The documentation and process conversion measures necessary to comply with this revision shall be completed by 18 November 2010.

INCH-POUND

MIL-PRF-19500/597E
18 August 2010
SUPERSEDING
MIL-PRF-19500/597D
8 September 2003

* PERFORMANCE SPECIFICATION SHEET

SEMICONDUCTOR DEVICE, TRANSISTORS, QUAD, FIELD EFFECT,
N-CHANNEL, SILICON, TYPE 2N7334,
JAN, JANTX, JANTXV, JANS, 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 quad N-channel, enhancement-mode, MOSFET, power transistor. Four levels of product assurance are provided for each hermetic encapsulated device type as specified in MIL-PRF-19500, with avalanche energy ratings (E_{AS} and E_{AR}) and maximum avalanche current (I_{AR}). Two levels of product assurance are provided for each unencapsulated device type die.

* 1.2 Physical dimensions. See figure 1 (MO-036AB dual-in line package), figure 2, and figure 3 for JANHC and JANKC die dimensions.

1.3 Maximum ratings. (Unless otherwise specified, T_A = +25°C).

Type	P_T (1) T_C = +25°C (free air)	V_{GS}	I_{D1} (2) (3) T_C = +25°C	I_{D2} (2) T_C = +100°C	I_S
	W	V dc	A dc	A dc	A dc
2N7334	1.4	±20	1.0	0.6	1.0

E_{AS}	E_{AR}	I_{AR} (2)	I_{DM} (4)	T_{op} and T_{STG}	Max $r_{DS(on)}$ (1) V_{GS} = 10 V dc, $I_D = I_{D2}$		$R_{\theta JA1}$ maximum (1 die)	$R_{\theta JA2}$ Max (4 die)
					T_J = +25°C	T_J = +150°C		
mj	mj	A	A(pk)	°C	ohm	ohm	°C/W	°C/W
75	.14	1.0	4.0	-55 to +150	0.70	1.4	90	50

(1) Derate linearly 11 mW/°C for T_C > +25°C.
(2) The following formula derives the maximum theoretical I_D limit. I_D is limited by package and internal wires and may be limited by pin diameter:

$$I_D = \sqrt{\frac{T_{JM} - T_C}{(R_{\theta JC}) \times (R_{DS}(on) \text{ at } T_{JM})}}$$

(3) See figure 4, maximum drain current graph.
(4) I_{DM} = 4 I_{D1}; I_{D1} as calculated in note (2).

* Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to Semiconductor@dscc.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.daps.dla.mil/.

1.4 Primary electrical characteristics at T_C = +25°C.

Type	Min $V_{(BR)DSS}$ V_{GS} = 0 V I_D = 1 mA dc	$V_{GS(th)1}$ $V_{DS} \geq V_{GS}$ I_D = 0.25 mA	Max I_{DSS1} V_{GS} = 0 V	Max $r_{DS(on)1}$ (1) V_{GS} = 10 V dc $I_D = I_{D2}$
			V_{DS} = 80 percent of rated V_{DS}	T_J = +25°C
	V dc	V dc Min Max	µA dc	ohms
2N7334	100	2.0 4.0	25	0.70

(1) Pulsed (see 4.5.1).

2. APPLICABLE DOCUMENTS

* 2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 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, 4, or 5 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

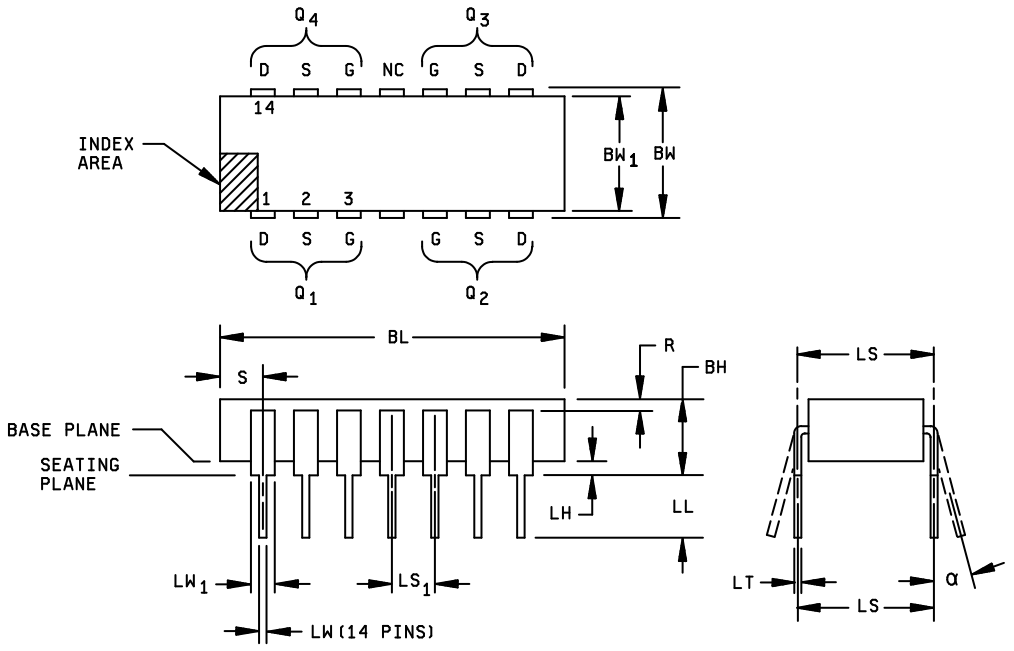
MIL-PRF-19500 - Semiconductor Devices, General Specification for.

* DEPARTMENT OF DEFENSE STANDARDS

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

* (Copies of these documents are available online at https://assist.daps.dla.mil/quicksearch/ or https://assist.daps.dla.mil/ or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

* 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.



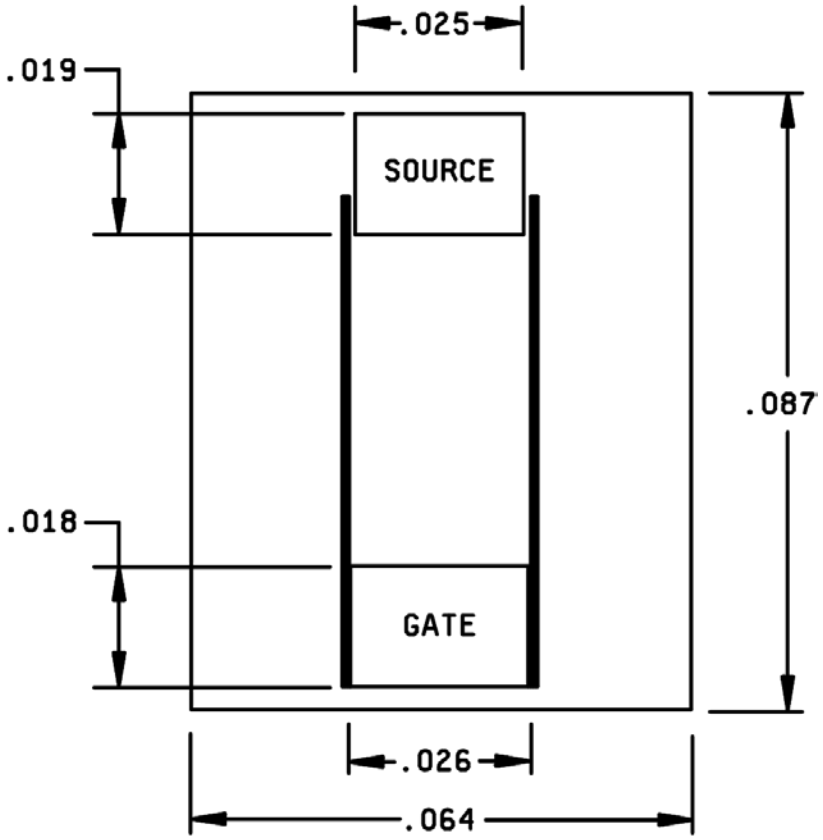
Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BH	.105	.175	2.67	4.45	11
LH	.025	.055	0.64	1.40	9, 11
LW	.015	.021	0.381	0.533	9
LW_1	.038	.060	0.97	1.52	
LT	.008	.012	0.203	0.305	
BL	.690	.770	17.53	19.56	
BW	.290	.325	7.37	8.26	
BW_1	.280	.310	7.11	7.87	10

Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
LS	.300 TP		7.62 TP		5, 6
LS_1	.100 TP		2.54 TP		5, 6
LL	.125	.175	3.18	4.45	11
α	0°	15°	0°	15°	7
R	.010		0.25		
S	.030	.095	0.76	2.41	
N	14		14		8

* FIGURE 1. Dimensions and configuration (MO-036AB).

NOTES:
1. Dimensions are in inches.
2. Millimeters are for general information only.
3. Refer to applicable symbol list.
4. Dimensioning and tolerancing in accordance with ASME Y14.5.
5. Leads within .005 inch (0.13 mm) radius of True Position (TP) at gauge plane with maximum material condition and unit installed.
6. LS_1 and LS applies in zone LL_1 when unit installed.
7. α applies to spread leads prior to installation.
8. N is the number of terminal positions.
9. Outlines on which the seating plane is coincident with the base plane (LH = 0), terminals lead standoffs are not required, and LH_1 may equal LW along any part of the lead above the seating/base plane.
10. BW_1 does not include particles of package materials.
11. This dimension shall be measured with the device seated in the seating plane gauge JEDEC Outline No. GS-3.

FIGURE 1. Dimensions and configuration (MO-036AB) - Continued.

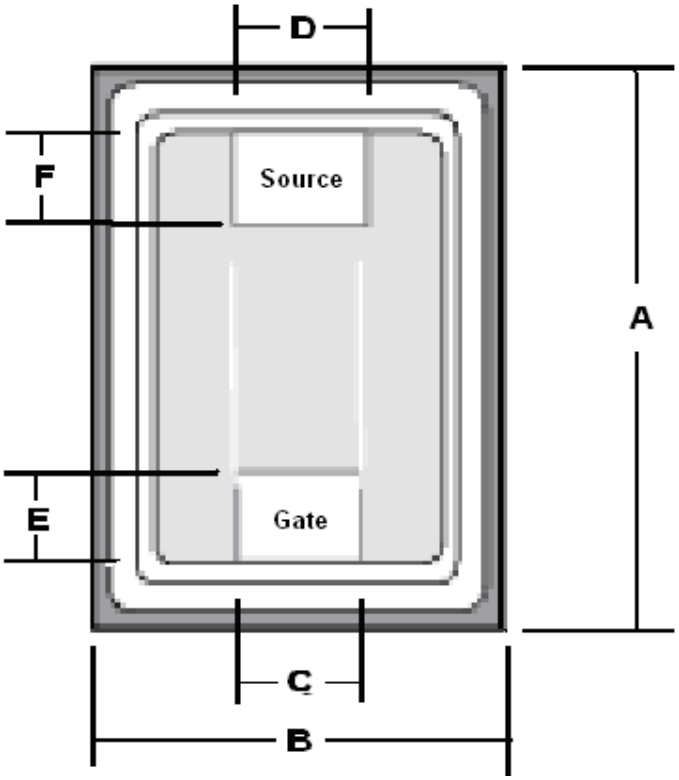


Inches	mm
.005	0.13
.018	0.46
.019	0.48
.025	0.64
.026	0.66
.064	1.63
.087	2.21
.0187	0.475

NOTES:
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Unless otherwise specified, tolerance is ± .005 inch (0.13 mm).
4. The physical characteristics of the die thickness are .0187 inch (0.475 mm). The back metal is chrome, nickel, silver (Cr, Ni, Ag). The top metal is aluminum and the back contact is the drain.
5. Dimensioning and tolerancing in accordance with ASME Y14.5.

FIGURE 2. JANHCA and JANKCA (A version) die dimensions.

2N7334



Ltr	Dimensions – 2N7334			
	Inches		Millimeters	
	Min	Max	Min	Max
A	.082	.089	2.08	2.26
B	.062	.066	1.58	1.68
C	.019	.021	0.48	0.53
D	.022	.024	0.56	0.61
E	.012	.014	0.30	0.36
F	.013	.015	0.33	0.38

NOTES:
1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Unless otherwise specified, tolerance is ±.005 inch (0.13 mm).
4. The physical characteristics of the die are: The back metals are chromium, nickel, and silver and the back contact is the drain. The top metal is aluminum.
5. Die thickness is .015 inch (0.38 mm) ±.001 inch (0.025 mm).

* FIGURE 3. JANHCB and JANKCB (B-version) die dimensions for 2N7334

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 figure 1 (MO-036AB) and figure 2 and 3 (die) herein.

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

3.5 Marking. Marking shall be in accordance with MIL-PRF-19500.

3.6 Electrostatic discharge protection. The devices covered by this specification require electrostatic protection.

3.6.1 Handling. MOS devices must be handled with certain precautions to avoid damage due to the accumulation of electrostatic charge. The following handling practices shall be followed:

a. Devices shall be handled on benches with conductive handling devices.

b. Ground test equipment, tools, and personnel handling devices.

c. Do not handle devices by the leads.

d. Store devices in conductive foam or carriers.

e. Avoid use of plastic, rubber, or silk in MOS areas.

f. Maintain relative humidity above 50 percent if practical.

g. Care shall be exercised, during test and troubleshooting, to apply not more than maximum rated voltage to any lead.

h. Gate must be terminated to source, $R \leq 100$ kΩ, whenever bias voltage is to be applied drain to source.

3.7 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in 1.3, 1.4, and table I herein.

3.8 Electrical test requirements. The electrical test requirements shall be the subgroups specified in 4.4.2 and 4.4.3 herein.

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).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500.

4.2.1 JANHC and JANKC devices. Qualification for JANHC and JANKC devices shall be as specified in MIL-PRF-19500.

* 4.2.2 Group E qualification. Group E inspection shall be performed for qualification or re-qualification only. In case qualification was awarded to a prior revision of the specification sheet that did not request the performance of table 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.

4.3 Screening (JANS, JANTX and JANTXV 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) (1) (2)	Measurement	
	JANS level	JANTX and JANTXV levels
(3)	Gate stress test (see 4.3.2).	Gate stress test (see 4.3.2).
(3) (4)	Method 3470 of MIL-STD-750, (see 4.3.3) optional.	Method 3470 of MIL-STD-750, (see 4.3.3) optional.
(3) 3c	Method 3161 of MIL-STD-750, (see 4.3.4).	Method 3161 of MIL-STD-750, (see 4.3.4).
9	I_{GSSF1}, I_{GSSR1}, I_{DSS1}, subgroup 2 of table I herein.	Subgroup 2 of table I herein.
10	Method 1042 of MIL-STD-750, test condition B.	Method 1042 of MIL-STD-750, test condition B.
11	I_{GSSF1}, I_{GSSR1}, I_{DSS1}, $r_{DS(on)1}$, $V_{GS(th)1}$ subgroup 2 of table I herein; ΔI_{GSSF1} = ± 20 nA dc or ± 100 percent of initial value, whichever is greater. ΔI_{GSSR1} = ± 20 nA dc or ± 100 percent of initial value, whichever is greater. ΔI_{DSS1} = ± 25 μA dc or ± 100 percent of initial value, whichever Is greater.	I_{GSSF1}, I_{GSSR1}, I_{DSS1}, $r_{DS(on)1}$, $V_{GS(th)1}$ subgroup 2 of table I herein.
12	Method 1042 of MIL-STD-750, test condition A, t = 240 hours, or accelerated test, T_A = +175°C, t = 48 hours.	Method 1042 of MIL-STD-750, test condition A.
13	Subgroups 2 and 3 of table I herein; ΔI_{GSSF1} = ±20 nA dc or ±100 percent of initial value, whichever is greater. ΔI_{GSSR1} = ±20 nA dc or ±100 percent of initial value, whichever is greater. ΔI_{DSS1} = ±25 μA dc or ±100 percent of initial value, whichever is greater. $\Delta r_{DS(on)1}$ = ±20 percent of initial value. $\Delta V_{GS(th)1}$ = ±20 percent of initial value.	Subgroup 2 of table I herein; ΔI_{GSSF1} = ±20 nA dc or ±100 percent of initial value, whichever is greater. ΔI_{GSSR1} = ±20 nA dc or ±100 percent of initial value, whichever is greater. ΔI_{DSS1} = ±25 μA dc or ±100 percent of initial value, whichever is greater. $\Delta r_{DS(on)1}$ = ±20 percent of initial value. $\Delta V_{GS(th)1}$ = ±20 percent of initial value.

(1) At the end of the test program, I_{GSSF1}, I_{GSSR1} and I_{DSS1} are measured.
(2) An out-of-family program to characterize I_{GSSF1}, I_{GSSR1}, I_{DSS1} and $V_{GS(th)1}$ shall be invoked.
(3) Shall be performed anytime before screen 9.
(4) This test method in no way implies a repetitive avalanche energy rating. This test need not be performed in group A when performed as a screen.

* 4.3.1 Screening (JANHC and JANKC). Screening of shall be in accordance with appendix G of MIL-PRF-19500. Burn-in duration for the JANKC level follows JANS requirements; the JANHC follows JANTX requirements.

4.3.2 Gate stress test. Apply V_{GS} = +30 V minimum for t = 250 µs minimum.

4.3.3 Single pulse avalanche energy E_{AS}.

a. Peak current (I_{AS}).....I_{D1}.

b. Peak gate voltage (V_{GS}).....10 V.

c. Gate to source resistor (R_{GS}).....$25 \leq R_{GS} \leq 200\Omega$.

d. Initial case temperature .....+25°C +10°C, -5°C.

e. Inductance ..... $\frac{2E_{AS}}{(I_{D1})^2} \quad \frac{(V_{BR} - V_{DD})}{V_{BR}} \quad mh \text{ min}imum$

f. Number of pulses to be applied.....1 pulse minimum.

g. Supply voltage (V_{DD}).....25 V min.

* 4.3.4 Thermal impedance. The thermal impedance measurements shall be performed in accordance with method 3161 of MIL-STD-750 using the guidelines in that method for determining I_M, I_H, t_H, t_{SW}, (and V_H where appropriate). Measurement delay time (t_{MD}) = 70 µs max. (See figure 5 herein.) See table II, group E, subgroup 4 herein.

* 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 appendix E, table E-V of 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 appendix E, table E-VIA (JANS) and table E-VIB (JAN, JANTX, and JANTXV) of MIL-PRF-19500. Electrical measurements (end-points) shall be in accordance with table I, subgroup 2 herein.

* 4.4.2.1 Group B inspection, appendix E, table E-VIA (JANS) of MIL-PRF-19500.

Subgroup	Method	Conditions
B3	1051	Condition G.
B5	1042	Condition A, V_{DS} = 80 percent of rated, T_A = +175°C, t = 120 hours.
B5	1042	Condition B, V_{GS} = 80 percent of rated, gate stress T_A = +175°C, t = 24 hours.

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

Subgroup	Method	Conditions
B2	1051	Condition G.
B3	1042	Condition A, V_{DS} = 80 percent of rated, T_A = +150°C, t = 160 hours.
B3	1042	Condition B, V_{GS} = 80 percent of rated, T_A = +150°C, t = 24 hours.
B5 and B6		Not applicable.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in appendix E, table E-VII of MIL-PRF-19500. Electrical measurements (end-points) shall be in accordance with table I, subgroup 2 herein.

* 4.4.3.1 Group C inspection, appendix E, table E-VII of MIL-PRF-19500.

	Subgroup	Method	Conditions
	C2	2036	Test condition E: The sampling plan applies to the number of leads tested. A minimum of three devices shall be tested.
*	C5	3161	See 4.3.4.
	C6	1042	Condition A, V_{DS} = 80 percent of rated, T_A = +150°C, t = 340 hours. Electrical measurements in accordance with table I, subgroup 2 herein.
	C6	1042	Condition B, V_{DS} = 80 percent of rated, T_A = +150°C, t = 24 hours.

4.4.4 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 II herein. Electrical measurements (end-points) shall be in accordance with table I, subgroup 2 herein.

4.5 Methods of inspection. Methods of inspection shall be as 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.

* TABLE I. Group A inspection.

	Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
		Method	Conditions		Min	Max	
	Subgroup 1						
	Visual and mechanical inspection	2071					
	Subgroup 2						
*	Thermal impedance 2/	3161	See 4.3.4	$Z_{\theta JC}$			
	Breakdown voltage, drain to source	3407	V_{GS} = 0 V dc, I_D = 1 mA dc, condition C	$V_{(BR)DSS}$	100		V dc
	Gate to source voltage (threshold)	3403	$V_{DS} \geq V_{GS}$, I_D = 0.25 mA dc	$V_{GS(th)1}$	2.0	4.0	V dc
	Gate current	3411	V_{GS} = +20 V dc, bias condition C, V_{DS} = 0	I_{GSSF1}		+100	nA dc
	Gate current	3411	V_{GS} = -20 V dc, bias condition C, V_{DS} = 0	I_{GSSR1}		-100	nA dc
	Drain current	3413	V_{GS} = 0 V dc, V_{DS} = 80 percent of rated V_{DS}, bias condition C	I_{DSS1}		25	µA dc
	Static drain to source on-state resistance	3421	V_{GS} = 10 V dc, pulsed (see 4.5.1), condition A, I_D = rated I_{D2} (see 1.3)	$r_{DS(on)1}$		0.70	Ω
			I_D = I_{D1}, (see 1.3)	$r_{DS(on)2}$		0.80	Ω
	Forward voltage (source drain diode)	4011	Pulsed (see 4.5.1), V_{GS} = 0 V, I_D = I_{D1}	V_{SD}		1.5	V
	Subgroup 3						
	High temperature operation:		T_C = T_J = +125°C				
	Gate current	3411	Bias condition C, V_{GS} = +20 V dc and -20 V dc, V_{DS} = 0 V dc	I_{GSS2}		±200	nA dc
	Drain current	3413	Bias condition C, V_{GS} = 0 V dc, V_{DS} = 80 percent of rated V_{DS}	I_{DSS2}		0.25	mA dc

See footnotes at end table.

* TABLE I. Group A inspection - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
Subgroup 3 - Continued						
Static drain to source on-state resistance	3421	V_{GS} = 10 V dc, pulsed (see 4.5.1), I_D = rated I_{D2}	$r_{DS(on)3}$		1.4	Ω
Gate to source voltage (threshold)	3403	$V_{DS} \geq V_{GS}$, I_D = 0.25 mA dc	$V_{GS(th)2}$	1.0		V dc
Low temperature operation:		$T_C = T_J$ = -55°C				
Gate to source voltage (threshold)	3403	$V_{DS} \geq V_{GS}$, I_D = 0.25 mA dc	$V_{GS(th)3}$		5.0	V dc
Subgroup 4						
Switching time test	3472	I_D = rated I_{D1}, V_{GS} = 10 V dc, R_g = 7.5Ω, V_{DD} = 0.5 $V_{BR(DSS)}$				
Turn-on delay time			$t_{d(on)}$		20	ns
Rise time			t_r		25	ns
Turn-off delay time			$t_{d(off)}$		40	ns
Fall time			t_f		40	ns
Subgroup 5						
Single pulse avalanche energy	3470	See 4.3.3	E_{AS}			
Electrical measurements		Table I, subgroup 2 herein.				
Safe operating area test	3474	V_{DS} = 80 percent of rated $V_{BR(DSS)}$, t_p = 10 ms, I_D = .25 A, see figure 6				
Electrical measurements		Table I, subgroup 2 herein.				

See footnotes at end table.

* TABLE I. Group A inspection - Continued.

Inspection 1/	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
Subgroup 6						
Not applicable						
Subgroup 7						
Gate charge	3471	Condition B				
On-state gate charge			$Q_{g(on)}$		15	nC
Gate to source charge			Q_{gs}		7.5	nC
Gate to drain charge			Q_{gd}		7.5	nC
Reverse recovery time	3473	di/dt = 100 A/μs, $V_{DD} \leq 30$ V dc; $I_D = I_{D1}$	t_r		200	ns

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

* 2/ This test is required for the following end-point measurement only (not intended for screen 9 or 11): JANS, table E-VIA of MIL-PRF-19500, group B, subgroup 3; JAN, JANTX, and JANTXV, table E-VIB of MIL-PRF-19500, group B, subgroup 2; and table E-VII of MIL-PRF-19500, group C, subgroup 2, and table E-IX of MIL-PRF-19500, group E, subgroup 1.

* TABLE II. Group E inspection (all quality levels) for qualification or re-qualification only.

Inspection 1/	MIL-STD-750		Qualification and large lot quality conformance inspection 1/
	Method	Conditions	
Subgroup 1			45 devices c = 0
Temperature cycle	1051		
Hermetic seal	1071		
Fine leak Gross leak			
Electrical measurements		See table I, subgroup 2	
Subgroup 2 2/			45 devices c = 0
Steady-state reverse bias	1042	Condition A, 1,000 hours	
Electrical measurements		See table I, subgroup 2	
Steady-state gate bias	1042	Condition B, 1,000 hours	
Electrical measurements		See table I, subgroup 2	
Subgroup 4			sample size N/A
Thermal impedance curves		See MIL-PRF-19500	
Subgroup 5			
Not applicable			
Subgroup 10			
Commutating diode for safe operating area test procedure for measuring dv/dt during reverse recovery of power MOSFET transistors or insulated gate bipolar transistors	3476	Test conditions shall be derived by the manufacturer	22 devices c = 0

1/ JANHC and JANKC devices are qualified in accordance with appendix G of MIL-PRF-19500.
2/ A separate sample for each test may be pulled.

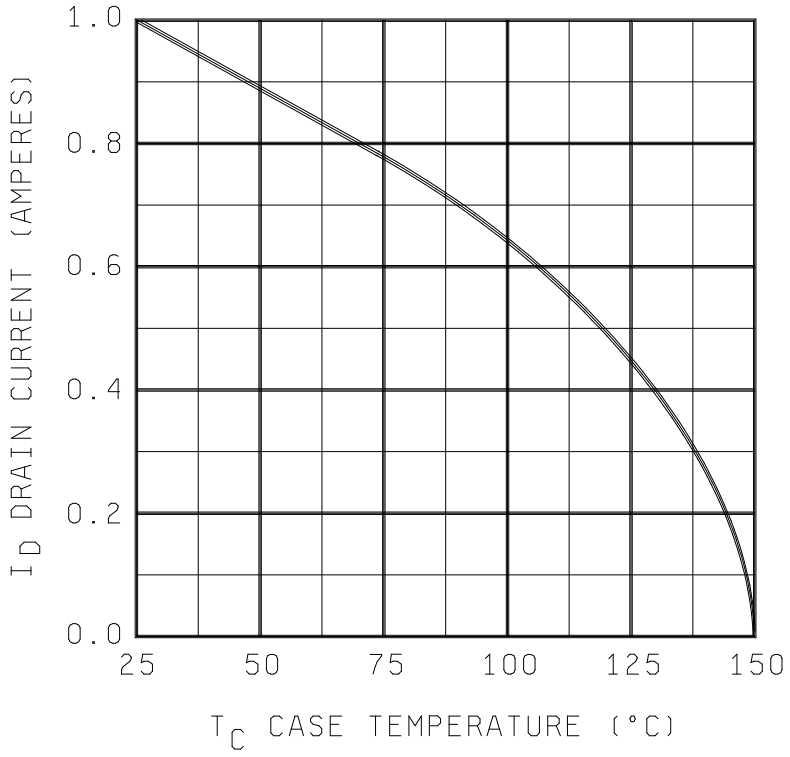


FIGURE 4. Maximum drain current vs case temperature.

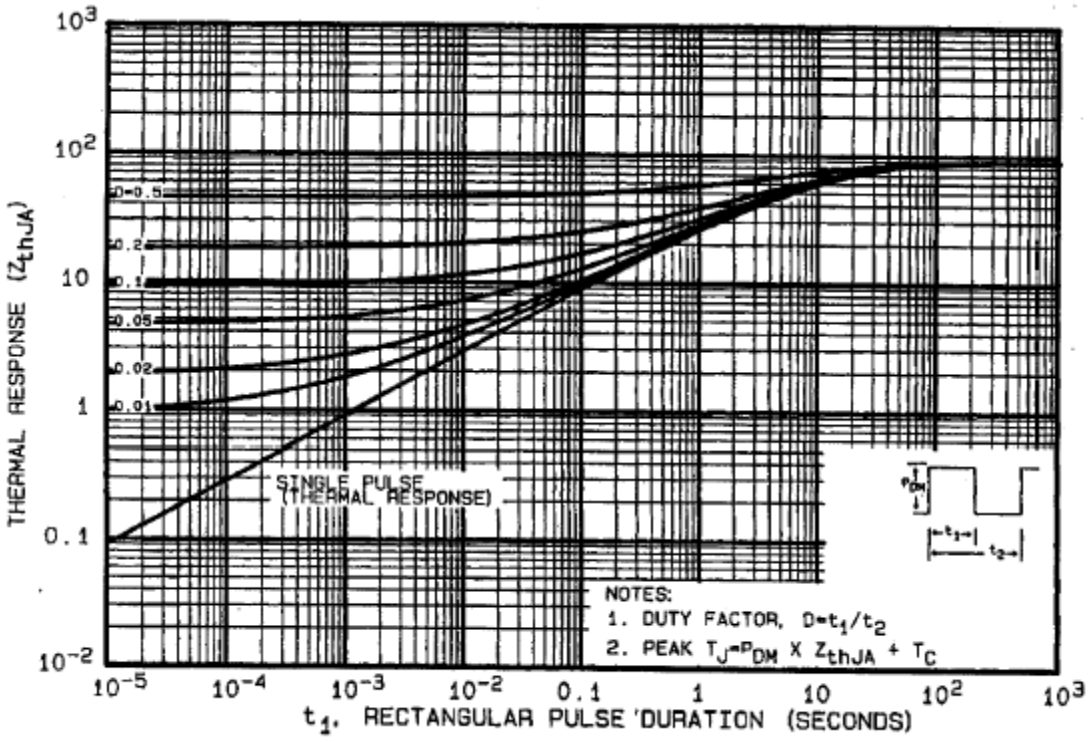


FIGURE 5. Thermal response curves.

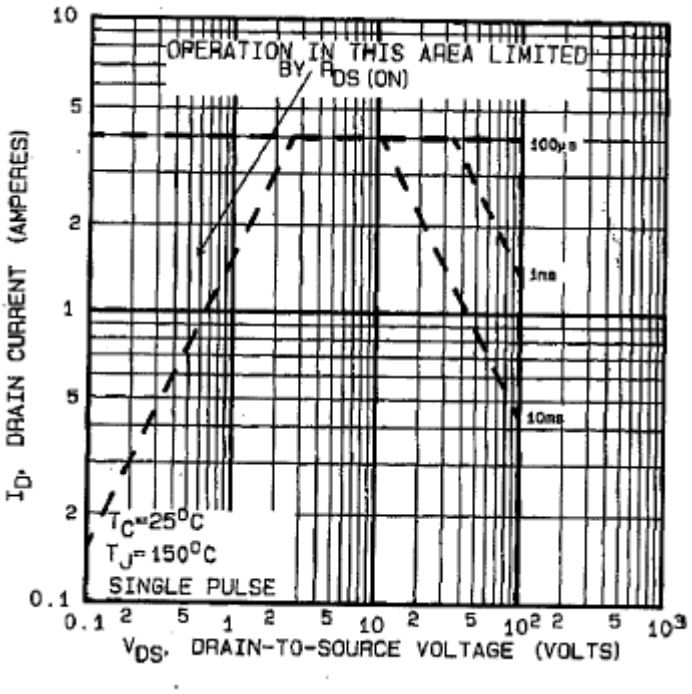


FIGURE 6. Safe operating area.

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. Product assurance level and type designator.

* e. For die acquisition, the JANHC or JANKC letter version shall be specified (see figures 2 and 3).

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

* 6.4 Suppliers of JANHC and JANKC. The qualified JANHC and JANKC die suppliers with the applicable letter version (example JANHCA2N7334) will be identified on the QML.

JANC ordering information		
PIN	Manufacturers	
	59993	43611
2N7334	JANHCA2N7334 JANKCA2N7334	JANHCB2N7334 JANKCB2N7334

6.5 Substitution information. Devices covered by this specification are substitutable for the manufacturers' and users' PIN. This information in no way implies that manufacturers' part or identifying numbers are suitable as a substitute for the military PIN's.

Military PIN	Manufacturer's CAGE code	Manufacturer's and user's PIN
2N7334	59993	IRFG110

6.6 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 - 85
NASA - NA
DLA - CC

Review activities:
Army - MI, SM
Navy - MC
Air Force - 19, 99

Preparing activity:
DLA - CC

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* 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.daps.dla.mil/ .