

The documentation and process conversion measures necessary to comply with this revision shall be completed by 7 July 2000.

INCH POUND

MIL-PRF-19500/578D
7 April 2000
SUPERSEDING
MIL-PRF-19500/578C
17 January 1998

PERFORMANCE SPECIFICATION

SEMICONDUCTOR DEVICE, DIODE, SILICON, SWITCHING,
1N6638, 1N6642, 1N6643, 1N6638U, 1N6642U, 1N6643U, 1N6638US, 1N6642US, 1N6643US
JAN, JANTX, JANTXV, JANJ, AND JANS

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

The JANS1N4148-1 will no longer be qualified. The JANS1N6642 will be used in place of the JANS1N4148-1. The 1N6638US, 1N6642US and 1N6643US are directly substitutable for the 1N6638U, 1N6642U, and 1N6643U.

1. SCOPE

1.1 Scope. This specification covers the performance requirements for switching diodes. Five levels of product assurance are provided for each device type as specified in MIL-PRF-19500.

1.2 Physical dimensions. See figures 1 (similar to DO-35) and 2 (square endcap surface mount).

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

Types	V_{BR}	V_{RWM}	I_o (1), (2)	I_{FSM} $t_p = 1/120 \text{ s}$	T_{STG}, T_J	$R_{\theta JL}$ L = .375	$R_{\theta JEC}$ L = 0	$Z_{\theta JX}$
	<u>V (pk)</u>	<u>V (pk)</u>	<u>mA</u>	<u>A (pk)</u>	<u>°C</u>	<u>°C/W</u>	<u>°C/W</u>	<u>°C/W</u>
1N6638, 1N6638U, 1N6638US	150	125	300	2.5	-65 to +175	160	50	25
1N6642, 1N6642U, 1N6642US	100	75	300	2.5	-65 to +175	160	50	25
1N6643, 1N6643U, 1N6643US	75	50	300	2.5	-65 to +175	160	50	25

(1) Derate at 3.0 mA/°C above $T_L = +75^\circ\text{C}$ for axial lead, L = .375 inch (9.53 mm).

(2) Derate at 4.6 mA/°C above $T_{EC} = +110^\circ\text{C}$ for U and US suffix types.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Defense Supply Center, Columbus, ATTN: DSCC/VAC, Post Office Box 3990, Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC/NA

FSC 5961

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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

Types (1)	V_{F1} $I_F = 10 \text{ mA}$	V_{F2}	I_{R1} $V_R = 20 \text{ V}$	I_{R2} $V_R = V_{RWM}$	I_{R3} $V_R = 20 \text{ V}$ $T_A = +150^\circ\text{C}$	I_{R4} $V_R = V_{RWM}$ $T_A = +150^\circ\text{C}$	t_{fr} $I_F = 50 \text{ mA}$	t_{rr} $I_{RM} = I_F = 10 \text{ mA}$	C_{T1} $V_R = 0$
	<u>V dc</u>	<u>V dc</u>	<u>nA dc</u>	<u>μA dc</u>	<u>μA dc</u>	<u>μA dc</u>	<u>ns</u>	<u>ns</u>	<u>pF</u>
1N6638, 1N6638U 1N6638US	0.80	1.1 (2)	35	0.5	50	100	20	4.5	2.5
1N6642, 1N6642U, 1N6642US	0.80	1.2 (3)	25	0.5	50	100	20	5.0	5.0
1N6643, 1N6643U, 1N6643US	0.80	1.2 (3)	50	0.5	75	160	20	6.0	5.0

(1) Suffix "U" devices are structurally identical to the suffix "US" devices.

(2) $I_F = 200 \text{ mA}$.

(3) $I_F = 100 \text{ mA}$.

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 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 listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATION

DEPARTMENT OF DEFENSE

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

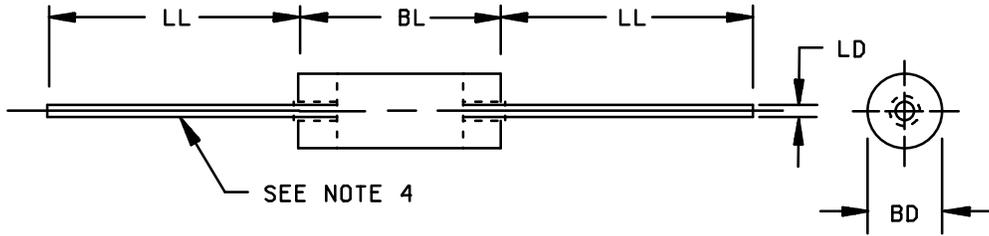
STANDARD

DEPARTMENT OF DEFENSE

MIL-STD-750 - Test Methods for Semiconductor Devices.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Defense Automated Printing Service, Building 4D (NPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications or specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.



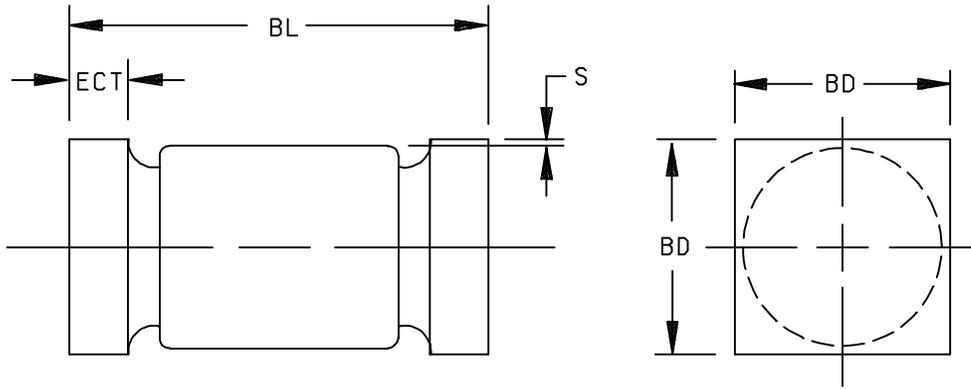
Symbol	Dimensions (see notes 1, 2)				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.056	.080	1.42	2.03	3, 5
BL	.130	.180	3.30	4.57	
LD	.018	.022	0.46	0.56	4
LL	1.00	1.50	25.40	38.10	

TYPES 1N6638, 1N6642, AND 1N6643

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. The maximum dimension of BD shall apply for dimension BL.
4. The specified lead diameter applies in the zone between 1.27 mm (.050 inch) from the diode body to the end of the lead. Outside of this zone lead shall not exceed BD.
5. The minimum dimension of BD shall apply over at least 1.65 mm (.065 inch) of dimension BL.

FIGURE 1. Physical dimensions (similar to DO - 35).



Symbol	Dimensions (see notes 1, 2)			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	.070	.085	1.78	2.16
BL	.165	.195	4.19	4.95
ECT	.019	.028	0.48	0.71
S	.003	---	0.08	---

TYPES 1N6638U, 1N6642U, AND 1N6643U, 1N6638US, 1N6642US, AND 1N6643US

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 2. Physical dimensions of surface mount family.

3. REQUIREMENTS

3.1 Associated specification. The individual item performance requirements shall be in accordance with MIL-PRF-19500 and as specified herein.

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

3.3 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein shall be as specified in MIL-PRF-19500.

3.4 Interface requirements and physical dimensions. The interface requirements and physical dimensions shall be as specified in MIL-PRF-19500, and figure 1 (similar to DO-35) and figure 2 ("U and US" suffix types).

3.4.1 Lead finish. Unless otherwise specified, lead finish shall be solderable in accordance with MIL-PRF-19500, MIL-STD-750, and herein.

3.4.2 Diode construction. These devices shall be constructed in a manner and using materials which enable the diodes to meet the applicable requirements of MIL-PRF-19500 and this document.

- a. All devices shall be of metallurgically bonded, thermally matched, noncavity-double plug construction in accordance with the requirements of category I (see MIL-PRF-19500).
- b. The 'US' version shall be structurally identical to the non-US versions except for end cap lead attachment.
- c. The 'US' version shall be structurally identical to the U version.

3.5 Marking. Devices shall be marked as specified in MIL-PRF-19500.

3.6 Polarity. The polarity shall be as specified in MIL-PRF-19500.

3.7 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in 1.3, 1.4, and table I herein.

3.8 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table I herein.

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).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500.

4.2.1 Group E inspection. Group E inspection shall be conducted in accordance with the conditions specified for subgroup testing in table IX of MIL-PRF-19500, and table II herein. End point electrical measurements shall be as specified in table I, group A, subgroup 2 herein.

4.2.2 JANJ qualification. For JANJ qualification, 4.4.2.1 herein shall be performed as required by the qualifying activity.

4.2.3 JANJ devices. For JANJ level, 3.3.1 through 3.3.1.3 of MIL-PRF-19500 shall apply, except as modified herein. Supplier imposed requirements as well as alternate screens, procedures, and/or controls shall be documented in the QM plan and must be submitted to the Qualifying Activity for approval. When alternate screens, procedures, and/or controls are used, in lieu of the JANJ screens herein equivalency shall be proven and documented in the QM Plan. Radiation characterization may be submitted in the QM plan at the option of the manufacturer, however, paragraph 3.3.1.1 of MIL-PRF-19500 is not required. Die lot control and rework shall be in accordance with MIL-PRF-19500 paragraph 3.13 and D 3.13.2.1 for JANS level. Lot formation and conformance inspection requirements for JANJ shall be those used for JANTXV devices as a minimum.

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4.3 Screening (JANS, JANJ, JANTXV and JANTX levels only). Screening shall be in accordance with MIL-PRF-19500 (table IV), and as specified herein. Specified electrical measurements shall be made in accordance with table I herein. Devices that exceed the limits of table I herein shall not be acceptable.

Screen (see table IV of MIL-PRF-19500)	JANS Level	JANJ Level	JANTXV and JANTX Level
1a	Required	Not Required	Not Required
1b	Required	Required	Required (JANTXV only)
2	Not Required	Not Required	Not Required
3a	Required	Required	Required
3b	Not Applicable	Not Applicable	Not Applicable
3c (1)	Thermal impedance (see 4.3.2)	Thermal impedance (see 4.3.2)	Thermal impedance (see 4.3.2)
4	Not Applicable	Not Applicable	Not Applicable
5	Not Applicable	Not Applicable	Not Applicable
6	Not Applicable	Not Applicable	Not Applicable
7a	Not Applicable	Not Applicable	Not Applicable
7b	Required	Required	Required
8	Required	Not Required	Not Required
9	I_{R1}	I_{R1}	Not Applicable
10	Method 1038, condition A	Method 1038, condition A	Method 1038, condition A
11	V_{F2} , I_{R1} ; and $V_{(BR)}$ $\Delta I_{R1} \pm 15$ nA dc or 100 percent of initial value whichever is greater.	V_{F2} , I_{R1} ; and $V_{(BR)}$ $\Delta I_{R1} \pm 15$ nA dc or 100 percent of initial value whichever is greater.	V_{F2} and I_{R1}
12	Required See 4.3.1	Required T = 240 hours See 4.3.1	Required See 4.3.1
13	Subgroups 2 and 3 of table I herein; $\Delta I_{R1} \leq 100$ percent of initial reading or 15 nA dc, whichever is greater. $\Delta V_{F2} \leq \pm 0.030$ V dc Reverse scope display evaluation (see MIL-STD-750, method 4023)	Subgroups 2 and 3 of table I herein; $\Delta I_{R1} \leq 100$ percent of initial reading or 15 nA dc, whichever is greater. $\Delta V_{F2} \leq \pm 0.030$ V dc Reverse scope display evaluation (see MIL-STD-750, method 4023)	Subgroup 2 of table I herein; $\Delta I_{R1} \leq 100$ percent of initial reading or 15 nA dc, whichever is greater. $\Delta V_{F2} \leq \pm 0.030$ V dc. Reverse scope display evaluation (see MIL-STD-750, method 4023)
14a	Not Applicable	Not Applicable	Not Applicable
14b	Optional	Optional	Optional
15	Required	Not Required	Not Required
16	Required	Required	Not Required
17	Not Required	Required Subgroup 2 of table I herein	Not Required

(1) Thermal impedance shall be performed any time after screen 3.

4.3.1 Power burn-in conditions. Power burn-in conditions are as follows:

Method 1038, condition B, T_A = room ambient as defined in the general requirements of MIL-STD-750, (see 4.5); V_R = rated V_{RWM} ; f = 50-60 Hz; I_O = 300 mA. An alternative of I_F (dc) = 300 mA may be used (at T_A = room ambient as defined in the general requirements of MIL-STD-750, see 4.5).

4.3.2 Thermal impedance $Z_{\theta JX}$ measurements for screening. The $Z_{\theta JX}$ measurements shall be performed in accordance with MIL-STD-750, method 3101. The maximum limit and conditions for $Z_{\theta JX}$ in screening (table IV of MIL-PRF-19500) shall be derived statistically by each vendor by means of actual measurements which characterize the die attach process (not to exceed the group A limit.)

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 V of MIL-PRF-19500, table I herein, and as specified herein. Electrical measurements (end-points) shall be in accordance with table I, group A, subgroup 2 herein. The following test conditions shall be used for $Z_{\theta JX}$, group A inspection.

- a. I_H forward heating current 1 - 2 A.
- b. t_H heating time 10 ms.
- c. I_M measure current 1 mA to 10 mA.
- d. t_{MD} measurement delay time 100 μ s maximum.

The maximum limit for $Z_{\theta JX}$ under these test conditions is $Z_{\theta JX(max)} = 25^\circ\text{C/W}$.

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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 tables VIa (JANS) and VIb (JAN, JANTX, JANTXV, and JANJ) of MIL-PRF-19500 and paragraphs 4.4.2.1 and 4.4.2.2 herein. Electrical measurements (end-points) shall be in accordance with table I, group A, subgroup 2.

4.4.2.1 Group B inspection, table VIa (JANS) of MIL-PRF-19500.

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
B4	1037	$V_R = \text{rated } V_{RWM}$, $T_A = \text{room ambient}$ as defined in 4.5 of MIL-STD-750, $f = 50\text{-}60$ Hz (see 4.5.1); $t_{on} = t_{off} = 1$ minute minimum; 2,000 cycles; $I_O = 300$ mA; In lieu of ac conditions, a dc condition of $I_F = 400$ mA may be used.
B5	1027	Option 1: Adjust T_A or I_O to obtain a minimum T_J of $+275^\circ\text{C}$, $t = 96$ hours. $I_O = 300$ mA minimum, $V_R = \text{rated } V_{RWM}$, $f = 50\text{-}60$ Hz (see 4.5.1),
B5	1027	Option 2: Adjust T_A or I_O to obtain a minimum T_J of $+200^\circ\text{C}$, $t = 1000$ hours. $I_O = 300$ mA minimum, $V_R = \text{rated } V_{RWM}$, $f = 50\text{-}60$ Hz (see 4.5.1),
B6	3101 or 4081	$L = .375$ inch (9.53 mm); $R_{\theta JL} = 160^\circ\text{C/W}$ maximum (see 4.5.4); $R_{\theta JEC} = 50^\circ\text{C/W}$ maximum (see 4.5.4).

4.4.2.2 Group B inspection, table VIb (JAN, JANTX, JANTXV and JANJ) of MIL-PRF-19500. Leaded samples from the same lot may be used in lieu of U and US suffix sample for life test.

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
B3	1027	$T_A = \text{room ambient}$ as defined in 4.5 of MIL-STD-750, $V_{(pk)} = \text{rated } V_{RWM}$; $f = 50\text{-}60$ Hz (see 4.5.1); $I_O = 300$ mA dc; adjust T_A to obtain a minimum T_J of $+150^\circ\text{C}$.
B5	3101 or 4081	See 4.5.4.
B6	1032	$T_A = +175^\circ\text{C}$.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table VII of MIL-PRF-19500, and as follows. Electrical measurements (end-points) shall be in accordance with table I, group A, subgroup 2 herein.

4.4.3.1 Group C inspection, table V of MIL-PRF-19500.

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
C2	2036	Tension - test condition A; weight = 4 pounds, $t = 15$ s; lead fatigue = condition E (not applicable to U and US suffix types).
C6	1026	1,000 hours minimum at $T_A = \text{room ambient}$ as defined in 4.5 of MIL-STD-750, $V_{(pk)} = \text{rated } V_{RWM}$; $f = 50 - 60$ Hz (see 4.3.1); $I_O = 300$ mA dc; adjust T_A to obtain a minimum T_J of $+150^\circ\text{C}$.

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

4.5.1 Life test. 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.

4.5.2 Forward-recovery voltage and time. Forward recovery time shall be measured as the time interval between zero time and the point where the pulse has decreased to 110 percent of the steady-state value of V_F when $I_F = 50$ mA dc. The maximum rise time of the response detector shall be 1 ns. The maximum forward recovery voltage (V_{fr}) during the forward recovery interval shall also be measured.

4.5.3 Scope display. The reverse breakdown characteristics shall be viewed on an oscilloscope with display calibration factors of 20 μ A per division and 20 V per division. 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.

4.5.4 Thermal resistance. Thermal resistance measurement shall be performed in accordance with MIL-STD-750, method 3101 or 4081. Forced moving air or draft shall not be permitted across the devices during test. The maximum limit for $R_{\theta JL}$ under these test condition shall be $R_{\theta JL(max)} = 160^\circ\text{C/W}$ and $R_{\theta JEC(max)} = 50^\circ\text{C/W}$. The following conditions shall apply:

$I_H = 75$ mA to 300 mA.

$t_H = 25$ seconds minimum.

$I_M = 1$ mA to 10 mA.

$t_{MD} = 100$ μ s maximum.

LS = Lead spacing = 9.53 mm (.375 inch) as defined on figure 3.

LS = 0 for 'US' or 'U' versions.

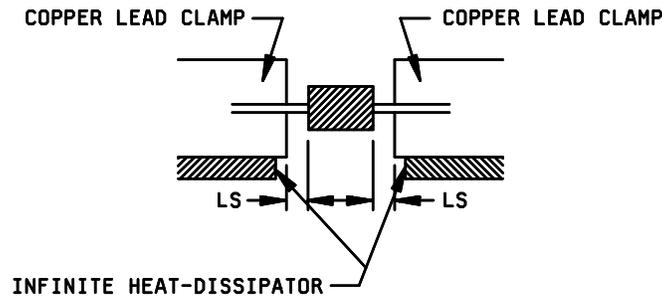


FIGURE 3. Mounting arrangement.

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

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TABLE I. Group A inspection.

Inspection <u>1</u> , <u>2</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 4.3.2	$Z_{\theta JX}$		25.0	°C/W
Forward voltage	4011	$I_F = 10$ mA dc pulsed	V_{F1}			
1N6638					0.8	V dc
1N6642					0.8	V dc
1N6643					0.8	V dc
Forward voltage	4011		V_{F2}			
1N6638		$I_F = 200$ mA pulsed			1.1	V dc
1N6642		$I_F = 100$ mA pulsed			1.2	V dc
1N6643		$I_F = 100$ mA pulsed			1.2	V dc
Breakdown voltage	4021	$I_R = 100$ μ A dc	V_{BR}			
1N6638				150		V dc
1N6642				100		V dc
1N6643				75		V dc
Reverse current	4016	DC method; $V_R = 20$ V dc	I_{R1}			
1N6638					35	nA dc
1N6642					25	nA dc
1N6643					50	nA dc
Reverse current	4016	DC method	I_{R2}			
1N6638		$V_R = 125$ V dc			500	nA dc
1N6642		$V_R = 75$ V dc			500	nA dc
1N6643		$V_R = 50$ V dc			500	nA dc

See footnotes at end of table.

TABLE I. Group A inspection - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 3</u>						
High temperature operation		$T_A = +150^\circ\text{C}$				
Reverse current 1N6638 1N6642 1N6643	4016	DC method, $V_R = 20\text{ V dc}$	I_{R3}		50 50 75	$\mu\text{A dc}$ $\mu\text{A dc}$ $\mu\text{A dc}$
Reverse current 1N6638 1N6642 1N6643	4016	DC method $V_R = 125\text{ V dc}$ $V_R = 75\text{ V dc}$ $V_R = 50\text{ V dc}$	I_{R4}		100 100 160	$\mu\text{A dc}$ $\mu\text{A dc}$ $\mu\text{A dc}$
Forward voltage 1N6638 1N6642	4011	$I_F = 10\text{ mA dc pulsed}$	V_{F3}		0.65 0.80	V dc V dc
Low temperature operation		$T_A = -55^\circ\text{C}$				
Forward voltage 1N6638 1N6642 1N6643	4011	Pulsed $I_F = 200\text{ mA pulsed}$ $I_F = 100\text{ mA pulsed}$ $I_F = 100\text{ mA pulsed}$	V_{F4}		1.2 1.2 1.4	V dc V dc V dc
<u>Subgroup 4</u>						
Capacitance 1N6638 1N6642 1N6643	4001	$V_R = 0\text{ V dc}$; $V_{\text{sig}} = 50\text{ mV(p-p)}$ $f = 1\text{ MHz}$	C_{T1}		2.5 5.0 5.0	pF pF pF

See footnotes at end of table.

TABLE I. Group A inspection - Continued.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 4</u> - Continued						
Capacitance 1N6638 1N6642 1N6643	4001	$V_R = 1.5 \text{ V dc}$; $V_{\text{sig}} = 50 \text{ mV(p-p)}$ $f = 1 \text{ MHz}$	C_{T2}		2.0 2.8 2.8	pF pF pF
Reverse recovery time 1N6638 1N6642 1N6643	4031	Condition A, $I_F = I_R = 10 \text{ mA dc}$	t_{rr}		4.5 5.0 6.0	ns ns ns
<u>Subgroup 5</u>						
Not applicable						
<u>Subgroup 6</u>						
Surge current	4066	$I_{FSM} = 2.5 \text{ A(pk)}$ ten surges at one per minute (max) surge duration of 1/120 seconds				
Electrical measurements		See table I, group A, subgroup 2.				
<u>Subgroup 7</u>						
Forward recovery voltage and time	4026	$I_F = 50 \text{ mA dc}$ (see 4.5.2)	V_{fr} t_{fr}		5.0 20.0	V(pk) ns

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

2/ Electrical characteristics for "U" and "US" suffix versions are identical to the corresponding non "U" and "US" suffix versions unless otherwise noted

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

Inspection	MIL-STD-750		Qualification Inspection
	Method	Conditions	
<u>Subgroup 1</u>			22 devices, c = 0
Thermal shock (glass strain)	1056	Condition A; 2,000 cycles	
Hermetic seal	1071	Gross leak only	
Electrical measurement		See table I, group A, subgroup 2	
<u>Subgroups 2 and 3</u>			
Not applicable			
<u>Subgroup 4</u>			22 devices, c = 0
Thermal resistance, junction to lead	3101	L = 9.53 mm (.375 inch) R _{θJL} = 160°C/W maximum; R _{θJEC} = 50°C/W; (see 4.5.4)	
<u>Subgroup 5</u>			15 devices, c = 0
Potted environment test	1054		

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 personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Points' packaging activity within the Military Department or Defense Agency, or within the Military Departments' System Command. Packaging data retrieval is available from the managing Military Departments' 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 Notes. The notes specified in MIL-PRF-19500 are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2).
- c. Packaging requirements (see 5.1).

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 Manufacturer's 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 purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from Commander, Defense Supply Center Columbus, DSCC-VQE, Columbus, OH 43216-5000.

6.4 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.

6.5 Cross reference substitution list. JANS1N4148 is prohibited and will not longer be built or qualified. Devices in stock are acceptable. A PIN for PIN replacement table follows, and these devices are directly interchangeable. The 1N4148 design is unsuitable for space flight applications.

Non-preferred PIN	Preferred PIN
JANS1N4148-1 JANS1N4148-1UR	JANS1N6642 JANS1N6642US

MIL-PRF-19500/578D

CONCLUDING MATERIAL

Custodians:

Army - CR
Navy - EC
Air Force - 11
NASA - NA
DLA - CC

Preparing activity:
DLA - CC

(Project 5961-2103)

Review activities:

Army - AR, MI, SM
Navy - AS, MC
Air Force - 19

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-PRF-19500/578D	2. DOCUMENT DATE 7 April 2000
3. DOCUMENT TITLE SEMICONDUCTOR DEVICE, DIODE, SILICON, SWITCHING, 1N6638, 1N6642, 1N6643, 1N6638U, 1N6642U, 1N6643U, 1N6638US, 1N6642US, 1N6643US JAN, JANTX, JANTXV, JANJ, AND JANS		
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME (Last, First, Middle initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) COMMERCIAL DSN FAX EMAIL	7. DATE SUBMITTED
8. PREPARING ACTIVITY		
a. Point of Contact Alan Barone	b. TELEPHONE Commercial DSN FAX EMAIL 614-692-0510 850-0510 614-692-6939 alan_barone@dsccl.dla.mil	
c. ADDRESS Defense Supply Center Columbus, ATTN: DSCC-VAC, 3990 East Broad Street, Columbus, OH 43213-1199	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman, Suite 2533, Fort Belvoir, VA 22060-6221 Telephone (703) 767-6888 DSN 427-6888	