

The documentation and process conversion measures necessary to comply with this document shall be completed by 27 October 2025.

INCH-POUND

MIL-PRF-19500/503J
w/AMENDMENT 1
29 June 2025
SUPERSEDING
MIL-PRF-19500/503J
1 April 2020

PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON, POWER RECTIFIER,
ULTRAFAST RECOVERY, TYPES 1N6073 THROUGH 1N6081,
QUALITY LEVELS JAN, JANTX, JANTXV, JANHC, AND JANKC

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, ultrafast recovery diodes for use as power rectifiers. Three levels of product assurance (JAN, JANTX, and JANTXV) are provided for each device type as specified in [MIL-PRF-19500](#). Two levels of product assurance (JANHC and JANKC) are provided for each unencapsulated device type.

1.2 Package outlines and die topography. The device package for the encapsulated device type are as follows: Axial lead in accordance with [figure 1](#). The dimensions and topography for JANHC and JANKC unencapsulated die are as follows: Die version A in accordance with [figure 2](#) and version B in accordance with [figure 3](#).

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

Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
Types	V_R	V_{RWM}	I_{O1} $T_A = +55^\circ\text{C}$ (1) (2) (3)	I_{O2} $T_L = +70^\circ\text{C}$ (1) (4) (5)	t_{rr} (6)	T_{STG} and T_J	$R_{\theta JL}$ (4)	I_{FSM} $t_P = 8.3$ ms
	<u>V dc</u>	<u>V (pk)</u>	<u>A dc</u>	<u>A dc</u>	<u>ns</u>	<u>°C</u>	<u>°C/W</u>	<u>A (pk)</u>
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

See notes at end of table.

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FSC 5961



1.3 Maximum ratings. – continued.

- (1) Higher I_O rating is allowable provided that T_L or T_A is maintained such that $T_J \leq 155^\circ\text{C}$.
- (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 $T_A = +55^\circ\text{C}$ to $+155^\circ\text{C}$.
- (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 $T_L = 70^\circ\text{C}$ to $+155^\circ\text{C}$ (see figures 4, 5, and 6).
- (6) See figure 7, $I_F = 0.5\text{ A}$, $I_{RM} = -1.0\text{ A}$, $I_{RM(REC)} = -0.25\text{ A}$

1.4 Primary electrical characteristics. Primary electrical characteristics are not applicable to this specification sheet.

1.5 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-19500, and as specified herein. See 6.4 for PIN construction example and 6.5 for a list of available PINs.

1.5.1 JAN certification mark and quality level.

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

1.5.1.2 Quality level designators for unencapsulated devices (die). The quality level designators for unencapsulated devices (die) that are applicable for this specification sheet from the lowest to the highest level are as follows: "JANH" and "JANK".

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

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

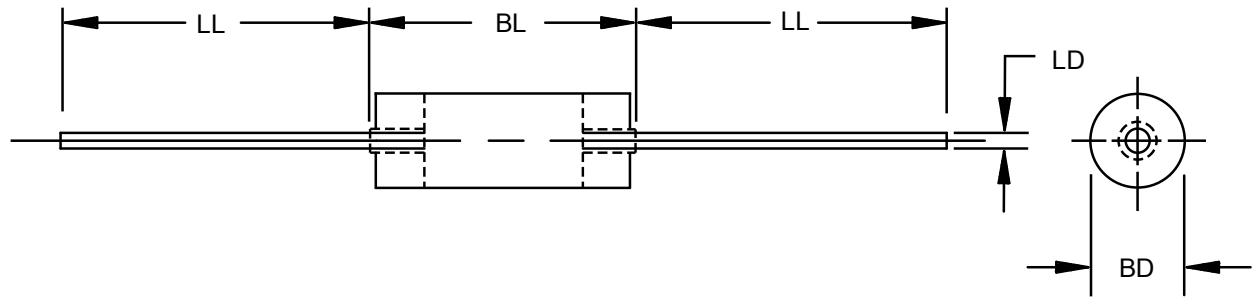
1.5.2.2 Second number symbols. The second number symbols for the semiconductors covered by this specification sheet are as follows: "6073", "6074", "6075", "6076", "6077", "6078", "6079", "6080", and "6081".

1.5.3 Suffix symbols. Suffix symbols are not applicable for this specification sheet.

1.5.4 Lead finish. The lead finishes applicable to this specification sheet are listed on QPDSIS-19500.

1.5.5 Die identifiers for unencapsulated devices (manufacturers and critical interface identifiers). The manufacturer die identifier that is applicable for this specification sheet is "A" and "B" (see figures 2, 3, and 6.5).

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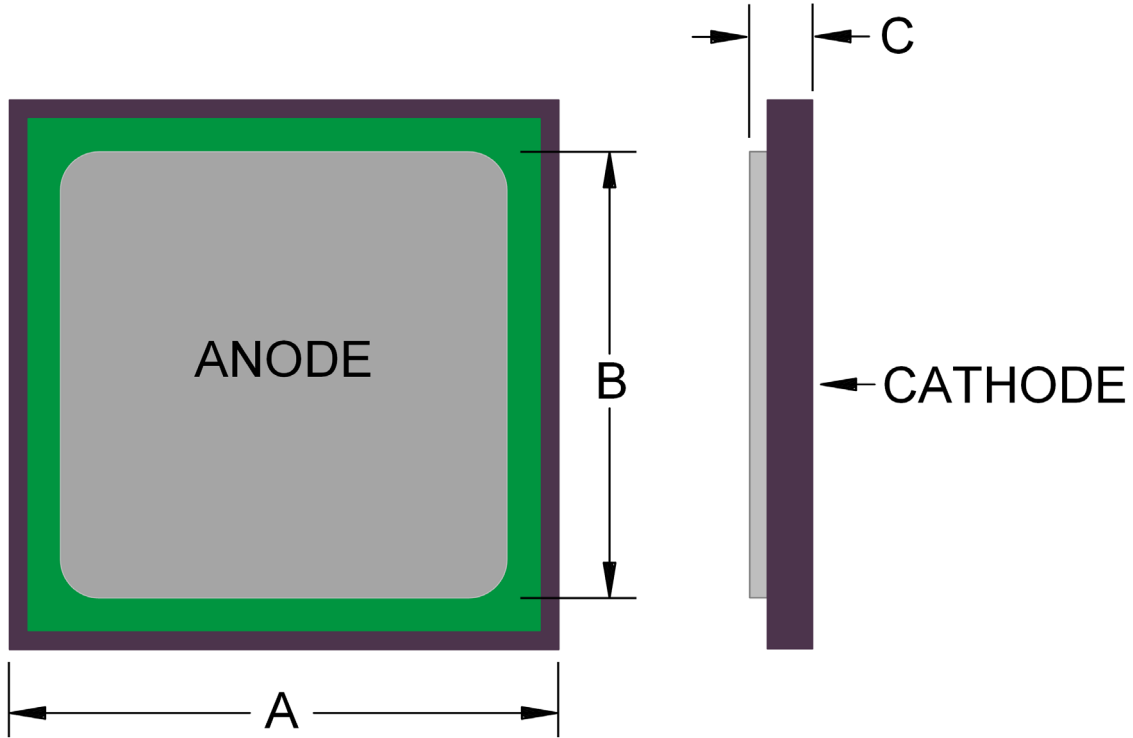


	Dimensions												Notes
Symbol	1N6073 through 1N6075				1N6076 through 1N6078				1N6079 through 1N6081				
	Inch		Millimeters		Inch		Millimeters		Inch		Millimeters		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
BD	.055	.083	1.40	2.11	.065	.140	1.65	3.56	.135	.190	3.43	4.83	2
BL	.125	.250	3.18	6.35	.125	.250	3.18	6.35	.125	.250	3.18	6.35	3
LD	.026	.033	0.66	0.84	.036	.042	0.91	1.07	.036	.042	0.91	1.07	4
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. Millimeters are given for general information only.
2. Dimension BD shall be measured at the largest diameter.
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. Dimensions are pre-solder dip.

FIGURE 1. Physical dimensions for axial leaded package.

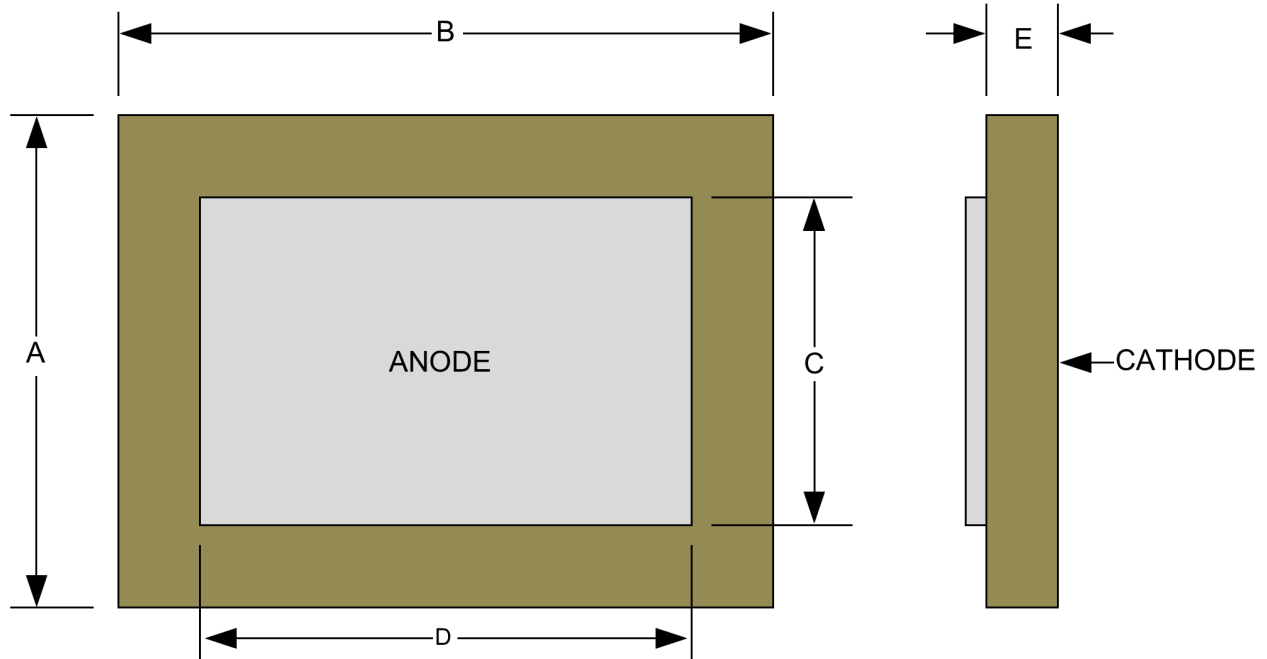


Letter	Dimensions											
	1N6073 through 1N6075 (see note 3)				1N6076 through 1N6078 (see note 4)				1N6079 through 1N6081 (see note 4)			
	Inch		Millimeters		Inch		Millimeters		Inch		Millimeters	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A	.039	.043	0.99	1.09	.066	.070	1.68	1.78	.128	.132	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. Millimeters are given for general information only.
2. The metallization characteristics of the die are: Top (anode) is Aluminum and back (cathode) is Gold.
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.

FIGURE 2. Physical dimensions for JANHC and JANKC (A version) unencapsulated die.



Letter	Dimensions 1N6073, 1N6074, and 1N6075			
	Inches		Millimeters	
	Min	Max	Min	Max
A	.040	.050	1.016	1.270
B	.055	.065	1.397	1.651
C	.024	.034	0.610	0.864
D	.039	.049	0.991	1.245
E	.003	.013	0.076	0.330

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. The metallization characteristics of the die are: Top (anode): Aluminum and back (cathode): Gold.
3. Anode thickness: Al 30,000 Å ± 5,000 Å.
4. Cathode thickness: Au 6,500 Å ± 1,500 Å.

FIGURE 3. Physical dimensions for JANHC and JANKC (B version) unencapsulated die.

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 <https://quicksearch.dla.mil>.)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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 [figure 1](#) (axial lead) and [figures 2](#) and [3](#) (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.

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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).
- d. Element evaluation of un-encapsulated die (see 4.6).

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 and JANKC devices. Qualification for JANHC and JANKC unencapsulated die shall be in accordance with appendix G of MIL-PRF-19500.

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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	Measurements for quality levels JANTX and JANTXV
1a	Not required
1b	Required for quality level JANTXV only
2	Not required
3a	Required
3c	Thermal impedance (see 4.3.1)
4	Not applicable
5	Not applicable
6	Not applicable
8	Not required
9	Not applicable
10	$T_A = +125^{\circ}\text{C}$
11	V_{F1} and I_{R1}
12	Method 1038 of MIL-STD-750, test condition B; see 4.3.2
13	Subgroup 2 of table I herein; $\Delta V_{F1} = \pm 0.1\text{V dc}$; $\Delta I_{R1} = (1)$ or 100 percent of the initial value, whichever is greater. Scope display evaluation (see 4.5.5).
15	Not required
16	Not required

- (1) I_{R1} is as follows:
 1N6073 through 1N6075 = +0.250 $\mu\text{A dc}$.
 1N6076 through 1N6078 = +1.0 $\mu\text{A dc}$.
 1N6079 through 1N6081 = +5.0 $\mu\text{A dc}$.

4.3.1 Thermal impedance. The thermal impedance measurements shall be performed in accordance with method 3101 of MIL-STD-750 using the guidelines in that method for determining I_M , I_H , t_H , t_{MD} , t_{SW} (V_C and V_H where appropriate). 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. The power burn-in conditions shall be in accordance with 4.5.3 and as follows:
 $T_A = 55^{\circ}\text{C}$ maximum and $T_J = 135^{\circ}\text{C}$ minimum. $I_{O(\min)}$ = rated I_O . Adjust I_O or T_A to achieve the required T_J . 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.

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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 shall be in accordance with table I, subgroup 2 and delta measurements shall be in accordance with the applicable steps of table III herein.

Subgroup	Method	Condition
B2	1056	0°C to +100°C, 10 cycles.
B2	1051	-55°C to +175°C, 25 cycles.
B2	4066	Condition A, I_{FSM} = rated I_{FSM} (see col.9 of 1.3); ten surges of 8.3 ms each at 1 minute intervals, super-imposed on I_{O1} (see col. 4 of 1.3); V_{RWM} = rated V_{RWM} (see col. 3 of 1.3).
B3	1027	See 4.5.3. I_O = I_{O1} rated minimum (see col. 4 of 1.3); apply V_R = rated V_{RWM} (see col. 3 of 1.3), adjust I_O or T_A to achieve T_J = 150°C minimum f = 50 to 60 Hz. For irradiated devices, include t_{rr} as an end-point measurement.
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 shall be in accordance with table I, subgroup 2 and delta measurements shall be in accordance with the applicable steps of table III herein.

Subgroup	Method	Condition
C2	1056	0°C to +100°C, 15 cycles.
C2	1051	-55°C to +175°C, 25 cycles.
C2	2036	Tension test condition A, t = 15s, for 1N6073 through 1N6075, weight = 12 lbs (5.44 kg), for 1N6076 through 1N6081, weight = 20 lbs (9.07 kg).
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	See 4.5.3. I_O = I_{O1} rated minimum (see col. 4 of 1.3); apply V_R = rated V_{RWM} (see col. 3 of 1.3), adjust I_O or T_A to achieve T_J = 150°C minimum, f = 50 to 60 Hz. For irradiated devices, include t_{rr} as an end-point measurement.

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 shall be in accordance with table I, subgroup 2 and delta measurements shall be in accordance with the applicable steps of table III herein.

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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 $+25^{\circ}\text{C} \pm 3^{\circ}\text{C}$.

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. Use method 3100 of [MIL-STD-750](#) to measure T_J .

4.5.3.1 Burn-in details. 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.

4.5.3.2 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 $+125^{\circ}\text{C} \leq T_J \leq +155^{\circ}\text{C}$ at an ambient temperature $+25^{\circ}\text{C} \leq T_A \leq +55^{\circ}\text{C}$.

4.5.4 Reverse-recovery time. The reverse recovery time shall be determined in accordance with condition D of method 4031 of [MIL-STD-750](#) and as specified herein. The reverse recovery time shall be measured in the circuit on [figure 7](#) 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 $I = \text{zero}$) 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 Scope display evaluation. The reverse breakdown characteristics shall be stable in accordance with condition A of method 4023 of [MIL-STD-750](#). When the reverse breakdown characteristics are viewed on an oscilloscope, display calibration factors of 20 $\mu\text{A}/\text{division}$ and 10 to 50 $\text{V}/\text{division}$ shall be used. 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.

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

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

4.6 Element evaluation of un-encapsulated die. The element evaluation of unencapsulated 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.

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TABLE I. Group A inspection.

Inspection <u>1</u> /	MIL-STD-750		Symbol	Limit	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	$Z_{\theta JX}$			°C/W
Forward voltage	4011	Condition B, pulse width ≤ 8.3 ms and duty cycle ≤ 2 percent. $I_{FM} = 9.4$ A dc $I_{FM} = 18.8$ A dc $I_{FM} = 37.7$ A dc	V_{F1}		2.04 1.76 1.50	V dc V dc V dc
Reverse current leakage	4016	Condition A or B, DC method; $V_R = \text{rated } V_R$ (see 1.3)	I_{R1}		1.0 5.0 10.0	$\mu\text{A dc}$ $\mu\text{A dc}$ $\mu\text{A dc}$
Breakdown voltage	4021	$I_R = 100 \mu\text{A dc}$	$V_{(BR)R}$	60 110 160		V dc V dc V dc
<u>Subgroup 3</u>						
High temperature operation:		$T_A = +100^\circ\text{C}$				
Reverse current leakage	4016	Condition A or B, DC method; $V_R = \text{rated } V_R$ (see 1.3)	I_{R2}		50 100 500	$\mu\text{A dc}$ $\mu\text{A dc}$ $\mu\text{A dc}$
<u>Subgroup 4</u>						
Reverse recovery time	4031	See 4.5.4 and figure 7.	t_{rr}		30	ns

See footnotes at end of table.

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TABLE I. Group A inspection – Continued.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit	Limit	Unit
	Method	Conditions		Min	Max	
<u>Subgroup 4</u> – Continued						
Capacitance	4001	$V_R = 12 \text{ V}; f \geq 100 \text{ kHz}$ $V_{SIG} \leq 200 \text{ mV (pk)}$	C_J		24 58 230	pF pF pF
1N6073 thru 1N6075 1N6076 thru 1N6078 1N6079 thru 1N6081						
Scope display evaluation	4023	See 4.5.5, $n = 116$, $c = o$.				
<u>Subgroup 5</u>						
Not applicable						
<u>Subgroup 6</u>						
Forward surge current	4066	Condition A, $I_{FSM} = \text{rated}$ (see 1.3); 10 surges of 8.3 ms each at 1 minute intervals superimposed on $I_O = I_{O1}$ rated (see 1.3); $V_{RWM} = \text{rated}$ (see 1.3); $T_A = + 25^\circ\text{C}$.				
<u>Subgroup 7</u>						
Not applicable						

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

2/ Not applicable to JANHC and JANKC devices. For end-point measurements, this test is required for the following subgroups:
Group B, subgroups 2 and 3 (JAN, JANTX, JANTXV).
Group C, subgroups 2 and 6.
Group E, subgroup 1.

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

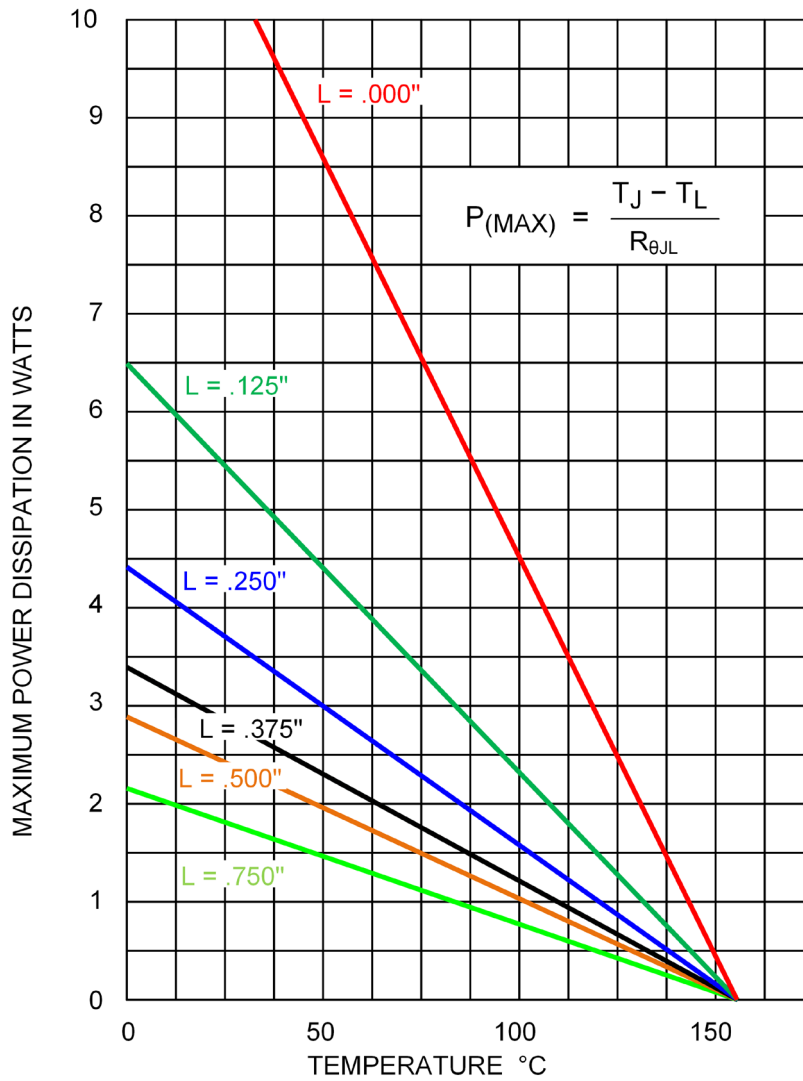
Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 1</u>			45 devices c = 0
Temperature cycling (air to air)	1051	-65°C to +175°C, 500 cycles.	
Hermetic seal	1071		
Electrical measurement		See table I , subgroup 2 and table III , steps 1, 2, and 3.	
<u>Subgroup 2</u>			22 devices c = 0
Blocking life	1048	t = 1,000 hours; T _A = +150°C; V _R dc = 80 to 85 percent rated V _{RWM} (see 1.3). For irradiated devices, include t _{ir} as an end-point measurement.	
Electrical measurement		See table I , subgroup 2 and table III , steps 1, 2, and 3.	
<u>Subgroup 4</u>			N/A
Thermal impedance curves		See MIL-PRF-19500 .	
<u>Subgroup 5</u>			
Not applicable			
<u>Subgroup 10</u>			
Peak reverse power	4065	P _{RM} shall be characterized by the supplier and this data shall be available to the Government. Test shall be performed on each subplot.	
Electrical measurement		See 4.5.6	
<u>Subgroup 11</u>			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 I , subgroup 2 and table III , steps 1, 2, and 3.	

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

Step	Inspection	MIL-STD-750		Symbol	Limit Min	Limit Max	Unit
		Method	Conditions				
1	Reverse current 1N6073 thru 1N6075 1N6076 thru 1N6078 1N6079 thru 1N6081	4016	Condition A or B, DC method, $V_R = \text{rated } V_R$ (see 1.3).	ΔI_R		4/ .250 1.0 5.0	$\mu\text{A dc}$ $\mu\text{A dc}$ $\mu\text{A dc}$
2	Forward voltage 1N6073 thru 1N6075 1N6076 thru 1N6078 1N6079 thru 1N6081	4011	Condition B, pulse width ≤ 8.3 ms and duty cycle ≤ 2 percent. $I_{FM} = 9.4 \text{ A dc}$ $I_{FM} = 18.8 \text{ A dc}$ $I_{FM} = 37.7 \text{ A dc}$	ΔV_F		$\pm 0.1 \text{ V dc}$ maximum change from the previous measured value.	V dc
3 5/	Reverse recovery time	4031	See 4.5.4 and figure 7.	t_{rr}		30	ns

- 1/ The electrical measurements taken during group B inspection for quality levels JAN, JANTX and JANTXV (table E-VIB of MIL-PRF-19500) shall be as follows:
- In addition to the measurements specified for subgroup 2, the measurements of steps 3 of this table shall also be taken.
 - In addition to the measurements specified for subgroup 3, the measurements of steps 1, 2, and 3 of this table shall also be taken.
 - In addition to the measurements specified for subgroup 6, the measurements of steps 1 and 2 of this table shall also be taken.
- 2/ The electrical measurements taken during group C inspection for all quality levels (table E-VII of MIL-PRF-19500) shall be as follows:
- In addition to the measurements specified for subgroup 2, the measurements of steps 1 and 2 of this table shall also be taken.
 - In addition to the measurements specified for subgroup 6, the measurements of steps 1, 2, and 3 of this table shall also be taken.
- 3/ The electrical measurements taken during group E inspection for all quality levels (table E-IX of MIL-PRF-19500) shall be as follows:
- In addition to the measurements specified for subgroup 1, the measurements of steps 1, 2 and 3 of this table shall also be taken.
 - In addition to the measurements specified for subgroup 2, the measurements of steps 1 and 2 of this table shall also be taken.
- 4/ Rated I_{R1} or 100 percent, whichever is greater.
- 5/ Step 3 applies to irradiated devices only.

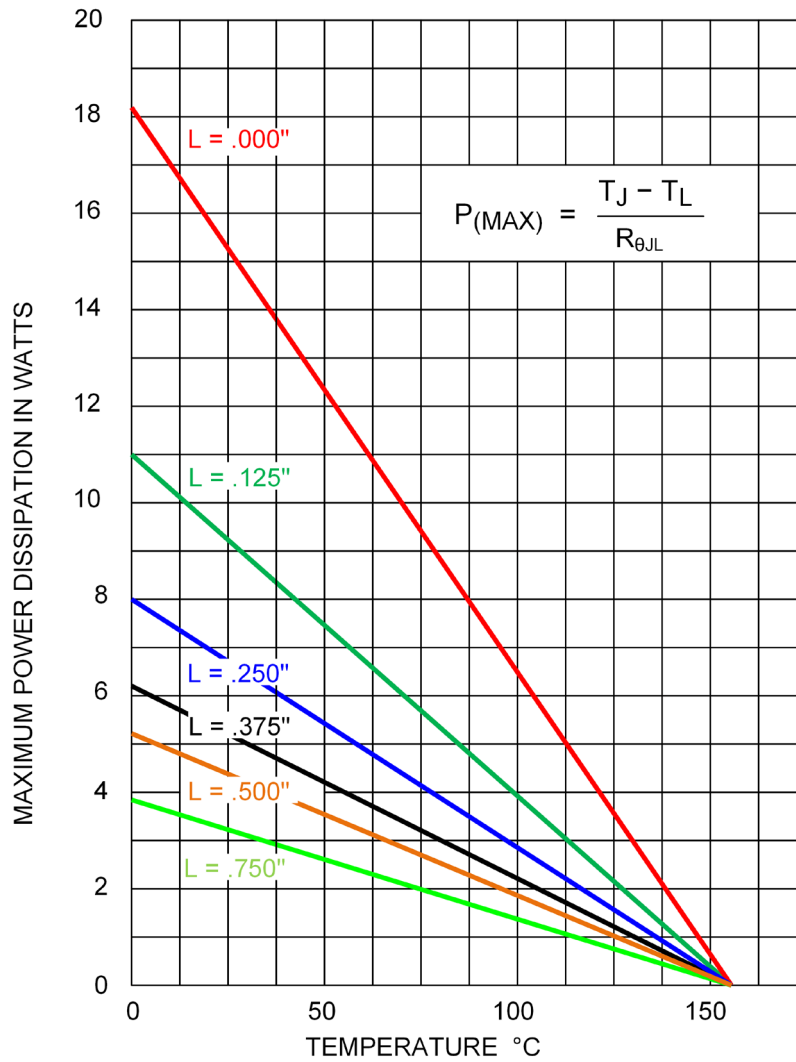


NOTES:

1. Maximum power in watts versus lead temperature
2. 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 = Distance from body	$R_{\theta JL}$ °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 4. Power derating curves for 1N6073, 1N6074, and 1N6075.

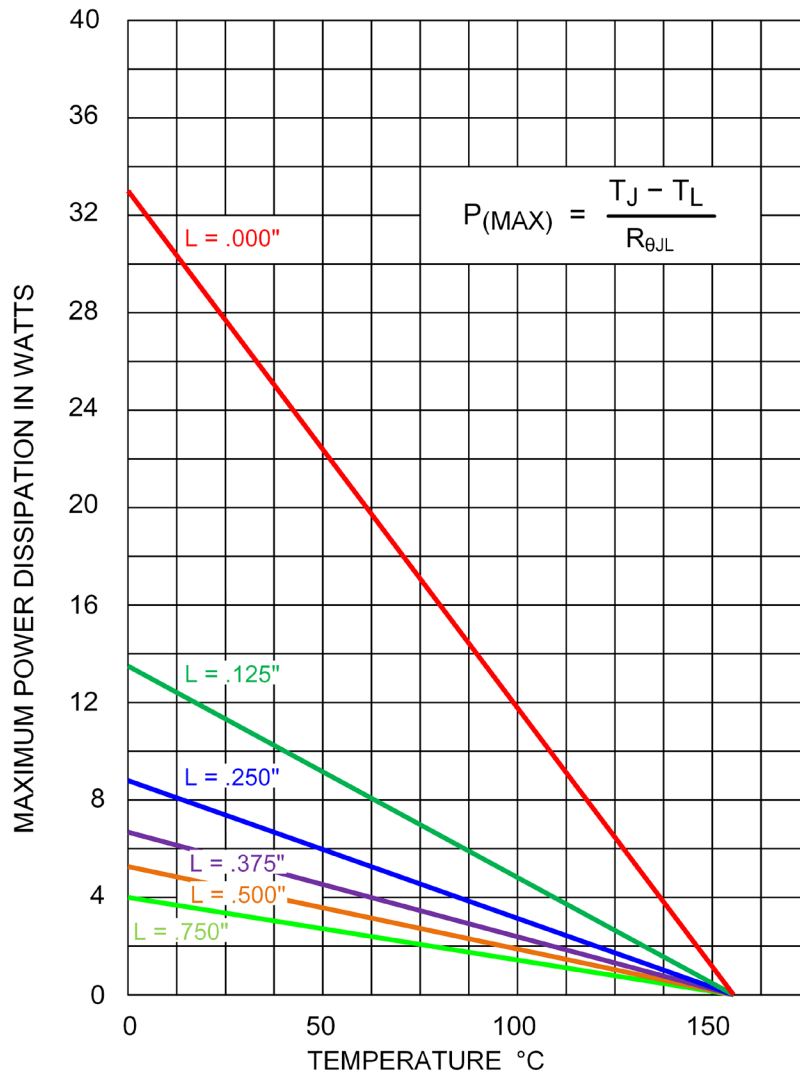


NOTES:

1. Maximum power in watts versus lead temperature
2. 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 = Distance from body	$R_{\theta JL}$ °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 5. Power derating curves for 1N6076, 1N6077, and 1N6078.



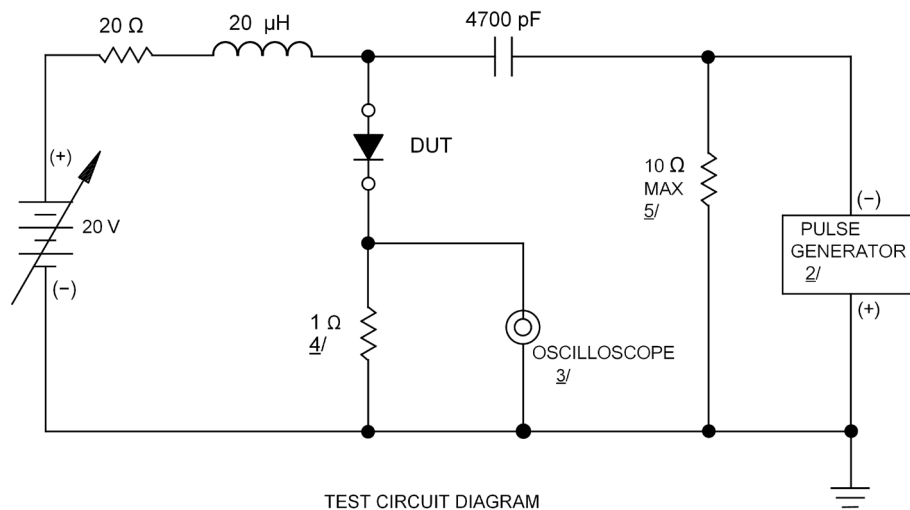
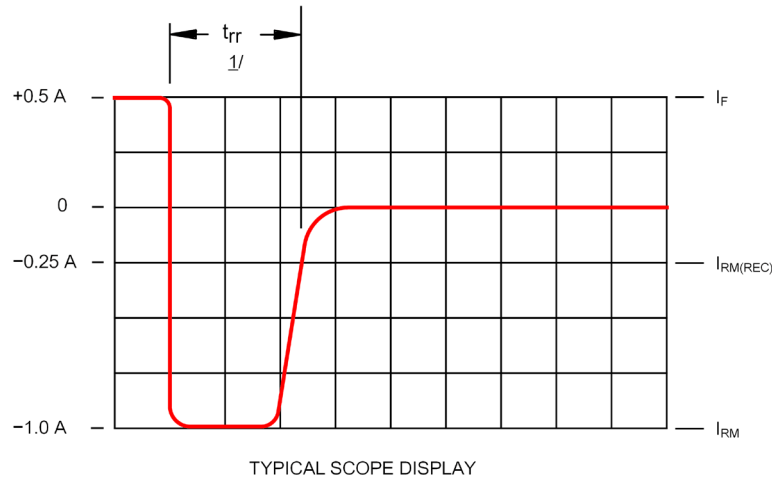
NOTES:

1. Maximum power in watts versus lead temperature
2. 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 = Distance from body	$R_{\theta JL}$ °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 6. Power derating curves for 1N6079, 1N6080, and 1N6081.

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NOTES:

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

FIGURE 7. Reverse recovery time test circuit and characteristic waveform.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the Military Service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory. The notes specified in MIL-PRF-19500 are applicable to this specification.)

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

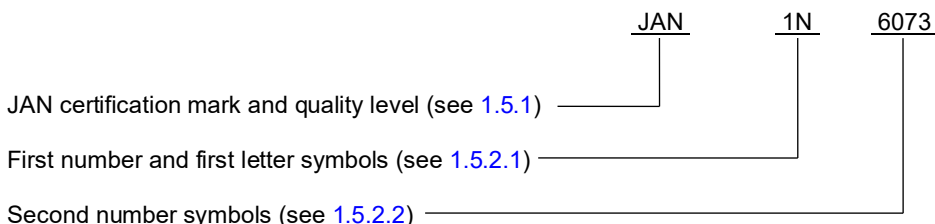
6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Packaging requirements (see 5.1).
- c. Lead finish (see 3.4.1).
- d. The complete PIN, see 1.5 and 6.5.

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List (QML 19500) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DLA Land and Maritime, ATTN: VQE, P.O. Box 3990, Columbus, OH 43218-3990 or e-mail vqe.chief@dla.mil. An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at <https://assist.dla.mil>.

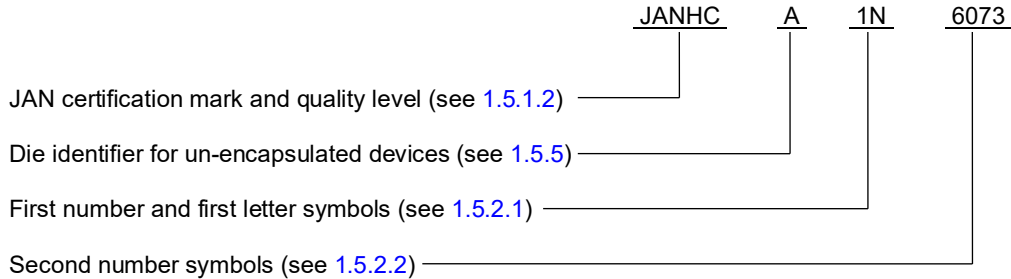
6.4 PIN construction example.

6.4.1 Encapsulated devices The PINs for encapsulated devices are constructed using the following form.



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6.4.2 Un-encapsulated devices. The PINs for un-encapsulated devices are constructed using the following form.



6.5 List of PINs.

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

PINs for devices in an axial lead package		
JAN1N6073	JANTX1N6073	JANTXV1N6073
JAN1N6074	JANTX1N6074	JANTXV1N6074
JAN1N6075	JANTX1N6075	JANTXV1N6075
JAN1N6076	JANTX1N6076	JANTXV1N6076
JAN1N6077	JANTX1N6077	JANTXV1N6077
JAN1N6078	JANTX1N6078	JANTXV1N6078
JAN1N6079	JANTX1N6079	JANTXV1N6079
JAN1N6080	JANTX1N6080	JANTXV1N6080
JAN1N6081	JANTX1N6081	JANTXV1N6081

6.5.2 PINs for unencapsulated devices (die). The following is a list of possible PINs for unencapsulated devices available on this specification sheet.

Quality level HC		Quality level KC
JANHCA1N6073	JANHCB1N6073	JANKCB1N6073
JANHCA1N6074	JANHCB1N6074	JANKCB1N6074
JANHCA1N6075	JANHCB1N6075	JANKCB1N6075
JANHCA1N6076	JANHCB1N6076	
JANHCA1N6077	JANHCB1N6077	
JANHCA1N6078	JANHCB1N6078	
JANHCA1N6079	JANHCB1N6079	
JANHCA1N6080	JANHCB1N6080	
JANHCA1N6081	JANHCB1N6081	

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

JANHC and JANKC ordering information		
PIN	Manufacturer	
	33178	34156
1N6073 through 1N6081	JANHCA1N6073 through JANHCA1N6081	JANHCB1N6073 through JANHCB1N6081 JANKCB1N6073 through JANKCB1N6075

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

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

Preparing activity:
DLA – CC

(Project 5961–2025–065)

Review activities:
Army – AR
Air Force – 19

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.