

The documentation and process conversion measures necessary to comply with this revision shall be completed by 20 November 2019.

INCH-POUND

MIL-PRF-19500/567E  
W/AMENDMENT 1  
20 August 2019  
SUPERSEDING  
MIL-PRF-19500/567E  
10 December 2012

\* PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, DIODE, SILICON,  
SCHOTTKY BARRIER, FAST RECOVERY,  
TYPE 1N6492, 1N6492U4, 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, fast recovery, Schottky barrier, semiconductor diode. Four levels of product assurance are provided for each device type as specified in [MIL-PRF-19500](#).

\* 1.2 Package outlines. The device package outline for this specification sheet is a TO-205AF, formerly low profile TO-39, in accordance with [figure 1](#), surface mount version U4 in accordance with [figure 2](#).

1.3 Maximum ratings.

Type	V <sub>RRM</sub> and V <sub>RWM</sub> (1)	V <sub>RSM</sub>	V <sub>R</sub> (1)	I <sub>F</sub> 1 (AV) T <sub>A</sub> = +25°C (2)	I <sub>F</sub> 1 (AV) T <sub>C</sub> = +100°C (3)	I <sub>O</sub> T <sub>C</sub> = +100°C (4)	I <sub>FSM</sub>	R <sub>θJC</sub> (5)	R <sub>θJC</sub>	R <sub>θJA</sub>	T <sub>J</sub> and T <sub>STG</sub>
	V (pk)	V (pk)	V dc	A dc	A dc	A dc	A (pk)	°C/W	°C/W	°C/W	°C
1N6492	45	54	45	1.20	4	3.60	80	12.0		175	-65 to
1N6492U4	45	54	45	1.20	4	3.60	80		4.5	175	+175

- (1) Full rated V<sub>RRM</sub> and V<sub>RWM</sub> with appropriate average forward current (see note (3)) is applicable over the range of T<sub>C</sub> from -55°C to +135°C. Full rated V<sub>R</sub> is applicable over the range of T<sub>C</sub> from -55°C to +120°C. With these maximum voltages and case temperatures, T<sub>J</sub> ≤ +175°C.
- (2) This rating requires no special mounting, heat sinking, or forced air flow across the device.
- (3) Average current with a 50 percent duty cycle square wave including reverse voltage amplitude equal to the magnitude of full rated V<sub>RWM</sub>. Derate linearly at 114 mA dc/°C for T<sub>C</sub> > +100°C (to 0 at T<sub>C</sub> = +135°C); if V<sub>RWM</sub> = 20, derate I<sub>F</sub> (AV) at 62 mA/°C, to 0 at T<sub>C</sub> = +165°C.
- (4) Average current with an applied sine wave including reverse voltage equal to the magnitude of full rated V<sub>RWM</sub>. Derate linearly at 103 mA dc/°C for T<sub>C</sub> > +100°C; if V<sub>RWM</sub> = 20, derate at 55 mA/°C.
- (5) For thermal impedance see [figure 3](#).

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\* 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 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", "JANTXV", and "JANS".

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

\* 1.5.2.1 First number and first letter symbols. The semiconductors 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: "6492".

\* 1.5.3 Suffix symbols. The following suffix symbols are incorporated in the PIN as applicable.

	A blank suffix symbol indicates a through-hole mount package TO-205AF, formerly low profile TO-39, (see <a href="#">figure 1</a> ).
U4	Indicates a 3 pad surface mount package (see figure 2).through-hole mount package similar to a TO-18 metal can with longer lead lengths than blank second suffix symbol device (see <a href="#">figure 2</a> ).

\* 1.5.4 Lead finish. The lead finishes applicable to this specification sheet are listed on [QPDSIS-19500](#).

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

Type	$V_{FM2}$ $I_{FM} = 4 \text{ A (pk)}$	$V_{FM3}$ $I_{FM} = 2 \text{ A (pk)}$	$I_{RM}$ $V_{RM} = 45 \text{ V (pk)}$ $T_A = +125^\circ\text{C}$	$I_{RM}$ $V_{RM} = 45 \text{ V (pk)}$ $T_A = +25^\circ\text{C}$	$C_T$ $V_R = 5 \text{ V dc}$
	<u>V (pk)</u>	<u>V (pk)</u>	<u>mA (pk)</u>	<u>mA (pk)</u>	<u>pF</u>
1N6492	.68	.56	20	2.0	450
1N6492U4	.68	.56	20	2.0	450

## 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.

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

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

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

3.5 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in [1.3](#), [1.4](#), and [table I](#) herein.

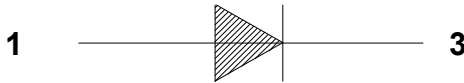
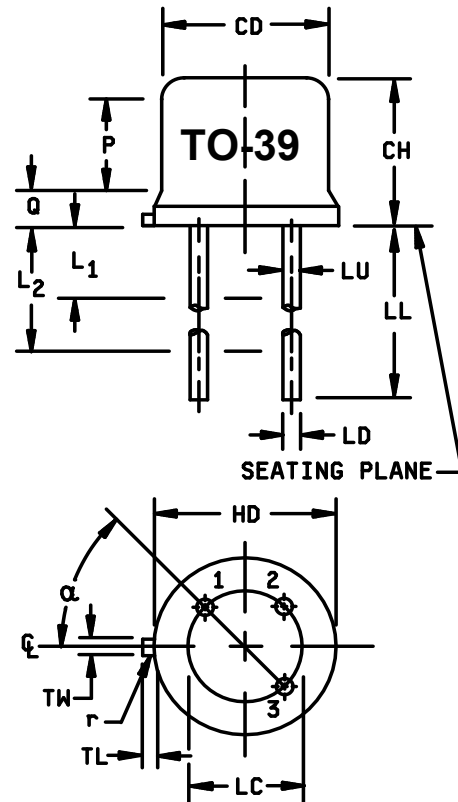
3.6 Electrical test requirements. The electrical test requirements shall be the subgroups specified in [table I](#) herein.

3.7 Marking. Marking shall be in accordance with [MIL-PRF-19500](#).

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.

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Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	
CH	.160	.180	4.07	4.57	
HD	.335	.370	8.51	9.40	
LC	.200 TP		5.08 TP		7
LD	.016	.021	0.41	0.53	8, 9
LL	.500	.750	12.7	19.05	8, 9
LU	.016	.019	0.41	0.48	8, 9
L <sub>1</sub>		.050		1.27	8, 9
L <sub>2</sub>	.250		6.35		8, 9
P	.100		2.54		6
Q		.040		1.02	5
r		.010		0.254	10
TL	.029	.045	0.74	1.14	
TW	.028	.034	0.72	0.86	
α	45° TP		45° TP		7
Term 1	Anode				
Term 2	Open (no connection)				
Term 3	Cathode (case)				

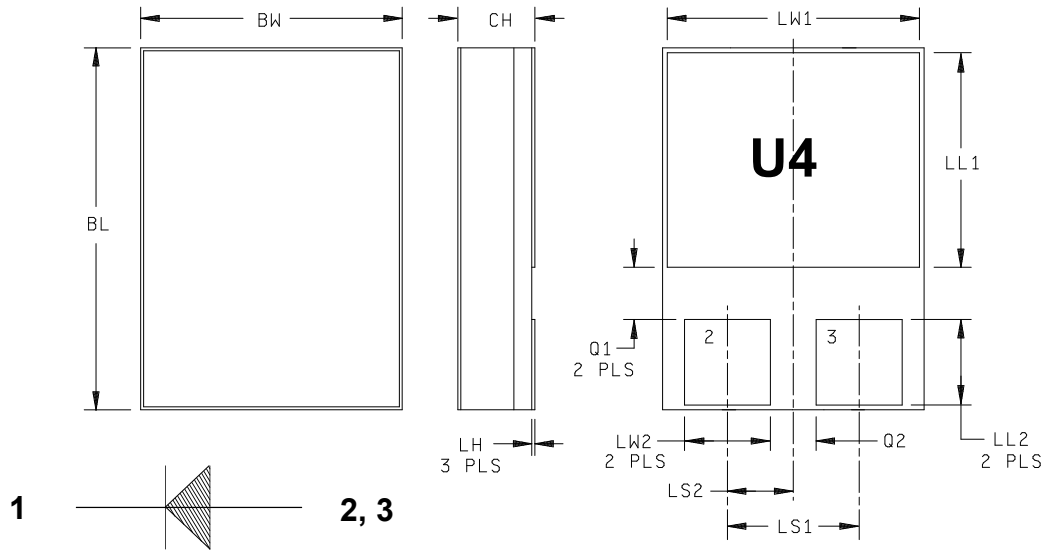


NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Beyond radius (r) maximum, TW shall be held for a minimum length of .011 inch (0.279 mm).
4. Dimension TL measured from maximum HD.
5. Outline in this zone is not controlled.
6. Dimension CD shall not vary more than .010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
7. Leads at gauge plane .054 +.001, -.000 inch (1.37 +0.03, -0.00 mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC. The device may be measured by direct methods.
8. LU applies between L<sub>1</sub> and L<sub>2</sub>. LD applies between L<sub>2</sub> and LL minimum. Diameter is uncontrolled in L<sub>1</sub> and beyond LL minimum.
9. All three leads.
10. Radius (r) applies to both inside corners of tab.
11. Cathode is electrically connected to the case.
12. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

FIGURE 1. Physical dimensions (TO-205AF - formerly low profile TO-39).

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Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	0.215	0.225	5.46	5.72
BW	0.145	0.155	3.68	3.94
CH	0.049	0.075	1.24	1.91
LH	-	0.020	-	0.508
LL1	0.085	0.125	2.16	3.17
LL2	0.045	0.075	1.14	1.90
LS1	0.070	0.095	1.78	2.41
LS2	0.035	0.048	0.889	1.21
LW1	0.135	0.145	3.43	3.68
LW2	0.047	0.057	1.19	1.45
Q1	0.030	0.070	0.762	1.78
Q2	0.020	0.035	0.508	0.88
TERM 1	Cathode			
TERM 2	Anode 1			
TERM 3	Anode 2			

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.

FIGURE 2. Physical dimensions and configuration (U4).

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#### 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 and II).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500. Alternate flow is allowed for qualification inspection in accordance with figure 4 of 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 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 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 table E-IV of MIL-PRF-19500)	Measurement	
	JANS level	JANTX and JANTXV levels
(1) 3c	Thermal impedance (see 4.3.2).	Thermal impedance (see 4.3.2).
9	Reverse energy test (see 4.5.2) $V_{FM2}$ , $I_{RM1}$ .	Not applicable.
10	$T_C = +130^{\circ}\text{C}$ .	$T_C = +130^{\circ}\text{C}$ .
11	Reverse energy test (see 4.5.2), $\Delta V_{FM2} \pm 50$ mV of initial value, $\Delta I_{RM1} \pm 100$ percent or 500 $\mu\text{A}$ , whichever is greater.	Reverse energy test (see 4.5.2), $V_{FM2}$ , $I_{RM1}$ .
12	See 4.3.1.	See 4.3.1.
13	Subgroup 2 of table I herein. Reverse energy test (see 4.5.2), $\Delta V_{FM2} \pm 50$ mV, $\Delta I_{RM1} \pm 100$ percent or 500 $\mu\text{A}$ , whichever is greater. Scope display evaluation (see 4.5.5).	Subgroup 2 of table I herein. Reverse energy test (see 4.5.2), $\Delta V_{FM2} \pm 50$ mV, $\Delta I_{RM1} \pm 100$ percent or 500 $\mu\text{A}$ , whichever is greater. Scope display evaluation (see 4.5.5).

- (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 Power burn-in conditions. Power burn-in conditions are as follows:  $T_A = +50^{\circ}\text{C}$  maximum, any clips or heat sink configuration may be utilized provided that  $I_O$  and  $T_A$  are adjusted to achieve  $T_J = +135^{\circ}\text{C}$  minimum,  $V_R = 45$  V (pk),  $I_O = 0.75$  A minimum,  $f = 60$  Hz. Mounting and test conditions shall be in accordance with Method 1038 of MIL-STD-750, test condition B.

\* 4.3.2 Thermal impedance. The thermal impedance measurements shall be performed in accordance with method 3101 or 4081 of MIL-STD-750 using the guidelines in that method for determining  $I_M$ ,  $I_H$ ,  $t_H$ , and  $t_{MD}$ . See table III, subgroup 4.

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4.4 Conformance inspection. Conformance inspection shall be in accordance with [MIL-PRF-19500](#). Alternate flow is allowed for qualification inspection in accordance with figure 4 of [MIL-PRF-19500](#).

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 tables E-VIA (JANS) and E-VIB (JAN, JANTX, and JANTXV) of [MIL-PRF-19500](#) and [4.4.2.1](#) and [4.4.2.2](#) herein. Electrical measurements (end-points) shall be in accordance with the applicable inspections of [table I](#), subgroup 2 herein. Delta measurements shall be in accordance with [table II](#) herein.

4.4.2.1 Group B inspection, table E-VIA (JANS) of [MIL-PRF-19500](#).

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B3	1051	Temperature cycling, condition C, $T_{LOW} = -55^{\circ}\text{C}$ , $T_{HIGH} = +175^{\circ}\text{C}$ .
B4	1037	$I_O = 0.75\text{ A}$ , $T_A = +25^{\circ}\text{C}$ ; $V_{RM} = 45\text{ V}$ , $t_{on} = t_{off} = 3\text{ minutes}$ for a minimum of 2,000 cycles.
B5	1027	$I_F = 3.2\text{ A}$ dc minimum adjust $T_A$ or $I_F$ as required $I_F$ or $T_A$ to achieve a lot $T_J = +275^{\circ}\text{C}$ .

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

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B2	1051	Temperature cycling, condition C.
B3	1027	$T_A = +25^{\circ}\text{C}$ , $I_O = 0.75\text{ A}$ , $V_{RM} = 45\text{ V (pk)}$ .
B3	2037	Condition A, all internal wires must be pulled separately.
B6	1032	$T_A = +175^{\circ}\text{C}$ .

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

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
C5	3101 or 4081	See <a href="#">4.5.3</a> , $R_{\theta JC} \leq 12.0^{\circ}\text{C/W}$ .
C6	1026	$I_O = 0.75\text{ A}$ , $V_{RWN} = 45\text{ V(pk)}$ , $T_A = +25^{\circ}\text{C}$ .
C6		Operational power cycling, see <a href="#">4.5.6</a> , $T_{C(LOW)} = +40^{\circ}\text{C}$ , $+0$ , $-15^{\circ}\text{C}$ ; $T_{C(HIGH)} = +115^{\circ}\text{C} +5$ , $-0^{\circ}\text{C}$ , 5,000 cycles, $n = 22$ , $c = 0$ .

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

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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 measurements shall be as specified in section 4 of MIL-STD-750.

4.5.2 Peak reverse energy test. The peak reverse energy test is to be performed as shown on figure 4 or equivalent. The diode under test must be capable of absorbing the reverse energy, as defined, and meet the electrical requirements of table I, subgroup 4 herein.

4.5.3 Thermal resistance. Thermal resistance shall be measured in accordance with method 4081 of MIL-STD-750. The case reference temperature shall be held to equilibrium within the range of +20°C to +70°C during the power application, and shall be measured at the hottest part of the case. The following measurements shall apply:  $I_{F1} = 1$  A, at 97 percent minimum duty factor;  $I_{F2} = 10$  mA dc.

4.5.4 Reverse current at peak reverse voltage, alternate test. The reverse current at peak reverse voltage test may be satisfied by performing the reverse energy test of 4.5.2 and measuring breakdown voltage to ensure  $V_{(BR)} \geq 54$  V (pk) with  $I_{RM} = 2.0$  A (pk). See figure 4.

4.5.5 Scope display evaluation. Scope display evaluation shall be sharp and stable in accordance with method 4023 of MIL-STD-750. Scope display evaluation may be performed on ATE (automatic test equipment) for screening only with the approval of the qualifying activity. Scope display evaluation in group A shall be performed on an oscilloscope. One hundred percent scope test is required in the event of a group A failure, however group A resubmission criteria applies.

4.5.6 Operational power cycling (qualification only). One complete cycle for this test shall consist of the following two steps: Step 1, heat the case to the  $T_{C(high)}$  specified, by passing forward current through the diode under test. The reverse voltage shall be only enough to permit the reverse current to flow, and should be a maximum of 5 volts. Step 2, remove the applied current and allow the case temperature to cool to the  $T_{C(LOW)}$  specified. Forward current shall be chosen to achieve the  $T_{C(high)}$  condition in  $75 \pm 50$  seconds. The cycling must be continuous until the required number of cycles has been completed. It is permissible to force cool the device during step 2.



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\* TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical inspection	2071					
<u>Subgroup 2</u>		<u>2/</u>				
Thermal impedance <u>3/</u>	3101 or 4081	See 4.3.2	Z <sub>θJX</sub>			°C/W
Forward voltage	4011	Condition B, I <sub>FM</sub> = 4.0 A(pk), pulsed (see 4.5.1)	V <sub>FM2</sub>		0.68	V
	4011	Condition B, I <sub>FM</sub> = 2.0 A(pk), pulsed (see 4.5.1)	V <sub>FM3</sub>		0.56	V
	4011	Condition B, I <sub>FM</sub> = 1.0 A(pk), pulsed (see 4.5.1)	V <sub>FM4</sub>		0.48	V
	4011	Condition B, I <sub>FM</sub> = 8.0 A(pk), pulsed (see 4.5.1)	V <sub>FM1</sub>		0.92	V
Reverse current leakage	4016	V <sub>RM</sub> = 45 V(pk), pulsed method, (see 4.5.1)	I <sub>RM1</sub>		2.0	mA
<u>Subgroup 3</u>		<u>2/</u>				
High temperature operation		T <sub>A</sub> = +125°C				
Reverse current leakage	4016	V <sub>RM</sub> = 45 V(pk), pulsed method, (see 4.5.1)	I <sub>RM2</sub>		20	mA
High temperature operation		T <sub>A</sub> = +175°C				
Reverse current leakage	4016	V <sub>RM</sub> = 45 V(pk), pulsed method, (see 4.5.1)	I <sub>RM3</sub>		200	mA
Low temperature operation		T <sub>A</sub> = -55°C				
Reverse current leakage	4016	V <sub>RM</sub> = 45 V(pk), pulsed method, (see 4.5.1)	I <sub>RM4</sub>		20	mA
Forward voltage	4011	Condition B, I <sub>FM</sub> = 2.0 A(pk), pulsed (see 4.5.1)	V <sub>FM5</sub>		0.63	V
<u>Subgroup 4</u>						
Reverse current leakage at peak reverse voltage	4016	Pulsed method (see 4.5.1), V <sub>RSM</sub> = 54 V(pk), (alternate test, see 4.5.4) <u>2/</u>	I <sub>RM5</sub>		2.0	A
Capacitance	4001	V <sub>R</sub> = 5 V, .01 ≤ f ≤ 1 MHz, V <sub>SIG</sub> = 15 mV(p-p)	C <sub>T</sub>		450	pF
Scope display evaluation	4023	Sharp and stable (see 4.5.5), n = 116, c = 0				

See footnotes at end of table

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\* TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 5</u>						
Surge current	4066	Condition A, $I_{FSM} = 80 \text{ A(pk)}$ , $V_{RM} = 45 \text{ V(pk)}$ , $I_O = 0.75 \text{ A}$ ten surges of 8.3 ms each at 1 minute intervals, $T_A = +25^\circ\text{C}$				
Electrical measurements		See <a href="#">table I</a> , subgroup 2 herein				

1/ For sampling plan, see [MIL-PRF-19500](#).

2/ Measurement point for the TO-205AF is on the lead .2 inch (5.08 mm) below the seating plane of the case.

- \* 3/ For end-point measurements, this test is required for the following subgroups:  
 Group B, subgroups 3, 4, and 5 (JANS).  
 Group B, subgroups 2 and 3 (JAN, JANTX, and JANTXV).  
 Group C, subgroup 2 and 6.  
 Group E, subgroup 1.

TABLE II. Groups B and C delta tests. 1/ 2/

Step	Inspection	MIL-STD-750		Symbol	Limits		Unit
		Method	Conditions		Min	Max	
1.	Forward voltage	4011	Condition B, $I_{FM} = 4 \text{ A(pk)}$ pulsed (see <a href="#">4.5.1</a> )	$\Delta V_{FM2}$	$\pm 50 \text{ mV}$ change from previous value		V
2	Reverse current	4016	$V_{RM} = 45 \text{ V(pk)}$ pulsed (see <a href="#">4.5.1</a> )	$\Delta I_{RM1}$	$+500 \mu\text{A}$ dc or $+100$ percent of initial value, whichever is greater		mV

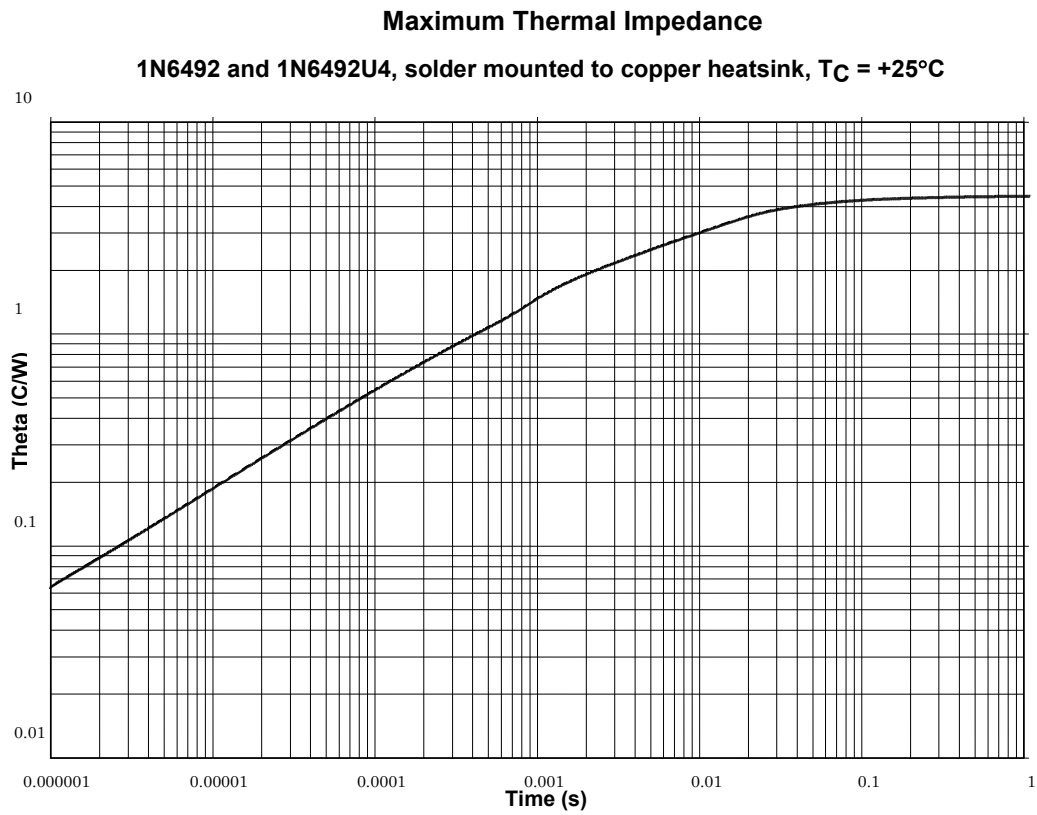
1/ The delta measurements for table E-VIA (JANS) of [MIL-PRF-19500](#) are as follows: Subgroups 4 and 5, see [table II](#) herein, steps 1 and 2.

2/ The delta measurements for table E-VII of [MIL-PRF-19500](#) are as follows: Subgroup 6, see [table II](#) herein, steps 1 and 2.

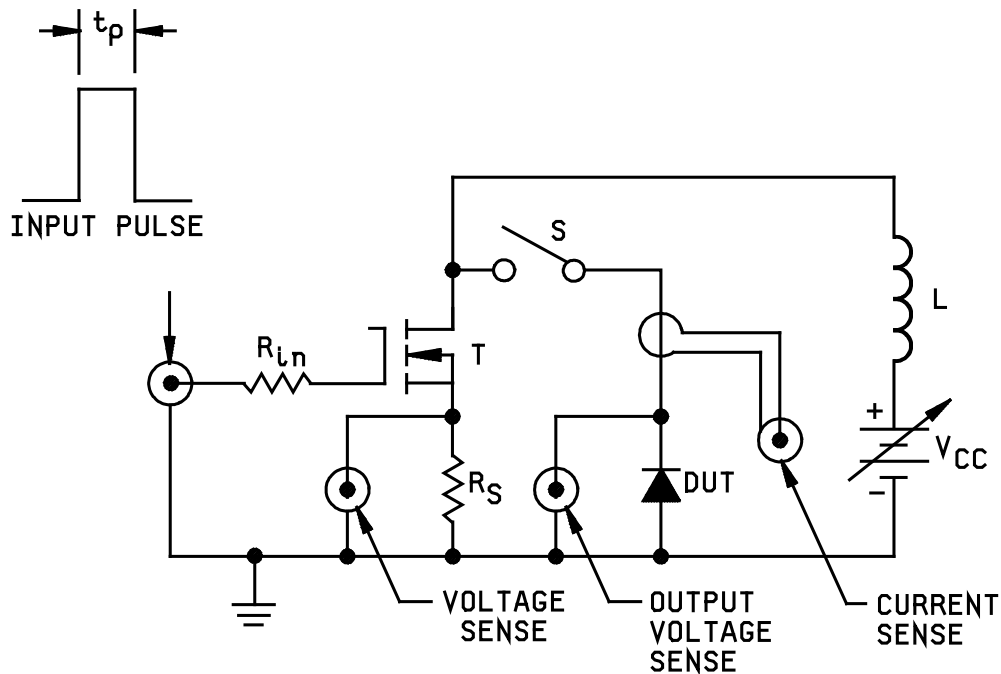
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\* TABLE III. Group E inspection (all quality levels) – for qualification and requalification only.

Inspection	MIL-STD-750		Qualification
	Method	Conditions	
<u>Subgroup 1</u>			n = 45, c = 0
Temperature cycling (air to air)	1051	Test condition G, 500 cycles, -55°C to +150°C.	
Electrical measurements		See <a href="#">table I</a> subgroup 2.	
<u>Subgroup 2</u>			n = 45, c = 0
Life test	1048	t = 1,000 hours, T <sub>J</sub> = +125°C, V <sub>R</sub> = 80 percent rated voltage (see <a href="#">1.3</a> ).	
Electrical measurements		See <a href="#">table I</a> subgroup 2.	
<u>Subgroup 4</u>			
Thermal impedance curves		See <a href="#">MIL-PRF-19500</a> .	
<u>Subgroup 10</u>			n = 22, c = 0
Surge	4066	Condition A, I <sub>FSM</sub> = 80 A(pk), V <sub>RM</sub> = 45 V(pk), I <sub>O</sub> = 0.75 A, ten surges of 8.3 ms each at 1 minute intervals, T <sub>A</sub> = +25°C.	
Electrical measurements		See <a href="#">table I</a> subgroup 2 (V <sub>F</sub> and I <sub>R</sub> only).	



\* FIGURE 3. Thermal impedance graph ( $R_{\theta JC}$ ) for 1N6492 (TO-205AF).



$V_G = 10$ Volts	$R_{in} = 5.0 \, \Omega, 1 \text{ W}$
$R_G = 50 \, \Omega$	$R_S = 0.1 \, \Omega, 1 \text{ W}$
$PW = 30 \, \mu s$	$L = 260 \, \mu H$
Duty cycle $\leq 1$ percent	$T = \text{IRF130/2N6756 or equivalent}$

Procedure:

1. With S open, adjust pulse width to test current of 2 A across  $R_S$ .
2. Close S. Verify test current with current sense.
3. Read peak output voltage (see 4.5.4).

FIGURE 4. Peak reverse energy test circuit.

## 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.)

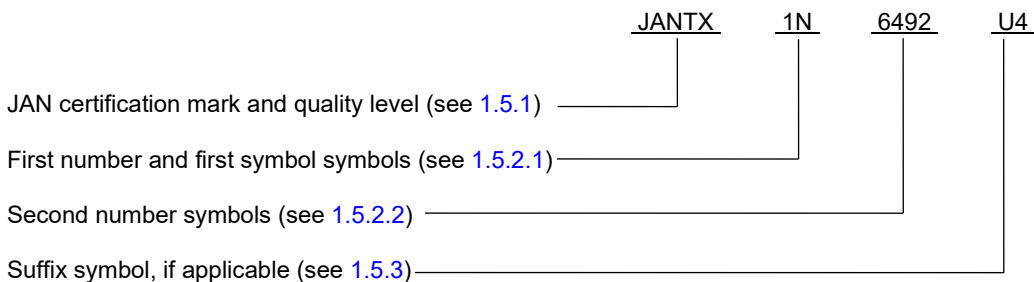
6.1 Intended use. Semiconductors conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

\* 6.2 Acquisition requirements. Acquisition documents must 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.

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](mailto: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. The PINs for encapsulated devices are constructed using the following form.



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\* 6.5 List of PINs. The following is a list of possible PINs (without JAN prefix) available on this specification sheet.

PINs for devices in a TO-205AF	PINs for devices in a U4
JAN1N6492	JAN1N6492U4
JANTX1N6492	JANTX1N6492U4
JANTXV1N6492	JANTXV1N6492U4
JANS1N6492	JANS1N6492U4

\* 6.6 Amendment notations. The margins of this specification are marked with asterisks 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 last previous issue.

Custodians:

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

Preparing activity:

DLA - CC

(Project 5961-2019-095)

Review activities:

Army - AR, MI  
Navy - MC, SH

\* Air Force - 19, 71

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/>.