

The documentation and process conversion measures necessary to comply with this document shall be completed by 24 February 2020.

INCH-POUND

MIL-PRF-19500/631C  
26 October 2019  
SUPERSEDING  
MIL-PRF-19500/631B  
9 March 2004

## PERFORMANCE SPECIFICATION SHEET

TRANSISTOR, FIELD EFFECT, N-CHANNEL SILICON,  
RADIATION HARDENED (TOTAL DOSE AND SINGLE EVENT EFFECTS),  
TYPES 2N7395, 2N7396, 2N7397, AND 2N7398,  
QUALITY LEVELS JANSR AND JANSR

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of  
this specification sheet and [MIL-PRF-19500](#).

### 1. SCOPE

1.1 Scope. This specification covers the performance requirements for a N-channel, enhancement-mode, MOSFET, radiation hardened (total dose and single event characterization only), power transistors. One level of product assurance (JANS) is provided for each device type as specified in [MIL-PRF-19500](#).

1.2 Package outline. The device package outline is a modified TO-205AG package in accordance with [figure 1](#).

1.3 Maximum ratings. Unless otherwise specified,  $T_A = +25^\circ\text{C}$ .

| Type   | $P_T$ (1)<br>$T_C = +25^\circ\text{C}$ | $P_T$<br>$T_A = +25^\circ\text{C}$ | $V_{DS}$    | $V_{DG}$    | $V_{GS}$    | $I_{D1}$ (2) (3)<br>$T_C = +25^\circ\text{C}$ | $I_{D2}$ (2) (3)<br>$T_C = +100^\circ\text{C}$ | $I_S$       | $I_{DM}$      | $V_{ISO}$<br>70,000 ft.<br>altitude | $T_J$<br>and<br>$T_{STG}$ |
|--------|----------------------------------------|------------------------------------|-------------|-------------|-------------|-----------------------------------------------|------------------------------------------------|-------------|---------------|-------------------------------------|---------------------------|
|        | <u>W</u>                               | <u>W</u>                           | <u>V dc</u> | <u>V dc</u> | <u>V dc</u> | <u>A dc</u>                                   | <u>A dc</u>                                    | <u>A dc</u> | <u>A (pk)</u> | <u>V dc</u>                         | <u>°C</u>                 |
| 2N7395 | 25                                     | 10                                 | 100         | 100         | $\pm 20$    | 8.0                                           | 5.0                                            | 8.0         | 24            | N/A                                 | -55                       |
| 2N7396 | 25                                     | 10                                 | 200         | 200         | $\pm 20$    | 5.0                                           | 3.0                                            | 5.0         | 15            | N/A                                 | to                        |
| 2N7397 | 25                                     | 10                                 | 250         | 250         | $\pm 20$    | 4.0                                           | 2.0                                            | 4.0         | 12            | 250                                 | +150                      |
| 2N7398 | 25                                     | 10                                 | 500         | 500         | $\pm 20$    | 2.0                                           | 1.0                                            | 2.0         | 6             | 500                                 |                           |

(1) Derate linearly 0.2 W/°C for  $T_C > +25^\circ\text{C}$ ;

(2) The following formula derives the maximum theoretical  $I_D$  limit.  $I_D$  is limited by package and internal wires and may be limited by pin diameter:

$$I_D = \sqrt{\frac{T_{JM} - T_C}{(R_{\theta JC}) \times (r_{DS(on)}) \text{ at } T_{JM}}}$$

(3) See [figure 2](#), maximum drain current graphs.

(4)  $I_{DM} = 4 \times I_{D1}$ ;  $I_{D1}$  as calculated by footnote (3).

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to [Semiconductor@dla.mil](mailto:Semiconductor@dla.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.



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1.4 Primary electrical characteristics. Unless otherwise specified, at  $T_C = +25^\circ\text{C}$ .

| Type   | Min $V_{(BR)DSS}$<br>$V_{GS} = 0$<br>$I_D = 1.0 \text{ mA dc}$ | $V_{GS(TH)1}$<br>$V_{DS} > V_{GS}$<br>$I_D = 1.0 \text{ mA dc}$ | Max $I_{DSS1}$<br>$V_{GS} = 0$<br>$V_{GS} = 80\%$<br>of rated $V_{DS}$ | Max $r_{DS(on)} (1)$<br>$V_{GS} = 12V$   |                                           | $R_{\theta JC}$<br>Max               | $I_{AS}$<br>$= I_{DM}$ |
|--------|----------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------|-------------------------------------------|--------------------------------------|------------------------|
|        |                                                                |                                                                 |                                                                        | $T_J = +25^\circ\text{C}$<br>at $I_{D2}$ | $T_J = +125^\circ\text{C}$<br>at $I_{D2}$ |                                      |                        |
|        | <u>V dc</u>                                                    | <u>V dc</u><br><u>Min</u> <u>Max</u>                            | <u><math>\mu\text{A dc}</math></u>                                     | <u><math>\Omega</math></u>               | <u><math>\Omega</math></u>                | <u><math>^\circ\text{C/W}</math></u> | <u>A (pk)</u>          |
| 2N7395 | 100                                                            | 1.5   4.0                                                       | 25                                                                     | 0.23                                     | 0.36                                      | 5.00                                 | 24                     |
| 2N7396 | 200                                                            |                                                                 |                                                                        | 0.46                                     | 0.81                                      |                                      | 15                     |
| 2N7397 | 250                                                            |                                                                 |                                                                        | 0.61                                     | 1.11                                      |                                      | 12                     |
| 2N7398 | 500                                                            |                                                                 |                                                                        | 2.50                                     | 4.80                                      |                                      | 6                      |

(1) Pulsed (see 4.5.1).

1.5 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-19500, and as specified herein. See 6.4 for PIN construction example and 6.5 for a list of available PINs.

1.5.1 JAN brand and quality level designators for encapsulated devices. The only quality level designator for encapsulated devices that are applicable for this specification sheet is "JANS".

1.5.2 Radiation hardness assurance (RHA) designator. The RHA levels that are applicable for this specification sheet are "D" and "R".

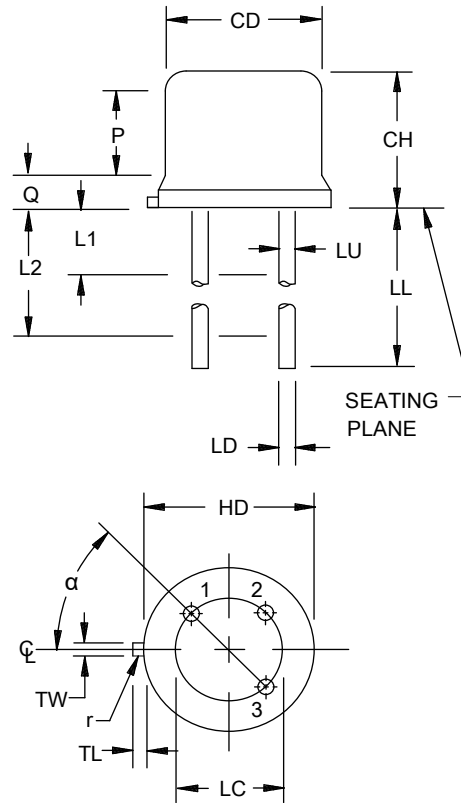
1.5.3 Device type. The designation system for the device types of transistors covered by this specification sheet are as follows.

1.5.3.1 First number and first letter symbols. The transistors of this specification sheet are identified by the first number and letter symbols "2N".

1.5.3.2 Second number symbols. The second number symbols for the transistor covered by this specification sheet are as follows: "7395", "7396", "7397" and "7398".

1.5.4 Lead finish. The lead finishes applicable to this specification sheet are listed on QML-19500.

| Symbol | Dimensions |      |             |       | Notes   |
|--------|------------|------|-------------|-------|---------|
|        | Inches     |      | Millimeters |       |         |
|        | Min        | Max  | Min         | Max   |         |
| CD     | .315       | .335 | 8.00        | 9.02  | 4       |
| CH     | .160       | .180 | 4.06        | 4.57  |         |
| HD     | .350       | .370 | 8.64        | 9.40  | 4       |
| LC     | .200 BSC   |      | 5.08 BSC    |       | 5       |
| LD     | .016       | .021 | 0.41        | 0.53  | 6, 7    |
| LL     | .500       | .750 | 12.70       | 19.05 | 6, 7, 8 |
| LU     | .016       | .019 | 0.41        | 0.48  | 6, 7    |
| L1     |            | .050 |             | 1.27  | 6, 7    |
| L2     | .250       |      | 6.35        |       | 6, 7    |
| P      | .070       |      | 1.78        |       |         |
| Q      |            | .050 |             | 1.27  | 4       |
| r      |            | .010 |             | 0.25  | 9       |
| TL     | .029       | .045 | 0.74        | 1.14  | 10      |
| TW     | .028       | .034 | 0.71        | 0.86  | 11      |
| α      | 45° BSC    |      | 45° BSC     |       | 5       |



## NOTES:

1. Dimension are in inches. Millimeters are given for general information only.
2. Terminal 1 = source, terminal 2 = gate, and terminal 3 is drain. Terminal 3 is butt welded to stem base.
3. Terminal 4 is omitted from this outline.
4. Body contour optional within zone defined by dimensions CD, HD, and Q.
5. Leads at gauge plane  $.054 + .001 - .000$  inch ( $1.37 + 0.03 - 0.00$  mm) below seating plane shall be within  $.007$  inch ( $0.18$  mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC. The device may be measured by direct methods.
6. Dimension LU applies between dimensions L1 and L2. Dimension LD applies between dimensions L2 and LL minimum. Diameter is uncontrolled in dimension L1 and beyond dimension LL minimum.
7. All three leads.
8. For "L" suffix devices, dimension LL = 1.5 inches ( $38.10$  mm) minimum and 1.75 inches ( $44.45$  mm) maximum.
9. Dimension r (radius) applies to both inside corners of tab.
10. Dimension TL measured from maximum HD.
11. Beyond r (radius) maximum, dimension TW shall be held for a minimum length of  $.011$  inch ( $0.28$  mm).
12. In accordance with ASME Y14.5M, diameters are equivalent to  $\phi x$  symbology.

FIGURE 1. Physical dimensions for modified TO-205AG.

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

[MIL-PRF-19500](#) - Semiconductor Devices, General Specification for.

#### DEPARTMENT OF DEFENSE STANDARDS

[MIL-STD-750](#) - Test Methods for Semiconductor Devices.

(Copies of these documents are available online at <https://quicksearch.dla.mil>.)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

## 3. REQUIREMENTS

3.1 General. The individual item requirements shall be as specified in [MIL-PRF-19500](#) and as modified herein.

3.2 Qualification. Devices furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see [4.2](#) and [6.3](#)).

3.3 Abbreviations, symbols, and definitions. Abbreviations, symbols, and definitions used herein shall be as specified in [MIL-PRF-19500](#) and as follows.

|                 |                                          |
|-----------------|------------------------------------------|
| nC              | nano Coulomb.                            |
| I <sub>AS</sub> | Rated avalanche current, non-repetitive. |

3.4 Interface and physical dimensions. Interface and physical dimensions shall be as specified in [MIL-PRF-19500](#) and on [figure 1](#).

3.4.1 Lead finish. Lead finish shall be solderable in accordance with [MIL-PRF-19500](#), [MIL-STD-750](#), and herein. Where a choice of lead finish is desired, it shall be specified in the acquisition document (see [6.2](#) and [6.6](#)).

3.4.2 Internal construction. Multiple die construction is not permitted.

3.5 Marking. Marking shall be in accordance with [MIL-PRF-19500](#). At the option of the manufacturer, marking of the country of origin may be omitted from the body of the transistor but shall be retained on the initial container.

3.6 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in [1.3](#), [1.4](#), and [table I](#).

3.7 Electrical test requirements. The electrical test requirements shall be as specified in [table I](#).

3.8 Electrostatic discharge sensitive (ESDS). The devices covered by this specification sheet have been classified as ESDS. The devices shall be handled in accordance with the ESD program established to comply with the requirements of [MIL-PRF-19500](#) to avoid damage due to the accumulation of static charge. The following handling practices shall be followed:

- a. Devices shall be handled on benches with conductive handling devices.
- b. Ground test equipment, tools and personnel handling devices.
- c. Do not handle devices by the leads.
- d. Store devices in conductive foam or carriers.
- e. Avoid use of plastic, rubber or silk in MOS areas.
- f. Maintain relative humidity above 50 percent if practical.
- g. Care should be exercised during test and troubleshooting to apply not more than maximum rated voltage to any lead.
- h. Gate shall be terminated to source,  $R \leq$  or 100 k $\Omega$ , whenever bias voltage is applied drain to source.

3.9 Workmanship. Semiconductor devices shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

#### 4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see [4.2](#)).
- b. Screening (see [4.3](#)).
- c. Conformance inspection (see [4.4](#) and [tables I, II, and III](#)).

4.2 Qualification inspection. Qualification inspection shall be in accordance with [MIL-PRF-19500](#) and as specified herein.

4.2.1 Group E qualification. Group E inspection shall be performed for qualification or re-qualification only. In case qualification was awarded to a prior revision of the specification sheet that did not request the performance of [table III](#) tests, the tests specified in [table III](#) herein that were not performed in the prior revision shall be performed on the first inspection lot of this revision to maintain qualification.

4.3 Screening (JANS only). Screening shall be in accordance with table E-IV of [MIL-PRF-19500](#), and as specified herein. The following measurements shall be made in accordance with [table I](#) herein. Devices that exceed the limits of [table I](#) herein shall not be acceptable.

| Screen<br>(1) (2) | Measurement                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | JANS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (3)               | Gate stress test (see <a href="#">4.3.1</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (3)               | Method 3470 of <a href="#">MIL-STD-750</a> , (see <a href="#">4.3.2</a> ).                                                                                                                                                                                                                                                                                                                                                                                                           |
| (3) 3c            | Method 3161 of <a href="#">MIL-STD-750</a> , (see <a href="#">4.3.3</a> ).                                                                                                                                                                                                                                                                                                                                                                                                           |
| 9                 | $I_{GSSF1}$ , $I_{GSSR1}$ , $I_{DSS1}$ , subgroup 2 of <a href="#">table I</a> herein.                                                                                                                                                                                                                                                                                                                                                                                               |
| 10                | Method 1042 of <a href="#">MIL-STD-750</a> , test condition B .                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 11                | $I_{GSSF1}$ , $I_{GSSR1}$ , $I_{DSS1}$ , $r_{DS(ON)}$ , $V_{GS(TH)}$ ;<br>Subgroup 2 of <a href="#">table I</a> herein;<br>$\Delta I_{GSSF1} = \pm 20$ nA dc or $\pm 100$ percent of initial value, whichever is greater.<br>$\Delta I_{GSSR1} = \pm 20$ nA dc or $\pm 100$ percent of initial value, whichever is greater.<br>$\Delta I_{DSS1} = \pm 25$ $\mu$ A dc or $\pm 100$ percent of initial value, whichever is greater.                                                    |
| 12                | Method 1042 of <a href="#">MIL-STD-750</a> , test condition A.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 13                | Subgroups 2 and 3 of <a href="#">table I</a> herein;<br>$\Delta I_{GSSF1} = \pm 20$ nA dc or $\pm 100$ percent of initial value, whichever is greater.<br>$\Delta I_{GSSR1} = \pm 20$ nA dc or $\pm 100$ percent of initial value, whichever is greater.<br>$\Delta I_{DSS1} = \pm 25$ $\mu$ A dc or $\pm 100$ percent of initial value, whichever is greater.<br>$\Delta r_{DS(ON)1} = \pm 20$ percent of initial value.<br>$\Delta V_{GS(TH)1} = \pm 20$ percent of initial value. |

- (1) At the end of the test program,  $I_{GSSF1}$ ,  $I_{GSSR1}$ , and  $I_{DSS1}$ , are measured.
- (2) An out-of-family program to characterize  $I_{GSSF1}$ ,  $I_{GSSR1}$ ,  $I_{DSS1}$ , and  $V_{GS(th)1}$  shall be invoked.
- (3) Shall be performed anytime before screen 9.

4.3.1 Gate stress test. Apply  $V_{GS} = 30$  V minimum for  $t = 250$   $\mu$ s minimum.

4.3.2 Single pulse avalanche energy. The test for single pulse avalanche energy shall be performed in accordance with method 3470 of [MIL-STD-750](#). The following details shall apply:

- a. Peak current ( $I_{AS}$ ) .....  $I_{AS} = I_{DM}$ .
- b. Peak gate voltage ( $V_{GS}$ ) ..... 20 V, up to maximum rated  $V_{GS}$ .
- c. Gate to source resistor ( $R_{GS}$ ) .....  $25 \leq R_{GS} \leq 50 \Omega$ .
- d. Initial junction temperature ( $T_J$ ) .....  $25^\circ\text{C}$ ,  $-5^\circ\text{C}$ ,  $+10^\circ\text{C}$ .
- e. Inductance ( $L$ ) ..... 0.1 mH.
- f. Supply voltage ( $V_{DD}$ ) ..... 50 V to 150 V dc.
- g. Number of pulses to be applied ..... 1 pulse minimum.

4.3.3 Thermal impedance ( $\Delta V_{SD}$  measurement). The  $\Delta V_{SD}$  measurement shall be performed in accordance with method 3161 of [MIL-STD-750](#). The  $\Delta V_{SD}$  measurement conditions ( $I_H$  and  $V_H$ ) and maximum limit shall be derived by each vendor from the thermal response curves (see [figure 3](#)) and shall be specified in the certificate of conformance prior to qualification. The following parameter measurements shall apply:

- a. Measuring current ( $I_M$ )..... 10 mA.
- b. Heating time ( $t_H$ )..... 10 ms.
- c. Measurement time delay ( $t_{MD}$ )..... 30 to 60  $\mu$ s.
- d. Sample window time ( $t_{SW}$ )..... 10  $\mu$ s maximum.

4.4 Conformance inspection. Conformance inspection shall be in accordance with [MIL-PRF-19500](#).

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with table E-V of [MIL-PRF-19500](#) and [table I](#) herein.

4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VIA (JANS) of [MIL-PRF-19500](#) and as follows. End-point electrical measurements shall be in accordance with the applicable steps of [table IV](#) herein.

| <u>Subgroup</u> | <u>Method</u> | <u>Condition</u>                                                                                                                                                                    |
|-----------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B3              | 1051          | Temperature cycling, test condition G, 100 cycles.                                                                                                                                  |
| B3              | 2077          | SEM.                                                                                                                                                                                |
| B4              | 1042          | Intermittent operation life, condition D, 2,000 cycles. No heat sink nor or forced-air cooling on the device shall be permitted during the on cycle. $t_{ON}$ = 30 seconds minimum. |
| B5              | 1042          | Accelerated steady-state reverse bias, condition A, $V_{DS}$ = rated; $T_A$ = +175°C; $t$ = 120 hours, minimum.                                                                     |
| B5              | 1042          | Accelerated steady-state gate bias, condition B, $V_{GS}$ = rated; $T_A$ = +175°C; $t$ = 24 hours.                                                                                  |
| B5              | 2037          | Bond strength; test condition A.                                                                                                                                                    |
| B6              | 3161          | Thermal resistance, see <a href="#">4.5.2</a> .                                                                                                                                     |

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VII of [MIL-PRF-19500](#) and as follows. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of [table IV](#) herein.

| <u>Subgroup</u> | <u>Method</u> | <u>Condition</u>                                                                           |
|-----------------|---------------|--------------------------------------------------------------------------------------------|
| C2              | 2036          | Terminal strength, test condition E, weight = 8 oz. (226.8 g), 3 arcs.                     |
| C5              | 3161          | See <a href="#">4.5.2</a> .                                                                |
| C6              | 1042          | Intermittent operation life, test condition D, 6,000 cycles; 1 cycle = 30 seconds minimum. |

4.4.4 Group D inspection. Group D inspection shall be conducted in accordance with table E-VIII of MIL-PRF-19500 and table II herein.

4.4.4.1 Design parameters. Not tested on a per lot basis. Design shall be such that the devices shall be capable of meeting the requirements herein.

4.4.5 Group E inspection. Group E inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-IX of MIL-PRF-19500 and as specified in table III herein. Electrical measurements (end-points) and delta requirement shall be in accordance with the applicable steps of table IV herein.

4.5 Methods of inspection. Methods of inspection shall be as specified in the appropriate tables and as follows.

4.5.1 Pulse measurements. Conditions for pulse measurement shall be as specified in section 4 of MIL-STD-750.

4.5.2 Thermal resistance. Thermal resistance measurements shall be performed in accordance with method 3161 of MIL-STD-750. The maximum limit of  $R_{\theta JC} = 5.0$  °C/W. The following parameters shall apply:

- a. Measuring current ( $I_M$ )..... 10 mA.
- b. Drain heating current ( $I_H$ ) ..... 1 A (minimum).
- c. Heating time ( $t_H$ )..... Steady-state.
- d. Drain-source heating voltage ( $V_H$ )..... 25 V.
- e. Measurement time delay ( $t_{MD}$ )..... 30 to 60  $\mu$ s.
- f. Sample window time ( $t_{SW}$ )..... 10  $\mu$ s maximum.

TABLE I. Group A inspection.

| Inspection 1/                              | MIL-STD-750 |                                                                              | Symbol          | Limits |           | Unit       |
|--------------------------------------------|-------------|------------------------------------------------------------------------------|-----------------|--------|-----------|------------|
|                                            | Method      | Condition                                                                    |                 | Min    | Max       |            |
| <u>Subgroup 1</u>                          |             |                                                                              |                 |        |           |            |
| Visual and mechanical examination          | 2071        |                                                                              |                 |        |           |            |
| <u>Subgroup 2</u>                          |             |                                                                              |                 |        |           |            |
| Thermal impedance <u>2/</u>                | 3161        | See 4.3.3                                                                    | $\Delta V_{SD}$ |        |           |            |
| Breakdown voltage drain to source          | 3407        | Bias condition C, $V_{GS} = 0$ V dc, $I_D = 1$ mA dc                         | $V_{(BR)DSS}$   |        |           |            |
| 2N7395                                     |             |                                                                              |                 | 100    |           | V dc       |
| 2N7396                                     |             |                                                                              |                 | 200    |           | V dc       |
| 2N7397                                     |             |                                                                              |                 | 250    |           | V dc       |
| 2N7398                                     |             |                                                                              |                 | 500    |           | V dc       |
| Gate to source voltage (threshold)         | 3403        | $V_{DS} > V_{GS}$ , $I_D = 1$ mA dc                                          | $V_{GS(th)}$    | 1.5    | 4.0       | V dc       |
| Gate current                               | 3411        | Bias condition C, $V_{GS} = +20$ V dc, $V_{DS} = 0$ V dc                     | $I_{GSSF1}$     |        | +100      | nA dc      |
| Gate current                               | 3411        | Bias condition C, $V_{GS} = -20$ V dc, $V_{DS} = 0$ V dc                     | $I_{GSSR1}$     |        | -100      | nA dc      |
| Drain current                              | 3413        | Bias condition C, $V_{GS} = 0$ V dc, $V_{DS} = 80$ percent of rated $V_{DS}$ | $I_{DSS1}$      |        | 25        | $\mu$ A dc |
| Static drain to source on-state resistance | 3421        | Condition A, $V_{GS} = 12$ V dc, pulsed (see 4.5.1), $I_D = I_{D2}$          | $r_{DS(on)1}$   |        |           |            |
| 2N7395                                     |             |                                                                              |                 |        | 0.23      | $\Omega$   |
| 2N7396                                     |             |                                                                              |                 |        | 0.46      | $\Omega$   |
| 2N7397                                     |             |                                                                              |                 |        | 0.61      | $\Omega$   |
| 2N7398                                     |             |                                                                              |                 |        | 2.50      | $\Omega$   |
| Static drain to source on-state voltage    | 3405        | Condition A, $V_{GS} = 12$ V dc, pulsed (see 4.5.1), $I_D = I_{D1}$          | $V_{DS(on)}$    |        |           |            |
| 2N7395                                     |             |                                                                              |                 |        | 1.93      | V dc       |
| 2N7396                                     |             |                                                                              |                 |        | 2.42      | V dc       |
| 2N7397                                     |             |                                                                              |                 |        | 2.56      | V dc       |
| 2N7398                                     |             |                                                                              |                 |        | 5.25      | V dc       |
| Forward voltage                            | 4011        | Condition A, $V_{GS} = 0$ V dc, pulsed (see 4.5.1), $I_D = I_{D1}$           | $V_{SD}$        |        | 1.8       | V dc       |
| <u>Subgroup 3</u>                          |             |                                                                              |                 |        |           |            |
| High temperature operation                 |             | $T_C = T_J = +125^{\circ}\text{C}$                                           |                 |        |           |            |
| Gate current                               | 3411        | Bias condition C, $V_{GS} = +20$ V dc and $-20$ V dc, $V_{DS} = 0$ V dc      | $I_{GSS2}$      |        | $\pm 200$ | nA dc      |

See footnote at end of table.

TABLE I. Group A inspection - Continued.

| Inspection 1/                                 | MIL-STD-750 |                                                                                                      | Symbol        | Limits |      | Unit     |
|-----------------------------------------------|-------------|------------------------------------------------------------------------------------------------------|---------------|--------|------|----------|
|                                               | Method      | Condition                                                                                            |               | Min    | Max  |          |
| <u>Subgroup 3</u> – continued                 |             |                                                                                                      |               |        |      |          |
| Drain current                                 | 3413        | Bias condition C, $V_{GS} = 0$ V dc,<br>$V_{DS} = 80$ percent of rated $V_{DS}$                      | $I_{DSS2}$    |        | 0.25 | mA dc    |
| Static drain to source<br>on-state resistance | 3421        | Bias condition A, $V_{GS} = 12$ V dc,<br>pulsed (see 4.5.1), $I_D = I_{D2}$                          | $r_{DS(on)2}$ |        |      |          |
| 2N7395                                        |             |                                                                                                      |               |        | 0.36 | $\Omega$ |
| 2N7396                                        |             |                                                                                                      |               |        | 0.81 | $\Omega$ |
| 2N7397                                        |             |                                                                                                      |               |        | 1.11 | $\Omega$ |
| 2N7398                                        |             |                                                                                                      |               |        | 4.80 | $\Omega$ |
| Gate to source voltage<br>(threshold)         | 3403        | $V_{DS} \geq V_{GS}$ , $I_D = 1$ mA dc                                                               | $V_{GS(th)2}$ | 0.5    |      | V dc     |
| Low temperature operation                     |             | $T_C = T_J = -55^{\circ}\text{C}$                                                                    |               |        |      |          |
| Gate to source voltage<br>(threshold)         | 3403        | $V_{DS} \geq V_{GS}$ , $I_D = 1$ mA dc                                                               | $V_{GS(th)3}$ |        | 5.0  | V dc     |
| <u>Subgroup 4</u>                             |             |                                                                                                      |               |        |      |          |
| Switching time test                           | 3472        | $I_D = I_{D1}$ , $V_{GS} = 12$ V dc, $R_G = 7.5 \Omega$ ,<br>$V_{DD} = 50$ percent of rated $V_{DS}$ |               |        |      |          |
| Turn-on delay time                            |             |                                                                                                      | $t_{D(on)}$   |        |      |          |
| 2N7395                                        |             |                                                                                                      |               |        | 70   | ns       |
| 2N7396                                        |             |                                                                                                      |               |        | 65   | ns       |
| 2N7397                                        |             |                                                                                                      |               |        | 60   | ns       |
| 2N7398                                        |             |                                                                                                      |               |        | 80   | ns       |
| Rise time                                     |             |                                                                                                      | $t_R$         |        |      |          |
| 2N7395                                        |             |                                                                                                      |               |        | 220  | ns       |
| 2N7396                                        |             |                                                                                                      |               |        | 150  | ns       |
| 2N7397                                        |             |                                                                                                      |               |        | 140  | ns       |
| 2N7398                                        |             |                                                                                                      |               |        | 100  | ns       |
| Turn-off delay time                           |             |                                                                                                      | $t_{D(off)}$  |        |      |          |
| 2N7395                                        |             |                                                                                                      |               |        | 100  | ns       |
| 2N7396                                        |             |                                                                                                      |               |        | 120  | ns       |
| 2N7397                                        |             |                                                                                                      |               |        | 120  | ns       |
| 2N7398                                        |             |                                                                                                      |               |        | 150  | ns       |
| Fall time                                     |             |                                                                                                      | $t_f$         |        |      |          |
| 2N7395                                        |             |                                                                                                      |               |        | 90   | ns       |
| 2N7396                                        |             |                                                                                                      |               |        | 85   | ns       |
| 2N7397                                        |             |                                                                                                      |               |        | 95   | ns       |
| 2N7398                                        |             |                                                                                                      |               |        | 140  | ns       |

See footnote at end of table.

TABLE I. Group A inspection - Continued.

| Inspection <u>1/</u>                    | MIL-STD-750 |                                                                                                                             | Symbol      | Limits |     | Unit |
|-----------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------|-------------|--------|-----|------|
|                                         | Method      | Condition                                                                                                                   |             | Min    | Max |      |
| <u>Subgroup 5</u>                       |             |                                                                                                                             |             |        |     |      |
| Safe operating area test (high voltage) | 3474        | See <a href="#">figure 4</a> , $t_p = 10$ ms minimum<br>$V_{DS} = 80$ percent of maximum rated $V_{DS}$ ( $V_{DS} < 200$ V) |             |        |     |      |
| Electrical measurements                 |             | See <a href="#">table IV</a> , steps 1, 2, 3, 4, 5, 6, and 7.                                                               |             |        |     |      |
| <u>Subgroup 6</u>                       |             |                                                                                                                             |             |        |     |      |
| Not applicable                          |             |                                                                                                                             |             |        |     |      |
| <u>Subgroup 7</u>                       |             |                                                                                                                             |             |        |     |      |
| Gate charge                             | 3471        | Condition B                                                                                                                 |             |        |     |      |
| On-state gate charge                    |             |                                                                                                                             | $Q_{g(on)}$ |        |     |      |
| 2N7395                                  |             |                                                                                                                             |             |        | 43  | nC   |
| 2N7396                                  |             |                                                                                                                             |             |        | 38  | nC   |
| 2N7397                                  |             |                                                                                                                             |             |        | 40  | nC   |
| 2N7398                                  |             |                                                                                                                             |             |        | 35  | nC   |
| Gate to source charge                   |             |                                                                                                                             | $Q_{gs}$    |        |     |      |
| 2N7395                                  |             |                                                                                                                             |             |        | 8.7 | nC   |
| 2N7396                                  |             |                                                                                                                             |             |        | 8.4 | nC   |
| 2N7397                                  |             |                                                                                                                             |             |        | 8.4 | nC   |
| 2N7398                                  |             |                                                                                                                             |             |        | 6.7 | nC   |
| Gate to drain charge                    |             |                                                                                                                             | $Q_{gd}$    |        |     |      |
| 2N7395                                  |             |                                                                                                                             |             |        | 22  | nC   |
| 2N7396                                  |             |                                                                                                                             |             |        | 20  | nC   |
| 2N7397                                  |             |                                                                                                                             |             |        | 20  | nC   |
| 2N7398                                  |             |                                                                                                                             |             |        | 16  | nC   |
| Reverse recovery time                   | 3473        | Condition A, $di/dt = 100$ A/ $\mu$ s,<br>$V_{DD} \leq 30$ V, $I_D = I_{D1}$                                                | $t_{rr}$    |        |     |      |
| 2N7395                                  |             |                                                                                                                             |             |        | 330 | ns   |
| 2N7396                                  |             |                                                                                                                             |             |        | 360 | ns   |
| 2N7397                                  |             |                                                                                                                             |             |        | 400 | ns   |
| 2N7398                                  |             |                                                                                                                             |             |        | 390 | ns   |

1/ For sampling plan, see [MIL-PRF-19500](#).

2/ For end-point measurements, this test is required for the following subgroups:

Group B, subgroups 3, 4 and 5.

Group C, subgroups 2 and 6.

Group E, subgroup 1.

TABLE II. Group D inspection.

| Inspection<br>1/ 2/ 3/ 4/                                     | MIL-STD-750 |                                                                                                | Symbol               | Pre-irradiation<br>limits |      | Post irradiation<br>limits |      | Units |
|---------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------|----------------------|---------------------------|------|----------------------------|------|-------|
|                                                               | Method      | Conditions                                                                                     |                      | Min                       | Max  | Min                        | Max  |       |
| <u>Subgroup 1</u>                                             |             |                                                                                                |                      |                           |      |                            |      |       |
| Not applicable                                                |             |                                                                                                |                      |                           |      |                            |      |       |
| <u>Subgroup 2</u>                                             |             |                                                                                                |                      |                           |      |                            |      |       |
| T <sub>C</sub> = +25°C                                        |             |                                                                                                |                      |                           |      |                            |      |       |
| Steady state total dose irradiation (V <sub>GS</sub> bias) 4/ | 1019        | V <sub>GS</sub> = 12 V, V <sub>DS</sub> = 0 V                                                  |                      |                           |      |                            |      |       |
| Steady state total dose irradiation (V <sub>DS</sub> bias)    | 1019        | V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 80 percent of rated V <sub>DS</sub>                   |                      |                           |      |                            |      |       |
| Breakdown voltage drain to source                             | 3407        | Bias condition C, V <sub>GS</sub> = 0 V, I <sub>D</sub> = 1 mA dc,                             | V <sub>(BR)DSS</sub> |                           |      |                            |      |       |
| 2N7395                                                        |             |                                                                                                |                      | 100                       |      | 100                        |      | V dc  |
| 2N7396                                                        |             |                                                                                                |                      | 200                       |      | 200                        |      | V dc  |
| 2N7397                                                        |             |                                                                                                |                      | 250                       |      | 250                        |      | V dc  |
| 2N7398                                                        |             |                                                                                                |                      | 500                       |      | 500                        |      | V dc  |
| Gate to source voltage (threshold)                            | 3403        | V <sub>DS</sub> > V <sub>GS</sub> , I <sub>D</sub> = 1 mA dc                                   | V <sub>GS(TH)1</sub> | 1.5                       | 4.0  | 1.5                        | 4.0  | V dc  |
| Gate current                                                  | 3411        | Bias condition C, V <sub>GS</sub> = +20 V dc and -20 V dc, V <sub>DS</sub> = 0 V               | I <sub>GSS1</sub>    |                           | +100 |                            | +100 | nA dc |
| Drain current                                                 | 3413        | Bias condition C, V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 80 percent of rated V <sub>DS</sub> | I <sub>DSS1</sub>    |                           | 25   |                            | 25   | µA dc |
| Static drain to source on-state resistance                    | 3421        | Condition A, V <sub>GS</sub> = 12 V dc, pulsed (see 4.5.1), I <sub>D</sub> = I <sub>D2</sub>   | r <sub>DS(ON)1</sub> |                           |      |                            |      |       |
| 2N7395                                                        |             |                                                                                                |                      |                           | 0.23 |                            | 0.23 | Ω     |
| 2N7396                                                        |             |                                                                                                |                      |                           | 0.46 |                            | 0.46 | Ω     |
| 2N7397                                                        |             |                                                                                                |                      |                           | 0.61 |                            | 0.61 | Ω     |
| 2N7398                                                        |             |                                                                                                |                      |                           | 2.50 |                            | 2.50 | Ω     |
| Static drain to source on-state voltage                       | 3405        | Condition A, V <sub>GS</sub> = 12 V dc, pulsed (see 4.5.1), I <sub>D</sub> = I <sub>D1</sub>   | V <sub>DS(ON)</sub>  |                           |      |                            |      |       |
| 2N7395                                                        |             |                                                                                                |                      |                           | 1.93 |                            | 1.93 | V dc  |
| 2N7396                                                        |             |                                                                                                |                      |                           | 2.42 |                            | 2.42 | V dc  |
| 2N7397                                                        |             |                                                                                                |                      |                           | 2.56 |                            | 2.56 | V dc  |
| 2N7398                                                        |             |                                                                                                |                      |                           | 5.25 |                            | 5.25 | V dc  |

1/ For sampling plan see MIL-PRF-19500.

2/ Electrical specifications are for 'D' and 'R' rad levels.

3/ Group D qualification may be performed prior to lot formation. Wafers qualified to these group D QCI requirements may be used for any other specification utilizing the same die design.

4/ At the manufacturers option, group D samples need not be subjected to all the screening tests, but shall be assembled in its qualified package or in any qualified package that the manufacturer has data to correlate the performance to the designated package.

TABLE III. Group E inspection (all quality levels) for qualification or requalification only.

| Inspection<br>1/ 2/ 3/ 4/ 5/                                                                                                     | MIL-STD-750 |                                                                                                                                           | Sample plan       |
|----------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
|                                                                                                                                  | Method      | Conditions                                                                                                                                |                   |
| <u>Subgroup 1</u>                                                                                                                |             |                                                                                                                                           | 12 devices, c = 0 |
| Temperature cycle                                                                                                                | 1051        | Condition G, 500 cycles                                                                                                                   |                   |
| Hermetic seal                                                                                                                    | 1071        | Fine and gross leak                                                                                                                       |                   |
| Electrical measurements                                                                                                          |             | See <a href="#">table IV</a> , steps 1, 2, 3, 4, 5, 6, and 7                                                                              |                   |
| <u>Subgroup 2</u> 1/                                                                                                             |             |                                                                                                                                           | 12 devices, c = 0 |
| Steady-state gate bias                                                                                                           | 1042        | Condition B, 1,000 hours                                                                                                                  |                   |
| Electrical measurements                                                                                                          |             | See <a href="#">table IV</a> , steps 1, 2, 3, 4, 5, 6, and 7                                                                              |                   |
| Steady-state reverse bias                                                                                                        | 1042        | Condition A, 1,000 hours                                                                                                                  |                   |
| Electrical measurements                                                                                                          |             | See <a href="#">table IV</a> , steps 1, 2, 3, 4, 5, 6, and 7                                                                              |                   |
| <u>Subgroup 3</u>                                                                                                                |             |                                                                                                                                           | 3 devices, c = 0  |
| DPA                                                                                                                              | 2102        |                                                                                                                                           |                   |
| <u>Subgroup 4</u>                                                                                                                |             |                                                                                                                                           | Sample size N/A   |
| Thermal impedance curves                                                                                                         |             | See <a href="#">MIL-PRF-19500</a>                                                                                                         |                   |
| <u>Subgroup 5</u>                                                                                                                |             |                                                                                                                                           | 5 devices, c = 0  |
| Barometric pressure test<br>2N7397<br>2N7398                                                                                     | 1001        | Condition C. Not required for $V_{BR(DSS)} < 200$ V<br>$V_{DS} = 250$ V; $I_{(ISO)} < 0.25$ mA<br>$V_{DS} = 500$ V; $I_{(ISO)} < 0.25$ mA |                   |
| <u>Subgroup 6</u>                                                                                                                |             |                                                                                                                                           |                   |
| ESD                                                                                                                              | 1020        |                                                                                                                                           |                   |
| <u>Subgroup 9</u>                                                                                                                |             |                                                                                                                                           |                   |
| Commutating diode for safe operating area test procedure for measuring dv/dt during reverse recovery of power MOSFET transistors | 3476        |                                                                                                                                           | 22 devices, c = 0 |

1/ A separate sample for each test may be pulled.

2/ Group E qualification of single event effect testing may be performed prior to lot formation. Wafers qualified to these group E QCI requirements may be used for any other specification utilizing the same die design.

3/ As a minimum, gate to source leakages and drain to source leakage are to be examined to verify the electrical performance of the DUT prior to and after test. At the manufacturer's option, the remaining static tests in table IV, with the exception of step 8, may be performed.

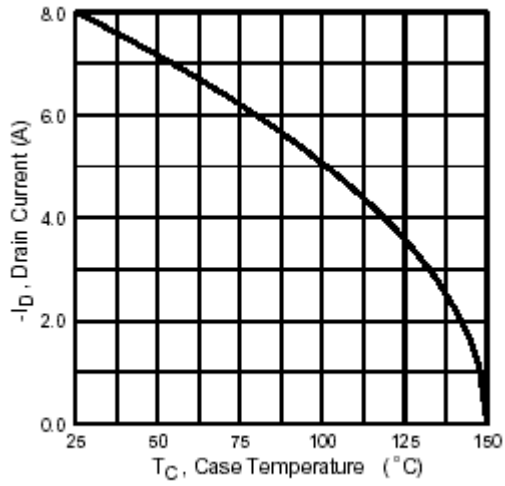
4/ Devices passing a given combination of drain and gate voltage for an LET of 36 to 40 MeV-cm<sup>2</sup>/mg qualify the same conditions for an LET of 26 to 30 MeV-cm<sup>2</sup>/mg.

5/ This sampling plan applies to each bias condition defined.

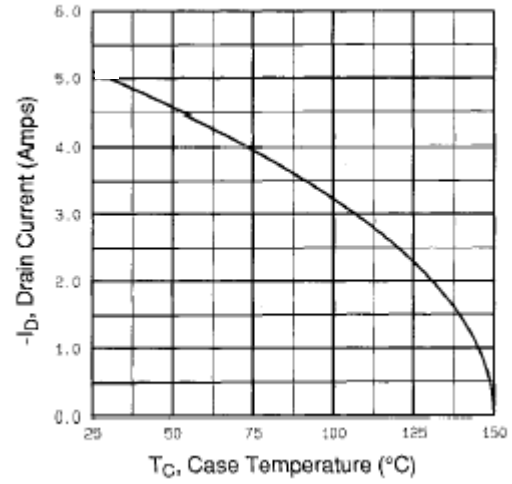
TABLE IV. Group A, B, C and E electrical and delta measurements.

| Step | Inspection<br>1/ 2/                                                                   | MIL-STD-750 |                                                                                 | Symbol          | Limits                   |                              | Units                                        |
|------|---------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------|-----------------|--------------------------|------------------------------|----------------------------------------------|
|      |                                                                                       | Method      | Conditions                                                                      |                 | Min                      | Max                          |                                              |
| 1.   | Breakdown voltage<br>drain to source<br>2N7395<br>2N7396<br>2N7397<br>2N7398          | 3407        | Bias condition C, $I_D = 1$ mA dc,<br>$V_{GS} = 0$ V                            | $V_{(BR)DSS}$   | 100<br>200<br>250<br>500 |                              | V dc<br>V dc<br>V dc<br>V dc                 |
| 2.   | Gate to source<br>voltage (threshold)                                                 | 3403        | $V_{DS} > V_{GS}$ , $I_D = 1$ mA dc                                             | $V_{GS(TH)1}$   | 1.5                      | 4.0                          | V dc                                         |
| 3.   | Gate current                                                                          | 3411        | Bias condition C, $V_{GS} = +20$ V<br>and $-20$ V dc, $V_{DS} = 0$ V            | $I_{GSS1}$      |                          | +100                         | nA dc                                        |
| 4.   | Drain current                                                                         | 3413        | Bias condition C, $V_{GS} = 0$ V dc,<br>$V_{DS} = 80$ percent of rated $V_{DS}$ | $I_{DSS1}$      |                          | 25                           | $\mu$ A dc                                   |
| 5.   | Static drain to source<br>on-state resistance<br>2N7395<br>2N7396<br>2N7397<br>2N7398 | 3421        | Condition A, $V_{GS} = 12$ V dc,<br>pulsed (see 4.5.1), $I_D = I_{D2}$          | $r_{DS(ON)1}$   |                          | 0.23<br>0.46<br>0.61<br>2.50 | $\Omega$<br>$\Omega$<br>$\Omega$<br>$\Omega$ |
| 6.   | Static drain to source<br>on-state voltage<br>2N7395<br>2N7396<br>2N7397<br>2N7398    | 3405        | Condition A, $V_{GS} = 12$ V dc,<br>pulsed (see 4.5.1), $I_D = I_{D1}$          | $V_{DS(ON)}$    |                          | 1.93<br>2.42<br>2.56<br>5.25 | V dc<br>V dc<br>V dc<br>V dc                 |
| 7.   | Forward voltage                                                                       | 4011        | Condition A, $V_{GS} = 0$ V dc,<br>pulsed (see 4.5.1), $I_D = I_{D1}$           | $V_{SD}$        |                          | 1.8                          | V dc                                         |
| 8.   | Thermal impedance                                                                     | 3161        | See 4.3.3                                                                       | $\Delta V_{SD}$ |                          | 125                          | mV                                           |

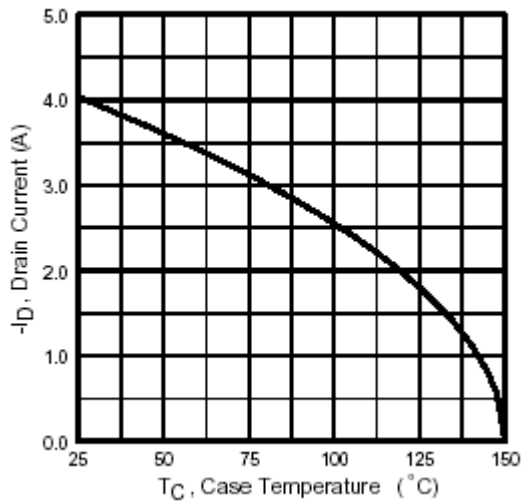
- 1/ The electrical measurements for table E-VIA (JANS) of MIL-PRF-19500 are as follows:
- Subgroup 3, see table IV herein, steps 1, 2, 3, 4, 5, 6, and 7.
  - Subgroup 4, see table IV herein, steps 1, 2, 3, 4, 5, 6, 7, and 8.
  - Subgroup 5, see table IV herein, steps 1, 2, 3, 4, 5, 6, and 7.
- 2/ The electrical measurements for table E-VII of MIL-PRF-19500 are as follows:
- Subgroup 2 and 3, see table IV herein, steps 1, 2, 3, 4, 5, 6, and 7.
  - Subgroup 6, see table IV herein, steps 1, 2, 3, 4, 5, 6, 7, and 8.
- 3/ The electrical measurements for table E-IX of MIL-PRF-19500 are as follows:
- Subgroups 1 and 2, see table IV herein, steps 1, 2, 3, 4, 5, 6, 7, and 8.
  - Subgroup 8, see table IV herein, steps 3 and 4.



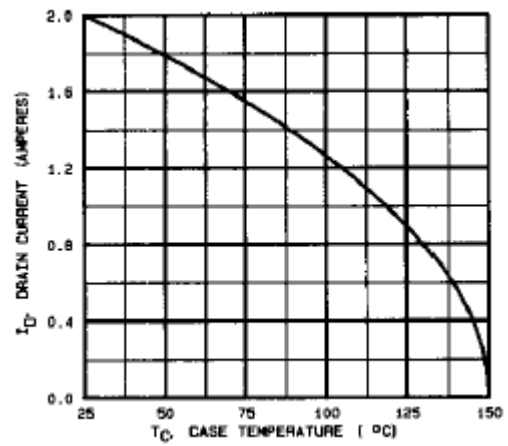
2N7395



2N7396



2N7397



2N7398

FIGURE 2. Maximum drain current vs case temperature graphs.

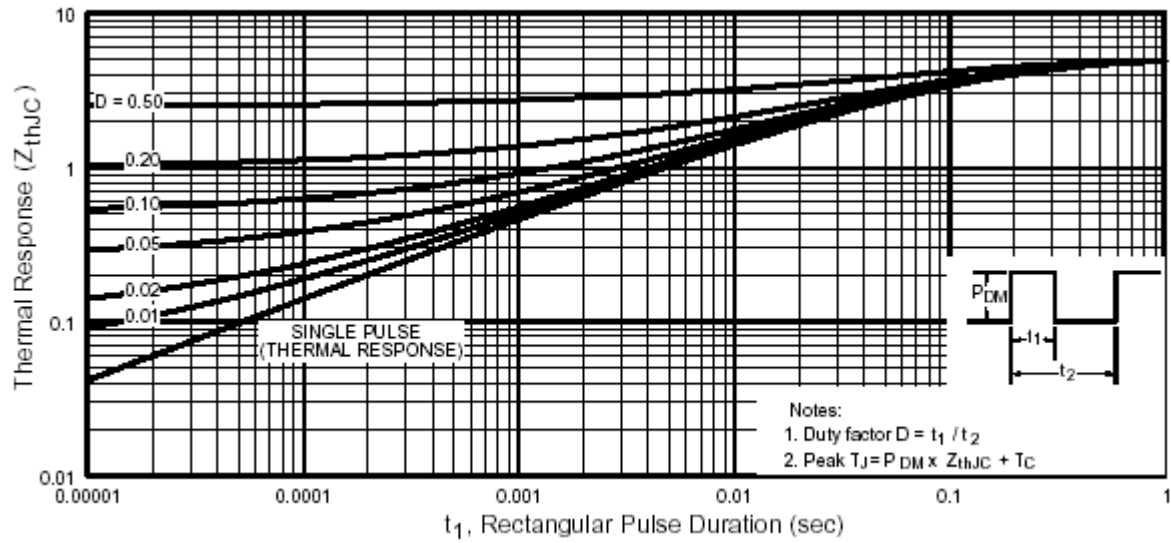


FIGURE 3. Thermal response curves.

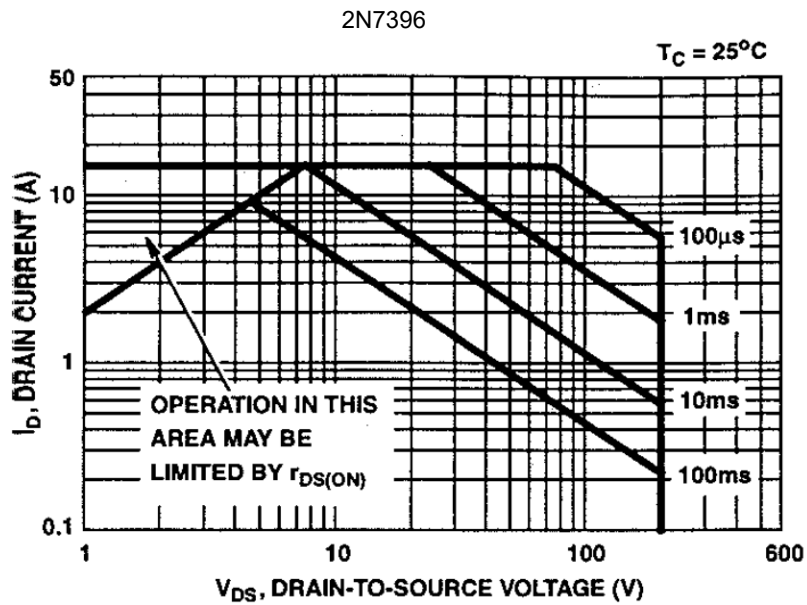
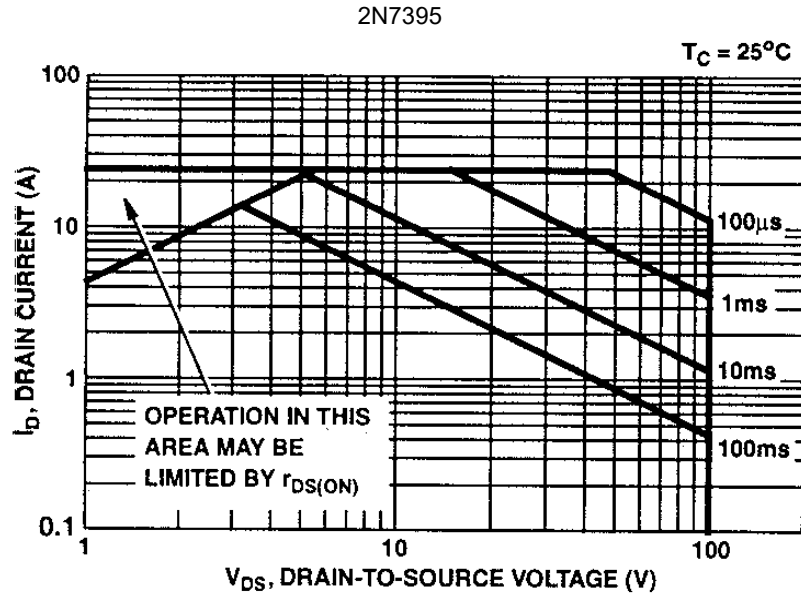
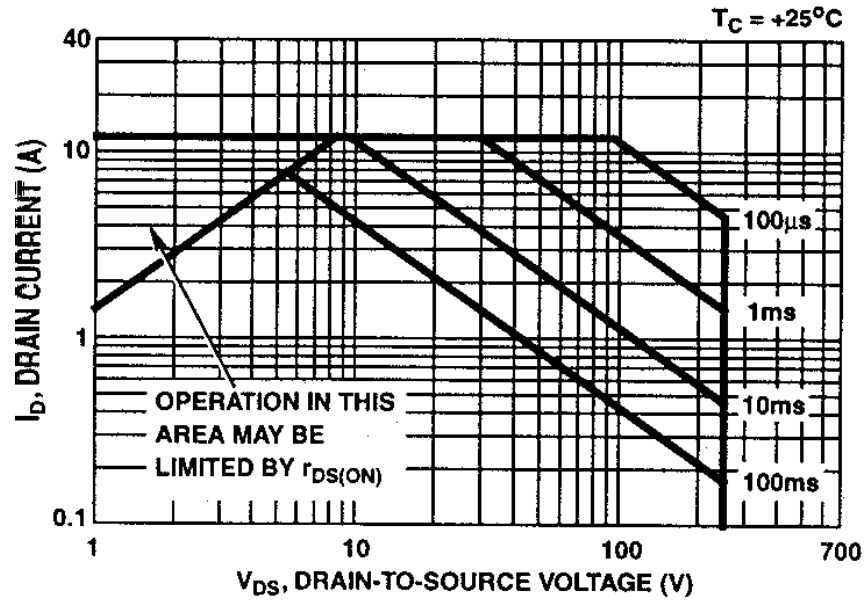


FIGURE 4. Safe operating area graphs.

2N7397



2N7398

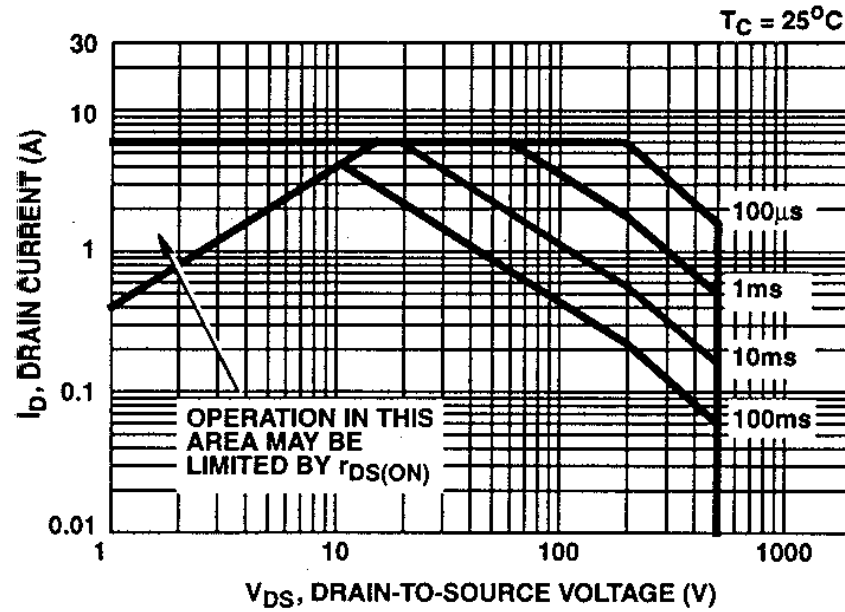


FIGURE 4. Safe operating area graphs - Continued.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the Military Service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

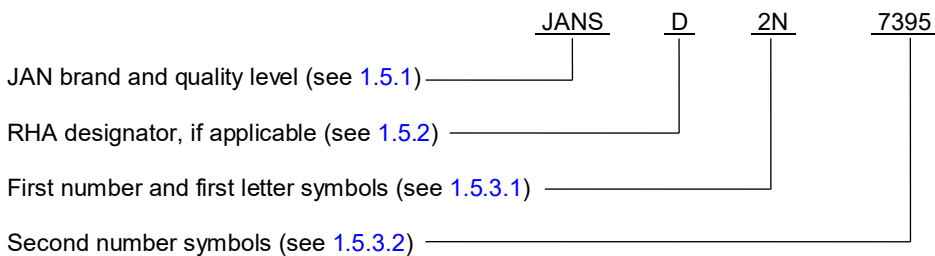
6.1 Intended use. The notes specified in [MIL-PRF-19500](#) are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Packaging requirements (see 5.1).
- c. Lead material and finish may be specified (see [3.4.1](#)).
- d. The complete PIN, see [1.5](#) and [6.4](#).
- e. For acquisition of RHA designated devices, [table II](#), subgroup 1 testing of group D herein is optional. If subgroup 1 is desired, it should be specified in the contract.
- f. If specific SEE characterization conditions are desired (see section [6.7](#) and [table V](#)), manufacturer's cage code should be specified in the contract or order.
- g. If SEE testing data is desired, it should be specified in the contract or order.

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List (QML 19500) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DLA Land and Maritime, ATTN: VQE, P.O. Box 3990, Columbus, OH 43218-3990 or e-mail [vqe.chief@dla.mil](mailto:vqe.chief@dla.mil). An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at <https://qpldocs.dla.mil>.

6.4 PIN construction example. The PINs for encapsulated devices are constructed using the following form.



6.5 List of PINs. The following is a list of possible PINs available on this specification sheet.

| PINs for devices of the<br>"D" RHA level | PINs for devices of the<br>"R" RHA level |
|------------------------------------------|------------------------------------------|
| JANS2N7395                               | JANSR2N7395                              |
| JANS2N7396                               | JANSR2N7396                              |
| JANS2N7397                               | JANSR2N7397                              |
| JANS2N7398                               | JANSR2N7398                              |

6.6 Lead material. The original issue of this specification through MIL-PRF-19500/631B (9 March 2004) specified that the lead material as Kovar or Alloy 52. Because of the performance format of this document, a lead material is no longer specified.

6.7 Manufacturer specific irradiation data. Each manufacturer qualified to this slash sheet has characterized its devices to the requirements of MIL-STD-750 method 1080 and as specified herein. Since each manufacturer's characterization conditions can be different and can vary by the version of method 1080 qualified to, the MIL-STD-750 method 1080 revision version date and conditions used by each manufacturer for characterization have been listed here (see table V) for information only. SEE conditions and figures listed in section 6 are current as of the date of this specification sheet, please contact the manufacturer for the most recent conditions.

TABLE V. Manufacturers characterization conditions.

| Manufactures<br>CAGE                                                                                             | Inspection | MIL-STD-750 |            | Sample<br>plan |
|------------------------------------------------------------------------------------------------------------------|------------|-------------|------------|----------------|
|                                                                                                                  |            | Method      | Conditions |                |
| Upon qualification, all manufacturers should provide the verification test conditions to be added to this table. |            |             |            |                |
|                                                                                                                  |            |             |            |                |

6.8 Request for new types and configurations. Requests for new device types or configurations for inclusions in this specification sheet should be submitted to: DLA Land and Maritime, ATTN: VAC, Post Office Box 3990, Columbus, OH 43218-3990 or by electronic mail at [Semiconductor@dla.mil](mailto:Semiconductor@dla.mil) or by facsimile (614) 693-1642 or DSN 850-6939.

6.9 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:

Army – CR  
Navy – EC  
Air Force – 85  
NASA – NA  
DLA – CC

Preparing activity:

DLA – CC

(Project 5961–2019–086)

Review activity

Air Force – 19

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.