

The documentation and process conversion measures necessary to comply with this document shall be completed by 27 November 2014.

INCH-POUND

MIL-PRF-19500/768B
 27 August 2014
 SUPERSEDING
 MIL-PRF-19500/768A
 22 November 2013

PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON, ULTRAFAST RECOVERY, POWER RECTIFIER,
 TYPES 1N7066, 1N7067, 1N7068,
 1N7066US, 1N7067US, AND 1N7068US,
 JAN, JANTX, JANTXV, AND JANS

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, ultra fast recovery, power rectifier diodes. Four levels of product assurance are provided for each encapsulated device type as specified in [MIL-PRF-19500](#).

1.2 Physical dimensions. See [figure 1](#) for axial lead device and [figure 2](#) for surface mount US device.

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

1.3.1 Ratings applicable to all Part or Identifying Numbers (PIN). $T_{\text{STG}} = T_{\text{J(max)}} = -65^\circ\text{C}$ to $+175^\circ\text{C}$.

1.3.2 Ratings applicable to individual types.

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
Types	V_{RWM}	I_{O} $T_L \leq +55^\circ\text{C}$ $L = .125 \text{ in. (3.175 mm)}$ or $T_{\text{EC}} < +100^\circ\text{C}$ (1) (2)	I_{FSM} at $+25^\circ\text{C}$ operating at I_{O} $t_p = 8.3 \text{ ms}$	t_{rr}	$R_{\theta\text{JL}}$ at $L = .125 \text{ in.}$ (3.175 mm)	$R_{\theta\text{JEC}}$
		A	A(pk)	ns	$^\circ\text{C/W}$	$^\circ\text{C/W}$
1N7066, US	100	10	350	30	8	4.5
1N7067, US	150	10	350	30	8	4.5
1N7068, US	200	10	350	30	8	4.5

(1) Axial lead, derate at $83.3 \text{ mA}/^\circ\text{C}$ above rated T_L .

(2) Surface mount, derate at $133.3 \text{ mA}/^\circ\text{C}$ above rated T_{EC} .

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATN: 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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1.4 Primary electrical characteristics. Unless otherwise specified, $T_A = +25^\circ\text{C}$.

Types	V_{BR} at 100 μA , pulse ≤ 20 ms	I_{R1} at $V_R = V_{RWM}$ $T_A = +25^\circ\text{C}$, pulsed $V_R \leq 20$ ms	I_{R2} at $V_R = V_{RWM}$ $T_A = +125^\circ\text{C}$, pulsed $V_R \leq 20$ ms
	<u>Volts</u>	<u>μA</u>	<u>μA</u>
1N7066, US	110	1.0	100
1N7067, US	165	1.0	100
1N7068, US	220	1.0	100

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

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

DEPARTMENT OF DEFENSE SPECIFICATIONS

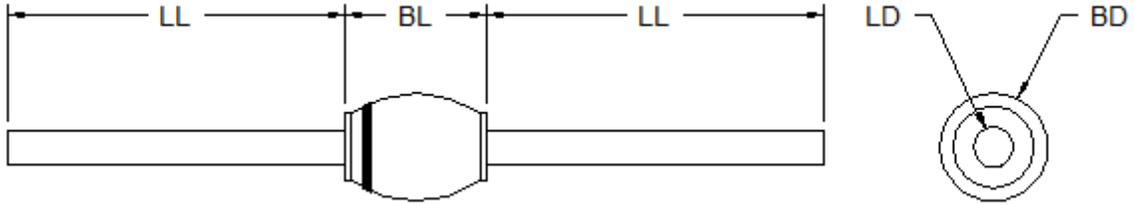
[MIL-PRF-19500](#) - Semiconductor Devices, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

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

* (Copies of these documents are available online at <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.

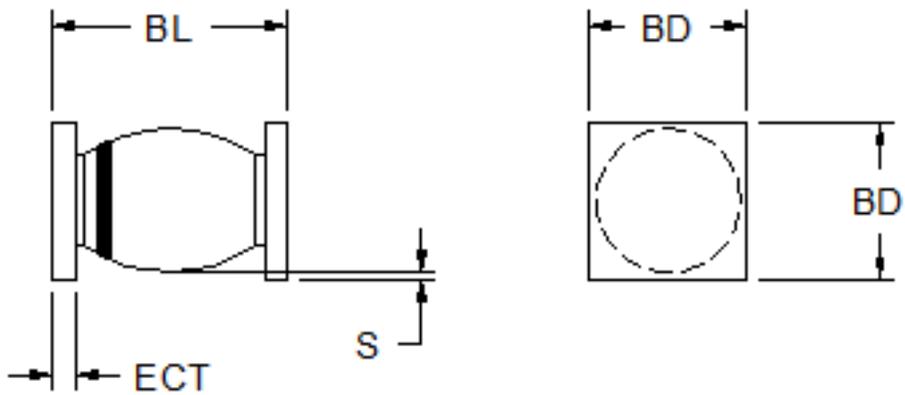


Ltr.	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
	BD	.135	.165	3.43	
BL	.135	.155	3.43	3.94	3
LD	.036	.042	0.91	1.07	3
LL	.900	1.30	22.86	33.02	

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) maximum onto the leads.
4. Dimension BD shall be measured at the largest diameter.
5. In accordance with ASME Y14.5M, diameters are equivalent to ϕ x symbology.

FIGURE 1. Physical dimensions.



Ltr.	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.172	.180	4.37	4.57	
BL	.180	.220	4.57	5.58	
ECT	.020	.028	0.51	0.71	
S	.002		0.05		4

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimensions are pre-solder dip.
4. Minimum clearance of diode body to mounting surface on all orientations.
5. Cathode marking to be either in color band or a color dot on the face of the end tab.
6. Color dots will be .020 inch (0.51 mm) diameter minimum and shall not lie within .020 inch (0.51 mm) of the mounting surface.
7. In accordance with ASME Y14.5M, diameters are equivalent to ϕ x symbology.

FIGURE 2. Physical dimensions of US surface mount family.

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 used herein shall be as specified in [MIL-PRF-19500](#) and as follows:

- EC End-cap.
- $I_{(BR)}$ Current for testing breakdown voltage.
- V_{fr} Forward recovery voltage.

3.4 Interface and physical dimensions. The interface and physical dimensions shall be as specified in [MIL-PRF-19500](#), and [figure 1](#) and [figure 2](#) herein.

3.4.1 Diode construction. These devices shall be constructed utilizing high temperature metallurgical bonding between both sides of the silicon die and terminal pins. Metallurgical bond shall be in accordance with the requirements of category I, appendix A of [MIL-PRF-19500](#). No point contacts are permitted. Silver button dumet design is prohibited.

3.4.1.1 Surface mount. US version devices shall be structurally identical to the non-surface mount devices except for lead terminations.

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

3.4.3 Lead material. Unless otherwise specified, lead or end-cap material shall be in accordance with Appendix H of [MIL-PRF-19500](#), [MIL-STD-750](#), and herein. Where a choice of material is desired, it shall be specified in the acquisition document (see 6.2).

3.5 Marking. Devices shall be marked as specified in [MIL-PRF-19500](#).

3.5.1 Marking of US versions. For US versions only, all marking may be omitted from the device except for the cathode marking. All marking which is omitted from the body of the devices shall appear on the label of the initial container.

3.5.2 Polarity. The polarity shall be indicated with a contrasting color band to denote the cathode end. Alternately, for surface mount (US) devices, a minimum of three evenly spaced contrasting color dots around the periphery of the cathode end may be used. No color coding will be permitted.

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 table I herein.

* 3.8 Workmanship. Semiconductor devices, DIODE, SILICON, ULTRAFAST RECOVERY, POWER RECTIFIER shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

4. VERIFICATION

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

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

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

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

4.3 Screening (JANS, JANTXV and JANTX levels only). 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)	Measurements	
	JANS level	JANTXV and JANTX level
(1) 3c	Thermal impedance (see 4.3.1)	Thermal impedance (see 4.3.1)
5	Not applicable	Not applicable
6	Not applicable	Not applicable
9	Group A, subgroup 2	Not required
10	Method 1038 of MIL-STD-750 , condition A, $T_A = 150^\circ\text{C}$, $t = 48$ hours	Method 1038 of MIL-STD-750 , condition A $T_A = 150^\circ\text{C}$, $t = 48$ hours
11	Group A, subgroup 2, delta limits in accordance with table III herein	Group A, subgroup 2, delta limits in accordance with table III herein
12	Burn-In (see 4.3.2), $t = 240$ hours min	Burn-In (see 4.3.2), $t = 96$ hours min
13	Group A, subgroup 2 and 3, delta limits in accordance with table III herein, scope display evaluation (see 4.5.2)	Group A, subgroup 2, delta limits in accordance with table III herein, scope display evaluation (see 4.5.2).
14a.	Not applicable	Not applicable
14b	Opaque glass diodes may use method 2068 in lieu of Hermeticity.	Opaque glass diodes may use method 2068 in lieu of Hermeticity.

(1) Shall be performed anytime after temperature cycling, screen 3a; JANTX and JANTXV levels do not need to be repeated in screening requirements.

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 , and K factor where appropriate. Measurement delay time (t_{MD}) shall be 70 μs maximum. The limits will be statistically derived. See table E-IX of [MIL-PRF-19500](#), group E, and table II, subgroup 4 herein.

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4.3.2 Free air power burn-in conditions. Power burn-in conditions are as follows (see 4.5.3 and 4.5.3.1): $I_{O(min)} = 3A$, $V_r(pk) = \text{rated } V_{RWM}$, $T_A = 55^\circ\text{C}$ maximum. Test conditions shall be in accordance with method 1038 of [MIL-STD-750](#), condition B. Adjust I_O or T_A to achieve the required T_J . $T_J = 135^\circ\text{C}$ minimum.

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. The $Z_{\theta JX}$ end-point shall be derived by the supplier and approved by the qualifying activity. This $Z_{\theta JX}$ end-point shall also be documented in the qualification report.

* 4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the tests and conditions specified for subgroup testing in appendix E, table E-VIa (JANS) and table E-VIb (JAN, JANTX, and JANTXV) of [MIL-PRF-19500](#) and 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	Condition A, $I_{FSM} = 350 A$; ten surges of 8.3 ms each at 1 minute intervals, superimposed on $I_O = 10A$, $V_{RWM} = \text{rated}$, see col. 2 of 1.3.2. $T_A=25^\circ\text{C}$.
	B3	1071	Fine leak not required. . Opaque glass diodes may use method 2068 in lieu of Hermeticity.
	B4	1037	$I_O = 5 A$ minimum (see 1.3.2); $V_R = \text{rated } V_{RWM}$ (see 1.3.2); 2,000 cycles. End-points shall include delta limits in accordance with table III herein.
	B4	1071	Fine leak not required. . Opaque glass diodes may use method 2068 in lieu of Hermeticity.
	B5	1027	$I_O = 3 A$ minimum, $t = 1,000$ hours, $V_{Rpk} = 80$ percent minimum of rated V_{RWM} (see col. 2 of 1.3.2) adjust I_O or T_A to achieve $T_J = 175^\circ\text{C}$ minimum; $f = 50 - 60$ Hz. $T_A = 55^\circ\text{C}$ max. For irradiated devices, include t_{rr} as an end-point measurement. End-points shall include delta limits in accordance with table III herein.
	B8	4065	Peak reverse power, $P_{RM} \geq 636 W$ square wave. Test shall be performed on each subplot; sampling plan: $n = 10$, $c = 0$, electrical end-points, see table I, Subgroup 2 herein.

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

	<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
	B2	1071	Fine leak not required. Opaque glass diodes may use method 2068 in lieu of Hermeticity.
	B3	1037	$I_O = 5 A$ minimum (see 1.3.2); $V_R = \text{rated } V_{RWM}$ (see 1.3.2); 2,000 cycles. End-points shall include delta limits in accordance with table III herein.

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) shall be in accordance with table I, subgroup 2 herein. See table III herein for delta limits when applicable.

4.4.3.1 Group C inspection, appendix E, table E-VII of [MIL-PRF-19500](#).

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>	
C2	2036	Condition A, 12 pounds (silver leads) 20 pounds (copper leads), t = 15 seconds. Condition E, 2 pounds. (Lead fatigue not applicable to US diodes.)	
*	C2	2038	Condition B, US devices: 20 pounds (copper tabs), t = 15 seconds.
C2	1071	Fine leak not required. Opaque glass diodes may use method 2068 in lieu of Hermeticity.	
C5	4081	$R_{\theta JL}/R_{\theta JEC}$ in accordance with 1.3.2 herein.	
C6	1037	$I_O = 5$ A minimum (see 1.3.2); $V_R =$ rated V_{RWM} (see 1.3.2); 6,000 cycles total, may continue from Group B. End-points shall include delta limits in accordance with table III herein.	

4.4.4 Group E inspection. Group E inspection shall be conducted in accordance with the conditions specified for subgroup testing in appendix E, table E-IX of [MIL-PRF-19500](#) and as specified herein. Electrical measurements (end-points) shall be in accordance with table I, subgroup 2 herein. See table III herein for delta limits when applicable.

4.5 Methods of inspection. Methods of inspection shall be as specified in the appropriate tables 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 Scope display evaluation. Scope display evaluation shall be stable in accordance with method 4023 of [MIL-STD-750](#), condition A, max lift = 20 μ A. Scope display may be performed on ATE (automatic test equipment) for screening only with the approval of the qualifying activity. Scope display in table I, subgroup 4 shall be performed on a curve tracer. The reverse current (I_{BR}) shall be 100 μ A peak.

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 Burn-in. The use of a current limiting or ballast resistor is permitted provided that each DUT still sees the I_O and that the required voltage, where applicable, is maintained through-out the burn-in period. 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 , and t_H . Measurement delay time $t_{MD} = 70$ μ s max. See appendix E, table E-IX of [MIL-PRF-19500](#), subgroup 4, and [figure 3](#) herein. Forced moving air or draft shall not be permitted across the devices during test.

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* TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical examination	2071					
<u>Subgroup 2</u>						
Thermal impedance <u>2/</u>	3101	See 4.3.1	Z _{0JX}			°C/W
Forward voltage	4011	Pulsed (see 4.5.1) I _{FM} = 6.0 A I _{FM} = 10 A I _{FM} = 20 A	V _{FM1} V _{FM2} V _{FM3}		0.900 0.950 1.050	V V V
Reverse current	4016	V _R = rated (1.3.2, col 2) Pulsed (see 4.5.1)	I _{R1}		1	μA
Breakdown voltage	4021	I _(BR) = 100 μA, pulse ≤ 20 ms	V _{(BR)1}			
1N7066				110		V
1N7067				160		V
1N7068				210		V
<u>Subgroup 3</u>						
High temperature operation:		T _A = +125°C				
Reverse current	4016	V _R = rated (1.3.2, col 2) Pulsed (see 4.5.1)	I _{R2}		100	μA
Forward voltage	4011	Pulsed (see 4.5.1) I _{FM} = 6.0 A	V _{FM4}		0.850	V
High temperature operation:		T _A = +150°C				
* Reverse current	4016	V _R = rated (1.3.2, col 2) Pulsed (see 4.5.1)	I _{R3}		500	μA
Forward voltage	4011	Pulsed (see 4.5.1) I _{FM} = 6.0 A	V _{FM5}		0.780	V

See footnotes at end of table.

* TABLE I. Group A inspection - Continued.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 3</u> - continued.						
Low-temperature operation:		$T_A = -55^\circ\text{C}$				
Forward voltage	4011	Pulsed (see 4.5.1) $I_{FM} = 6.0 \text{ A}$	V_{FM6}		1.050	V
<u>Subgroup 4</u>						
Reverse recovery time	4031	Condition B $I_F = I_{RM} = 1.0 \text{ A}$ $i_{(REC)} = 0.1 \text{ A}$ $di/dt = 100 \text{ A}/\mu\text{s}$ (min)	t_{rr}		30	ns
Capacitance	4001	$V_R = 10 \text{ V}$; $f = 1 \text{ MHz}$; $V_{sig} = 50 \text{ mV}$ (p-p)	C_J		80	pF
Scope display evaluation	4023	See 4.5.2, $n = 116$, $c = 0$				
<u>Subgroup 5</u>						
Not applicable						
<u>Subgroup 6</u>						
Forward surge	4066	Condition A, ten surges of 8.3 ms each at 1 minute intervals superimposed on $I_O = 10 \text{ A}$; $V_{RWM} = \text{rated}$ (see 1.3.2); $T_A = +25^\circ\text{C}$		350		A
Electrical measurements		See table I, subgroup 2 except Z_{0JX}				
<u>Subgroup 7</u>						
Not applicable						

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

2/ This test required for the following end-point measurements only:

Group B, subgroups 2 and 3 (JAN, JANTX, JANTXV).

Group B, subgroups 3 and 4 (JANS).

Group C, subgroups 2 and 6.

Group E, subgroup 1.

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

Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 1</u>			45 devices c = 0
Thermal shock (liquid to liquid)	1056	20 cycles, condition D except low temperature shall be achieved using liquid nitrogen (-195°C). Perform a visual for cracked glass.	
Temperature cycling (air to air)	1051	-65°C to +175°C, 500 cycles.	
Hermetic seal <u>1/</u>	1071	Fine leak not required. . Opaque glass diodes may use method 2068 in lieu of Hermeticity.	
Electrical measurement		See table I, subgroup 2 and table III, steps 1 and 2.	
<u>Subgroup 2</u>			45 devices c = 0
Steady-state dc blocking life	1048	t = 1,000 hours; T _A = +150°C; V _R dc = 80 - 85 percent rated V _{RWM} (see 1.3.2).	
Electrical measurement		See table I, subgroup 2 herein, except Z _{0JX} need not to be performed, and table III, steps 1 and 2 herein. For irradiated devices, include t _{rr} as an end-point measurement.	
<u>Subgroup 4</u>			Sample size N/A
Thermal impedance curves		See MIL-PRF-19500.	
<u>Subgroup 5</u>			
Not applicable			
<u>Subgroup 6</u>			
ESD	1020		
<u>Subgroup 7</u>			
Resistance to soldering heat	2031	Conditions A, B, and C	3 devices
Hermetic seal <u>1/</u>	1071	Fine leak not required. . Opaque glass diodes may use method 2068 in lieu of Hermeticity.	

See footnotes at end of table.

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

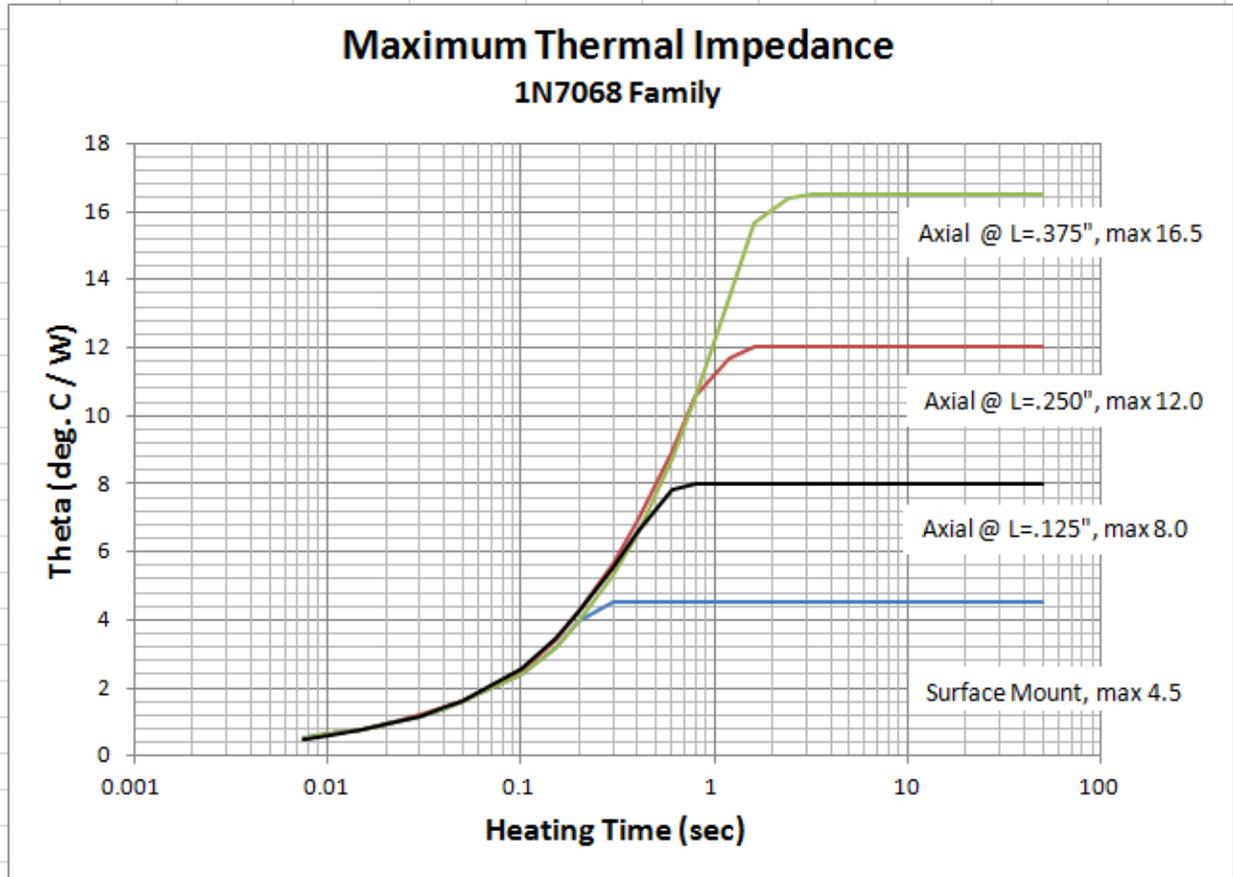
Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 8</u> Peak reverse power Electrical measurement	4065	Peak reverse power, (P_{RM}) = 636 W. The test shall be performed on each subplot. During the P_{RM} test, the voltage (V_{BR}) shall be monitored to verify it has not collapsed. Any collapse in V_{BR} during or after the P_{RM} test, or rise in leakage current (I_R) after the test exceeds I_R in table I , shall be considered a failure. Progressively higher levels of P_{RM} shall be applied until failure occurs on all devices within the chosen sample size, or 1,000 W is obtained.	n = 45
<u>Subgroup 9</u> Resistance to glass cracking	1057	Step stress to destruction by increasing cycles or up to a maximum of 25 cycles.	n = 45
<u>Subgroup 10</u> Forward surge Electrical measurement	4066	Condition A, I_{FSM} = rated (see 1.3.2); ten surges of 8.3 ms each at 1 minute intervals superimposed on $I_O = I_{O1}$ rated (see 1.3.2); V_{RWM} = rated (see 1.3.2); $T_A = + 25^\circ\text{C}$. See table I , subgroup 2.	22 devices c = 0

1/ Opaque glass non-cavity axial lead diodes may use test method 2068 in lieu of test method 1071, of [MIL-STD-750](#).

TABLE III. Group A, B, C, and E delta requirements. 1/

Step	Inspection	MIL-STD-750		Symbol	Limit	Unit
		Method	Conditions			
1.	Forward voltage	4011	Pulsed (see 4.5.1) $I_{FM} = 6.0 \text{ A(pk)}$	ΔV_{FM1}	$\pm 50 \text{ mV dc change}$ from initial value.	
2.	Reverse current	4016	DC method $V_R = \text{rated (1.3.2, col 2)}$	ΔI_{R1}	$\pm 100 \text{ percent}$ or $\pm 200 \text{ nA dc change}$ from initial reading, whichever is greater.	

1/ Devices which exceed the table I limits for this test shall not be accepted.



NOTE: $Z_{0JX} = 2.0 \text{ } ^\circ\text{C/W}$ max at 65 ms.

FIGURE 3. Thermal impedance curves.

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 3.4.2).
- * d. The complete Part or Identifying Number (PIN), see title and section 1.
- e. Lead material (see [3.4.3](#)).

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@dlam.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 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

Preparing activity:

DLA - CC

(Project 5961-2014-069)

Review activities:

Army - AR, AV, MI, SM
Navy - AS, MC
Air Force - 19, 71, 99

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>.