

The documentation and process conversion measures necessary to comply with this revision shall be completed by 2 February 1999

INCH-POUND

MIL-PRF-19500/576B
 2 November 1998
 SUPERSEDING
 MIL-S-19500/576A
 30 June 1993

PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON, HIGH VOLTAGE POWER RECTIFIER,
 FAST RECOVERY, TYPES 1N6520 THROUGH 1N6527, 1N6520US THROUGH 1N6527US
 JAN, JANTX, JANTXV, AND JANS

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

1. SCOPE

1.1 Scope. This specification covers the performance requirements for silicon, high voltage, fast recovery power rectifier diodes. Four levels of product assurance are provided for each device as specified in MIL-PRF-19500.

1.2 Physical dimensions. See figures 1 and 2.

1.3 Maximum ratings.

Types	V_{RWM}	I_{FSM} $t_p = 8.3 \text{ ms}$	I_O $T_A = +55^\circ\text{C}$ 1/	$T_A = +100^\circ\text{C}$ 2/	t_{rr}	T_{STG}	T_J	$R_{\theta JL}$ L = .25	$R_{\theta JT}$ 3/
	<u>V dc</u>	<u>A (pk)</u>	<u>mA dc</u>	<u>mA dc</u>	<u>ns</u>	<u>°C</u>	<u>°C</u>	<u>°C/W</u>	<u>°C/W</u>
1N6520, 1N6520US	1500	25	500	250	70	-65 to +200	-65 to +175	21.5	8
1N6521, 1N6521US	2000	25	500	250	70	-65 to +200	-65 to +175	21.5	8
1N6522, 1N6522US	2500	15	250	125	70	-65 to +200	-65 to +175	21.5	8
1N6523, 1N6523US	3000	15	250	125	70	-65 to +200	-65 to +175	21.5	8
1N6524, 1N6524US	4000	10	150	75	70	-65 to +200	-65 to +175	21.5	9
1N6525, 1N6525US	5000	10	150	75	70	-65 to +200	-65 to +175	21.5	9
1N6526, 1N6526US	7500	5	100	50	70	-65 to +200	-65 to +175	21.5	9
1N6527, 1N6527US	10000	5	100	50	70	-65 to +200	-65 to +175	21.5	9

1/ Derate linearly for $+55^\circ\text{C} \leq T_A \leq +100^\circ\text{C}$. I_O at $T_A = +55^\circ\text{C}$ to I_O at $T_A = +100^\circ\text{C}$.

2/ Derate linearly for $+100^\circ\text{C} \leq T_A \leq +175^\circ\text{C}$. I_O at $T_A = +100^\circ\text{C}$ to I_O at $T_A = +0^\circ\text{C}$.

3/ $R_{\theta JT}$ is junction to tab thermal impedance with "US" suffix identification, i.e., 1N6520US. Surface mount types, see figure 2.

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-VAT, 3990 East Broad Street, 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 N/A

FSC 5961

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1.4 Primary electrical characteristics.

Types	V _{RWM}	I _O T _A = +55°C	I _{R1} T _A = +25°C	V _{F1} at I _O	C at V _R = 50 V F _O = 1 kHz	Barometric pressure (reduced) t = 1 minute (minimum)
	<u>V dc</u>	<u>mA dc</u>	<u>μA dc</u>	<u>V (PK)</u>	<u>pF</u>	<u>mmHg</u>
1N6520, 1N6520US	1500	500	0.5	3.0	8	8
1N6521, 1N6521US	2000	500	0.5	3.0	8	8
1N6522, 1N6522US	2500	250	0.5	5.0	4	8
1N6523, 1N6523US	3000	250	0.5	5.0	4	8
1N6524, 1N6524US	4000	150	0.5	7.0	3	8
1N6525, 1N6525US	5000	150	0.5	7.0	3	8
1N6526, 1N6526US	7500	100	0.5	12.0	2	8
1N6527, 1N6527US	10000	100	0.5	12.0	2	8

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

MILITARY

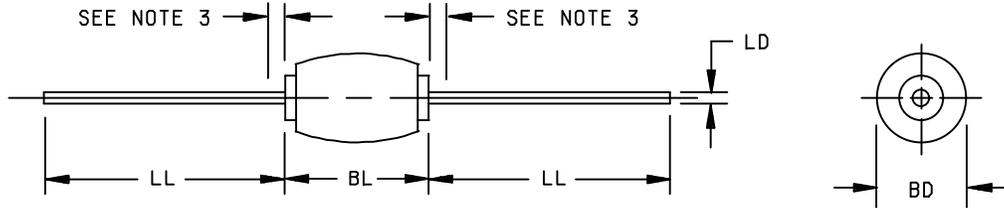
MIL-STD-750 - Test Methods for Semiconductor Devices.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, 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.

3. REQUIREMENTS

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

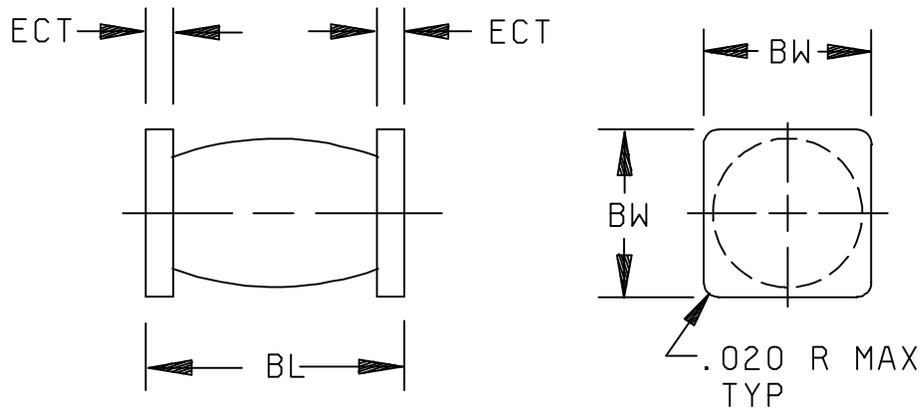


PIN	Dimensions															
	BL				LL				LD				BD			
	Inches		mm		Inches		mm		Inches		mm		Inches		mm	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1N6520	0.160	0.220	4.06	5.59	1.0	1.3	25.4	33.0	.027	.033	0.69	0.84	.100	.170	2.54	4.32
1N6521	0.160	0.220	4.06	5.59	1.0	1.3	25.4	33.0	"	"	"	"	"	"	"	"
1N6522	0.180	0.240	4.57	6.10	1.0	1.3	25.4	33.0	"	"	"	"	"	"	"	"
1N6523	0.180	0.240	4.57	6.10	1.0	1.3	25.4	33.0	"	"	"	"	"	"	"	"
1N6524	0.200	0.260	5.08	6.60	1.0	1.3	25.4	33.0	"	"	"	"	"	"	"	"
1N6525	0.200	0.260	5.08	6.60	1.0	1.3	25.4	33.0	"	"	"	"	"	"	"	"
1N6526	0.260	0.320	6.60	8.13	1.0	1.3	25.4	33.0	"	"	"	"	"	"	"	"
1N6527	0.260	0.320	6.60	8.13	1.0	1.3	25.4	33.0	.027	.033	0.69	0.84	.100	.170	2.54	4.32

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. The specified lead diameter applies in the zone between 0.05 inch (1.27 mm) from the body to the end of the lead. Outside of this zone lead shall not exceed the body diameter.
4. Dimension LU defines region of uncontrolled diameter 0.050 inches max (1.27 mm).

FIGURE 1. Physical dimensions (for non-US suffix devices only).



Part number	Dimensions											
	BL				ECT				BW			
	Inches		mm		Inches		mm		Inches		mm	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1N6520US	0.225	0.275	5.72	6.99	.017	.036	0.66	0.91	.120	.130	3.05	3.30
1N6521US	0.225	0.275	5.72	6.99	"	"	"	"	"	"	"	"
1N6522US	0.245	0.290	6.22	7.37	"	"	"	"	"	"	"	"
1N6523US	0.245	0.290	6.22	7.37	"	"	"	"	"	"	"	"
1N6524US	0.265	0.310	6.73	7.87	"	"	"	"	"	"	"	"
1N6525US	0.265	0.310	6.73	7.87	"	"	"	"	"	"	"	"
1N6526US	0.325	0.365	8.26	9.27	"	"	"	"	"	"	"	"
1N6527US	0.325	0.365	8.26	9.27	.017	.036	0.66	0.91	.120	.130	3.05	3.30

NOTES:

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

FIGURE 2. Physical dimensions (surface mount devices).

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

3.3 Abbreviations, symbols, and definitions. 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 for the purpose of interchangeability shall be as specified on figures 1 and 2 herein. Plastic packages are prohibited. The US Government's preferred system of measurement is the metric SI system. However, since this item was originally designed using inch-pound units of measurement, in the event of conflict between the metric and inch-pound units, the inch-pound units shall take precedence.

3.4.1 Lead material and finish. Lead material shall be type C, 99.9 percent silver or copper in accordance with MIL-STD-1276. Lead finish shall be in accordance with MIL-PRF-19500 and MIL-STD-750. Where a choice of lead finish is desired, it shall be specified in the acquisition document (see 6.2).

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

3.4.2.1 Surface mount. The surface mount (US) version shall be considered structurally identical to the non surface mount version except for lead attach.

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

3.5.1 Marking for surface mount (US) devices. Surface mount (US) suffix parts are to be marked with the polarity identification. Initial container package marking will be in accordance with MIL-PRF-19500.

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 specified in 4.4.2 and 4.4.3.

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 Construction verification. Cross sectional photos from three devices shall be submitted in the qualification report.

4.3 Screening (JAN, JANTX, JANTXV, and JANS levels only). Screening shall be in accordance with MIL-PRF-19500 (appendix E, table IV), 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 (see appendix E, table IV of MIL-PRF-19500)	Measurement	
	JANS level	JANTX and JANTXV levels
1/	Surge, see 4.3.2	Surge see 4.3.2
9	I_{R1} and V_{F1}	Not applicable
11	I_{R1} and V_{F1} ; ΔI_{R1} and ΔV_{F1} , see table III.	I_{R1} and V_{F1}
12	See 4.3.1	See 4.3.1
13	Subgroups 2 and 3 of table I herein: ΔI_{R1} and ΔV_{F1} , see table III. I_{R1} and V_{F1} (see 4.5.3)	Subgroup 2 of table I herein; ΔI_{R1} and ΔV_{F1} , see table III. I_{R1} and V_{F1} (see 4.5.3)

1/ Surge screening shall be performed anytime after screen 3 and before screen 10.

4.3.1 Power burn-in conditions. Power burn-in conditions are as follows: Method 1038, condition B of MIL-STD-750, T_A = room ambient as defined in the general requirements of 4.5 of MIL-STD-750 $V_{RWM} = 1000$; $F \geq 60$ Hz.

Types	I_O (mA dc)
1N6520, 1N6520US	500
1N6521, 1N6521US	500
1N6522, 1N6522US	250
1N6523, 1N6523US	250
1N6524, 1N6524US	150
1N6525, 1N6525US	150
1N6526, 1N6526US	100
1N6527, 1N6527US	100

4.3.2 Surge screening. MIL-STD-750, method 4066; $T_A = +25^\circ\text{C}$, $V_{RWM} = 0$. Six surges. Apply $20 \times I_O$ rated at T_A of 55°C , 8.3 ms.

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 MIL-PRF-19500 appendix E, table V, 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 appendix E, tables Via (JANS) and Vlb (JAN, JANTX, and JANTXV) of MIL-PRF-19500 and as follows. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of table III herein.

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

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B3	4066	I_O at $T_A = 55^\circ\text{C}$, $I_{FSM} = \text{rated } I_{FSM}$, see 1.3, one surge, 8.3 ms, $V_{RWM} = 0 \text{ V}$.
B4	1037	See 4.3.1, $t_{on} = t_{off} = 3$ minutes minimum, 2,000 cycles.
B5	1027	$T_A = +150^\circ\text{C}$ minimum, $I_O = \text{rated } I_O$ (see 1.3) or adjust I_O or T_A as required to achieve $T_J = +275^\circ\text{C}$ for a minimum of 96 hours at $V_{RWM} = 1,000 \text{ V}$.
B6	4081	$T_A = +25^\circ\text{C}$; $R_{\theta JL} = \text{rated } R_{\theta JL}$ (see 1.3); $R_{\theta JT} = \text{rated } R_{\theta JT}$ (see 1.3).

4.4.2.2 Group B inspection, appendix E table VIb (JAN, JANTX, and JANTXV of MIL-PRF-19500).

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B2	4066	$I_O = I_O$ at $T_A = 55^\circ\text{C}$, one surge, 8.3 ms; $I_{FSM} = \text{rated } I_{FSM}$ (see 1.3), $V_{RWM} = 0 \text{ V}$.
B4	1027	$T_A = \text{room ambient}$ as defined in the general requirements of 4.5 of MIL-STD-750. $I_O = \text{rated } I_O$ (see 4.3.1); $I_O = \text{rated } I_O$; adjust I_O or T_A as required to achieve $T_J \geq +125^\circ\text{C}$, $V_{RWM} = 1,000 \text{ V}$.
B5	4081	$T_A = +25^\circ\text{C}$; $R_{\theta JL} = \text{rated } R_{\theta JL}$ (see 1.3); $R_{\theta JT} = \text{rated } R_{\theta JT}$ (see 1.3).
B6	1032	$T_A = +200^\circ\text{C}$.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in appendix E, table VII of MIL-PRF-19500. Electrical measurements (end-points) shall be in accordance with the applicable inspections of table III herein.

4.4.3.1 Group C inspection, appendix E, table VII of MIL-PRF-19500.

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
C2	2036	Test condition A, weight = 12 pounds, $t = 30\text{s}$.
C6	1027	$T_A = \text{room ambient}$ as defined in the general requirements of 4.5 of MIL-STD-750, $I_O = \text{rated } I_O$ (see 4.3.1); $I_O = \text{rated } I_O$; adjust I_O or T_A as required to achieve $T_J \geq +125^\circ\text{C}$, $V_{RWM} = 1,000 \text{ V}$.

4.4.4 Group E inspection. Group E inspection shall be conducted in accordance with MIL-PRF-19500 and the conditions for subgroup testing in table II herein. Electrical measurements (end-points) shall be in accordance with table III 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 4.3.2.1 of MIL-STD-750.

4.5.2 Reverse-recovery time.

4.5.2.1 Reverse recovery time. The reverse recovery time shall be measured in the circuit of figure 3 or an equivalent circuit. The recovery conditions shall be 125 mA forward current to 250 mA reverse current. The reverse recovery time is defined as the time the rectifier begins to conduct in the reverse direction (crosses $I = \text{zero}$) until the reverse current decays to - 63 mA. The point of contact on the leads shall be no less than .375 inch (9.52 mm) from the diode body for leaded devices. Point of contact shall be the mounting surface for surface mounted devices with the "U" suffix.

4.5.3 Scope display test. Scope display test (MIL-STD-750, method 4023) shall be performed with the following conditions: Test condition B, $I_{BR} = 50 \mu\text{A min}$.

TABLE I. Group A inspection.

Inspection	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical evaluation	2071					
<u>Subgroup 2</u>						
Forward voltage	4011		V_{F1}			V dc
1N6520, 1N6520US		$I_F = 500 \text{ mA}$			3.0	
1N6521, 1N6521US		$I_F = 500 \text{ mA}$			3.0	
1N6522, 1N6522US		$I_F = 250 \text{ mA}$			5.0	
1N6523, 1N6523US		$I_F = 250 \text{ mA}$			5.0	
1N6524, 1N6524US		$I_F = 150 \text{ mA}$			7.0	
1N6525, 1N6525US		$I_F = 150 \text{ mA}$			7.0	
1N6526, 1N6526US		$I_F = 100 \text{ mA}$			12.0	
1N6527, 1N6527US		$I_F = 100 \text{ mA}$			12.0	
Reverse current leakage	4016	DC method; $V_R = \text{rated } V_R$ (see 1.3)	I_{R1}		0.5	$\mu\text{A dc}$
Breakdown voltage	4021	$I_R = 50 \mu\text{A}$	$V_{(BR)R1}$			V dc
1N6520, 1N6520US				1650		
1N6521, 1N6521US				2200		
1N6522, 1N6522US				2750		
1N6523, 1N6523US				3300		
1N6524, 1N6524US				4400		
1N6525, 1N6525US				5500		
1N6526, 1N6526US				8250		
1N6527, 1N6527US				11000		
<u>Subgroup 3</u>						
High temperature operation		$T_A = 150^\circ\text{C}$				
Reverse current leakage	4016	DC method; $V_R = \text{rated } V_R$ (see 1.3)	I_{R2}		150	$\mu\text{A dc}$
Low temperature operation:		$T_A = -55^\circ\text{C}$				

See footnote at end of table.

TABLE I. Group A inspection - Continued.

Inspection	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 3</u> - Continued						
Forward voltage	4011		V_{F2}			V dc
1N6520, 1N6520US		$I_F = 500 \text{ mA}$			4.8	
1N6521, 1N6521US		$I_F = 500 \text{ mA}$			4.8	
1N6522, 1N6522US		$I_F = 250 \text{ mA}$			8.0	
1N6523, 1N6523US		$I_F = 250 \text{ mA}$			8.0	
1N6524, 1N6524US		$I_F = 150 \text{ mA}$			11.2	
1N6525, 1N6525US		$I_F = 150 \text{ mA}$			11.2	
1N6526, 1N6526US		$I_F = 100 \text{ mA}$			19.2	
1N6527, 1N6527US		$I_F = 100 \text{ mA}$			19.2	
Breakdown voltage	4021	$I_R = 50 \mu\text{A}$	$V_{(BR)R2}$			V dc
1N6520, 1N6520US				1500		
1N6521, 1N6521US				2000		
1N6522, 1N6522US				2500		
1N6523, 1N6523US				3000		
1N6524, 1N6524US				4000		
1N6525, 1N6525US				5000		
1N6526, 1N6526US				7500		
1N6527, 1N6527US				10000		
<u>Subgroup 4</u>						
Reverse recovery time		See 4.5.2 and figure 3.	t_{rr}		70	ns
Capacitance	4001	$V_R = 50 \text{ V dc}; 1 \text{ kHz} \leq f \leq 100 \text{ kHz}$	C			pF
1N6520, 1N6520US					8	
1N6521, 1N6521US					8	
1N6522, 1N6522US					4	
1N6523, 1N6523US					4	
1N6524, 1N6524US					3	
1N6525, 1N6525US					3	
1N6526, 1N6526US					2	
1N6527, 1N6527US					2	
<u>Subgroups 5, 6, and 7</u>						
Not applicable						

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

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

Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 1</u>			22 devices
Temperature cycling	1051	500 cycles, condition C	
Hermetic seal Gross leak	1071		
Electrical measurements		See table III, steps 1 and 2	
<u>Subgroup 2</u>			22 devices
Steady-state dc blocking life	1038	Condition A, t = 1,000 hours	
Electrical measurements		See table III, steps 1 and 2	
<u>Subgroup 3</u>			
Not applicable			
<u>Subgroup 4</u>			22 devices
Thermal resistance	4081	$T_A = +25^\circ\text{C}$; $R_{\theta JL} = \text{rated } R_{\theta JL}$ (see 1.3); $R_{\theta JT} = \text{rated } R_{\theta JT}$ (see 1.3).	
<u>Subgroup 5</u>			22 devices
Barometric pressure (reduced)	1001	$V_R = \text{rated } V_R$ (see 1.3); pressure = 8 mmHg, t = 1 minute (minimum)	

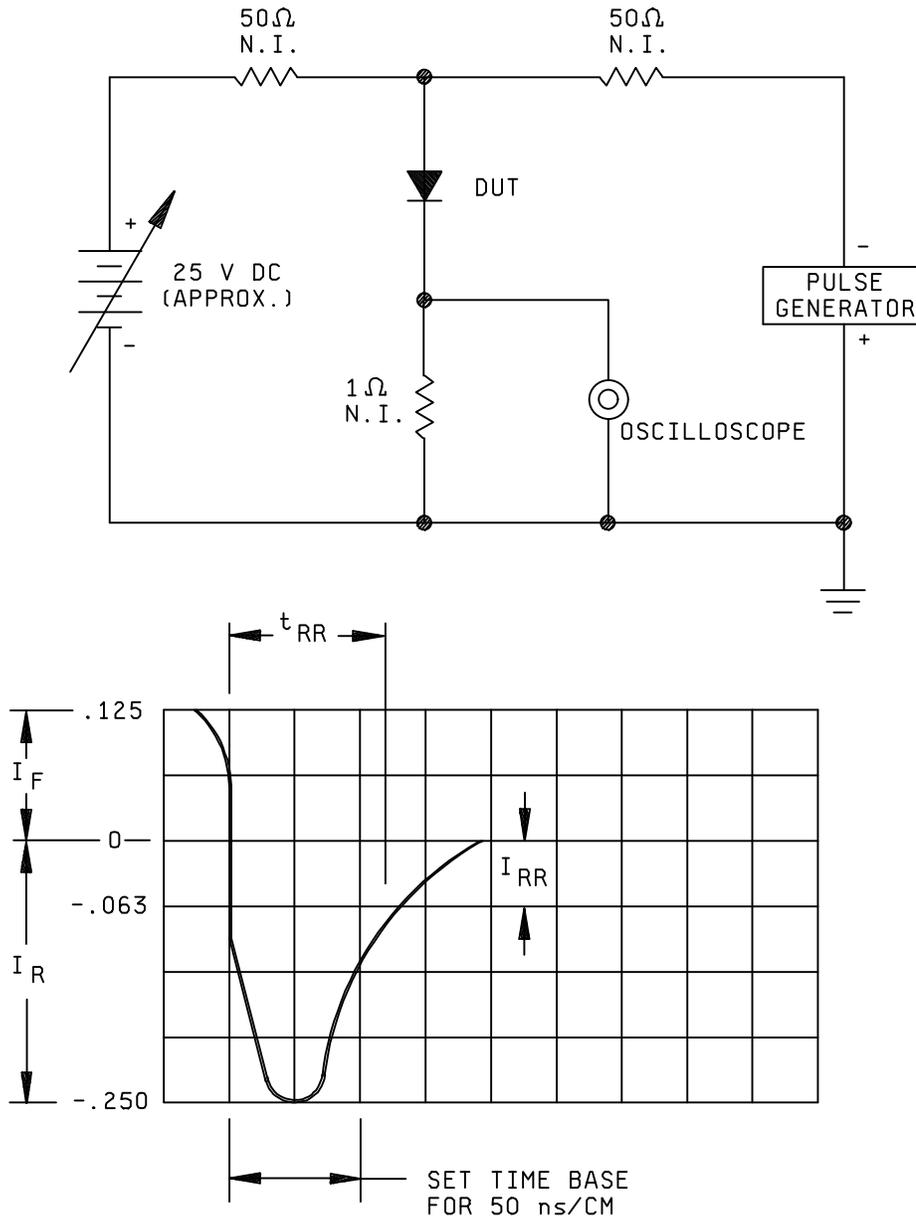
TABLE III. Groups A, B, C, and E electrical measurements. 1/ 2/ 3/

Step	Inspection	MIL-STD-750		Symbol	Limits		Unit
		Method	Conditions		Min	Max	
1.	Forward voltage	4011	Pulsed (see 4.5.1)	V_{F1}			V (pk)
	1N6520, 1N6520US		$I_F = 500$ mA			3.0	
	1N6521, 1N6521US		$I_F = 500$ mA			3.0	
	1N6522, 1N6522US		$I_F = 250$ mA			5.0	
	1N6523, 1N6523US		$I_F = 250$ mA			5.0	
	1N6524, 1N6524US		$I_F = 150$ mA			7.0	
	1N6525, 1N6525US		$I_F = 150$ mA			7.0	
	1N6526, 1N6526US		$I_F = 100$ mA			12.0	
1N6527, 1N6527US	$I_F = 100$ mA		12.0				
2.	Reverse current	4016	DC method; $V_R =$ rated V_R (see 1.3)	I_{R1}		0.5	μ A dc
3.	Reverse recovery time		See 4.5.2 and figure 3	t_{rr}		70	ns
4.	Capacitance	4001	$V_R = 50$ V dc; 1 kHz $\leq f \leq 100$ kHz	C			pF
	1N6520, 1N6520US					8	
	1N6521, 1N6521US					8	
	1N6522, 1N6522US					4	
	1N6523, 1N6523US					4	
	1N6524, 1N6524US					3	
	1N6525, 1N6525US					3	
	1N6526, 1N6526US					2	
1N6527, 1N6527US		2					
5.	Forward voltage	4011	Pulsed (see 4.5.1)	ΔV_{F1}			V (pk)
	1N6520, 1N6520US		$I_F = 500$ mA			$\pm .02$	
	1N6521, 1N6521US		$I_F = 500$ mA			$\pm .02$	
	1N6522, 1N6522US		$I_F = 250$ mA			$\pm .04$	
	1N6523, 1N6523US		$I_F = 250$ mA			$\pm .04$	
	1N6524, 1N6524US		$I_F = 150$ mA			$\pm .08$	
	1N6525, 1N6525US		$I_F = 150$ mA			$\pm .08$	
	1N6526, 1N6526US		$I_F = 100$ mA			$\pm .12$	
1N6527, 1N6527US	$I_F = 100$ mA		$\pm .12$				
6.	Reverse current	4016	DC method	ΔI_{R1}		± 150 nA dc or 100 percent, whichever is greater.	

See footnotes at end of table.

TABLE III. Groups A, B, C, and E electrical measurements - Continued. 1/ 2/ 3/

- 1/ The electrical measurements for appendix E, table VIa (JANS) of MIL-PRF-19500 are as follows:
- a. Subgroup 3, see table III herein, steps 1, 2, 3, 4, 5, and 6.
 - b. Subgroup 4, see table III herein, steps 1, 2, 3, 4, 5, and 6.
 - c. Subgroup 5, see table III herein, steps 1, 2, 3, 4, 5, and 6.
- 2/ The electrical measurements for appendix E, table VIb (JANTX and JANTXV) of MIL-PRF-19500 are as follows:
- a. Subgroup 2, see table III herein, steps 1, 2, and 3.
 - b. Subgroup 3, see table III herein, steps 1, 2, 3, and 4.
 - c. Subgroup 6, see table III herein, steps 1, 2, 3, and 4.
- 3/ The electrical measurements for appendix E, table VII of MIL-PRF-19500 are as follows:
- a. Subgroup 2, see table III herein, steps 1, 2, 3, 4, 5, and 6 (JANS); and steps 1, 2, and 3 (JANTX and JANTXV).
 - b. Subgroup 3, see table III herein, steps 2 and 3.
 - c. Subgroup 6, see table III herein, steps 1, 2, 3, 4, 5, and 6 (JANS); and steps 1, 2, 3, 4, and 5 (JANTX and JANTXV).



NOTES:

1. Oscilloscope-rise time ≤ 7 ns; input impedance = 1 m Ω ; 22 pF.
2. Pulse generator - rise time ≤ 10 ns; source impedance 50 Ω .
3. Recovery time shall be measured on the above circuit and with equipment as shown. The pulse generator shall have a pulse repetition frequency of 1 kHz and a pulse width of 200 ns. Recovery conditions: 125 mA forward current to .250 mA reverse current. Recovery time measured when rectifier recovers to 63 mA.

FIGURE 3. Reverse recovery time test circuit and characteristic nomograph.

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 material 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.

5.2 Marking. Unless otherwise specified (see 6.2), marking shall be in accordance with MIL-PRF-19500.

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. See MIL- PRF-19500.

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 Products List QPL No.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 Defense Supply Center Columbus, ATTN: DSCC-VQE, 3990 East Broad Street, Columbus, OH 43216-5000.

6.4 Supersession information. Devices covered by this specification supersede the manufacturers' and users' Part or Identifying Number (PIN).

PIN	Manufacturer's CAGE code	Manufacturer's and user's PIN
1N6520	58260 53711 30003 94117 97942 60211	1801342 7009978-15 7011518-15 1621AS176 104078P3 581R887-H01 RX204 X15UFG X15FG RX129 RX133
1N6521	80782 53711 73293 9062 97942 60211	532124 7009978-20 7011518-20 8508419-320 C5001049-1 87A0229 581R887-H02 RX184 X20FG X20UFG RX174 RX152 RX190 RX134

PIN	Manufacturer's CAGE code	Manufacturer's and user's PIN
1N6522	5037 53711 64587 97942 60211	1019887 7009978-25 7011518-25 089752 206263 089752 581R887-H03 RX107 X25UFG X25FG RX125 RX135
1N6523	91417 53711 9062 64597 97942 60211	2614086 7009978-30 7011518-30 72A0036-1 86A0093 089056 581R887-H04 X30UFG X30FG RX159 RX136
1N6524	53711 9062 64597 97942 60211	7009978-40 7011518-40 72A0036-2 86A0093-1 089056 581R887-H05 X40UFG X40FG RX137
1N6525	5037 53711 28527 9062 64597 96214 60211	1018799 7009978-50 7011518-50 3130552 72A0036-3 206828 086023-2 2691653-1 RX154 X50UFG RX145 RX153 X50FG RX140

PIN	Manufacturer's CAGE code	Manufacturer's and user's PIN
1N6526	53711 9062 64597 60211	7009978-60 7011518-60 8001699-505 72A0036-4 086023-3 RX120 X60UFG X60FG
1N6527	98675 53711 60211 73293 28527 96214 60211	6129215 7009978-80 7009978-100 8001699-506 7011518-80 7011581-100 8508419-300 DB20566101 3130551 2691653-2 RX194 X100UFG RX121 RX173 RX124 RX147 RX141 X80FG X100FG

Custodians:
 Army - CR
 Navy - EC
 Air Force - 17
 NASA - NA

Review activities:
 Army - AR, AV, SM
 Navy - AS, CG, MC, OS
 Air Force - 13, 19, 85, 99
 DLA - ES

Preparing activity:
 DLA - CC

 Agent:
 DLA - CC

(Project 5961-2030)

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I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-PRF-19500/576B	2. DOCUMENT DATE (YYMMDD) 981102
3. DOCUMENT TITLE SEMICONDUCTOR DEVICE, DIODE, SILICON, POWER RECTIFIER, FAST RECOVERY, HIHG VOLTAGE TYPES 1N6520 THROUGH 1N6527, 1N6520US THROUGH 1N6527US JAN, JANTX, JANTXV AND JANS			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
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a. NAME (Last, First, Middle initial)		b. ORGANIZATION	
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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-VAT, 3990 East Broad Street, Columbus, OH 43216-5000		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 DSN 289-2340	