

The documentation and process conversion measures necessary to comply with this document shall be completed by 23 August 2021.

INCH-POUND
MIL-PRF-19500/716A
23 May 2022
SUPERSEDING
MIL-PRF-19500/716
28 April 2005

PERFORMANCE SPECIFICATION SHEET

- * SEMICONDUCTOR DEVICE, DIODE, NON-HERMETIC, EPOXY, SURFACE MOUNT, SILICON, UNIPOLAR TRANSIENT VOLTAGE SUPPRESSOR, TYPES 1N5555UG THROUGH 1N5558UG, 1N5555UJ THROUGH 1N5558UJ, 1N5629AUG THROUGH 1N5665AUG, 1N5629AUJ THROUGH 1N5665AUJ, 1N5907UG, 1N5907UJ, JANP, JANPTX, AND JANPTXV

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 non-hermetic, epoxy, surface mount 1500 watt unipolar transient voltage suppressor diodes. Three levels of product assurance (JANP, JANPTX and JANPTXV) are provided for each device as specified in [MIL-PRF-19500](#).

1.2 Physical dimensions. See [figure 1](#) (surface mount).

1.3 Maximum ratings. Maximum ratings are as shown in maximum test ratings (see [3.8](#)), 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 $8 \text{ mW/}^\circ\text{C}$ above $T_A = +25^\circ\text{C}$).

$I_{FSM} = 200 \text{ A (pk)}$ at $t_p = 8.3 \text{ ms}$ ($T_A = +25^\circ\text{C}$).

$-55^\circ\text{C} \leq T_J \leq +150^\circ\text{C}$, $-55^\circ\text{C} \leq T_{STG} \leq +150^\circ\text{C}$ (ambient).

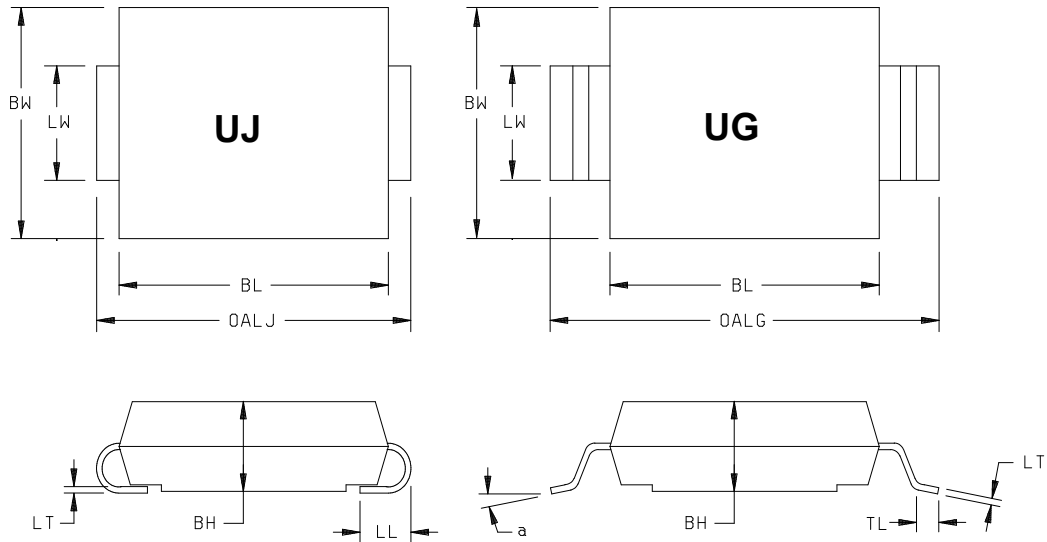
1.4 Primary electrical characteristics at $T_A = +25^\circ\text{C}$. Primary ratings are as shown in maximum test ratings (see [3.8](#)).

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, 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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FSC 5961





Symbol	Inches	Inches	mm	mm	Notes
	Min	Max	Min	Max	
BH	.075	.103	1.91	2.62	
BL	.260	.280	6.60	7.11	
BW	.220	.245	5.59	6.22	
LL	.030	.060	0.76	1.52	
LT	.006	.012	0.15	0.30	
LW	.108	.124	2.74	3.15	
OALG	.380	.400	9.65	10.16	
OALJ	.305	.320	7.75	8.13	
TL	.025	.040	.635	1.02	
a		10°		10°	

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. In accordance with ASME Y14.5, measurements are equivalent to Φ x symbology.

* FIGURE 1. Physical dimensions.

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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 non-hermetic devices that are applicable for this specification sheet from the lowest to the highest level are as follows: "JANP", "JANPTX" and "JANPTXV".

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

* 1.5.2.1 First Number and first letter symbol. The diodes of this specification sheet use the letter symbols "1N".

* 1.5.2.2 Second Number symbols. The second number symbols covered by this specification are as follows: "5907", "5555" through "5558" and "5629" through "5665"

* 1.5.2.3 First suffix symbols. Following the second number symbols, the suffix letter "A" is used on devices that have a 5 percent voltage tolerance.

* 1.5.2.4 Second suffix symbols. Following the first suffix symbols, the suffix letter "UG" is used on devices that use a gullwing package and "UJ" is used on devices that use a J wing package.

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. 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 manufacturers list 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.

$I_{(BR)}$	Reverse breakdown current at the specified condition.
P_{PP}	Peak pulse power.
$P_{M(AV)}$	Rated average power dissipation. This is comparable to the dc power rating of the device.
$V_{C(MAX)}$	Maximum clamping voltage. The maximum peak voltage appearing across the device when subjected to the peak pulse current I_P .
$\alpha V_{(BR)}$	Temperature coefficient of $V_{(BR)}$.

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

* 3.4.1 Metallurgically bonded construction. Devices shall be metallurgically bonded, non-cavity, construction in accordance with the requirements of category II (see [MIL-PRF-19500](#)), and herein.

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](#). The minimum marking shall be PIN (1N and UG or UJ may be omitted), manufacturer's name, trademark, or identification or manufacturer's designating symbol, lot identification code, and code for plants. All marking which is omitted from the body of the device shall appear on the label of the initial container. No color coding will be permitted for part numbering. The part number may be reduced to JPxxxx, JPXxxxx, or JPVxxxx.

3.5.1 Polarity. The polarity shall be indicated with a contrasting stripe to denote the cathode end.

3.6 Electrical performance characteristics. Unless otherwise specified, the electrical performance characteristics are as specified in [1.3](#), [1.4](#), and tables I, II, and IV.

* 3.7 Electrical test requirements. The electrical test requirements shall be the subgroups specified in tables I and II herein.

3.8 Maximum test ratings and primary electrical characteristics. Maximum ratings shall be in accordance with columns 5 through 9 of [table IV](#). Primary electrical characteristics are as shown in columns 2 and 4 of [table IV](#).

3.9 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 6 months in lieu of 6 weeks.

* 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. In case qualification was awarded to a prior revision of the associated specification that did not request the performance of table II tests, the tests specified in table II herein shall be performed on the first inspection lot of this revision to maintain qualification.

* 4.3 Screening (JANPTX and JANPTXV levels only). Screening shall be in accordance with table J-II 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	Measurement
	JANPTX and JANPTXV level
3a	T _(high) = + 125°C
7, 9, 10, 11	Not applicable
12	See 4.3.1
13	Interim electrical, delta, and Table I, subgroups 2 and 3, electrical parameters not applicable for this screen (performed in screen 12).
14	Not required
15a, 15b	Not applicable

* 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 4.5.2a, 20 times (screening and group B) and 100 times (group C and E) at $T_A = +25^\circ\text{C}$.
- b. Read I_D and $V_{(BR)}$ at $T_A = +25^\circ\text{C}$, remove defective devices and record the number of failures.
- c. Apply the working peak reverse voltage (V_{WM} - column 4 of table IV) at $T_A = +125^\circ\text{C}$ as follows:
 - (1) For 96 hours (JANPTX and JANPTXV) for the screening test.
 - (2) For 340 hours (JANP, JANPTX and JANPTX) for group B steady-state operation life test.
 - (3) For 1000 hours for group C steady-state operation life test.
- d. Read V_{BR} and I_D 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, or $\Delta V_{BR} > \pm 2$ percent (± 5 percent for steady-state operation life) shall be considered defective. Remove defective devices and record the number of failures.

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 J-IVB (JANP, JANPTX and JANPTXV) 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 J-IVB (JANP, JANPTX and JANPTXV) of MIL-PRF-19500.

Subgroup	Method	Conditions
B2	4066	Condition A, 10 Pulses, see 4.5.2 herein.
B3	1027	See 4.3.1, 4.5.1 and 4.5.2.
B5	Not applicable	
* B7		See 4.5.4

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

Subgroup	Method	Conditions
C2	1051	-55°C to $+125^\circ\text{C}$
C6	1026	See 4.5.1 and 4.5.2
C8		Conditions for maximum peak pulse current are as follows: See 4.5.2.b, (20 μs pulse only) 10 pulses; $n = 22$, $c = 0$.

* 4.4.4 Group E inspection. Group E inspection shall be conducted in accordance with the conditions specified for subgroup testing in table J-VI of MIL-PRF-19500 and as specified in table II herein. Electrical measurements (end-points) 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 exception: Step 4.3.1.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. The clamping voltage (V_c) shall be as specified in 4.5.3. 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 $t \leq 10 \mu\text{s}$ and decay to 50 percent of I_{pp} at $t \geq 1 \text{ ms}$ for $t_p = 1 \text{ ms}$ (see figure 4).
- b. Pulse current shall reach 100 percent of I_{pp} at $t \leq 8 \mu\text{s}$ and decay to 50 percent of I_{pp} at $t \geq 20 \mu\text{s}$ for $t_p = 20 \mu\text{s}$ (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.

* 4.5.4 Glass transition temperature. The glass transition temperature test shall be conducted in accordance with MIL-PRF-19500. The use of an alternate test method is permitted provided that the same alternate test method is used to satisfy all instances of glass transition temperature testing requirements within MIL-PRF-19500. Subsequent changes to a different test method shall require a correlation test.

TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit <u>2/</u>	Limit <u>2/</u>	Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical examination	2071					
<u>Subgroup 2</u>						
* Standby current	4016	Condition A or B, $V_R = V_{WM}$ (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>						
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	Condition A or B, $V_R = V_{WM}$, column 4 of table IV	I_{D2}		Column 9	mA dc
<u>Subgroup 4</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 , (pulsed) (see 4.5.3)	V_C		Column 6	V (pk)
* Forward voltage	4011	Condition B, $I_{FM} = 100$ A (pk); $t_p = 8.3$ ms (max), duty cycle = 4 pulses per minute (max)	V_{FM}		3.5	V_{pk}
<u>Subgroup 5</u>						
Not applicable						
<u>Subgroup 6</u>						
Forward surge current	4066	$I_{FSM} = 200$ A (pk), one pulse, half sine wave (8.3 ms), $I_F = 0$; $V_{WM} = 0$; $T_A = 25^\circ C$				
* End point electrical measurements		See table III , steps 1 and 2				
<u>Subgroup 7</u>						
Not applicable						

1/ For sampling plan, see [MIL-PRF-19500](#).2/ Column references are to [table IV](#).

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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>	1051	500 cycles, condition G, -55°C to +150°C. See table III , steps 1, 2, 3, 4, and 5.	n = 45, c = 0
* Temperature cycling			
* Electrical measurements	2101	1,000 hours. See 4.3.1 See table III , steps 1, 2, 3, 4, and 5.	n = 45, c = 0
* <u>Subgroup 2</u>			
Life test	2101	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.	n = 3, c = 0
* Electrical measurements			
<u>Subgroup 3</u>	2101	See table III , steps 1, 2, 3, 4, and 5.	n = 3, c = 0
DPA			
<u>Subgroups 4 and 5</u>	2101	See 4.5.4	n = 3, c = 0
Not applicable			
<u>Subgroup 6</u>	2101	See table III , steps 1, 2, 3, 4, and 5.	n = 3, c = 0
Peak pulse current			
* Electrical measurements	2101	See table III , steps 1, 2, 3, 4, and 5.	n = 3, c = 0
* <u>Subgroup 10</u>			
Glass Transition Temperature	2101	See 4.5.4	n = 3, c = 0

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

Step	Inspection	MIL-STD-750		Symbol	Limit 3/	Limit 3/	Unit
		Method	Conditions		Min	Max	
* 1.	Standby current	4016	Condition A or B, $V_R = V_{WM}$ = 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	V dc
* 3.	Standby current	4016	Condition A or B; $V_R = V_{WM}$ = column 4 of table IV	ΔI_D 4/		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} 4/		± 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/ The electrical measurements for table J-IVB of [MIL-PRF-19500](#) are as follows:

- Subgroup 2, see [table III](#) herein, steps 1 and 2.
- Subgroup 6 see [table III](#) herein, steps 1, 2, 3 and 4.

2/ The electrical measurements for table J-V of [MIL-PRF-19500](#) are as follows:

- Subgroup 2 and 3, see [table III](#) herein, steps 1 and 2.
- Subgroup 8, see [table III](#) herein, steps 1 and 2 for all levels.

3/ Column references are to [table IV](#).

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

TABLE IV. Characteristics and ratings. 1/

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}	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 peak Pulse current I_{PP}	Maximum temperature coefficient of V_{BR} αV_{BR}	Maximum standby current I_D $T_A =$	Minimum Breakdown Voltage at I_{BR} $T_A = -55^\circ\text{C}$	Breakdown current I_{BR} Maximum dc current $T_A = +25^\circ\text{C}$
	Min	Max					$t_p = 20 \mu\text{s}$ $t_r = 8 \mu\text{s}$	$t_p = 1 \text{ ms}$ $t_r = 10 \mu\text{s}$		$+125^\circ\text{C}$		
	V dc	V dc	mA dc	V (pk)	μA dc	V (pk)	A (pk)	A (pk)	%/ $^\circ\text{C}$	μA dc	V dc	mA dc
1N5907	6.00	6.75	1	5.00	300	10.0	1000	150.0	.057	1500	5.63	140.0
1N5629A	6.45	7.14	10	5.80	1,000	10.5	810	143.0	.057	4000	6.05	140.0
1N5630A	7.13	7.88	10	6.40	500	11.3	750	132.0	.061	2000	6.66	125.0
1N5631A	7.79	8.61	10	7.02	200	12.1	700	124.0	.065	1000	7.24	115.0
1N5632A	8.65	9.55	1	7.78	50	13.4	630	112.0	.068	400	8.01	104.0
1N5633A	9.50	10.50	1	8.55	10	14.5	585	103.5	.073	200	8.75	95.0
1N5634A	10.50	11.60	1	9.40	5	15.6	545	96.0	.075	200	9.65	86.0
1N5635A	11.40	12.60	1	10.20	5	16.7	510	90.0	.078	200	10.40	73.0
1N5636A	12.40	13.70	1	11.10	5	18.2	465	82.0	.081	200	11.30	70.0
1N5637A	14.30	15.80	1	12.80	5	21.2	400	71.0	.084	200	13.00	63.0
1N5638A	15.20	16.80	1	13.60	5	22.5	375	67.0	.086	200	13.70	59.0
1N5639A	17.10	18.90	1	15.30	5	25.2	335	59.5	.088	200	15.40	53.0
1N5640A	19.00	21.00	1	17.10	5	27.7	305	54.0	.090	200	17.10	47.0
1N5641A	20.90	23.10	1	18.80	5	30.6	275	49.0	.092	200	18.80	43.0
1N5642A	22.80	25.20	1	20.50	5	33.2	255	45.0	.094	200	20.50	39.0
1N5643A	25.70	28.40	1	23.10	5	37.5	225	40.0	.096	200	23.00	35.0
1N5644A	28.50	31.50	1	25.60	5	41.4	205	36.0	.097	200	23.50	31.0
1N5645A	31.40	34.70	1	28.20	5	45.7	185	33.0	.098	200	28.00	28.0
1N5555	33.00		1	30.50	5	47.5	193	32.0	.093	200	30.20	27.0
1N5646A	34.20	37.80	1	30.80	5	49.9	170	30.0	.099	200	30.50	26.0
1N5647A	37.10	41.00	1	33.30	5	53.9	155	28.0	.100	200	33.10	24.0
1N5648A	40.90	45.20	1	36.80	5	59.3	145	25.3	.101	200	36.40	22.0
1N5556	43.70		1	40.30	5	63.5	136	24.0	.094	200	40.00	21.0

1/ Ratings apply to all package styles.

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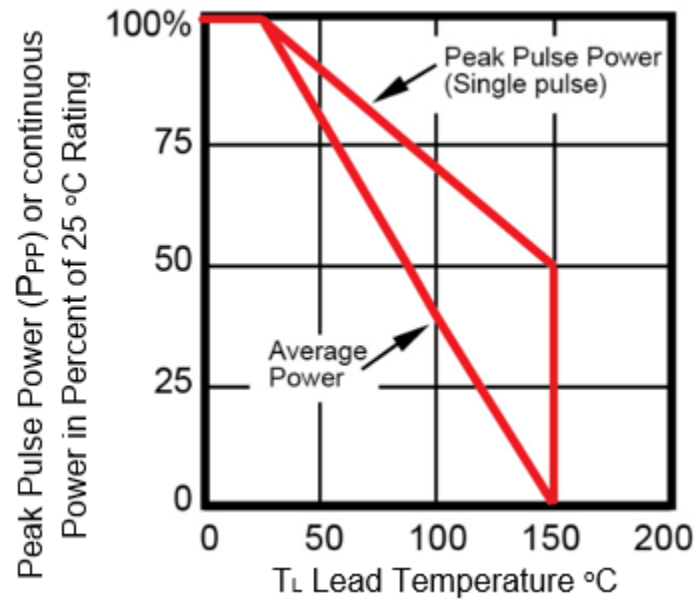
TABLE IV. Characteristics and ratings - Continued. 1/

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}	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 peak Pulse current I_{PP}	Maximum temperature coefficient of V_{BR} $\alpha V(BR)$	Max standby current I_D $T_A = +125^\circ\text{C}$	Minimum Breakdown Voltage at I_{BR} $T_A = -55^\circ\text{C}$	Breakdown current I_{BR} Maximum dc current $T_A = +25^\circ\text{C}$
	Min	Max					$t_p = 20 \mu\text{s}$ $t_r = 8 \mu\text{s}$	$t_p = 1 \text{ ms}$ $t_r = 10 \mu\text{s}$				
	V dc	V dc	mA dc	V (pk)	μA dc	V (pk)	A (pk)	A (pk)	%/ $^\circ\text{C}$	μA dc	V dc	mA dc
1N5649A	44.70	49.40	1	40.20	5	64.8	130	23.2	.101	200	39.80	20.0
1N5650A	48.50	53.60	1	43.60	5	70.1	120	21.4	.102	200	43.10	18.0
1N5651A	53.20	58.80	1	47.80	5	77.0	110	19.5	.103	200	47.30	17.0
1N5557	54.00		1	49.00	5	78.5	116	19.0	.096	200	48.50	16.0
1N5652A	58.90	65.10	1	53.00	5	85.0	100	17.7	.104	200	52.30	15.0
1N5653A	64.60	71.40	1	58.10	5	92.0	90	16.3	.104	200	57.30	14.0
1N5654A	71.30	78.80	1	64.10	5	103.0	82	14.6	.105	200	63.20	12.0
1N5655A	77.90	86.10	1	70.10	5	113.0	75	13.3	.105	200	69.00	11.0
1N5656A	86.50	95.50	1	77.80	5	125.0	68	12.0	.106	200	76.50	10.0
1N5657A	95.00	105.00	1	85.50	5	137.0	62	11.0	.106	200	84.10	9.5
1N5658A	105.00	116.00	1	94.00	5	152.0	55	9.9	.107	200	92.80	8.5
1N5659A	114.00	126.00	1	102.00	5	165.0	50	9.1	.107	200	100.00	7.5
1N5660A	124.00	137.00	1	111.00	5	179.0	47	8.4	.107	200	109.00	7.0
1N5661A	143.00	158.00	1	128.00	5	207.0	40	7.2	.108	200	126.00	6.0
1N5662A	152.00	168.00	1	136.00	5	219.0	38	6.8	.108	200	134.00	5.8
1N5663A	162.00	179.00	1	145.00	5	234.0	36	6.4	.108	200	143.00	5.5
1N5664A	171.00	189.00	1	154.00	5	246.0	34	6.1	.108	200	151.00	5.0
1N5665A	190.00	210.00	1	171.00	5	274.0	30	5.5	.108	200	167.00	4.5
1N5558	191.00		1	175.00	5	265.0	33	5.7	.100	200	172.00	4.5

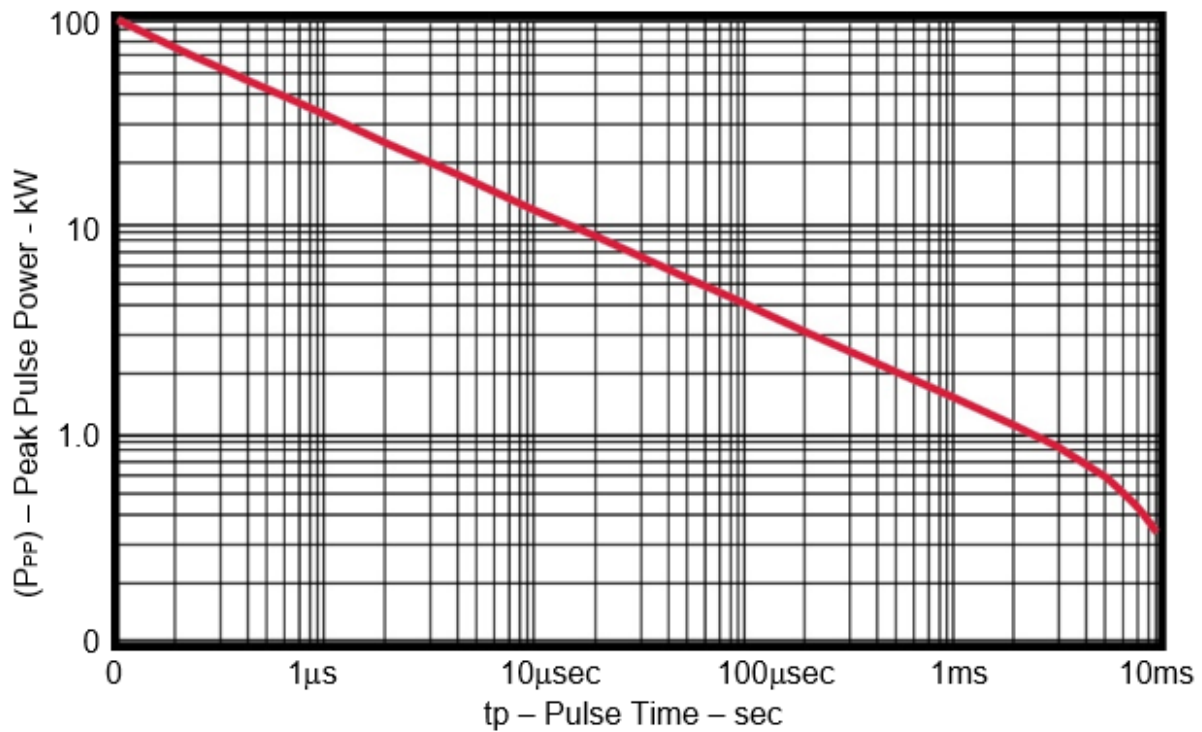
1/ Ratings apply to all package styles.

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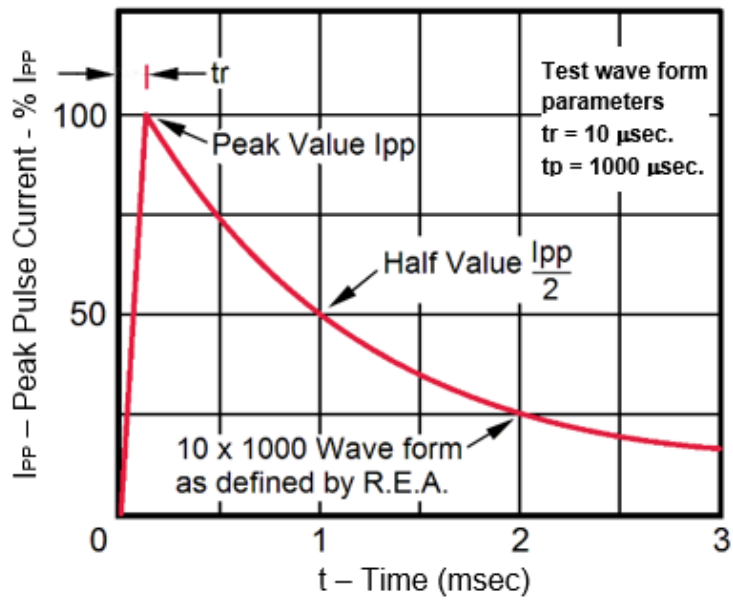
The pulse derating curve of maximum peak pulse power versus temperature has been included for reference purposes only.



* FIGURE 2. Derating curve.

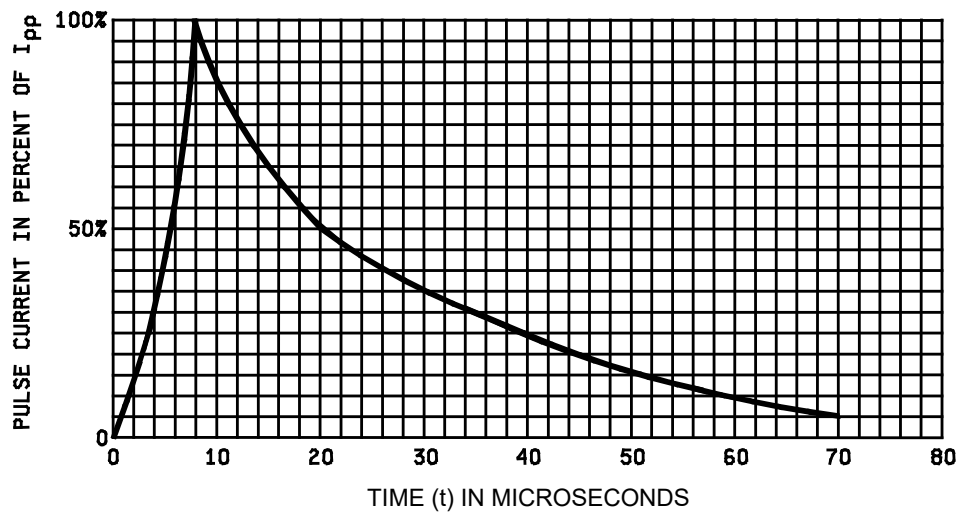


* FIGURE 3. Peak pulse power versus pulse time.



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 $I_{pp} = 10 \mu\text{s}$).

* FIGURE 4. Pulse 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 $I_{pp} = 8 \mu\text{s}$).

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 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:

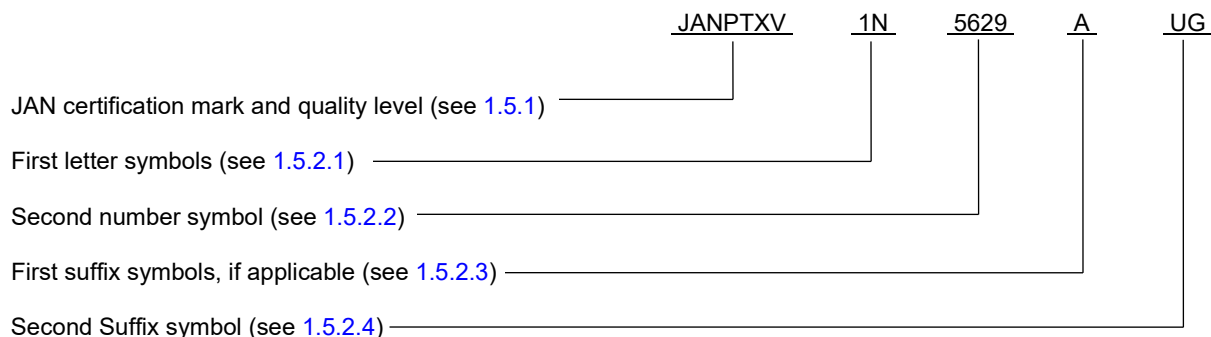
- a. Title, number, and date of this specification.
- b. Packaging requirements (see 5.1).
- c. Lead finish (see 3.4.2).

* d. The complete PIN, see 1.5 and 6.4.

* 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 Defense Supply Center, Columbus, ATTN: DSCC/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://qpldocs.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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* 6.5 List of PINs. The following is a list of possible PINs available on this specification sheet. Types 1N5555 through 1N5558, 1N5907, 1N5629A through 1N5665A.

JANP1N5907UG	JANPTX1N5907UG	JANPTXV1N5907UG	JANP1N5907UJ	JANPTX1N5907UJ	JANPTXV1N5907UJ
JANP1N5555UG	JANPTX1N5555UG	JANPTXV1N5555UG	JANP1N5555UJ	JANPTX1N5555UJ	JANPTXV1N5555UJ
JANP1N5556UG	JANPTX1N5556UG	JANPTXV1N5556UG	JANP1N5556UJ	JANPTX1N5556UJ	JANPTXV1N5556UJ
JANP1N5557UG	JANPTX1N5557UG	JANPTXV1N5557UG	JANP1N5557UJ	JANPTX1N5557UJ	JANPTXV1N5557UJ
JANP1N5558UG	JANPTX1N5558UG	JANPTXV1N5558UG	JANP1N5558UJ	JANPTX1N5558UJ	JANPTXV1N5558UJ
JANP1N5629AUG	JANPTX1N5629AUG	JANPTXV1N5629AUG	JANP1N5629AUJ	JANPTX1N5629AUJ	JANPTXV1N5629AUJ
JANP1N5630AUG	JANPTX1N5630AUG	JANPTXV1N5630AUG	JANP1N5630AUJ	JANPTX1N5630AUJ	JANPTXV1N5630AUJ
JANP1N5631AUG	JANPTX1N5631AUG	JANPTXV1N5631AUG	JANP1N5631AUJ	JANPTX1N5631AUJ	JANPTXV1N5631AUJ
JANP1N5632AUG	JANPTX1N5632AUG	JANPTXV1N5632AUG	JANP1N5632AUJ	JANPTX1N5632AUJ	JANPTXV1N5632AUJ
JANP1N5633AUG	JANPTX1N5633AUG	JANPTXV1N5633AUG	JANP1N5633AUJ	JANPTX1N5633AUJ	JANPTXV1N5633AUJ
JANP1N5634AUG	JANPTX1N5634AUG	JANPTXV1N5634AUG	JANP1N5634AUJ	JANPTX1N5634AUJ	JANPTXV1N5634AUJ
JANP1N5635AUG	JANPTX1N5635AUG	JANPTXV1N5635AUG	JANP1N5635AUJ	JANPTX1N5635AUJ	JANPTXV1N5635AUJ
JANP1N5636AUG	JANPTX1N5636AUG	JANPTXV1N5636AUG	JANP1N5636AUJ	JANPTX1N5636AUJ	JANPTXV1N5636AUJ
JANP1N5637AUG	JANPTX1N5637AUG	JANPTXV1N5637AUG	JANP1N5637AUJ	JANPTX1N5637AUJ	JANPTXV1N5637AUJ
JANP1N5638AUG	JANPTX1N5638AUG	JANPTXV1N5638AUG	JANP1N5638AUJ	JANPTX1N5638AUJ	JANPTXV1N5638AUJ
JANP1N5639AUG	JANPTX1N5639AUG	JANPTXV1N5639AUG	JANP1N5639AUJ	JANPTX1N5639AUJ	JANPTXV1N5639AUJ
JANP1N5640AUG	JANPTX1N5640AUG	JANPTXV1N5640AUG	JANP1N5640AUJ	JANPTX1N5640AUJ	JANPTXV1N5640AUJ
JANP1N5641AUG	JANPTX1N5641AUG	JANPTXV1N5641AUG	JANP1N5641AUJ	JANPTX1N5641AUJ	JANPTXV1N5641AUJ
JANP1N5642AUG	JANPTX1N5642AUG	JANPTXV1N5642AUG	JANP1N5642AUJ	JANPTX1N5642AUJ	JANPTXV1N5642AUJ
JANP1N5643AUG	JANPTX1N5643AUG	JANPTXV1N5643AUG	JANP1N5643AUJ	JANPTX1N5643AUJ	JANPTXV1N5643AUJ
JANP1N5644AUG	JANPTX1N5644AUG	JANPTXV1N5644AUG	JANP1N5644AUJ	JANPTX1N5644AUJ	JANPTXV1N5644AUJ
JANP1N5645AUG	JANPTX1N5645AUG	JANPTXV1N5645AUG	JANP1N5645AUJ	JANPTX1N5645AUJ	JANPTXV1N5645AUJ
JANP1N5646AUG	JANPTX1N5646AUG	JANPTXV1N5646AUG	JANP1N5646AUJ	JANPTX1N5646AUJ	JANPTXV1N5646AUJ
JANP1N5647AUG	JANPTX1N5647AUG	JANPTXV1N5647AUG	JANP1N5647AUJ	JANPTX1N5647AUJ	JANPTXV1N5647AUJ
JANP1N5648AUG	JANPTX1N5648AUG	JANPTXV1N5648AUG	JANP1N5648AUJ	JANPTX1N5648AUJ	JANPTXV1N5648AUJ
JANP1N5649AUG	JANPTX1N5649AUG	JANPTXV1N5649AUG	JANP1N5649AUJ	JANPTX1N5649AUJ	JANPTXV1N5649AUJ
JANP1N5650AUG	JANPTX1N5650AUG	JANPTXV1N5650AUG	JANP1N5650AUJ	JANPTX1N5650AUJ	JANPTXV1N5650AUJ
JANP1N5651AUG	JANPTX1N5651AUG	JANPTXV1N5651AUG	JANP1N5651AUJ	JANPTX1N5651AUJ	JANPTXV1N5651AUJ
JANP1N5652AUG	JANPTX1N5652AUG	JANPTXV1N5652AUG	JANP1N5652AUJ	JANPTX1N5652AUJ	JANPTXV1N5652AUJ
JANP1N5653AUG	JANPTX1N5653AUG	JANPTXV1N5653AUG	JANP1N5653AUJ	JANPTX1N5653AUJ	JANPTXV1N5653AUJ
JANP1N5654AUG	JANPTX1N5654AUG	JANPTXV1N5654AUG	JANP1N5654AUJ	JANPTX1N5654AUJ	JANPTXV1N5654AUJ
JANP1N5655AUG	JANPTX1N5655AUG	JANPTXV1N5655AUG	JANP1N5655AUJ	JANPTX1N5655AUJ	JANPTXV1N5655AUJ
JANP1N5656AUG	JANPTX1N5656AUG	JANPTXV1N5656AUG	JANP1N5656AUJ	JANPTX1N5656AUJ	JANPTXV1N5656AUJ
JANP1N5657AUG	JANPTX1N5657AUG	JANPTXV1N5657AUG	JANP1N5657AUJ	JANPTX1N5657AUJ	JANPTXV1N5657AUJ
JANP1N5658AUG	JANPTX1N5658AUG	JANPTXV1N5658AUG	JANP1N5658AUJ	JANPTX1N5658AUJ	JANPTXV1N5658AUJ
JANP1N5659AUG	JANPTX1N5659AUG	JANPTXV1N5659AUG	JANP1N5659AUJ	JANPTX1N5659AUJ	JANPTXV1N5659AUJ
JANP1N5660AUG	JANPTX1N5660AUG	JANPTXV1N5660AUG	JANP1N5660AUJ	JANPTX1N5660AUJ	JANPTXV1N5660AUJ
JANP1N5661AUG	JANPTX1N5661AUG	JANPTXV1N5661AUG	JANP1N5661AUJ	JANPTX1N5661AUJ	JANPTXV1N5661AUJ
JANP1N5662AUG	JANPTX1N5662AUG	JANPTXV1N5662AUG	JANP1N5662AUJ	JANPTX1N5662AUJ	JANPTXV1N5662AUJ
JANP1N5663AUG	JANPTX1N5663AUG	JANPTXV1N5663AUG	JANP1N5663AUJ	JANPTX1N5663AUJ	JANPTXV1N5663AUJ
JANP1N5664AUG	JANPTX1N5664AUG	JANPTXV1N5664AUG	JANP1N5664AUJ	JANPTX1N5664AUJ	JANPTXV1N5664AUJ
JANP1N5665AUG	JANPTX1N5665AUG	JANPTXV1N5665AUG	JANP1N5665AUJ	JANPTX1N5665AUJ	JANPTXV1N5665AUJ

* 6.6 Changes from previous issue. The margins of this specification are marked with an asterisk 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.

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