

The documentation and process conversion measures necessary to comply with this revision shall be completed by 8 November 2003.

INCH-POUND

MIL-PRF-19500/507D
8 August 2003
SUPERSEDING
MIL-S-19500/507C
12 September 1999

PERFORMANCE SPECIFICATION

* SEMICONDUCTOR DEVICE, DIODE, SILICON, BIPOLAR TRANSIENT
VOLTAGE SUPPRESSOR TYPES 1N6036A THROUGH 1N6072A
JAN, JANTX, JANTXV

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

1. SCOPE

* 1.1 Scope. This specification covers the performance requirements for 1500 watt, bi-directional, silicon, transient voltage suppressor diodes. Three levels of product assurance are provided for each device as specified in MIL-PRF-19500.

1.2 Physical dimensions. See figure 1 (DO – 13).

1.3 Maximum ratings. Maximum ratings are as shown in maximum test ratings (see 3.6) and as follows:

$P_{PP} = 1500 \text{ W}$ (see figures 2 and 3) at $t_p = 1.0 \text{ ms}$.

$P_{M(AV)} = 1.0 \text{ W}$ (derate at $6.67 \text{ mW}/^\circ\text{C}$ above $T_A = +25^\circ\text{C}$) (see 6.4).

* $-55^\circ\text{C} \leq T_j \leq +175^\circ\text{C}$ (ambient), $-55^\circ\text{C} \leq T_{STG} \leq +175^\circ\text{C}$ (ambient).

1.4 Primary electrical characteristics at $T_A = +25^\circ\text{C}$. Primary ratings are as shown in maximum test ratings (see 3.6).

2. APPLICABLE DOCUMENTS

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

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATION

DEPARTMENT OF DEFENSE

MIL-PRF-19500 - Semiconductor Devices, General Specification for.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAC, P.O. Box 3990, Columbus, OH 43216-5000, by using the addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

STANDARD

DEPARTMENT OF DEFENSE

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

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this document shall take 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. The interface and physical dimensions shall be as specified in MIL-PRF-19500, and on figure 1 (DO-13) herein.

3.4.1 Metallurgical bonded construction. Metallurgically bonded construction is required. The bonding flow shall have flow points above 260°C.

* 3.4.2 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 Marking. Devices shall be marked in accordance with MIL-PRF-19500.

3.6 Electrical performance characteristics. Unless otherwise specified, the electrical performance characteristics are as specified in 1.3, 1.4, and table I. Maximum ratings shall be in accordance with columns 5 thru 8 of table II. Primary electrical characteristics are shown in columns 2 and 4 of table II herein.

3.7 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table I subgroup 2.

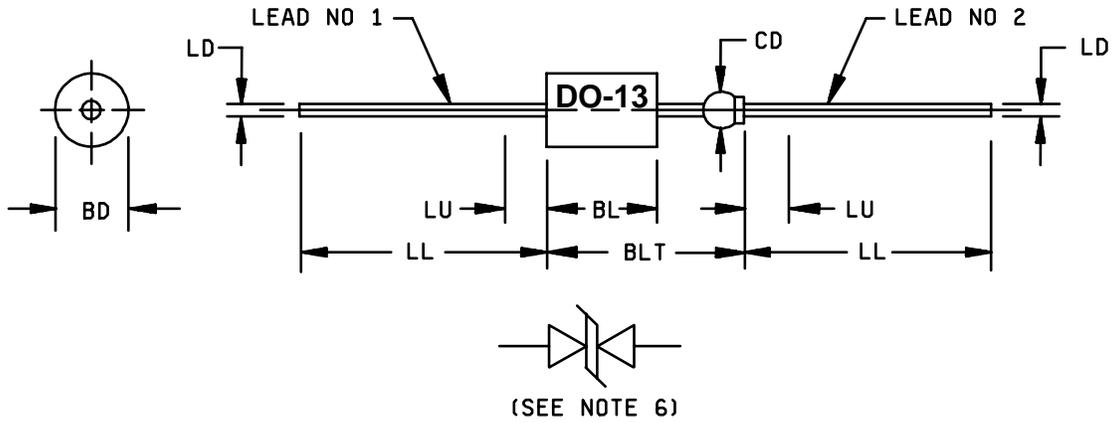
3.8 Workmanship. Semiconductor devices shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

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).

4.1.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-PRF-19500, and as specified herein except, lot accumulation shall be 3-months in lieu of 6-weeks.



Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	0.215	0.235	5.46	5.97	1
BL	0.293	0.357	7.44	9.07	3
BLT		0.570		14.48	
CD	0.045	0.100	1.14	2.54	5
LD	0.025	0.035	0.64	0.89	
LL	1.000	1.625	25.40	41.28	4
LU		0.188		4.78	2

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. The major diameter is essentially constant along its length.
4. Within this zone, diameter may vary to allow for lead finishes and irregularities.
5. Dimension to allow for pinch or seal deformation anywhere along tubulation.
6. Symbol for bidirectional transient suppressor.
7. Lead 1 shall be electrically connected to the case.
8. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 1. Physical dimensions (DO-13).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500 and as specified herein.

4.2.1 Group E qualification. Group E inspection shall be performed for qualification or requalification only.

* 4.3 Screening (JANTX, and JANTXV levels only). Screening shall be in accordance with table 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 IV of MIL-PRF-19500)	Measurement
	JANTX and JANTXV levels
3	$T_{(high)} = +175^{\circ}\text{C}$
9, 10, 11	Not applicable
12	See 4.3.1
13	Interim electrical, delta, and group A, subgroups 2 and 3, electrical parameters not applicable for this screen (performed in screen 12).
14	Required
* 15	For JANTXV devices only - 100% Inspection will be in accordance with manufacturer's internal failure criteria

4.3.1 Power burn-in (HTRB) and steady-state operation life test conditions. The test conditions and order of events shall be as follows:

- a. Pulse in accordance with 4.5.2.a, in polarity A 10 times (screening and group B) and 50 times (group C) at $T_A = +25^{\circ}\text{C}$.
- b. Pulse in accordance with 4.5.2.a, in polarity B 10 times (screening and group B) and 50 times (group C) at $T_A = +25^{\circ}\text{C}$.
- * c. Read I_D in polarities A and B at $T_A = +25^{\circ}\text{C}$, remove defective devices and record the number of failures.
- * d. Apply the working peak reverse voltage (V_{WM}) (column 4 of table IV) in polarity A at $T_A = +125^{\circ}\text{C}$ as follows:
 - * (1) for 48 hours (JANTX and JANTXV).
 - * (2) for 170 hours (JAN, JANTX, and JANTXV) for group B steady-state operation life test.
 - * (3) for 500 hours for group C steady-state operation life test.
- e. Read I_D in polarity A at $T_A = +25^{\circ}\text{C}$. Devices with $\Delta I_D > 50$ percent (100 percent for steady-state operation life) of the initial reading or $1 \mu\text{A}$ dc, whichever is greater shall be considered defective. Remove defective devices and record the number of failures (see NOTE).

- * f. Apply the working peak reverse voltage (V_{WM} column 4 of table IV) in polarity B at $T_A = +125^\circ\text{C}$ as follows:
 - * (1) 48 hours (JANTX and JANTXV).
 - * (2) 170 hours (JAN, JANTX, and JANTXV) for group B steady-state operation life test.
 - * (3) 500 hours for group C steady-state operation life test.
- g. Read I_D in polarity B at $T_A = +25^\circ\text{C}$. Devices with $\Delta I_D > 50$ percent (100 percent for steady-state operation life) of the initial reading or $1 \mu\text{A}$ dc, whichever is greater shall be considered defective. Remove defective devices and record the number of failures (see NOTE).
- h. Read V_{BR} in polarities A and B at $T_A = +25^\circ\text{C}$. Devices with $\Delta V_{BR} > 2$ percent (± 5 percent for steady-state operation life) of the initial reading shall be considered defective. Remove defective devices and record the number of failures (see NOTE).
- i. Read I_D in polarity A at $T_A = +25^\circ\text{C}$, remove defective devices and record the number of failures.

NOTE: For the purpose of this test, the direction in which the device is first pulsed shall be considered polarity A and the reverse direction polarity B.

4.4 Conformance inspection. Conformance inspection shall be in accordance with MIL-PRF-19500.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with MIL-PRF-19500 and table I herein. End-point electrical measurements shall be in accordance with table I, subgroup 2 herein.

4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the conditions specified for subgroup testing in table VIb of MIL-PRF-19500. Electrical measurements (end-points) and delta requirements shall be in accordance with the applicable steps of table III herein.

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

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
B2	1051	-55°C to $+175^\circ\text{C}$.
* B2	4066	10 pulses, see 4.5.3.
B3	1027	See 4.5.1 and 4.5.2.
B5	Not applicable.	

NOTE: All electrical measurements and tests shall be performed twice, once in each direction.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table 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, table VII of MIL-PRF-19500.

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
C2	2036	Lead tension: Test condition A; weight = 5 pounds; t = 15 ±3 s. Lead fatigue: Test condition E; weight = 8 ounces.
C5	Not applicable	
C6	1026	See 4.5.1 and 4.5.2.
* C7	1018	n = 3, c = 0 or n = 5, c = 1.
C8		Condition for temperature coefficient of breakdown voltage are as follows: I _{BR} = column 3 of table IV, T ₁ = +25°C ±3°C, T ₂ = T ₁ +100°C; n = 22, c = 0.
C9		Condition for maximum peak pulse current are as follow: See 4.5.2.b, (20 μs pulse only) 10 pulses; n = 22, c = 0.

NOTE: All electrical measurements and tests shall be performed twice, once in each direction.

* 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 IX of MIL-PRF-19500 and as specified herein. Electrical measurements (endpoints) shall be in accordance with table I, subgroup 2 herein. See table III 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 Group C steady-state operation life test (alternate procedure). When the group B 340 hour life test is continued on test to 1,000 hours to satisfy the group C life test requirements, the test shall be performed as given in 4.3.1 with the following exceptions:

a. Step d. shall be repeated at the end of the 1000 hours.

4.5.2 Maximum peak pulse current (I_{pp}). The peak pulse currents specified in column 7 of table IV shall be applied while simultaneously maintaining a bias voltage of not less than the applicable voltage specified in column 4 of table IV, in the same polarity as the peak pulse current. The peak pulse current shall be applied with a current vs time waveform as follows (1 pulse per minute maximum):

a. Pulse current shall reach 100 percent of I_{pp} at t ≤ 10 μs and decay to 50 percent of I_{pp} at t ≥ 1 ms for t_p = 1 ms (see figure 4).

b. Pulse current shall reach 100 percent of I_{pp} at t ≤ 8 μs and decay to 50 percent of I_{pp} at t ≥ 20 μs for (see figure 5).

4.5.3 Clamping voltage. The peak pulse clamping voltage shall be measured across the diode in a 1 ms time interval. The response detector shall demonstrate equipment accuracy of ±3 percent. The peak clamping voltage as specified in column 6 of table IV shall be applicable to the 1 ms pulse of 4.5.2.a only.

TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits <u>2/</u>		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical Examination	2071					
Radiography	2076	For JANTX devices only - Inspection will be in accordance with manufacturer's internal failure criteria, c = 45, n = 0				
<u>Subgroup 2</u> <u>3/</u>						
Standby current	4016	DC method, $V_R = V_{WM}$ (column 4 of table IV)	I_D		Column 5	μA dc
Breakdown voltage	4022	$t_p \leq 300$ ms, duty cycle ≤ 2 percent, I_{BR} = column 3 of table IV	V_{BR}	Column 2	Column 2	V dc
* <u>Subgroup 3</u> <u>3/</u>						
Low temperature operation:		$T_A = -55^\circ C$				
Minimum breakdown voltage	4022	$t_p \leq 300$ ms, duty cycle ≤ 2 percent, I_{BR} = column 3 of table IV	V_{BR}	Column 10		V dc
High temperature operation:		$T_A = 125^\circ C$				
Reverse current leakage	4016	DC method, $V_R = V_{WM}$, column 4 of table IV	I_{D2}	Column 9		mA dc
* <u>Subgroup 4</u> <u>3/</u>						
Clamping voltage maximum (pulsed) (see 4.5.3)		$t_p = 1.0$ ms (see 4.5.2.a), I_{PP} = column 7 of table IV	V_C		Column 6	V (pk)
<u>Subgroup 5, 6 and 7</u>						
Not applicable						

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

2/ Column references are to table IV.

3/ All electrical testing shall be performed twice, once in each direction.

TABLE II. Characteristics and ratings.

Col 1	Col 2		Col 3	Col 4	Col 5	Col 6	Col 7		Col 8	Col 9	Col 10	Col 11
Type	Breakdown voltage V_{BR} at I_{BR}		Test current I_{BR}	Working peak Reverse voltage V_{WM}	Maximum standby current I_D	Maximum clamping voltage V_C at I_{PP}	Maximum peak Pulse current I_{PP}		Maximum temperature coefficient of V_{BR} αV_{BR}	Max standby current I_D $T_A = +125^\circ C$	Minimum Breakdown Voltage at I_{BR} $T_A = -55^\circ C$	Breakdown current I_{BR} Maximum dc current $T_A = +25^\circ C$
	$t_p = 20 \mu s$ $t_r = 8 \mu s$	$t_p = 1 ms$ $t_r = 10 \mu s$										
	Min V dc	Max V dc	mA dc	V (pk)	μA dc	V (pk)	A (pk)	A (pk)	%/ $^\circ C$	μA dc	V dc	mA dc
1N6036A	7.13	7.88	10	6.0	1000	11.3	750	132.0	0.061	2000	6.66	125.0
1N6037A	7.79	8.61	10	7.0	500	12.1	700	124.0	0.065	1000	7.24	115.0
1N6038A	8.65	9.55	10	7.5	200	13.4	630	112.0	0.068	400	8.01	104.0
1N6039A	9.50	10.50	1	8.5	50	14.5	585	103.	0.073	200	8.75	95.0
1N6040A	10.50	11.60	1	9.0	10	15.6	545	96.0	0.075	200	9.65	86.0
1N6041A	11.40	12.60	1	10.0	5	16.7	510	90.0	0.078	200	10.40	73.0
1N6042A	12.40	13.70	1	11.0	5	18.2	465	82.0	0.081	200	11.30	70.0
1N6043A	14.30	15.80	1	12.0	5	21.2	400	71.0	0.084	200	13.00	63.0
1N6044A	15.20	16.80	1	13.0	5	22.5	375	67.0	0.086	200	13.70	59.0
1N6045A	17.10	18.90	1	15.0	5	25.2	335	59.5	0.088		15.40	53.0
1N6046A	19.00	21.00	1	17.0	5	27.7	305	54.0	0.090	200	17.10	47.0
1N6047A	20.90	23.10	1	18.0	5	30.6	275	49.0	0.092	200	18.80	43.0
1N6048A	22.80	25.20	1	20.0	5	33.2	255	45.0	0.094	200	20.50	39.0
1N6049A	25.70	28.40	1	22.0	5	37.5	225	40.0	0.096	200	23.00	35.0
1N6050A	28.50	31.50	1	25.0	5	41.4	205	36.0	0.097	200	25.50	31.0
1N6051A	31.40	34.70	1	28.0	5	45.7	185	33.0	0.098	200	29.00	28.0
1N6052A	34.20	37.80	1	30.0	5	49.9	170	30.0	0.098	200	30.50	26.0
1N6053A	37.10	41.00	1	33.0	5	53.9	155	28.0	0.100	200	33.10	24.0
1N6054A	40.90	45.20	1	36.0	5	59.3	145	25.3	0.101	200	36.40	22.0
1N6055A	44.70	49.40	1	40.0	5	64.8	130	23.2	0.101	200	39.80	20.0

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TABLE II. Characteristics and ratings – Continued.

Col 1	Col 2		Col 3	Col 4	Col 5	Col 6	Col 7		Col 8	Col 9	Col 10	Col 11
Type	Breakdown voltage V_{BR} at I_{BR}		Test current I_{BR}	Working peak reverse voltage V_{WM}	Maximum standby current I_D	Maximum clamping voltage V_C at I_{PP}	Maximum peak Pulse current I_{PP}		Maximum temperature coefficient of V_{BR} αV_{BR}	Max standby current I_D $T_A = +125^\circ C$	Minimum Breakdown Voltage at I_{BR} $T_A = -55^\circ C$	Breakdown current I_{BR} Maximum dc current $T_A = +25^\circ C$
	Min V dc	Max V dc	mA dc	V (pk)	μA dc	V (pk)	$t_p = 20 \mu s$ $t_r = 8 \mu s$	$t_p = 1 \text{ ms}$ $t_r = 10 \mu s$				
1N6056A	48.50	53.60	1	43.0	5	70.1	120	21.4	0.102	200	43.10	18.0
1N6057A	53.20	58.80	1	47.0	5	77.0	110	19.5	0.103	200	47.30	17.0
1N6058A	58.90	68.20	1	53.0	5	85.0	100	17.7	0.104	200	52.30	15.0
1N6059A	64.60	71.40	1	58.0	5	92.0	90	16.3	0.104	200	57.30	14.0
1N6060A	71.30	78.80	1	64.0	5	103.0	82	14.6	0.105	200	63.20	12.0
1N6061A	77.90	86.10	1	70.0	5	113.0	75	13.3	0.105	200	69.00	11.0
1N6062A	86.50	95.50	1	75.0	5	125.0	68	12.0	0.106	200	76.50	10.0
1N6063A	95.00	105.00	1	82.0	5	137.0	62	11.0	0.106	200	84.10	9.5
1N6064A	105.00	116.00	1	94.0	5	152.0	55	9.9	0.107	200	92.80	8.5
1N6065A	114.00	126.00	1	100.0	5	168.0	50	8.9	0.107	200	100.00	7.5
1N6066A	124.00	137.00	1	110.0	5	182.0	47	8.2	0.107	200	109.00	7.0
1N6067A	143.00	158.00	1	128.0	5	213.0	40	7.0	0.108	200	126.00	6.0
1N6068A	162.00	179.00	1	145.0	5	245.0	36	6.1	0.108	200	143.00	5.5
1N6069A	171.00	189.00	1	150.0	5	261.0	34	5.7	0.108	200	151.00	5.2
1N6070A	181.00	200.00	1	160.0	5	278.0	32	5.4	0.108	200	157.00	5.0
1N6071A	190.00	210.00	1	170.0	5	294.0	30	5.1	0.108	200	169.00	4.7
1N6072A	209.00	231.00	1	185.0	5	328.0	25	4.6	0.108	200	184.00	4.3

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* TABLE III. Groups B and C electrical measurements. 1/ 2/ 3/ 4/

Step	Inspection	MIL-STD-750		Symbol	Limits <u>5/</u>		Unit	
		Method	Conditions		Min	Max		
1.	Standby current	4016	DC method, $V_R = V_{WM}$ column 4 of table IV	I_D	Column 2	Column 5	μA dc	
2.	Breakdown voltage	4022	$t_p \leq 300$ ms, duty cycle ≤ 2 percent, I_{BR} = column 3 of table IV	V_{BR}		Column 2	Column 2	V dc
3.	Standby current	4016	DC method; $V_R = V_{WM}$ (column 4 of table IV)	ΔI_D <u>5/</u>			100 percent of initial reading or 20 percent of column 5 of table IV, whichever is greater.	
4.	Breakdown voltage	4022	$t_p \leq 300$ ms, duty cycle ≤ 2 percent, I_{BR} = column 3 of table IV	ΔV_{BR} <u>5/</u>			± 5 percent of initial value	
5.	Clamping voltage		$t_p = 1.0$ ms (see 4.5.2.a); I_{PP} = column 7 of table IV	V_C			Column 6	V (pk)

1/ All electrical testing shall be performed twice, once in each direction.

2/ The electrical measurements for table VIb (JANTX and JANTXV) of MIL-PRF-19500 are as follows:

- a. Subgroup 2, see table IV herein, steps 1 and 2.
- b. Subgroup 6 see table IV herein, steps 1, 2, 3 and 4.

3/ The electrical measurements for table VII of MIL-PRF-19500 are as follows:

- a. Subgroup 2 and 3, see table IV herein, steps 1 and 2 for JANTX and JANTXV.
- b. Subgroup 9, see table III herein, steps 1 and 2 for all levels.

4/ Column references are to table II.

5/ Devices which exceed the group A limits for this test shall not be accepted.

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

Inspection	MIL-STD-750		Sampling plan
	Method	Conditions	
<u>Subgroup 1</u> * Temperature cycling Electrical measurements	1051	500 cycles, condition C, -55°C to +175°C. See table III. Steps 1, 2, 3, 4 and 5.	n = 45, c = 0
<u>Subgroup 2</u> Life test Electrical measurements		1,000 hours. See 4.3.1 See table III, Steps 1, 2, 3, 4 and 5.	n = 22, c = 0
<u>Subgroup 3</u> * DPA	2101		n = 3, c = 0
<u>Subgroup 4</u> Not applicable			
<u>Subgroup 5</u> Not applicable			
<u>Subgroup 6</u> * Peak pulse current Electrical measurements		See 4.5.2. Ipp shall be characterized by the supplier and this data shall be available to the government. Test shall be performed on each low and high voltage device for each structurally identical grouping. Test to failure. See table III, steps 1, 2, 3, 4 and 5.	
<u>Subgroup 7</u> * Soldering heat	2031		n = 45, c = 0

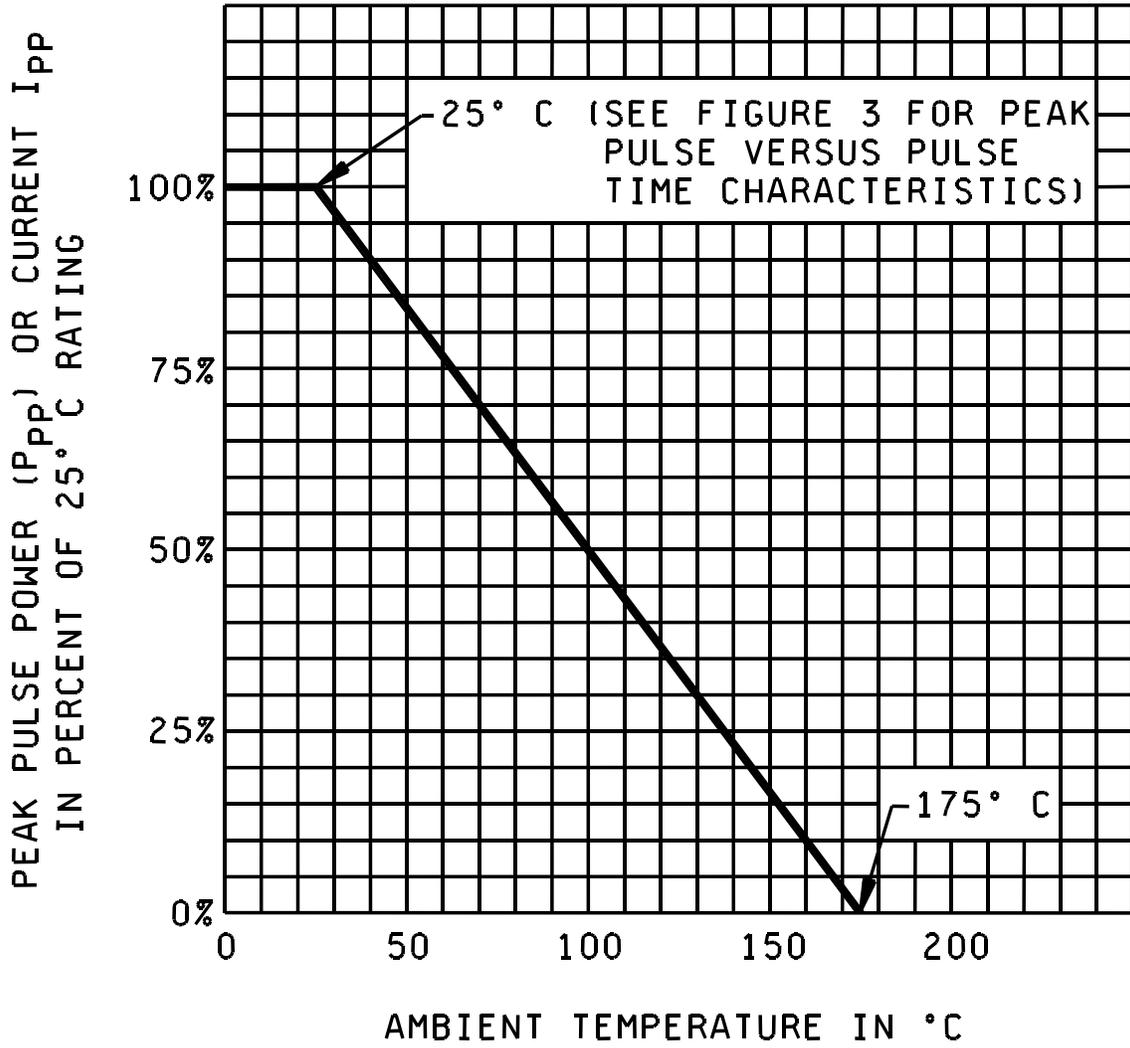


FIGURE 2. Derating curve.

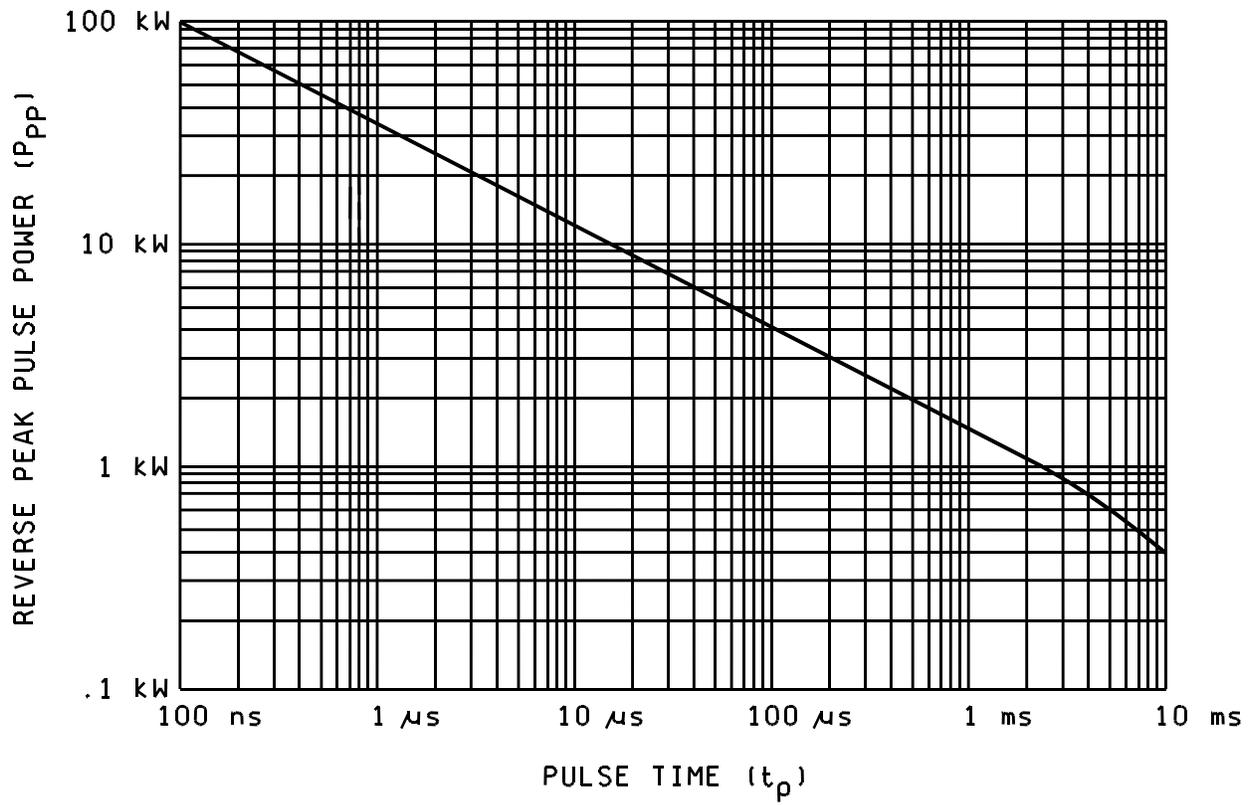
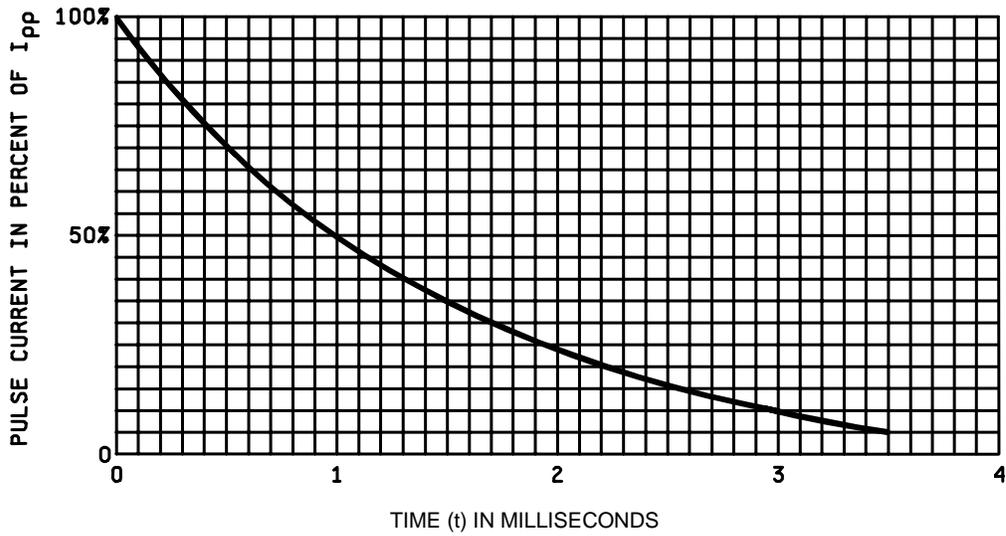
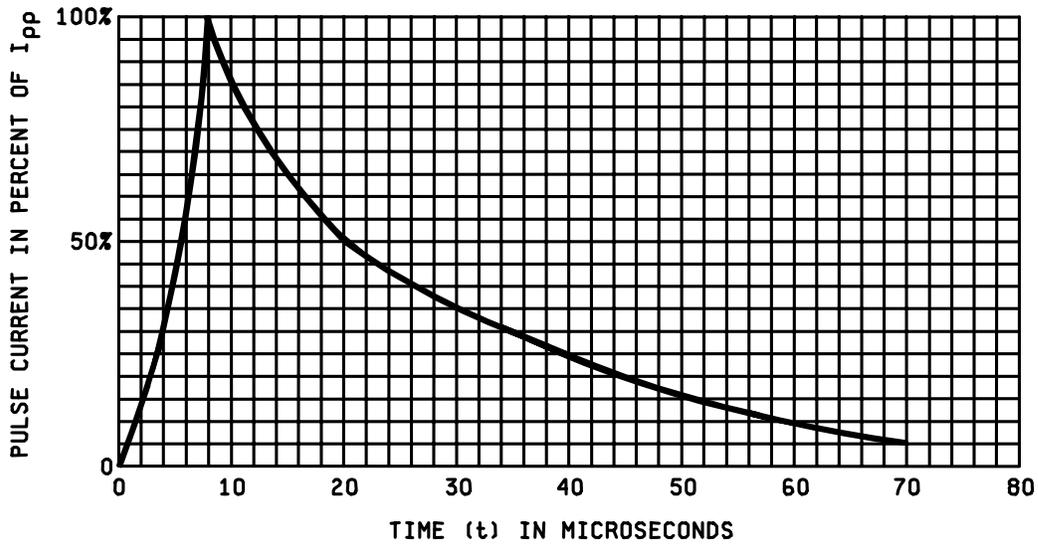


FIGURE 3. Peak pulse power versus pulse time.



NOTE: Pulse time duration is defined as that point where the pulse current decays to 50 percent of I_{pp}. (Rise time to 100 percent of I_{pp} = 10 μs).

FIGURE 4. Current impulse waveform (See 4.5.2.a).



NOTE: Pulse time duration is defined as that point where the pulse current decays to 50 percent of I_{pp}. (Rise time to 100 percent of I_{pp} = 8 μs).

FIGURE 5. Current impulse waveform (see 4.5.2.b).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Points' packaging activity within the Military Department or Defense Agency, or within the Military Departments' System Command. Packaging data retrieval is available from the managing Military Departments' or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Notes. The notes specified in MIL-PRF-19500 are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2).
- c. Packaging requirements (see 5.1).
- d. Lead formation and finish may be specified (see 3.4.1).
- e. Type designation and product assurance level.

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 Manufacturer's List QML No.19500 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from Commander, Defense Supply Center Columbus, DSCC-VQE, P.O. Box 3990, Columbus, OH 43216-5000.

6.4 Steady state power rating. This rating is not relevant for most applications.

6.5 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 last previous issue.

Custodians:
Army - CR
Navy - EC
Air Force - 11
NASA - NA
DLA - CC

Preparing activity:
DLA - CC

(Project 5961-2683)

Review activities:
Army - MI
Air Force - 19, 99

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-PRF-19500/507D	2. DOCUMENT DATE 8 August 2003
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3. **DOCUMENT TITLE** SEMICONDUCTOR DEVICE, DIODE, SILICON, BIPOLAR TRANSIENT VOLTAGE SUPPRESSOR TYPES 1N6036A THROUGH 1N6072A JAN, JANTX, JANTXV

4. **NATURE OF CHANGE** (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. **REASON FOR RECOMMENDATION**

6. **SUBMITTER**

a. NAME (Last, First, Middle initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) COMMERCIAL DSN FAX EMAIL	7. DATE SUBMITTED

8. **PREPARING ACTIVITY**

a. Point of Contact Alan Barone	b. TELEPHONE Commercial DSN FAX EMAIL 614-692-0510 850-0510 614-692-6939 alan.barone@dla.mil		
c. ADDRESS Defense Supply Center Columbus, ATTN: DSCC-VAC, 3990 East Broad Street, Columbus, OH 43216-5000	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman, Suite 2533, Fort Belvoir, VA 22060-6221 Telephone (703) 767-6888 DSN 427-6888		