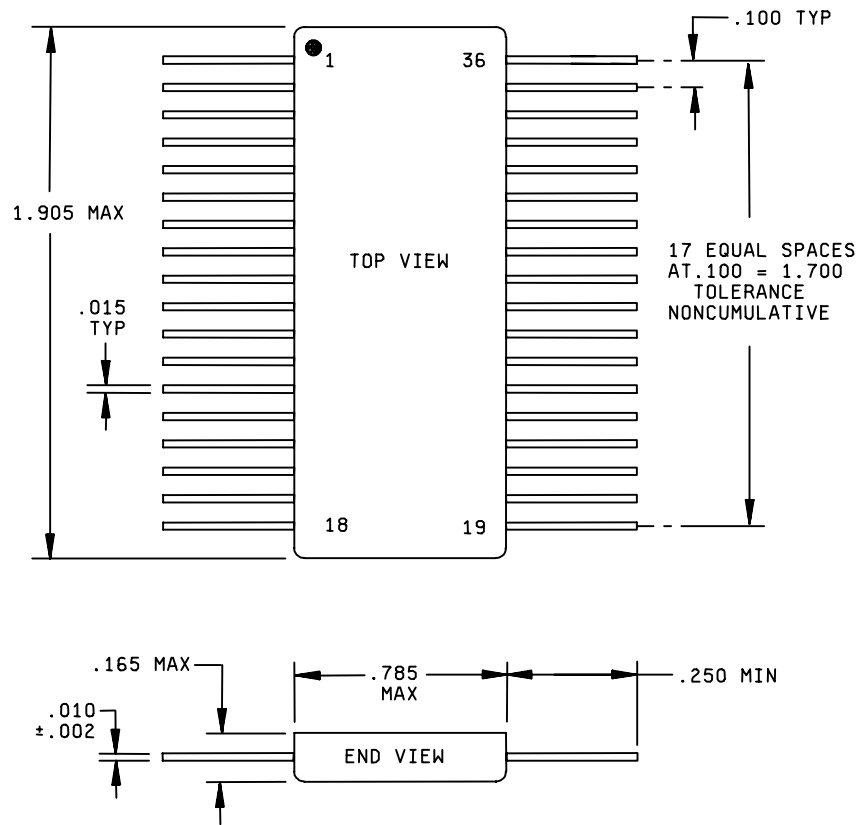
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead identification numbers are for reference only.
4. Lead spacing dimensions apply only at seating plane.

FIGURE 1. Case outline(s) - Continued.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 13 |

Case outline Y.



| Inches | mm |
|--------|-------|
| .002 | 0.05 |
| .010 | 0.25 |
| .015 | 0.38 |
| .100 | 2.54 |
| .165 | 4.19 |
| .250 | 6.35 |
| .785 | 19.94 |
| 1.700 | 43.18 |
| 1.905 | 48.39 |

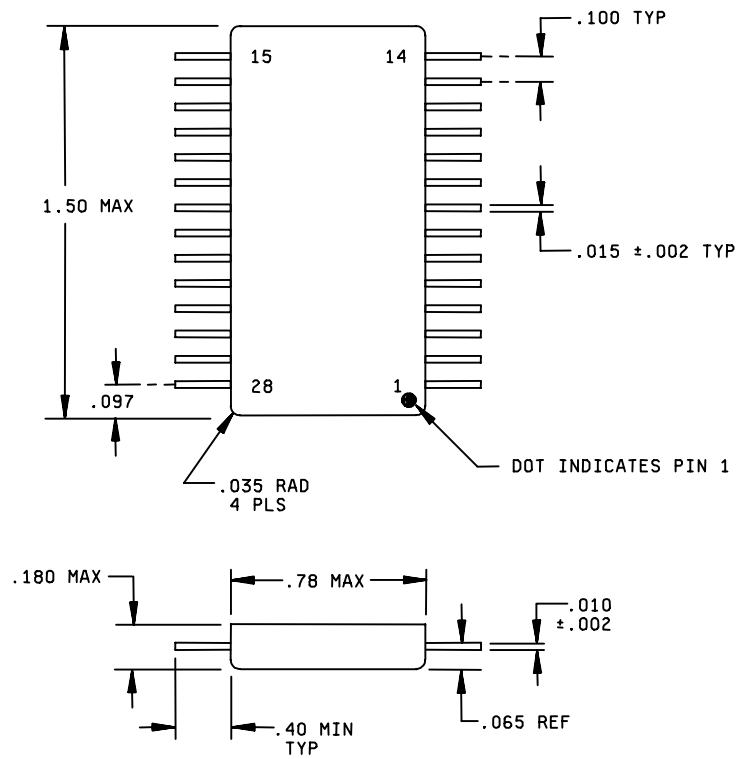
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead identification numbers are for reference only.
4. Lead spacing dimensions apply only at seating plane.

FIGURE 1. Case outline(s) - Continued.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 14 |

Case outline Z.



| Inches | mm |
|--------|-------|
| .002 | 0.05 |
| .003 | 0.08 |
| .010 | 0.25 |
| .015 | 0.38 |
| .035 | 0.89 |
| .065 | 1.65 |
| .097 | 2.46 |
| .100 | 2.54 |
| .180 | 4.51 |
| .40 | 10.16 |
| .78 | 19.81 |
| 1.50 | 38.10 |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead identification numbers are for reference only.
4. Lead spacing dimensions apply only at seating plane.

FIGURE 1. Case outline(s) - Continued.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 15 |

Case outlines X and Y.

| Pin | Function | Channel |
|-----|-----------------------|---------|
| 1 | TX <u>data</u> out | One |
| 2 | TX <u>data</u> out | One |
| 3 | GND | One |
| 4 | NC | |
| 5 | RX <u>data</u> out | One |
| 6 | Strobe | One |
| 7 | <u>GND</u> | One |
| 8 | RX <u>data</u> out | One |
| 9 | GND or Case | One |
| 10 | TX <u>data</u> out | Two |
| 11 | TX <u>data</u> out | Two |
| 12 | GND | Two |
| 13 | NC | |
| 14 | RX <u>data</u> out | Two |
| 15 | Strobe | Two |
| 16 | <u>GND</u> | Two |
| 17 | RX <u>data</u> out | Two |
| 18 | NC | |
| 19 | V _{CC} or NC | Two |
| 20 | RX <u>data</u> in | Two |
| 21 | RX <u>data</u> in | Two |
| 22 | GND | Two |
| 23 | V _{EE} | Two |
| 24 | V _{CC1} | Two |
| 25 | Inhibit | Two |
| 26 | TX <u>data</u> in | Two |
| 27 | TX <u>data</u> in | Two |
| 28 | V _{CC} or NC | One |
| 29 | RX <u>data</u> in | One |
| 30 | RX <u>data</u> in | One |
| 31 | GND | One |
| 32 | V _{EE} | One |
| 33 | V _{CC1} | One |
| 34 | Inhibit | One |
| 35 | TX <u>data</u> in | One |
| 36 | TX <u>data</u> in | One |

NOTES:

1. GND pins should all be connected externally.
2. Device types 01, 03, 04, 05, 07, and 10; pins 19 and 28 are +15 V dc. Device types 02, 06, and 09; pins 19 and 28 are not connected (NC).
3. Device type 06; pins 4 and 13 are available for the thermal protection
4. Device types 06 and 09; pins 3,12, 22, and 31 are not connected (NC).

FIGURE 2. Terminal connections.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 16 |

Case outlines U and Z.

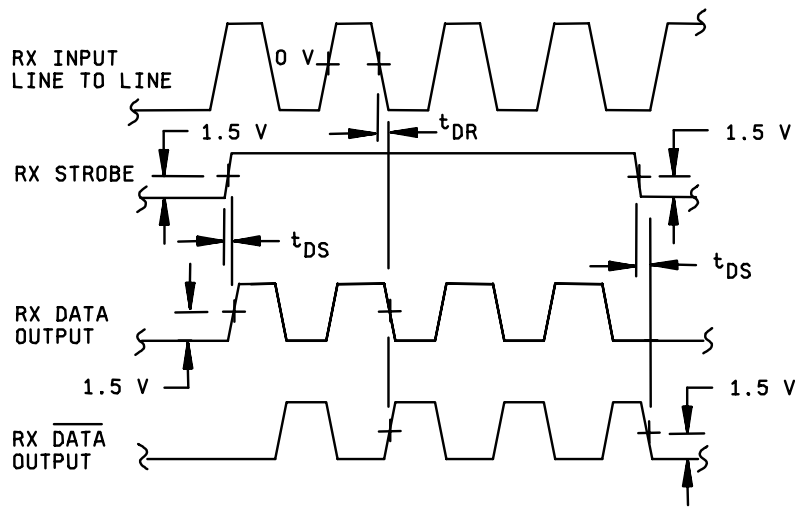
| Pin | Function | Channel |
|-----|--------------------------------------|---------|
| 1 | TX <u>data</u> out/RX <u>data</u> in | One |
| 2 | TX <u>data</u> out/RX <u>data</u> in | One |
| 3 | GND | One |
| 4 | RX <u>strobe</u> | One |
| 5 | RX <u>data</u> out | One |
| 6 | RX <u>data</u> out | One |
| 7 | Case | |
| 8 | TX <u>data</u> out/RX <u>data</u> in | Two |
| 9 | TX <u>data</u> out/RX <u>data</u> in | Two |
| 10 | GND | Two |
| 11 | RX <u>strobe</u> | Two |
| 12 | RX <u>data</u> out | Two |
| 13 | RX <u>data</u> out | Two |
| 14 | No connection | |
| 15 | GND | Two |
| 16 | V _{EE} | Two |
| 17 | V _{CC1} | Two |
| 18 | TX <u>inhibit</u> | Two |
| 19 | TX <u>data</u> in | Two |
| 20 | TX <u>data</u> in | Two |
| 21 | V _{CC} | Two |
| 22 | GND | One |
| 23 | V _{EE} | One |
| 24 | V _{CC1} | One |
| 25 | <u>Inhibit</u> | One |
| 26 | TX <u>data</u> in | One |
| 27 | TX <u>data</u> in | One |
| 28 | V _{CC} | One |

NOTE:

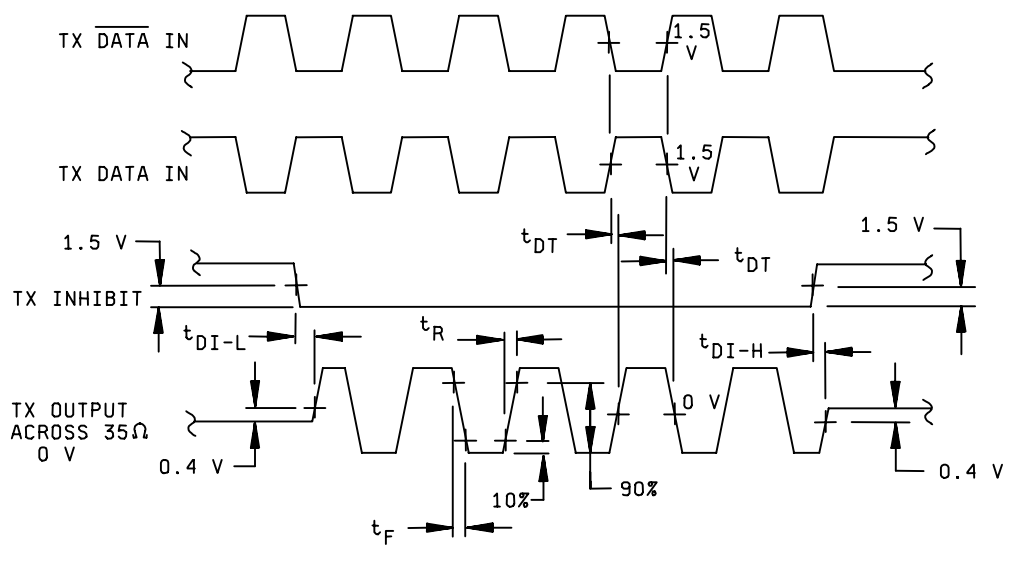
1. GND pins should all be connected externally.

FIGURE 2. Terminal connections - Continued.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 17 |



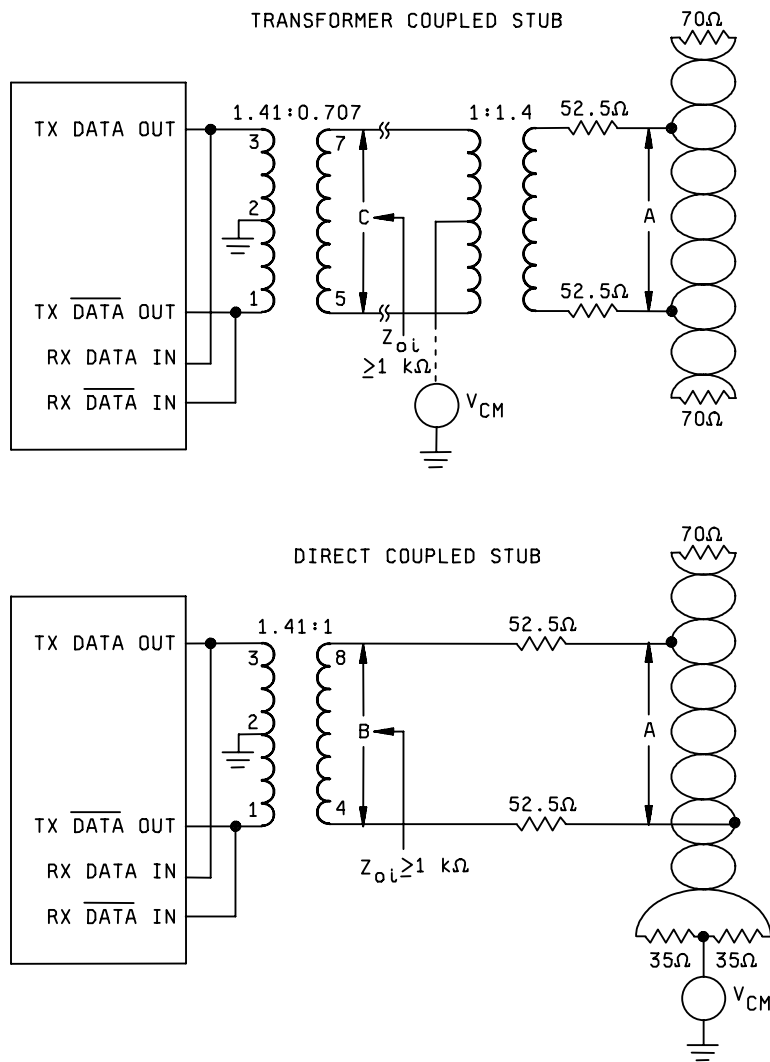
Receiver timing



Transmitter timing

FIGURE 3. Timing waveforms.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 18 |



NOTE:

1. Transformer is a Technitrol, part number 1553-2 or equivalent.

FIGURE 4. Typical bus connections.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 19 |

TABLE II. Electrical test requirements.

| MIL-PRF-38534 test requirements | Subgroups (in accordance with MIL-PRF-38534, group A test table) |
|--|---|
| Interim electrical parameters | ---- |
| Final electrical parameters | 1*,2,3,4,5,6,9,10,11 |
| Group A test requirements | 1,2,3,4,5,6,9,10,11 |
| Group C end-point electrical parameters | 1,2,3 |

* PDA applies to subgroup 1.

4.3 Conformance and periodic inspections. 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 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_A or T_C as specified in the approved manufacturer's QM plan.
 - (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.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 20 |

5. PACKAGING

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

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 as specified in MIL-PRF-38534.

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 microelectronic 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) 692-1081.

6.6 Sources of supply. 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.

| | | | |
|---|------------------|----------------------------|--------------------|
| STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 | SIZE A | | 5962-87579 |
| | | REVISION LEVEL P | SHEET 21 |

STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 07-05-10

Approved sources of supply for SMD 5962-87579 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 is superseded by the next dated revisions of MIL-HDBK-103 and QML-38534. DSCC maintains an online database of all current sources of supply at <http://www.dscclia.mil/Programs/Smcr/>.

| Standard microcircuit drawing PIN <u>1/</u> | Vendor CAGE number | Vendor similar PIN <u>2/</u> |
|--|--|--|
| 5962-8757901XA 5962-8757901YA | <u>3/</u> <u>3/</u> | BUS-63125 BUS-63125 |
| 5962-8757902XA 5962-8757902XA 5962-8757902XC 5962-8757902XC 5962-8757902YA 5962-8757902YA 5962-8757902YC 5962-8757902YC | <u>3/</u> 19645 <u>3/</u> 19645 <u>3/</u> 19645 <u>3/</u> 19645 | BUS-63125II-140 BUS-63125II-140 BUS-63125II-110 BUS-63125II-110 BUS-63126II-140 BUS-63126II-140 BUS-63126II-110 BUS-63126II-110 |
| 5962-8757903XA 5962-8757903YA | <u>4/</u> <u>4/</u> | ARX2411 ARX2411FP |
| 5962-8757904UA 5962-8757904XA 5962-8757904YA 5962-8757904ZA | <u>4/</u> <u>4/</u> <u>4/</u> <u>4/</u> | ARX3411 ARX3411 ARX3411FP ARX3411FP |
| 5962-8757905XA 5962-8757905XC 5962-8757905YA 5962-8757905YC | 57363 57363 57363 57363 | NHI-1500/883 NHI-1500/883 NHI-1500FP/883 NHI-1500FP/883 |
| 5962-8757906XA 5962-8757906XC 5962-8757906YA 5962-8757906YC | U4388 U4388 U4388 U4388 | FC 1553623 FC 1553623 FC 1553623 FP FC 1553623 FP |
| 5962-8757907XX 5962-8757907YX | <u>4/</u> <u>4/</u> | CT1487-D CT1487-DFP |

- 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 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.
- 4/ Not available from an approved source. Device type 10 replaces device types 03, 04, and 07.

STANDARD MICROCIRCUIT DRAWING BULLETIN - Continued.

DATE: 07-05-10

| Standard microcircuit drawing PIN <u>1/</u> | Vendor CAGE number | Vendor similar PIN <u>2/</u> |
|--|----------------------------------|--|
| 5962-8757908XX | <u>3/</u> | MR63125M |
| 5962-8757909XA 5962-8757909XC 5962-8757909YA 5962-8757909YC | U4388 U4388 U4388 U4388 | FC 1553621 FC 1553621 FC 1553621 FP FC 1553621 FP |
| 5962-8757910XA 5962-8757910XC 5962-8757910YA 5962-8757910YC | 88379 88379 88379 88379 | ACT4487-D ACT4487-D ACT4487-DF ACT4487-DF |

- 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 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.
- 4/ Not available from an approved source. Device type 10 replaces device types 03, 04, and 07.

Vendor CAGE
number

Vendor name
and address

U4388

C-MAC Microcircuits, Ltd
South Denes
Great Yarmouth
Norfolk NR30 3PX
England

19645

Data Device Corporation
105 Wilbur Place
Bohemia, NY 11716-2482

57363

National Hybrid Incorporated
2200 Smithtown Avenue
Ronkonkoma, NY 11779-7329

88379

Aeroflex Plainview Incorporated
35 South Service Road
Plainview, NY 11803-4101

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