

The documentation and process conversion measures necessary to comply with this document shall be completed by 21 September, 2001.

INCH POUND

MIL-PRF-19500/182F
21 June 2001
SUPERSEDING
MIL-PRF-19500/182E
29 July 1999

PERFORMANCE SPECIFICATION

SEMICONDUCTOR DEVICE, TRANSISTOR, NPN, SILICON, LOW-POWER
TYPES 2N720A, 2N720AUB, 2N1893, 2N1893S, JAN, JANTX, JANTXV,
JANH2C2N720A and JANKC2N720A

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 detail requirements for NPN silicon, low-power transistors. Three levels of product assurance are provided for each device type as specified in MIL-PRF-19500. Two levels of product assurance are provided for die.

1.2 Physical dimensions. See figure 1 (similar to TO-18), figure 2 (similar TO-5), figure 3 (UB package), and figure 4 (JANH2C, JANKC die layout).

1.3 Maximum ratings.

Type	P _{T1} (1)	P _{T2} (2)	V _{CBO}	V _{EBO}	V _{CEO}	I _C	V _{CER}	T _J and T _{STG}	R _{ja}
	T _C = +25°C	T _A = +25°C							
	<u>W</u>	<u>W</u>	<u>V dc</u>	<u>V dc</u>	<u>V dc</u>	<u>mA dc</u>	<u>V dc</u>	<u>°C</u>	<u>C/W</u>
2N720A	1.8	0.5	120	7	80	500	100	-65 to +200	325
2N720AUB	1.16	0.5	120	7	80	500	100	-65 to +200	325
2N1893	3.0	0.8	120	7	80	500	100	-65 to +200	175
2N1893S	3.0	0.8	120	7	80	500	100	-65 to +200	175

- (1) Derate linearly at 10.3 mW/°C for type 2N720A, 6.63 mW/°C for type 2N720AUB, and 17.2 mW/°C for type 2N1893 and 2N1893S for T_C > +25°C.
- (2) Derate linearly at 3.08 mW/°C for types 2N720A, 2N720AUB T_A > +37.5°C and 5.7 mW/°C for types 2N1893 and 2N1893S for T_A > +60°C.

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

1.4 Primary electrical characteristics.

Limits	h_{FE1} (1)	h_{FE2} (1)	h_{FE3} (1)	$ h_{fe} $	$V_{CE(SAT)}$
	$V_{ce} = 10 \text{ V dc}$ $I_C = 0.1 \text{ mA dc}$	$V_{ce} = 10 \text{ V dc}$ $I_C = 10 \text{ mA dc}$	$V_{ce} = 10 \text{ V dc}$ $I_C = 150 \text{ mA dc}$	$f = 20 \text{ MHz}$ $V_{ce} = 10 \text{ V dc}$ $I_C = 50 \text{ mA dc}$	$I_C = 50 \text{ mA dc}$ $I_B = 5.0 \text{ mA dc}$
Min Max	20	35	40 120	3.0 10	V_{dc} 1.2

(1) Pulsed (see 4.5.1).

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 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 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.

STANDARD

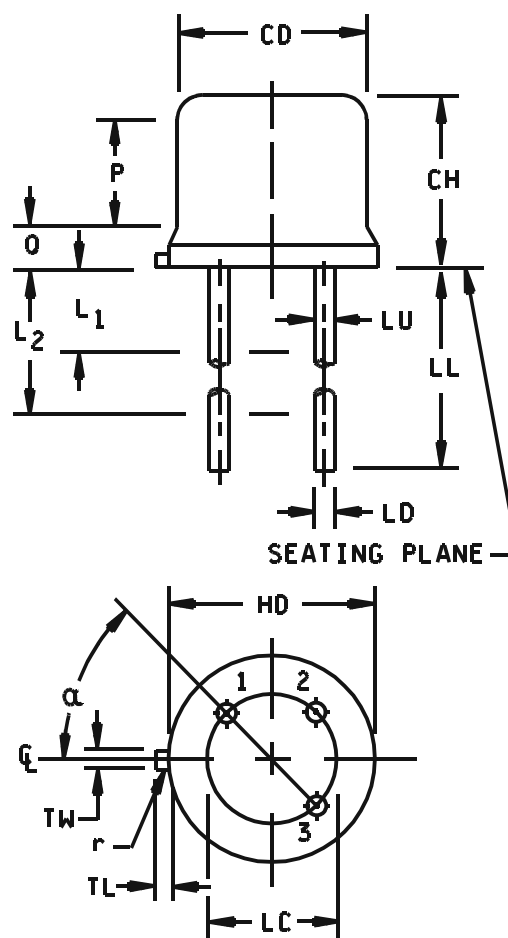
DEPARTMENT OF DEFENSE

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

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Document Automation Production Services (DAPS), Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

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.

Symbol	Inches		Millimeters		Notes
	Min	Max	Min	Max	
CD	.178	.195	4.52	4.95	
CH	1.70	2.10	4.31	5.33	
HD	.209	.230	5.31	5.84	
LC	.100 TP		2.54 TP		4
LD	.016	.021	0.41	0.53	5, 6
LL	.500	.750	12.70	19.05	5, 6
LU	.016	.019	0.41	0.48	5, 6
L1		.050		1.27	5, 6
L2	.250		6.35		5, 6
TL	.028	.048	0.71	1.22	2, 3
TW	.036	.046	.91	1.17	2
r		.010		.025	8
α	45° TP		45° TP		4

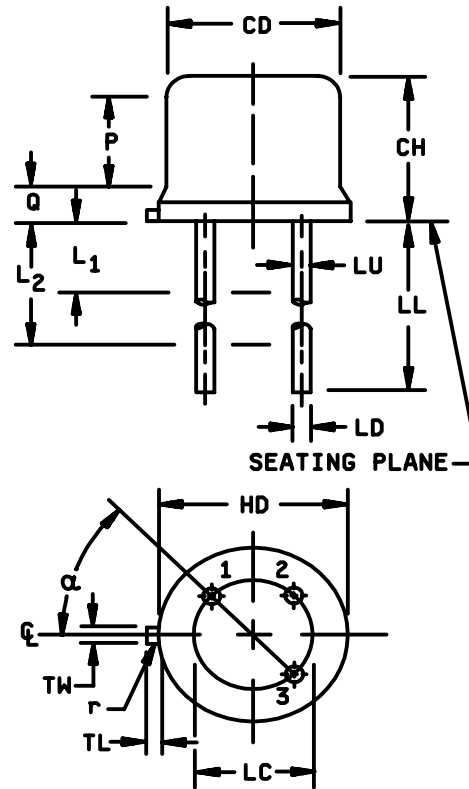


NOTES:

1. Dimensions are in inches. Metric equivalents are given for general information only.
2. Beyond r (radius) maximum, TW shall be held for a minimum length of .011 (0.28 mm).
3. Dimension TL measured from maximum HD.
4. Leads at gauge plane .054 +.001 -.001 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 or by the gauge and gauging procedure shown in MIL-HDBK-6100.
5. Dimension LU applies between L₁ and L₂. Dimension LD applies between L₂ and LL minimum. Diameter is uncontrolled in L₁ and beyond LL minimum.
6. All 3 leads.
7. The collector shall be electrically connected to the case.
8. Dimension r (radius) applies to both inside corners of tab.
9. In accordance with ANSI Y14.5M, diameters are equivalent to Φ x symbology.
10. Lead number 1 = emitter; lead number 2 = base; lead number 3 = collector.

FIGURE 1. Physical dimensions for device type 2N720A (TO-18).

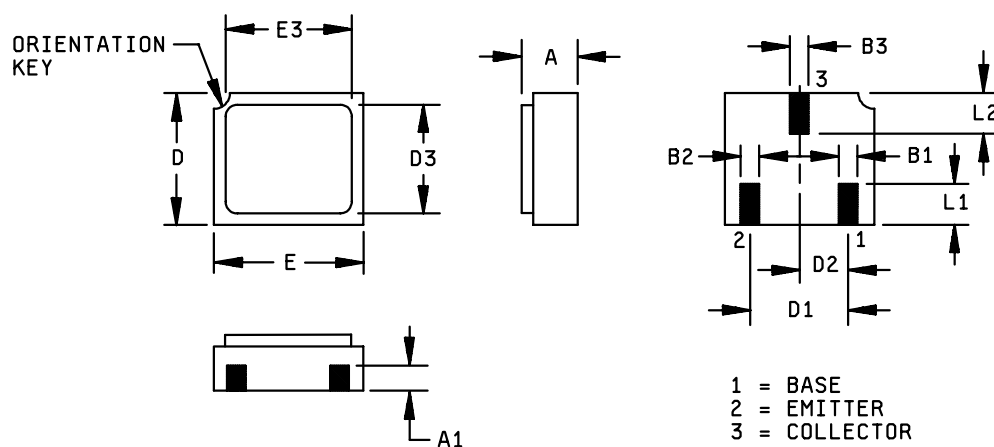
Symbol	Dimensions				Notes
	Inches		Millimeter		
	Min	Max	Min	Max	
CH	.240	.260	6.10	6.60	
LC	.200 TP		5.08 TP		6
LD	.016	.021	0.41	0.53	7, 8
LL	See notes				7, 8, 11, 12
LU	.016	.019	0.41	0.48	7, 8
L ₁		.050		1.27	7, 8
L ₂	.250		6.35		7, 8
HD	.355	.370	8.51	9.40	
CD	.305	.335	7.75	8.51	
h	.009	.041	0.23	1.04	
P	.100		2.54		5
Q		.050		1.27	4
r		.010		0.25	10
TL	.029	.045	0.74	1.14	3
TW	.028	.034	0.71	0.86	2
α	45° TP		45° TP		6



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Beyond r (radius) maximum, TW shall be held for a minimum length of .011 inch (0.28 mm).
4. TL measured from maximum HD.
5. Body contour optional within zone defined by HD, CD, and Q.
6. Leads at gauge plane .054 +.001, -.000 inch (1.37 +0.03, -0.000 mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at a maximum material condition (MMC) relative to the tab at MMC. The device may be measured by direct methods or by the gauge and gauging procedure described on gauge drawing on figure 2.
7. Dimension LU applies between L₁ and L₂. Dimension LD applies between L₂ and LL minimum. Diameter is uncontrolled in L₁ and beyond LL minimum.
8. All three leads.
9. The collector shall be internally connected to the case.
10. Dimension r (radius) applies to both inside corners of tab.
11. For transistor types 2N1893, dimension LL shall be 1.500 inch (38.1 mm) minimum.
12. For transistor types 2N1893S, dimension LL is .5 inches (12.7 mm) minimum, and .75 inches (19.00 mm) maximum.
13. In accordance with ANSI Y14.5M, diameters are equivalent to ϕ x symbology.
14. Lead number 1 = emitter; lead number 2 = base; lead number 3 = collector.

FIGURE 2. Physical dimensions for device types 2N1893, 2N1893S (TO -5).

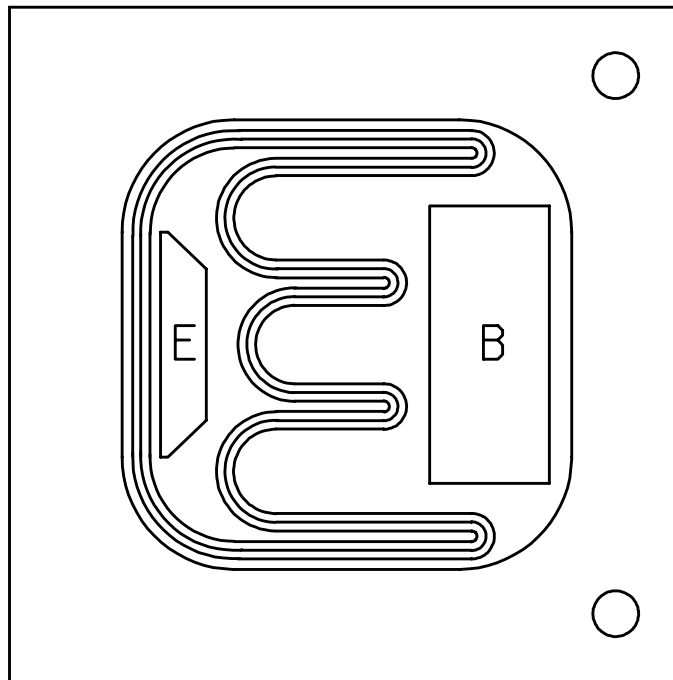


Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.046	0.056	0.97	1.42
A1	0.017	0.035	0.43	0.89
B1	0.016	0.024	0.41	0.61
B2	0.016	0.024	0.41	0.61
B3	0.016	0.024	0.41	0.61
D	0.085	0.108	2.41	2.74
D1	0.071	0.079	1.81	2.01
D2	0.035	0.039	0.89	0.99
D3	0.085	0.108	2.41	2.74
E	0.115	0.128	2.82	3.25
E3		0.128		3.25
L1	0.022	0.038	0.56	0.96
L2	0.022	0.038	0.56	0.96

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 3. Physical dimensions, surface mount (2N720AUB).



Die size:	.030 x .030 inch (0.76 mm x 0.76 mm).
Die thickness:	.008 ± .0016 inch (0.20 mm ±0.041 mm).
Base pad	.004 x .010 inch (0.01 mm x 0.254 mm).
Emitter pad:	.0023 x .007 inch (0.058 mm x 0.18 mm).
Back metal:	Gold, 6.5 kÅ ±1.95 kÅ.
Top metal:	Aluminum, 12 kÅ. Minimum; 14.5 kÅ. nominal.
Back side:	Collector.
Glassivation:	SiO ₂ , 7.5 kÅ ±1.5 kÅ.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 4. JANHCA2N720A and JANKCA2N720A die dimensions.

3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-19500.

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. The abbreviations, symbols, and definitions used herein are defined 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, 2, 3, and 4 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.

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

3.7 Marking. Marking shall be in accordance with MIL-PRF-19500. At the option of the manufacturer, marking may be omitted from the body, but shall be retained on the initial container.

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. VERIFICATIONS

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 and as specified herein.

4.3 Screening (JANTX and JANTXV levels). 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
(1)	Thermal impedance (see 4.3.2)
9	Not applicable
11	I_{CBO2} , h_{FE3}
12	See 4.3.1
13	ΔI_{CBO2} = 100 percent of initial value or 5 nA dc, whichever is greater; Δh_{FE3} = 15 percent of initial value, subgroup 2 of TABLE I herein.

- (1) Thermal impedance shall be performed any time after sealing provided temperature cycling is performed in accordance with MIL-PRF-19500, screen 3 prior to this thermal test.

4.3.1 Power burn-in conditions. Power burn-in conditions are as follows: T_A = room ambient as defined in the general requirements of MIL-STD-750 (see 4.5). V_{CB} = 10 - 30 V dc, power shall be applied to achieve T_J = 135°C minimum and minimum power dissipation of P_D = 75 percent of maximum rated P_T as defined in 1.3. NOTE: No heat sink or forced air cooling of the devices shall be permitted.

4.3.2 Thermal impedance $Z_{\theta JX}$ measurements (for qualification only). The $Z_{\theta JX}$ measurements shall be performed in accordance with method 3131 of MIL-STD-750.

- a. I_H forward heating current: 200 mA.
- b. t_H heating time: 30 ms.
- c. I_M measuring current: 5 mA.
- d. t_{MD} measurement delay time: 60 μ s maximum.
- e. V_{CE} collector - emitter voltage 10 V dc.

The maximum limit for $Z_{\theta JX}$ = 50°C/W.

4.4 Conformance inspection. Conformance inspection shall be in accordance with MIL-PRF-19500 and as specified herein.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with MIL-PRF-19500 and table I herein.

4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the test and conditions specified for subgroup testing in table IVb (JANTX and JANTXV) of MIL-PRF-19500. Electrical measurements (end-points) shall be in accordance with table I, group A, subgroup 2 herein.

Step	Method	Condition
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1	1039	Steady-state life: Test condition B, 340 hours, $V_{CB} = 10 - 30$ V dc to achieve $T_J = +150^\circ\text{C}$ minimum using minimum 75 percent of the maximum rated power P_{T2} in accordance with 1.3. $n = 45$ devices, $c = 0$.
2	1039	The steady-state life test of step 1 shall be extended to 1,000 hours for each die design. Samples shall be selected from a wafer lot every twelve months of wafer production, however, group B, step 2 shall not be required more than once for any single wafer lot. $n = 45$, $c = 0$.
3	1032	High-temperature life (non-operating), $T_A = +200^\circ\text{C}$. $n = 22$, $c = 0$.

4.4.2.1 Group B sample selection. Samples selected from group B inspection shall meet all of the following requirements:

- For JAN, JANTX, and JANTXV samples shall be selected randomly from a minimum of three wafers (or from each wafer in the lot) from each wafer lot.
- Must be chosen from an inspection lot that has been submitted to and passed group A, subgroup 2, conformance inspection. When the final lead finish is solder or any plating prone to oxidation at high temperature, the samples for life test (group B for JAN, JANTX, and JANTXV) may be pulled prior to the application of final lead finish.

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the tests and conditions specified for subgroup testing in table VI of MIL-PRF-19500, and 4.4.3.1 (JAN, JANTX, JANTXV) herein for group C testing. Electrical measurements (end-points) shall be in accordance with group A, subgroup 2 herein.

Subgroup	Method	Condition
C2	2036	Test condition E (not applicable to the 2N720AUB).
C6	1026	Not applicable

4.4.3.1 Group C sample selection. Samples selected from group C inspection shall be chosen at random from any lot containing the intended package type and lead finish procured to the same specification which is submitted to and passes group A tests for conformance inspection. When the final lead finish is solder or any plating prone to oxidation at high temperature, the samples for C6 life test may be pulled prior to the application of final lead finish. Testing of a group using a single device type enclosed in the intended package type shall be considered as complying with the requirements for that subgroup.

1/ Separate samples may be used for each step. In the event of a group B failure, manufacturer may pull a new sample at double size from either the failed assembly lot or from another assembly lot from the same wafer lot. If the new "assembly lot" option is exercised, the failed assembly lot shall be scrapped.

4.5 Method of inspection. Methods of inspection shall be as specified in appropriate tables and 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 Thermal resistance (qualification only). Thermal resistance measurements shall be conducted in accordance with method 3131 of MIL-STD-750. The following details shall apply:

- a. Collector current magnitude during power applications shall be 28 mA dc (2N720A), and 50 mA dc (2N1893 and 2N1893S) minimum.
- b. Collector to emitter voltage magnitude ≥ 10 V dc.
- c. Reference temperature measuring point shall be the case.
- d. Reference point temperature shall be $25^{\circ}\text{C} \leq T_R \leq 75^{\circ}\text{C}$ and recorded before the test is started.
- e. Mounting arrangement shall be with heat sink to case.
- f. Maximum limit shall be $R_{\theta JC} = (2N720A) 97^{\circ}\text{C/W}$, $(2N720AUB) 150^{\circ}\text{C/W}$ and $(2N1893 \text{ and } 2N1893S) 58^{\circ}\text{C/W}$.

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>						
Collector-to-base cutoff current	3036	Bias condition D, $V_{CB} = 120$ V dc pulsed (see 4.5.1)	I_{CBO1}		100	μ A dc
Emitter to base cutoff current	3061	Bias condition D; $V_{EB} = 7$ V dc pulsed (see 4.5.1)	I_{EBO1}		100	μ A dc
Breakdown voltage, collector-emitter	3011	Bias condition D; $I_C = 30$ mA dc; pulsed (see 4.5.1)	$V_{(BR)CEO}$	80		V dc
Breakdown voltage collector-emitter	3011	Bias condition D, $I_C = 10$ mA dc, pulsed (see 4.5.1), $R_{BE} = 10 \Omega$	$V_{(BR)CER}$	100		V dc
Collector to base cutoff current	3036	Bias condition D, $V_{CB} = 90$ V dc	I_{CBO2}		10	nA dc
Emitter-base cutoff current	3061	Bias condition D, $V_{EB} = 5$ V dc	I_{EBO2}		10	nA dc
Collector-emitter saturated voltage	3071	$I_C = 150$ mA dc, $I_B = 15$ mA dc, pulsed (see 4.5.1)	$V_{CE(sat)1}$		5.0	V dc
Base-emitter saturated voltage	3066	Test condition A, $I_C = 150$ mA dc, $I_B = 15$ mA dc, pulsed (see 4.5.1)	$V_{BE(sat)1}$		1.3	V dc
Forward-current transfer ratio	3076	$V_{CE} = 10$ V dc, $I_C = 0.1$ mA dc, pulsed (see 4.5.1)	h_{FE1}	20		
Forward-current transfer ratio	3076	$V_{CE} = 10$ V dc, $I_C = 10$ mA dc, pulsed (see 4.5.1)	h_{FE2}	35		
Forward-current transfer ratio	3076	$V_{CE} = 10$ V dc, $I_C = 150$ mA dc, pulsed (see 4.5.1)	h_{FE3}	40	120	

See footnotes at end of table.

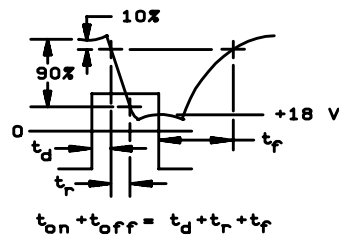
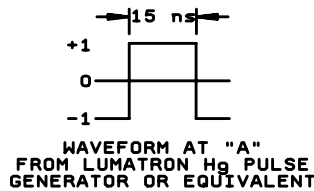
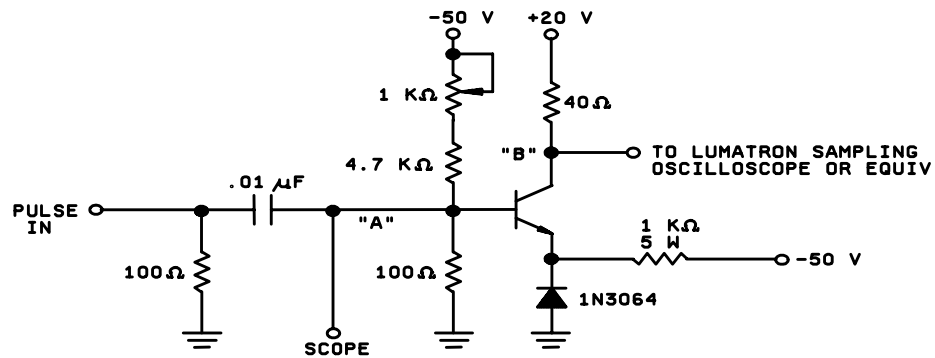
TABLE I. Group A inspection - Continued.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 3</u>						
High temperature operation:		$T_A = +150^\circ\text{C}$				
Collector to base cutoff current	3036	Bias condition D, $V_{CB} = 90\text{ V dc}$	I_{CBO3}		15	$\mu\text{A dc}$
Low temperature operation		$T_A = -55^\circ\text{C}$				
Forward-current transfer ratio	3076	$V_{CE} = 10\text{ V dc}$, $I_C = 10\text{ mA dc}$, pulsed (see 4.5.1)	h_{FE4}	20		
<u>Subgroup 4</u>						
Small signal short circuit forward current transfer ratio	3206	$V_{CE} = 5\text{ V dc}$, $f = 1\text{ kHz}$, $I_C = 1\text{ mA dc}$:	h_{fe}	35	100	
		$V_{CE} = 10\text{ V dc}$, $f = 1\text{ kHz}$, $I_C = 5\text{ mA dc}$	h_{fe}	45	150	
Magnitude of common emitter small-signal short-circuit forward-current transfer ratio	3306	$V_{CE} = 10\text{ V dc}$, $f = 20\text{ MHz}$, $I_C = 50\text{ mA dc}$	$ h_{fe} $	3	10	
Small signal short circuit input impedance	3201	$V_{CB} = 10\text{ V dc}$, $I_C = 5\text{ mA dc}$	h_{ie}	4	8	ohms
Small signal short circuit output admittance	3216	$V_{CB} = 10\text{ V dc}$, $I_C = 5\text{ mA dc}$	h_{oe}	0	0.5	$\mu\text{ ohms}$
Small signal open circuit reverse voltage transfer ratio	3211	$V_{CB} = 10\text{ V dc}$, $I_C = 5\text{ mA dc}$	h_{re}		1.5×10^{-4}	
Open circuit output capacitance	3236	$V_{CB} = 10\text{ V dc}$, $I_E = 0$, $100\text{ kHz} \leq f \leq 1\text{ MHz}$	C_{obo}	2	15	pF
Pulse response	3251	Test condition A, except test circuit and pulse requirements. See figure 5 herein.	$t_{on} + t_{off}$		30	ns
<u>Subgroups 5, 6, and 7</u>						
Not applicable						

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

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

Inspection	MIL-STD-750		Qualification
	Method	Conditions	
<u>Subgroup 1</u>			12 devices c = 0
Temperature cycling (air to air)	1051	Test condition C, 500 cycles	
Hermetic seal	1071		
Fine leak			
Gross leak			
Electrical measurements		See group A, subgroup 2 herein.	
<u>Subgroup 2</u>			
Intermittent life	1037	Intermittent operation life: $V_{CB} = 10$ V dc, 6,000 cycles.	45 devices c = 0
Electrical measurements		See group A, subgroup 2 herein.	
<u>Subgroups 3, 4, and 5</u>			
Not applicable			



NOTES:

1. The rise time (T_r) of the applied pulse shall be $2.0 \leq$ nanoseconds, duty cycle ≤ 2 percent, and the generator source impedance shall be 50 ohms.
2. Sampling oscilloscope: Z_{in} 100 K ohms, $C_{in} \leq 12$ pF, rise time ≤ 5 nsec.

FIGURE 5. Pulse response (turn-on plus turn-off) measurement circuit and waveforms.

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 personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. 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.)

6.1 Intended use. 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.
- c. Packaging requirements (see 5.1).
- d. Lead finish (see 3.4.1).
- e. Type designation and quality 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 Manufacturers' List (QML) 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 43216-5000.

6.4 Suppliers of JANHC and JANKC die. The qualified JANHC and JANKC suppliers with the applicable letter version (example JANHCA2N720A) will be identified on the QML.

Die ordering information				
PIN	Manufacturer			
	34156			
2N720A	JANHCA2N720A JANKCA2N720A			

6.5 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - CR
Navy - NW
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5961-2461)

Review activities:

Army - AR, MI, SM
Navy - AS, MC
Air Force - 19, 99

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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.
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3. The preparing activity must provide a reply within 30 days from receipt of the form.

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I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-PRF-19500/182E

2. DOCUMENT DATE
21 June 2001

3. DOCUMENT TITLE

SEMICONDUCTOR DEVICE, TRANSISTOR, NPN, SILICON, LOW-POWER TYPES 2N720A, 2N720AUB, 2N1893, 2N1893S, JAN, JANTX, JANTXV, JANHC2N720A and JANKC2N720A

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
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b. TELEPHONE

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