

The documentation and process conversion measures necessary to comply with this document shall be completed by 16 April 2024.

INCH-POUND

MIL-PRF-19500/587F
w/AMENDMENT 1
January 16, 2024
SUPERSEDING
MIL-PRF-19500/587F
15 October 2020

PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON, RECTIFIER,
DEVICE TYPES 1N6661, 1N6662, AND 1N6663,
(THROUGH HOLE AND SURFACE MOUNT PACKAGES)
QUALITY LEVELS JAN, JANTX, JANTXV, AND JANS

JANS1N645-1, JANS1N647-1 and JANS1N649-1 are non-preferred PINS and are inactive for new design. The preferred PINS are JANS1N6661, JANS1N6662, and JANS1N6663.

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 silicon rectifier diodes. Four levels of product assurance (JAN, JANTX, JANTXV, and JANS) are provided for each device type as specified in [MIL-PRF-19500](#).

1.2 Package outlines. The device package outlines are a round body, axial leads (similar to DO-204AH, formerly DO-35) in accordance with [figure 1](#) and metal electrode leadless face (MELF) surface mount device (SMD) with square end-caps (US) package in accordance with [figure 2](#).

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

Type	V_{RWM}	I_{O2} (1) $T_A = +150^\circ\text{C}$	I_{O1} (1) (2) (3) (4) $T_A = +25^\circ\text{C}$	I_{FSM} tp = 1/120s $T_A = +25^\circ\text{C}$	T_J and T_{STG} (ambient temperature)	Barometric pressure reduced	$R_{\theta JL}$ at L = .375 inch (9.52 mm)	$R_{\theta JEC}$ at L = 0 inch (0 mm)
	<u>V(pk)</u>	<u>mA</u>	<u>mA</u>	<u>A</u>	<u>°C</u>	<u>mmHg</u>	<u>°C/W</u>	<u>°C/W</u>
1N6661, US	225	150	500	5	-65 to +175	8	160	35
1N6662, US	400	150	500	5	-65 to +175	8	160	35
1N6663, US	600	150	500	5	-65 to +175	8	160	35

- (1) No forced air or heat sinking shall be permitted for I_O ratings.
- (2) $T_{EC} = 110^\circ\text{C}$.
- (3) Devices with leads. Derate 2.8 mA/°C between 25°C and 150°C . Derate 6 mA/°C between 150°C and 175°C .
- (4) US suffix devices. Derate 8.75 mA/°C at T_{EC} between 110°C and 150°C . Derate 6 mA/°C at T_{EC} between 150°C and 175°C .

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to 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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FSC 5961



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

Type	V_F at $I_F = 400\text{ mA dc}$ 2 percent duty cycle, 8.3 ms max pulse width	I_R at $T_A = +25\text{ }^{\circ}\text{C}$		I_R at $T_A = +150\text{ }^{\circ}\text{C}$	
	V dc (max)	$\mu\text{A dc (max)}$	at V_R	$\mu\text{A dc (max)}$	at V_R
1N6661, US	1.0	.050	225 V dc	15	225 V dc
1N6662, US	1.0	.050	400 V dc	15	400 V dc
1N6663, US	1.0	.050	600 V dc	25	600 V dc

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, [6.5](#) for a list of available PINs, [6.6](#) and for supersession information.

1.5.1 JAN certification mark and quality level designators. The quality level designators for encapsulated devices that are applicable for this specification sheet from the lowest to the highest level are as follows: "JAN", "JANTX", "JANTXV", and "JANS".

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

1.5.2.1 First number and first letter symbols. The semiconductors of this specification sheet use the first number and letter symbols "1N".

1.5.2.2 Second number symbols. The second number symbols for the semiconductors covered by this specification sheet are "6661", "6662" and "6663".

1.5.3 Suffix symbols. The suffix symbols (or lack thereof) that designate the package outline for the devices covered by this specification sheet are as follows:

Blank	A blank designator identifies the outline as a round glass body, axial wire terminal package similar to a DO-204AH (formerly DO-35) in accordance with figure 1 .
US	This designator identifies the outline as a two terminal, round body leadless face, square endcap SMD package in accordance with figure 2 .

1.5.4 Lead finish. The lead finishes applicable to this specification sheet are listed on [QML-19500](#).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections [3](#) or [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](#) or [4](#) of this specification, whether or not they are listed.

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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

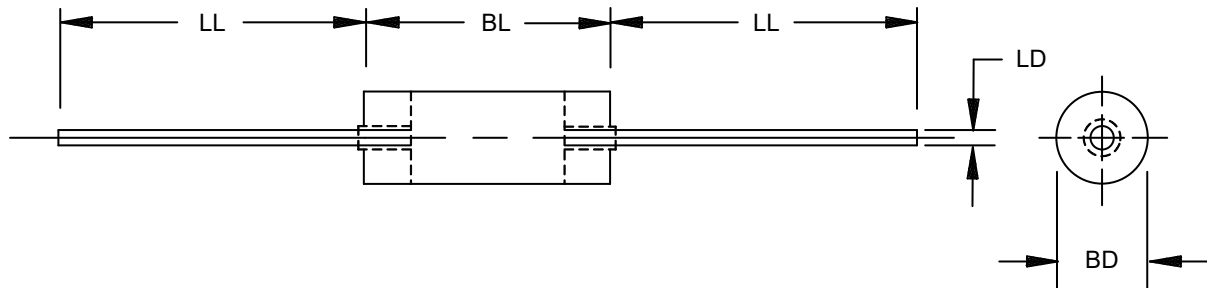
MIL-PRF-19500 – Semiconductor Devices, General Specification for.

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.



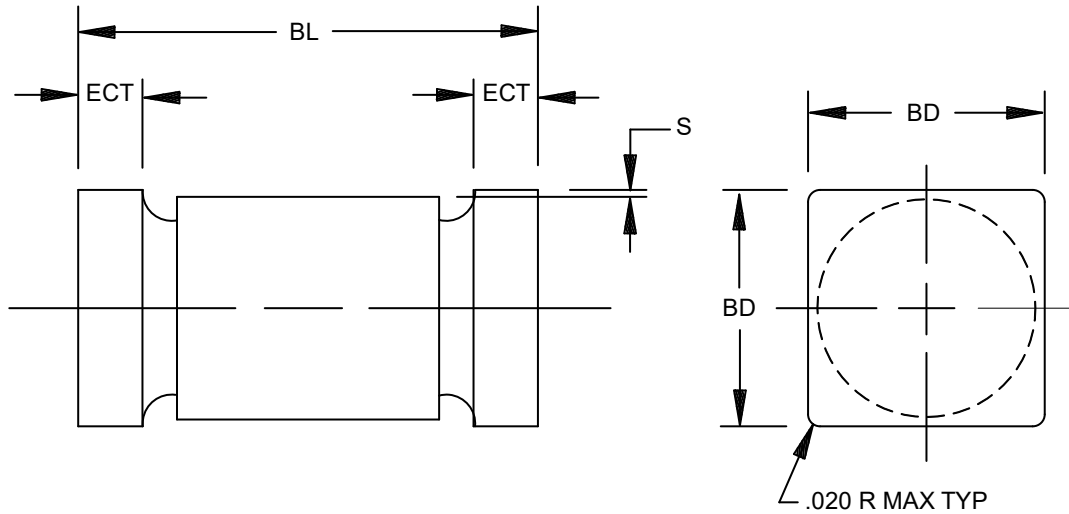
Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.060	.090	1.52	2.29	2
BL	.120	.200	3.05	5.08	
LD	.018	.022	0.46	0.56	3
LL	1.000	1.500	25.40	38.10	

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Dimensions are pre-solder dip.
3. The specified lead diameters apply in the zone between .050 inch (1.27 mm) from the diode body to the end of the lead. Outside of this zone the lead diameter shall not exceed the maximum of dimension BD.

* FIGURE 1. Physical dimensions of round body, axial leaded DO-204AH package.

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Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	.091	.103	2.31	2.62
BL	.168	.200	4.27	5.08
ECT	.019	.028	0.48	0.71
S	.003		0.08	

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Dimensions are pre-solder dip.

* FIGURE 2. Physical dimensions of round body, leadless face surface mount with square end-caps (US) package.

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 manufacturer's list (QML) before contract award (see [4.2](#) and [6.3](#)).

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3.3 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in [MIL-PRF-19500](#).

P_{RM} Peak reverse power.

* 3.4 Interface and physical dimensions. The interface and physical dimensions shall be specified in [MIL-PRF-19500](#) and [figure 1](#) (DO-204AH) and [figure 2](#) (US surface mount) herein.

3.4.1 Lead finish. Unless otherwise specified, lead or end cap finish shall be solderable in accordance with [MIL-PRF-19500](#), [MIL-STD-750](#), and herein. When solder alloy is used for finish, the maximum lead temperature is limited to 175°C maximum. Where a choice of finish is desired, it shall be specified in the acquisition document (see [6.2](#)).

3.4.2 Diode construction. These devices shall be metallurgically bonded, thermally matched, non-cavity, double plug construction, utilizing a category I bond in accordance with [MIL-PRF-19500](#). US suffix devices shall be structurally identical to the non-surface mount version devices except for lead configuration.

3.5 Marking. Devices shall be marked in accordance with [MIL-PRF-19500](#). No color coding shall be permitted for part identification marking.

* 3.5.1 Axial lead devices. The prefixes JAN, JANTX, JANTXV, and JANS may be abbreviated as J, JX, and JV, respectively. Example: The part identification marking may be reduced to J6661, JX6661, JV6661 or JS6661.

3.5.2 US devices. For 'US' suffix devices, all marking may be omitted from the body except for the cathode marking. All marking which is omitted from the body of the device shall appear on the initial container. At the option of the manufacturer, 'US' suffix devices may include laser marking on an end-cap, to include the PIN and lot date code for all quality levels. The prefixes JAN, JANTX, JANTXV, or JANS may be abbreviated as J, JX, JV or JS, respectively. Example: The part identification marking on the device may be reduced to JV6661US.

* 3.5.3 Polarity. The polarity shall be indicated with a contrasting color band to denote the cathode end. Alternatively, for US-suffix devices, the cathode end may be identified by three evenly spaced dots of a contrasting color.

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

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

3.8 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](#)).

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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 II](#) tests, the tests specified in [table II](#) 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 (quality levels JANS, JANTX, and JANTXV 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	Measurement for	
	JANS level	JANTX and JANTXV levels
(1) 3c	Thermal impedance (see 4.3.1)	Thermal impedance (see 4.3.1)
9	V_{F1} , I_{R1}	Not applicable
11	V_{F1} , I_{R1} , ΔV_{F1} and ΔI_{R1}	V_{F1} , I_{R1}
12	See 4.3.2	See 4.3.2
13	Subgroups 2 and 3 of table I herein; $\Delta I_{R1} \leq 100$ percent of initial reading or $\pm 0.010 \mu A$ dc whichever is greater. $\Delta V_{F1} \leq \pm 25$ mV dc. Scope display (see 4.5.2).	Subgroup 2 of table I herein; $\Delta I_{R1} \leq 100$ percent of initial reading or $\pm 0.010 \mu A$ dc whichever is greater. $\Delta V_{F1} \leq 25$ mV dc. Scope display (see 4.5.2).

- (1) Thermal impedance shall be performed any time after sealing provided temperature cycling is performed in accordance with [MIL-PRF-19500](#), screen 3 prior to this thermal test.

4.3.1 Thermal impedance. The thermal impedance measurements shall be performed in accordance with method 3101 of [MIL-STD-750](#) using the guidelines in that method for determining I_M , I_H , t_H , t_{SW} , t_{MD} (V_C and V_H where appropriate). The limit will be statistically derived. See [table II](#), group E, subgroup 4 herein.

4.3.2 Power burn-in. Power burn-in shall be in accordance with condition B of method 1038 of [MIL-STD-750](#). The details of [4.5.3](#) and those that follows shall apply: $T_J = 135^\circ C$ minimum. All devices shall be operated under one of the following conditions.

Type	$T_A = +125^\circ C$; $f = 60$ Hz	$T_A = +25^\circ C$; $f = 60$ Hz	$T_A = +25^\circ C$
1N6661, US	$V_R = 225$ V (pk); $I_O = 200$ Ma	$V_R = 225$ V (pk); $I_O = 400$ mA	I_F (dc) = 400 mA
1N6662, US	$V_R = 400$ V (pk); $I_O = 200$ mA	$V_R = 400$ V (pk); $I_O = 400$ mA	I_F (dc) = 400 mA
1N6663, US	$V_R = 600$ V (pk); $I_O = 200$ mA	$V_R = 600$ V (pk); $I_O = 400$ mA	I_F (dc) = 400 mA

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.

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* 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 (for quality level JANS) and table E-VIB (for quality levels JAN, JANTX and JANTXV) of [MIL-PRF-19500](#) and as follows. Delta measurements shall be in accordance with the applicable steps of [table III](#) herein.

4.4.2.1 Quality level JANS (table E-VIA of [MIL-PRF-19500](#)).

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B3	1056	0 °C to +100 °C, 25 cycles.
B3	1051	-55 °C to +175 °C, 100 cycles.
B3	4066	Condition A, I_{FSM} = rated I_{FSM} (see 1.3); ten surges of 8.3 ms each at 1 minute intervals, superimposed on I_O = rated, V_{RWM} = rated.
B4	1037	See 4.5.3 . I_O = 500 mA; f = 50 to 60 Hz, T_A = +25 °C $\pm$ 3 °C; t_{ON} = t_{OFF} = 3 minutes (min) for 2,000 cycles; mounting conditions in accordance with method 1026 of MIL-STD-750 . 1N6661, US = V_{RM} = 225 V(pk) 1N6662, US = V_{RM} = 400 V(pk) 1N6663, US = V_{RM} = 600 V(pk)
B5	1027	See 4.5.3 . I_O = 500 mA minimum, apply V_R = rated V_{RWM} (see 1.3) adjust I_O to achieve T_J of 175 °C minimum; f = 50 to 60 Hz. T_A = + 55 °C maximum. t = 1,000 hours. Sampling plan n = 45, c = 0.
B6		Not applicable.
B8	4065	$P_{RM} \geq 100$ W for square wave ($P_{RM} \geq 314$ W for half-sine wave) in accordance with test method 4065 of MIL-STD-750 . Test shall be performed on each subplot. Sampling plan n = 10, c = 0. End-point electrical measurements in accordance with table I , subgroup 2.

4.4.2.2 Quality levels JAN, JANTX, and JANTXV (table E-VIB of [MIL-PRF-19500](#)).

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B2	1056	0 °C to +100 °C, 25 cycles.
B2	1051	-55 °C to +175 °C, 25 cycles.
B2	4066	Condition A, T_A = +25 °C, I_{FSM} = 5 A, ten 8.3 ms surges at 1 surge per minute intervals, superimposed on I_O = rated, V_{RWM} = rated. Mounting conditions shall be in accordance with method 1026 of MIL-STD-750 .
B3	1027	See 4.5.3 . I_O = 150 mA dc; f = 50 to 60 Hz; T_J = +150 °C minimum. 1N6661, US = V_{RM} = 225 V(pk) 1N6662, US = V_{RM} = 400 V(pk) 1N6663, US = V_{RM} = 600 V(pk)
B5		Not applicable
B6	1032	T_A = + 175 °C (non-operating). NOTE: Leaded samples from the same lot may be used in lieu of US suffix samples for all subgroups.

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4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in appendix E, table E-VII of [MIL-PRF-19500](#). Delta measurements shall be in accordance with the applicable steps of [table III](#) herein.

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
C2	1056	0 °C to +100 °C, 10 cycles.
C2	1051	-55 °C to +175 °C, 20 cycles.
C2	2036	Axial leaded devices – Lead tension: Condition A; weight = 6 pounds (2.72 Kg); t = 15s. Lead fatigue: Condition E. NOTE: Not applicable to US suffix devices.
C2	2038	US devices – Tab pull: Condition B, weight = 6 pounds (2.72 Kg), t = 15s.
C3		Not applicable.
C5	4081	See 4.5.4 . $R_{\theta JL} = 160$ °C/W maximum, $R_{\theta JEC} = 35$ °C/W maximum.
C6	1026	See 4.5.3 . $T_J = +150$ °C minimum; f = 50 to 60 Hz; $I_o = 150$ mA. 1N6661, US = $V_{RM} = 225$ V(pk) 1N6662, US = $V_{RM} = 400$ V(pk) 1N6663, US = $V_{RM} = 600$ V(pk) NOTE: Leaded devices from the same lot may be used in lieu of US suffix devices.
C7		Not applicable.

4.4.4 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 herein. End-point electrical measurements and delta limits shall be in accordance with [table II](#) herein; except, thermal impedance measurements need not to be performed.

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

4.5.1 Pulse measurements. Conditions of pulsed measurements shall be specified in section 4 of [MIL-STD-750](#).

4.5.2 Scope display evaluation. The reverse breakdown characteristics shall be viewed on an oscilloscope with display calibration factors of 20 μ A per division and 50 or 100 V per division as applicable. Reverse current over the knee shall be at least 100 μ A and less than 200 μ A. Any discontinuity or dynamic instability of the trace shall be cause for rejection of that device.

4.5.3 Burn-in and life tests. These tests shall be conducted with a half-sine waveform of the specified peak voltage impressed across the diode in the reverse direction followed by a half-sine waveform of the specified average rectified current. The forward conduction angle of the rectified current shall be neither greater than 180 degrees, nor less than 150 degrees.

4.5.3.1 Free air burn-in. The use of a current limiting or ballast resistor is permitted provided that each DUT still sees the full required T_J and I_o and that the minimum required voltage, where applicable, is maintained throughout the burn-in period.

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4.5.3.2 Junction temperature measurements. Use method 3100 of MIL-STD-750 to measure T_J .

4.5.4 Thermal resistance. Thermal resistance measurement shall be performed in accordance with method 4081 of MIL-STD-750 using the guidelines in that method for determining I_M , I_H , t_{MD} , t_{SW} and t_H (V_C and V_H where appropriate). See MIL-PRF-19500, table E-IX, subgroup 4. Forced moving air or draft shall not be permitted across the devices during test.

4.5.5 Peak reverse power characterization. The testing to characterize P_{RM} shall be conducted in accordance with method 4065 of MIL-STD-750. The following details shall apply:

- a. During the test, the voltage (V_{BR}) shall be monitored to verify it has not collapsed.
- b. Any collapse in V_{BR} during or after the test or rise in leakage current (I_R) after the test that exceeds I_{R1} in table I, shall be considered a failure to that level of applied P_{RM} .
- c. Progressively higher levels of P_{RM} shall be applied until failure occurs on all devices within the chosen sample size to characterize each subplot.

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TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical examination	2071					
<u>Subgroup 2</u>						
Thermal impedance	3101	See 4.3.1	$Z_{\theta JX}$		20	°C /W
Forward voltage	4011	Condition B; $I_F = 400$ mA dc; 2 percent duty cycle max, 8.3 ms max pulse width; (pulsed, see 4.5.1)	V_{F1}	0.8	1.0	V dc
Reverse current 1N6661, US 1N6662, US 1N6663, US	4016	Condition A or B $V_R = 225$ V dc $V_R = 400$ V dc $V_R = 600$ V dc	I_{R1}		0.050 0.050 0.050	μ A dc μ A dc μ A dc
Breakdown voltage 1N6661, US 1N6662, US 1N6663, US	4021	$I_R = 100$ μ A dc	V_{BR1}	270 480 720		V dc V dc V dc
<u>Subgroup 3</u>						
High temperature operation:		$T_A = +150$ °C				
Forward voltage	4011	Condition B; $I_F = 400$ mA dc; 2 percent duty cycle max, 8.3 ms max pulse width; (pulsed, see 4.5.1)	V_{F2}	0.70	0.95	V dc
Reverse current 1N6661, US 1N6662, US 1N6663, US	4016	Condition A or B $V_R = 225$ V dc $V_R = 400$ V dc $V_R = 600$ V dc	I_{R2}		25 25 25	μ A dc μ A dc μ A dc
Low temperature operation:		$T_A = -55$ °C				
Forward voltage	4011	Condition B; $I_F = 400$ mA dc; 2 percent duty cycle max, 8.3 ms max pulse width; (pulsed, see 4.5.1)	V_{F3}		1.2	V dc

See footnotes at end of table.

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TABLE I. Group A inspection - Continued.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 4</u> Capacitance	4001	$V_R = 4 \text{ V dc}$; $f = 1 \text{ MHz}$; $V_{sig} = 50 \text{ mV p-p}$ maximum	C		20	pF
<u>Subgroup 5</u> Not applicable						
<u>Subgroup 6</u> <u>2/</u> Surge current						
Electrical measurements	4066	Condition A, mounting conditions in accordance with test method 1026 of MIL-STD-750; $T_A = 25 \text{ }^\circ\text{C}$; $I_{FSM} = 5 \text{ A}$; ten 8.3 ms surges; 1 surge per minute See table I, subgroup 2				

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

2/ All devices required by the specified sampling plan shall be randomly selected from the devices subjected to subgroup 2, 3, and 4.

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* TABLE II. Group E inspection (all quality levels) for qualification and requalification only.

Inspection 1/	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 1</u>			45 devices, c = 0
Thermal shock (glass strain) 2/	1056	20 cycles, condition D except low temperature shall be achieved using liquid nitrogen (-195°C). A visual inspection for cracked glass shall be performed	
Temperature cycling 2/	1051	-65°C to +175°C	
Hermetic seal	1071		
Electrical measurements		See table I , subgroup 2.	
<u>Subgroup 2</u>			22 devices, c = 0
Burn-in (blocking life)	1038	Condition A, T _A = 150 °C; t = 1,000 hours minimum; V _R = 80 percent of rated V _{RWM} (see 1.3).	
Electrical measurement		See table I , subgroup 2 and table III , step 2.	
<u>Subgroup 4</u>			
Thermal impedance curves		See MIL-PRF-19500 .	
<u>Subgroup 5</u>			15 devices, c = 0 each type
Barometric pressure, reduced (altitude operation)	1001	Test condition D, 8 mm Hg; t = 60 s.	
Measurement during test: Reverse current 1N6661, US 1N6662, US 1N6663, US	4016	Condition A or B; V _R = 225 V dc; I _R = .050 µA dc maximum. V _R = 400 V dc; I _R = .050 µA dc maximum. V _R = 600 V dc; I _R = .100 µA dc maximum.	

See footnote at end of table.

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TABLE II. Group E inspection (all quality levels) for qualification and requalification only - Continued.

Inspection <u>1/</u>	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 8</u>			
Peak reverse power	4065	P_{RM} shall be characterized by the supplier and this data shall be available to the Government. Test shall be performed on each subplot.	
Electrical measurement		See 4.5.5.	
<u>Subgroup 9</u>			n = 45
Resistance to glass cracking	1057	Test condition B. Step stress to destruction by increasing cycles or up to a maximum of 25 cycles.	
<u>Subgroup 10</u>			22 devices, c = 0
Forward surge	4066	Condition A, I_{FSM} = rated I_{FSM} (see 1.3); ten surges of 8.3 ms each at 1 minute intervals, I_o = rated (see 1.3), V_{RWM} = rated (see 1.3).	
Electrical measurement		See table I, subgroup 2.	

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

* 2/ Separate samples may be used for each test.

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TABLE III. Groups A, B, C, and E delta measurements. 1/ 2/ 3/ 4/

Step	Inspection	MIL-STD-750		Symbol	Limits		Unit
		Method	Conditions		Min	Max	
1.	Reverse current 1N6661, US 1N6662, US 1N6663, US	4016	Condition A or B $V_R = 225$ V dc $V_R = 400$ V dc $V_R = 600$ V dc	ΔI_{R1} <u>5/</u>	100 percent of initial value or ± 0.10 μ A dc, whichever is greater.		
2.	Forward voltage	4011	Condition B $I_F = 400$ mA dc; 2 percent duty cycle max; 8.3 ms max pulse width; (pulsed, see 4.5.1)	ΔV_{F1} <u>5/</u>	± 25 mV dc change from previously measured value.		

- 1/ The delta measurements taken during group B inspection for quality level JANS (table E-VIA of MIL-PRF-19500) shall be as follows:
- In addition to the measurements specified for subgroup 4, the measurements of steps 1 and 2 shall also be taken.
 - In addition to the measurements specified for subgroup 5, the measurements of steps 1 and 2 shall also be taken.
- 2/ The delta measurements taken during group B inspection for quality level JANTX and JANTXV (table E-VIB of MIL-PRF-19500) shall be as follows:
- In addition to the measurements specified for subgroup 3, the measurements of steps 1 and 2 shall also be taken.
 - In addition to the measurements specified for subgroup 6, the measurements of step 1 shall also be taken.
- 3/ The delta measurements taken during group C inspection for all quality levels (table E-VII of MIL-PRF-19500) shall be as follows: Subgroup 6, the measurements of steps 1 and 2 (JANS); step 1 (JANTX and JANTXV).
- 4/ The delta measurements taken during group E inspection for all quality levels (table E-IX of MIL-PRF-19500) shall be as follows: In addition to the measurements specified for subgroup 2, the measurements of step 1 shall also be taken.
- 5/ Devices which exceed the table I limits for this test shall not be accepted.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When 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. The notes specified in MIL-PRF-19500 are applicable to this specification.)

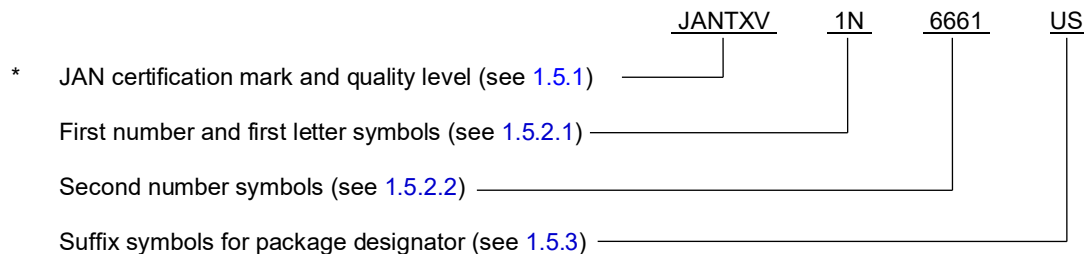
6.1 Intended use. Semiconductors conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

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 finish (see 3.4.1).
- d. The complete PIN, see 1.5 and 6.5.

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. 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 examples. The PIN example for encapsulated devices is constructed using the following form.



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

PINs for devices of the base quality level	PINs for devices of the "TX" quality level	PINs for devices of the "TXV" quality level	PINs for devices of the "S" quality levels
Axial through-hole mount (similar to DO-204AL)			
JAN1N6661	JANTX1N6661	JANTXV1N6661	JANS1N6661
JAN1N6662	JANTX1N6662	JANTXV1N6662	JANS1N6662
JAN1N6663	JANTX1N6663	JANTXV1N6663	JANS1N6663
Surface mount version (US)			
JAN1N6661US	JANTX1N6661US	JANTXV1N6661US	JANS1N6661US
JAN1N6662US	JANTX1N6662US	JANTXV1N6662US	JANS1N6662US
JAN1N6663US	JANTX1N6663US	JANTXV1N6663US	JANS1N6663US

6.6 Preferred PINS and supersession information.

6.6.1 Cross reference substitution list. Quality level JANS devices are no longer being produced or accepted to [MIL-PRF-19500/240](#). The preferred PINs for devices required for space flight applications are listed in 6.6.2.

6.6.2 Superseded device types. The following device types were superseded through previous revisions of this specification sheet from [MIL-PRF-19500/240](#).

Superseding PIN as specified within MIL-S-19500/587A dated 20 October 1998	Superseding PIN as specified within MIL-S-19500/240F dated 21 February 1994
JANS1N6661	JANS1N645-1
JANS1N6662	JANS1N647-1
JANS1N6663	JANS1N649-1

* 6.7 Amendment notations. The margins of this specification are marked with asterisks to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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Custodians:

Army – CR
* Navy – SH
Air Force – 85
NASA – NA
DLA – CC

Preparing activity:

DLA – CC

(Project 5961–2024–012)

Review activities:

Army – AR, MI, SM
Navy – AS, MC
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>.