The documentation and process conversion measures necessary to comply with this document shall be completed by 28 June 2014.

INCH-POUND

MIL-PRF-19500/503H
28 March 2014
SUPERSEDING
MIL-PRF-19500/503G
18 October 2011

PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON, POWER RECTIFIER,
ULTRA FAST RECOVERY, TYPES 1N6073 THROUGH 1N6081,
JAN, JANTX, JANTXV, AND JANHC

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 three separate series of silicon, ultra fast recovery semiconductor diodes for use as power rectifiers. Three levels of product assurance are provided for each device type as specified in MIL-PRF-19500. One level of product assurance are provided for each unencapsulated device type.

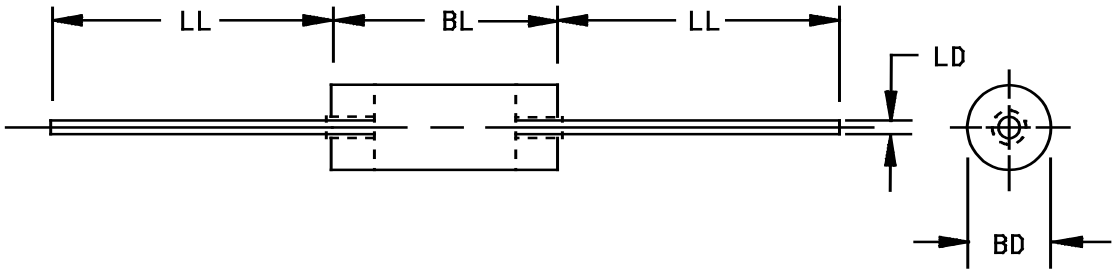
1.2 Physical dimensions. See figures 1 (axial lead) and 2 (die) herein.

1.3 Maximum ratings Unless otherwise specified, T_A = +25°C.

Col. 1 Types	Col. 2 V_R	Col. 3 V_{RWM}	Col.4 I_{O1} T_A = +55°C (1) (2) (3)	Col.5 I_{O2} T_L = +70°C (1) (4) (5)	Col. 6 t_{rr} (see fig. 3) I_F = 0.5 A I_R = -1.0 A I_{RR} = -0.25 A	Col. 7 T_{STG} and T_J	Col.8 $R_{\theta JL}$ (4)	Col. 9 I_{FSM} t_p = 8.3 ms
	V dc	V (pk)	A dc	A dc	ns	°C	°C/W	A (pk)
1N6073	50	50	.85	3.0	30	-65 to +155	13.0	35
1N6074	100	100	.85	3.0	30	-65 to +155	13.0	35
1N6075	150	150	.85	3.0	30	-65 to +155	13.0	35
1N6076	50	50	1.3	6.0	30	-65 to +155	8.5	75
1N6077	100	100	1.3	6.0	30	-65 to +155	8.5	75
1N6078	150	150	1.3	6.0	30	-65 to +155	8.5	75
1N6079	50	50	2.0	12.0	30	-65 to +155	5.0	175
1N6080	100	100	2.0	12.0	30	-65 to +155	5.0	175
1N6081	150	150	2.0	12.0	30	-65 to +155	5.0	175

(1) Higher I_O rating is allowable provided that T_L or T_A is maintained such that $T_J \leq 155°C$.
(2) I_O rating without heat sinking, special mounting or forced air across the device body or leads.
(3) Derate I_O rating to zero current linearly, from T_A = +55°C to +155°C.
(4) I_O and $R_{\theta JL}$ rating at L = 0 and without forced air across the device body or leads.
(5) Derate I_O rating to zero current linearly, from T_L = 70°C to +155°C (see figures 3, 4, and 5).

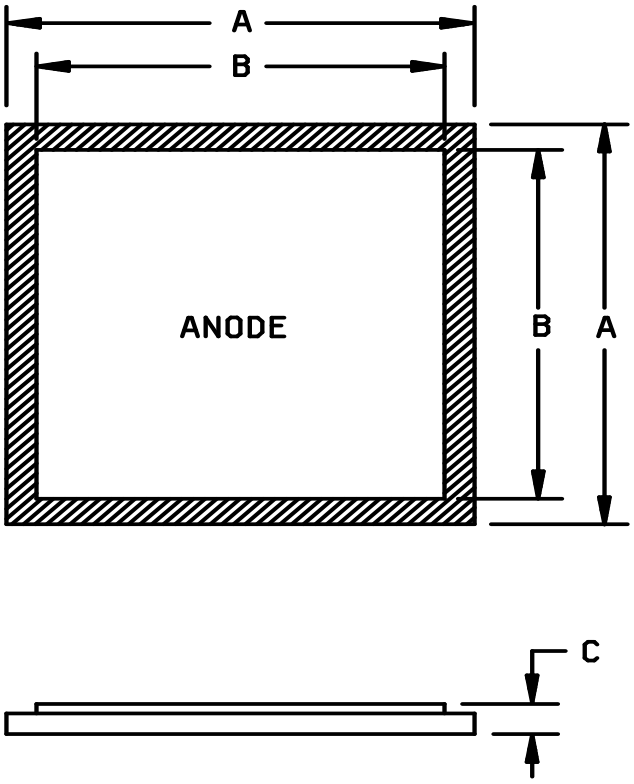
* Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to Semiconductor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the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



Symbol	Dimensions												Notes
	1N6073 through 1N6075				1N6076 through 1N6078				1N6079 through 1N6081				
	Inches		Millimeters		Inches		Millimeters		Inches		Millimeters		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
BD	.055	.083	1.40	2.11	.065	.140	1.65	3.56	.135	.190	3.43	4.83	4
LD	.026	.033	0.66	0.84	.036	.042	0.91	1.07	.036	.042	0.91	1.07	
BL	.125	.250	3.18	6.35	.125	.250	3.18	6.35	.125	.250	3.18	6.35	3
LL	1.00	1.30	25.4	33.0	.90	1.30	22.86	33.0	.90	1.30	22.86	33.0	

NOTES:
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension BL shall include the entire body including slugs and sections of the lead over which the diameter is uncontrolled. This uncontrolled area is defined as the zone between the edge of the diode body and extending .050 inch (1.27 mm) onto the leads.
4 Dimension BD shall be measured at the largest diameter.
5 In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 1. Physical dimensions (axial lead).



Symbol	Dimensions											
	1N6073 through 1N6075 (see note 3)				1N6076 through 1N6078 (see note 4)				1N6079 through 1N6081 (see note 4)			
	Inches		Millimeters		Inches		Millimeters		Inches		Millimeters	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A	.039	.043	0.99	1.09	.066	.070	1.68	1.78	.128	.132	3.25	3.35
B	.031	.035	0.79	0.89	.057	.061	1.45	1.55	.119	.123	3.02	3.12
C	.008	.012	0.20	0.30	.008	.012	0.20	0.30	.008	.012	0.20	0.30

NOTES:
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Anode thickness: AL - 45,000 Å minimum; cathode thickness: AU - 2,500 Å minimum.
4. Anode thickness: AL - 60,000 Å minimum; cathode thickness: AU - 2,500 Å minimum.
5. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 2. Physical dimensions, JANHC (A - version).

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.

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 http://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 manufacturer's list (QML) before contract award (see 4.2 and 6.3).

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

3.4 Interface and physical dimensions. The Interface and physical dimensions shall be as specified in MIL-PRF-19500, and figures 1 (axial lead) and 2 (die) herein.

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

3.4.2 Diode construction. These devices shall be constructed in a manner using material which enable the diodes to meet the applicable requirements of MIL-PRF-19500 and this document. The diode shall be metallurgically bonded, non-cavity, double plug construction.

3.5 Marking. Marking shall be in accordance with MIL-PRF-19500. At the option of the manufacturer, the following marking may be omitted from the body of the diode, but shall be retained on the initial container.

3.5.1 Polarity. The polarity of all types shall be indicated with a contrasting color band to denote the cathode end.

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

3.7 Electrical test requirements. The electrical test requirements shall be as specified in table I.

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 and table I).

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

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.

4.2.2 JANHC devices. Qualification for JANHC devices shall be in accordance with MIL-PRF-19500.

* 4.3 Screening (JANTX and JANTXV levels). Screening shall be in accordance with appendix E, 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 (see appendix E, table E-IV of MIL-PRF-19500)	JANTXV and JANTX Level
1a 1b	Not required Required (JANTXV only)
2	Not required
3a 3c	Required Thermal impedance (see 4.3.1)
4	Not applicable
5	Not applicable
6	Not applicable
8	Not required
9	Not applicable
10	T_A = +125°C
11	V_{F1} and I_{R1}
12	Required, see 4.3.2
13	Subgroup 2 of table I herein; ΔV_{F1} = ±0.1V dc; ΔI_{R1} = (1) or 100 percent of the initial value, whichever is greater. Scope display evaluation (see 4.5.3).
15	Not required
16	Not required

(1) I_{R1} is as follows:
1N6073 through 1N6075 = +0.250 μA dc.
1N6076 through 1N6078 = +1.0 μA dc.
1N6079 through 1N6081 = +5.0 μA dc.

4.3.1 Thermal impedance. The thermal impedance measurements shall be performed in accordance with method 3131 of MIL-STD-750 using the guidelines in that method for determining I_M, I_H, t_H, t_{SW} (V_C and V_H where appropriate). Measurement delay time (t_{MD}) = 70 μs max. See table II, subgroup 4 herein.

4.3.1.1 For initial qualification and re-qualification. Read and record data ($Z_{\theta JX}$) shall be supplied to the qualifying activity on one lot (random sample of 500 devices minimum) prior to shipment. Twenty-two samples shall be serialized and provided to the qualifying activity for test correlation.

4.3.2 Power burn-in conditions. Power burn-in conditions are as follows (see 4.5.6.1): $I_{O(min)} = I_{O(rated)}$. T_A = 55°C maximum. Test conditions in accordance with method 1038 of MIL-STD-750, condition B. Adjust I_O or T_A to achieve the required T_J. T_J = 135°C minimum. With approval of the qualifying activity and preparing activity, alternate burn-in criteria (hours, bias conditions, T_J, mounting conditions) may be used for JANTX and JANTXV quality levels. A justification demonstrating equivalence is required. In addition, the manufacturing site's burn-in data and performance history will be essential criteria for burn-in modification approval.

4.3.3 Screening (JANHC). Screening of die shall be in accordance with appendix G of MIL-PRF-19500. As a minimum, die shall be 100-percent probed to ensure compliance with table I, subgroup 2. Burn-in duration for the JANHC follows JANTX requirements.

4.4 Conformance inspection. Conformance inspection shall be in accordance with MIL-PRF-19500 and as specified herein.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with 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 appendix E, table E-VIB (JAN, JANTX, and JANTXV) of MIL-PRF-19500. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of table III herein.

	Subgroup	Method	Condition
	B2	1056	Thermal shock, 0°C to +100°C, 10 cycles.
	B2	1051	Temperature cycling, -55°C to +175°C, 25 cycles.
*	B2	4066	Condition A, I_{FSM} = rated I_{FSM} (see 1.3); ten surges of 8.3 ms each at 1 minute intervals, super-imposed on I_{O1} (see 1.3); V_{RWM} = rated V_{RWM} (see 1.3).
	B3	1027	$I_{O1(min)}$ = rated I_{O1} (see col. 4 of 1.3); adjust I_O to achieve the required T_J apply V_R = rated V_{RWM} (see 1.3), f = 50-60 Hz (see 4.3.1.1). Mounting conditions (see 4.5.5.1). TJ = 150° minimum.
	B5	4081	+25°C ≤ T_A ≤ +35°C (recorded before test is performed); $R_{\theta JL}$ (maximum) (see col. 8 of 1.3); L = 0 inch (0 mm).

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. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of table III herein.

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

Subgroup	Method	Condition
C2	1056	Thermal shock, 0°C to +100°C, 15 cycles.
C2	1051	Temperature cycling, -55°C to +175°C, 25 cycles.
C2	2036	Tension test condition A, t = 15s, for 1N6073 through 1N6075, weight = 12 lbs., for 1N6076 through 1N6081, weight = 20 lbs.
C5	4081	+25°C ≤ T_A ≤ +35°C (recorded before test is performed); $R_{\theta JL}$ (maximum) (see col. 8 of 1.3); L = 0 inch (0 mm).
C6	1027	$I_{O1(min)}$ = rated I_{O1} (see col. 4 of 1.3); adjust I_O to achieve the required T_J apply V_R = rated V_{RWM} (see 1.3), f = 50-60 Hz (see 4.3.1.1). Mounting conditions (see 4.5.5.1). T_J = 150° minimum.

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

4.5 Methods of inspection. Methods of inspection shall be 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 Inspection conditions. Unless otherwise specified, all inspections shall be conducted at an ambient temperature T_A of +25°C ±3°C.

4.5.3 Scope display evaluation. The reverse breakdown characteristics shall be viewed on an oscilloscope with display calibration factors of 20 μA/division and 10 to 50 V/division. Reverse current over the knee shall be at least 100 μA. Each device may exhibit a sharp knee characteristic and any discontinuity or dynamic instability of the trace shall be cause for rejection.

4.5.4 Reverse-recovery time. The reverse recovery time shall be measured in the circuit on figure 6 or an equivalent circuit. The recovery conditions shall be 0.5 A forward current to 1.0 A reverse current. The reverse recovery time is defined as the time the rectifier begins to conduct in the reverse direction (crosses I = zero) until the reverse current decays to - 0.25 A. The point of contact on the leads shall be no less than .375 inch (9.52 mm) from the diode body.

4.5.5 Steady-state operation life. This test 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 no greater than 180 degrees nor less than 150 degrees. Mounting conditions (see figure 7).

4.5.5.1 Alternate mounting conditions. At the option of the manufacturer, other clip or heat-sink mounting configurations may be used provided the I_O is adjusted such that each device junction temperature +125°C ≤ T_J ≤ +155°C at an ambient temperature +25°C ≤ T_A ≤ +55°C.

4.5.6 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.

4.5.6.1 Free air burn-in. The use of a current limiting or ballast resistor is permitted provided that each DUT still sees the full P_t (minimum) and that the minimum applied voltage, where applicable, is maintained throughout the burn-in period. T_J = +135°C minimum for screening and T_J = +150°C for 4.4.2 and 4.4.3 life tests.

TABLE I. Group A inspection.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
Subgroup 1						
Visual and mechanical examination	2071					
Subgroup 2						
Thermal impedance 2/	3101	See 4.3.1	$Z_{\theta JX}$			°C/W
Forward voltage	4011	Pulse width ≤ 8.3 ms and duty cycle ≤ 2 percent.	V_{F1}			
1N6073 thru 1N6075		I_{FM} = 9.4 A dc			2.04	V dc
1N6076 thru 1N6078		I_{FM} = 18.8 A dc			1.76	V dc
1N6079 thru 1N6081		I_{FM} = 37.7 A dc			1.50	V dc
Reverse current leakage	4016	DC method; V_R = rated V_R (see 1.3)	I_{R1}			
1N6073 thru 1N6075					1.0	µA dc
1N6076 thru 1N6078					5.0	µA dc
1N6079 thru 1N6081					10.0	µA dc
Breakdown voltage	4021	I_R = 100 µA dc	$V_{(BR)R}$			
1N6073, 1N6076, 1N6079				60		V dc
1N6074, 1N6077, 1N6080				110		V dc
1N6075, 1N6078, 1N6081				160		V dc
Subgroup 3						
High temperature operation:		T_A = +100°C				
Reverse current leakage	4016	DC method; V_R = rated V_R (see 1.3)	I_{R2}			
1N6073 thru 1N6075					50	µA dc
1N6076 thru 1N6078					100	µA dc
1N6079 thru 1N6081					500	µA dc
Subgroup 4						
Reverse recovery time		See 4.5.4 and figure 6.	t_{rr}		30	ns

See footnotes at end of table.

TABLE I. Group A inspection – Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
Subgroup 4 – Continued						
Capacitance	4001	V_R = 12 V; f ≥ 100 KHZ V_{SIG} ≤ 200 mV (pk)	C_J			
1N6073 thru 1N6075					24	pF
1N6076 thru 1N6078					58	pF
1N6079 thru 1N6081					230	pF
Scope display evaluation	4023	See 4.5.3, n = 116, c = o.				
Subgroup 5						
Not applicable						
Subgroup 6						
* Forward surge	4066	Condition A, I_{FSM} = rated (see 1.3); 10 surges of 8.3 ms each at 1 minute intervals superimposed on $I_O = I_{O1}$ rated (see 1.3); V_{RWM} = rated (see 1.3); T_A = + 25°C.				
Electrical measurements		See table III, steps 1, 2, 3, and 5.				
Subgroup 7						
Not applicable						

1/ For sampling plan, see MIL-PRF-19500.
2/ Not applicable to JANHC devices.

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

Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
Subgroup 1			45 devices c = 0
Temperature cycling (air to air)	1051	-65°C to +175°C, 500 cycles.	
Hermetic seal	1071		
Electrical measurement		See table III, steps 1, 2, 3, 4, and 5.	
Subgroup 2			22 devices c = 0
Blocking life	1048	t = 1,000 hours; T_A = +150°C; V_R dc = 80 - 85 percent rated V_{RWM} (see 1.3)	
Electrical measurement		See table III, steps 1, 2, 3, 4, and 5.	
Subgroup 4			N/A
Thermal impedance curves		See MIL-PRF-19500.	
Subgroup 5			
Not applicable			
Subgroup 10			
Peak reverse power	4065	Peak reverse power, (P_{RM})= shall be characterized by the supplier and this data shall be available to the Government. Test shall be performed on each sublot.	
Electrical measurement		During the P_{RM} test, the voltage (V_{BR}) shall be monitored to verify it has not collapsed. Any collapse in V_{BR} during or after the P_{RM} 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}. Progressively higher levels of P_{RM} shall be applied until failure occurs on all devices within the chosen sample size to characterize each sublot.	
Subgroup 11			22 devices c = 0
Forward surge	4066	Condition A, I_{FSM} = rated (see 1.3); ten surges of 8.3 ms each at 1 minute intervals superimposed on I_O = I_{O1} rated (see 1.3); V_{RWM} = rated (see 1.3); T_A = + 25°C.	
Electrical measurement		See table III, steps 1, 2, 3, 4, and 5.	

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

Step	Inspection	MIL-STD-750		Symbol	Limits		Unit
		Method	Conditions		Min	Max	
1.	Forward voltage	4011	Pulse width ≤ 8.3 ms and duty cycle ≤ 2 percent.	V_F			
	1N6073 thru 1N6075		I_{FM} = 9.4 A dc			2.04	V dc
	1N6076 thru 1N6078		I_{FM} = 18.8 A dc			1.76	V dc
	1N6079 thru 1N6081		I_{FM} = 37.7 A dc			1.50	V dc
2.	Reverse current	4016	DC method, V_R = rated V_R (see 1.3).	I_{R1}			
	1N6073 thru 1N6075					1.0	μA dc
	1N6076 thru 1N6078					5.0	μA dc
	1N6079 thru 1N6081					10.0	μA dc
3.	Reverse current	4016	DC method, V_R = rated V_R (see 1.3).	ΔI_R		4/	
	1N6073 thru 1N6075					.250	μA dc
	1N6076 thru 1N6078					1.0	μA dc
	1N6079 thru 1N6081					5.0	μA dc
4.	Breakdown voltage	4021	I_R = 100 μA dc	$V_{(BR)R}$			
	1N6073, 1N6076, 1N6079				60		V dc
	1N6074, 1N6077, 1N6080				110		V dc
	1N6075, 1N6078, 1N6081				160		V dc
5.	Forward voltage	4011	Pulse width ≤ 8.3 ms and duty cycle ≤ 2 percent.	ΔV_F			V dc
	1N6073 thru 1N6075		I_{FM} = 9.4 A dc			±0.1 V dc maximum change from the previous measured value.	
	1N6076 thru 1N6078		I_{FM} = 18.8 A dc				
	1N6079 thru 1N6081		I_{FM} = 37.7 A dc				
6.	Thermal impedance	3101		$Z_{\theta JX}$		See 4.3.1	
5/ 7.	Reverse recovery time	4031	See table I, subgroup 4 herein.	t_{rr}		30	ns

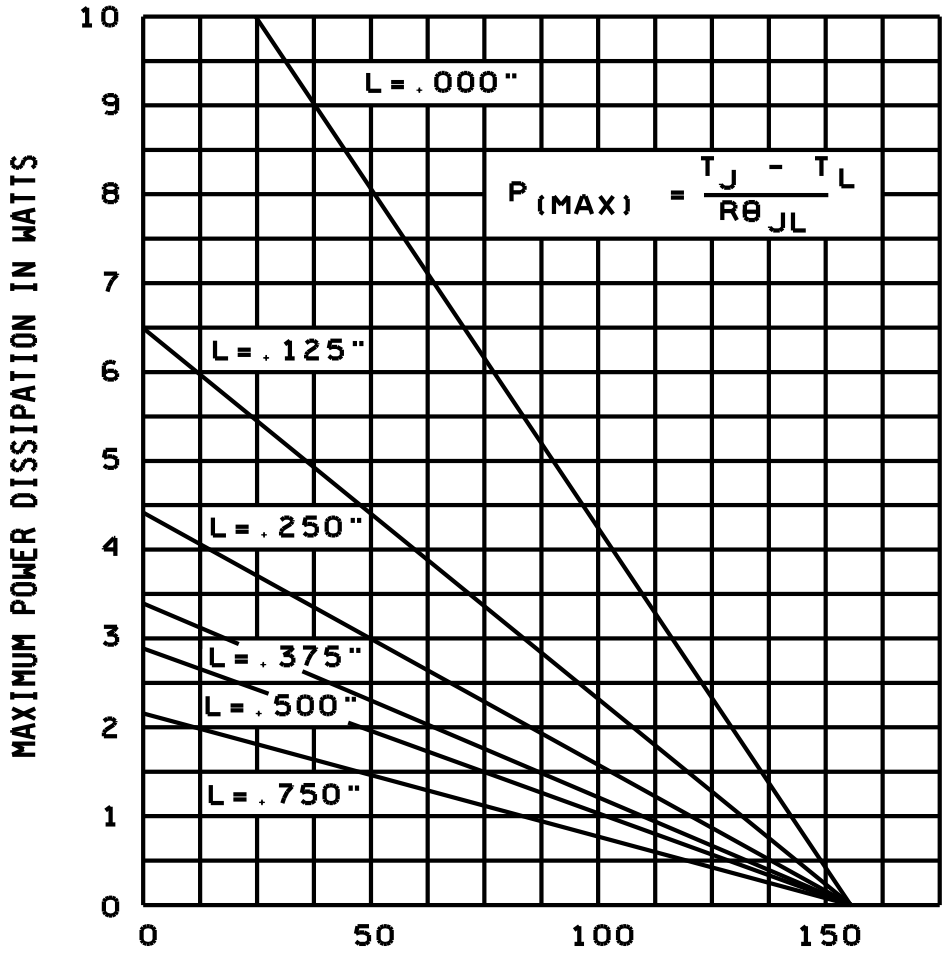
1/ The electrical measurements for table VIB (JAN, JANTX, and JANTXV) of MIL-PRF-19500 are as follows:
   a. Subgroup 2, see table III herein, steps 1, 2, and 7.
   b. Subgroup 3, see table III herein, steps 1, 2, 3, 5, 6, and 7.
   c. Subgroup 6, see table III herein, steps 1, 2, 3, 5, and 6.

2/ The electrical measurements for table VII of MIL-PRF-19500 are as follows:
   a. Subgroup 2, see table III herein, steps 1, 2, and 6.
   b. Subgroup 3, see table III herein, steps 1 and 2.
   c. Subgroup 6, see table III herein, steps 1, 2, 3, 5, 6, and 7.

3/ The electrical measurements for table IX of MIL-PRF-19500 are as follows:
   a. Subgroup 1, see table III herein, steps 1, 2, 3, 4, 5, 6, and 7.
   b. Subgroup 2, see table III herein, steps 1, 2, 3, 4, and 5.

4/ Rated I_{R1} or 100 percent, whichever is greater.

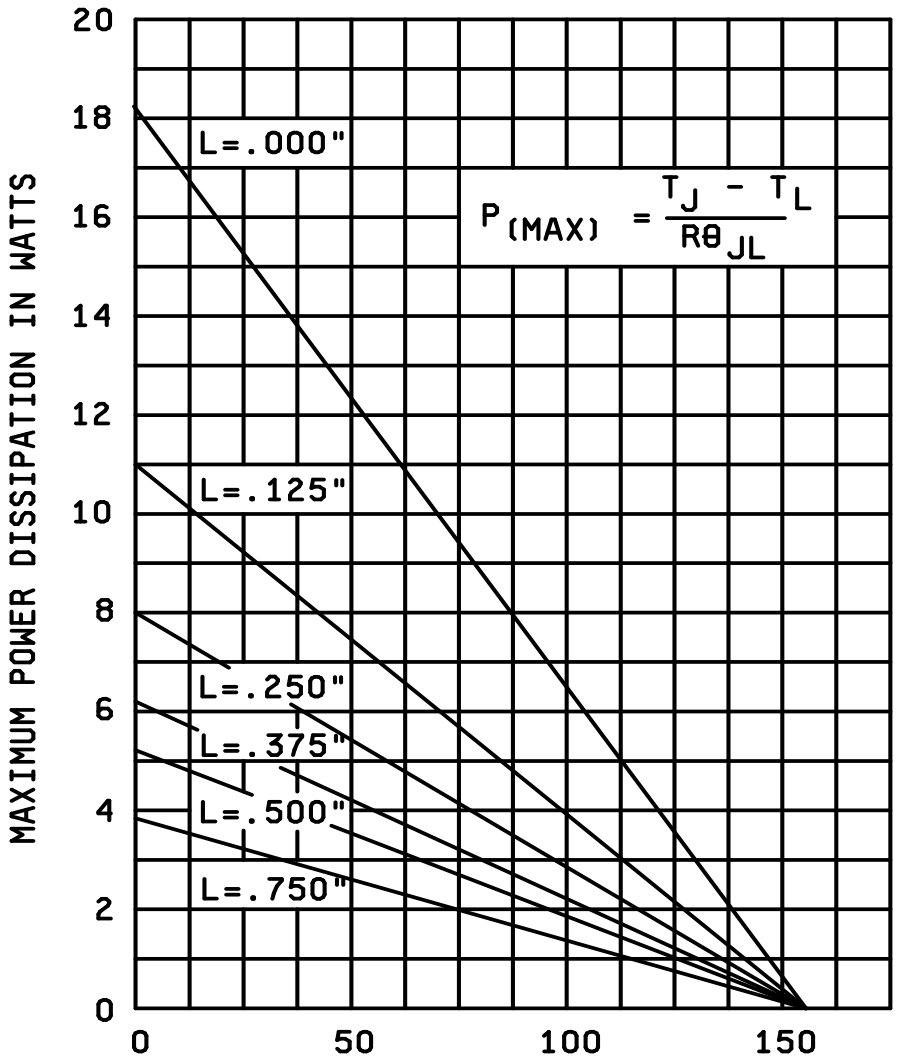
5/ Step 7 applies to irradiated devices only.



Maximum lead temperature in °C (T_L at point L from body (see table below).
For maximum operating junction temperature with equal two-lead conditions.

L	$R_{\theta JL}$
Distance from body	°C/W
.000 (0.00 mm)	13
.125 (3.18 mm)	24
.250 (6.35 mm)	35
.375 (9.52 mm)	46
.500 (12.7 mm)	54
.750 (19.1 mm)	70

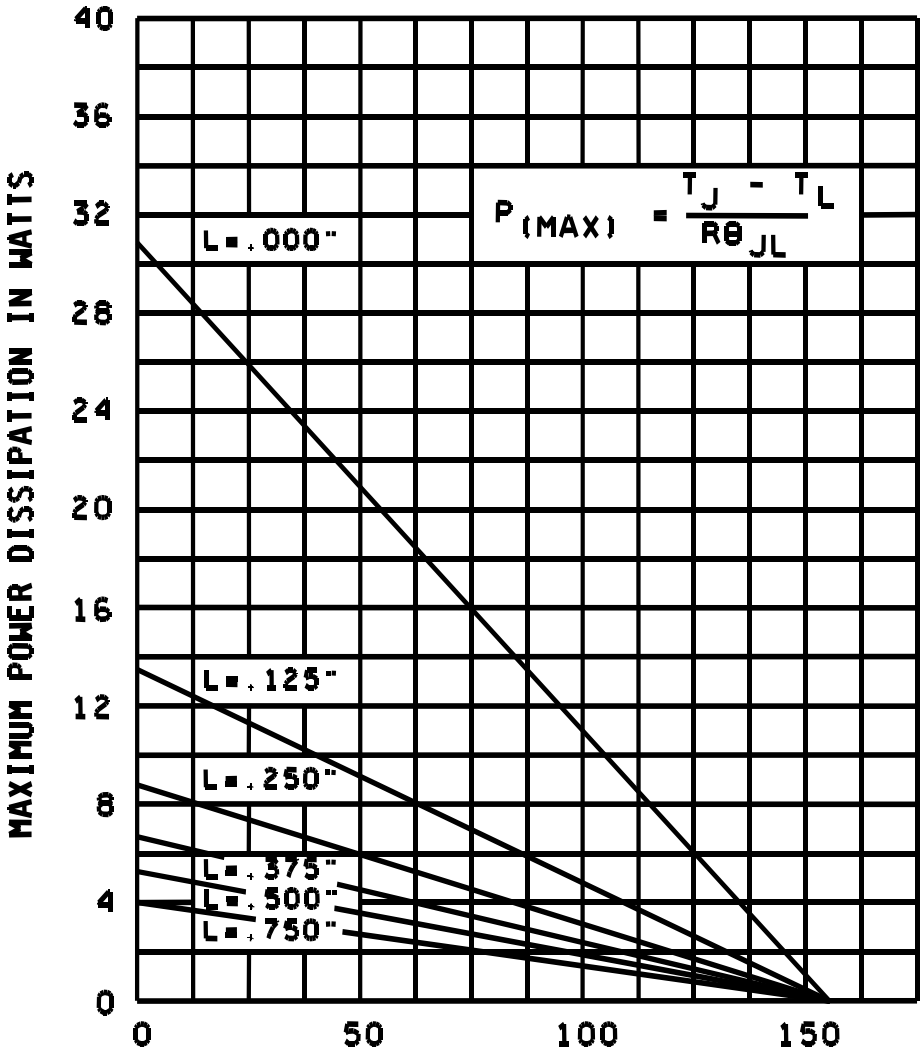
FIGURE 3. Power derating curves maximum power in watts versus lead temperature for 1N6073, 1N6074, and 1N6075.



Maximum lead temperature in °C (T_L at point L from body (see table below).
For maximum operating junction temperature with equal two-lead conditions.

L	$R_{\theta JL}$
Distance from body	°C/W
.000 (0.00 mm)	8.5
.125 (3.18 mm)	14.0
.250 (6.35 mm)	19.5
.375 (9.52 mm)	25.0
.500 (12.7 mm)	30.0
.750 (19.1 mm)	40.0

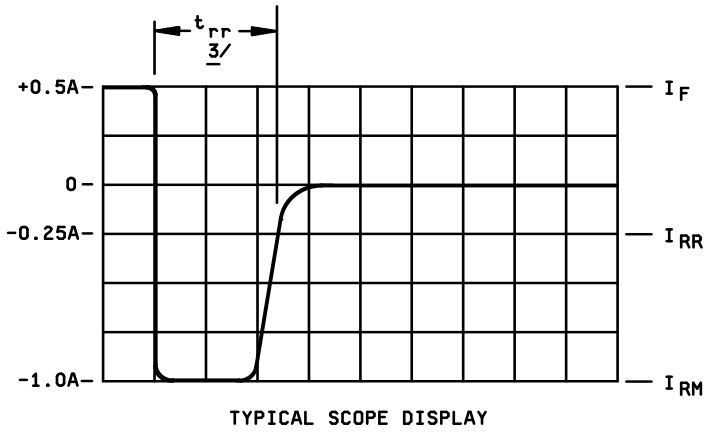
FIGURE 4. Power derating curves maximum power in watts versus lead temperature for 1N6076, 1N6077, and 1N6078.



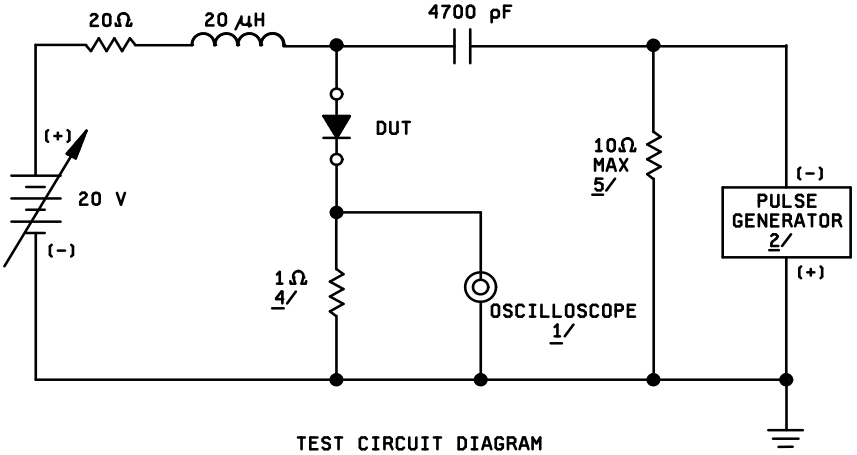
Maximum lead temperature in °C (T_L at point L from body (see table below).
For maximum operating junction temperature with equal two-lead conditions.

L	$R_{\theta JL}$
Distance from body	°C/W
.000 (0.00 mm)	5.0
.125 (3.18 mm)	11.5
.250 (6.35 mm)	17.5
.375 (9.52 mm)	23.5
.500 (12.7 mm)	29.0
.750 (19.1 mm)	40.0

FIGURE 5. Power derating curves maximum power in watts versus lead temperature for 1N6079, 1N6080, and 1N6081.



TYPICAL SCOPE DISPLAY



TEST CIRCUIT DIAGRAM

NOTES:

1. Rise time ≤ 350 ps, input impedance 50 ohms, circuit impedance 50 ohms coaxial.
2. Rise time ≤ 250 ps, source impedance = 8 ohms maximum, PRF ≈□ 0.5 kHz, PW≥ 40 ns.
3. Recovery conditions: 0.5 A forward current to 1.0 A reverse current. Recovery time measured when rectifier recovers to 0.25 A.
4. Constructed from 10 through 10 ohm resistors 1/8 watt.
5. Constructed from 10 through 100 ohm resistors 1/8 watt.

FIGURE 6. Reverse recovery time test circuit and characteristic waveform.

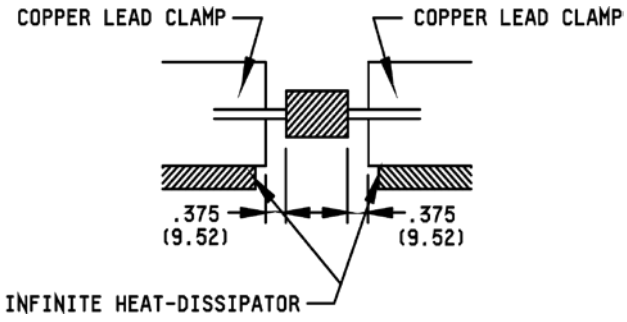


FIGURE 7. Mounting arrangement.

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 Part or Identifying Number (PIN), see title and section 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 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://assist.dla.mil.

6.4 Thermal impedance. Device power capability with lead dissipators or body forced air cooling, may be determined from figures 3, 4, and 5, which shows maximum power dissipation in watts versus lead temperature in degrees C as a function of the distance "L" from the diode body at which lead temperature is measured.

6.5 Suppliers of JANHC die. The qualified JANHC suppliers with the applicable letter version (example, JANHCA1N6073) will be identified on the QPL.

JANHC ordering information	
PIN	Manufacturer
	33178
1N6073 through 1N6081	JANHCA1N6073 through JANHCA1N6081

6.6 Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes from the previous issue were made. 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 previous issue.

Custodians:
Army - CR
Navy - EC
Air Force - 85
NASA - NA
DLA - CC

Review activities:
Army - AR
Air Force - 99

Preparing activity:
DLA - CC

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* 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.