

The documentation and process conversion measures necessary to comply with this revision shall be completed by 28 March 2002.

INCH-POUND

MIL-PRF-19500/426D
 28 December 2001
 SUPERSEDING
 MIL-PRF-19500/426C
 2 November 2000

PERFORMANCE SPECIFICATION

SEMICONDUCTOR DEVICE, TRANSISTOR, PNP, SILICON, AMPLIFIER
 TYPE 2N4957 AND 2N4957UB
 JAN, JANTX, JANTXV, AND JANS

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 PNP silicon, VHF-UHF amplifier transistors. Four levels of product assurance are provided for each device type as specified in MIL-PRF-19500.

1.2 Physical dimensions. See figure 1 (T0-72) and figure 2 (surface mount).

1.3 Maximum ratings.

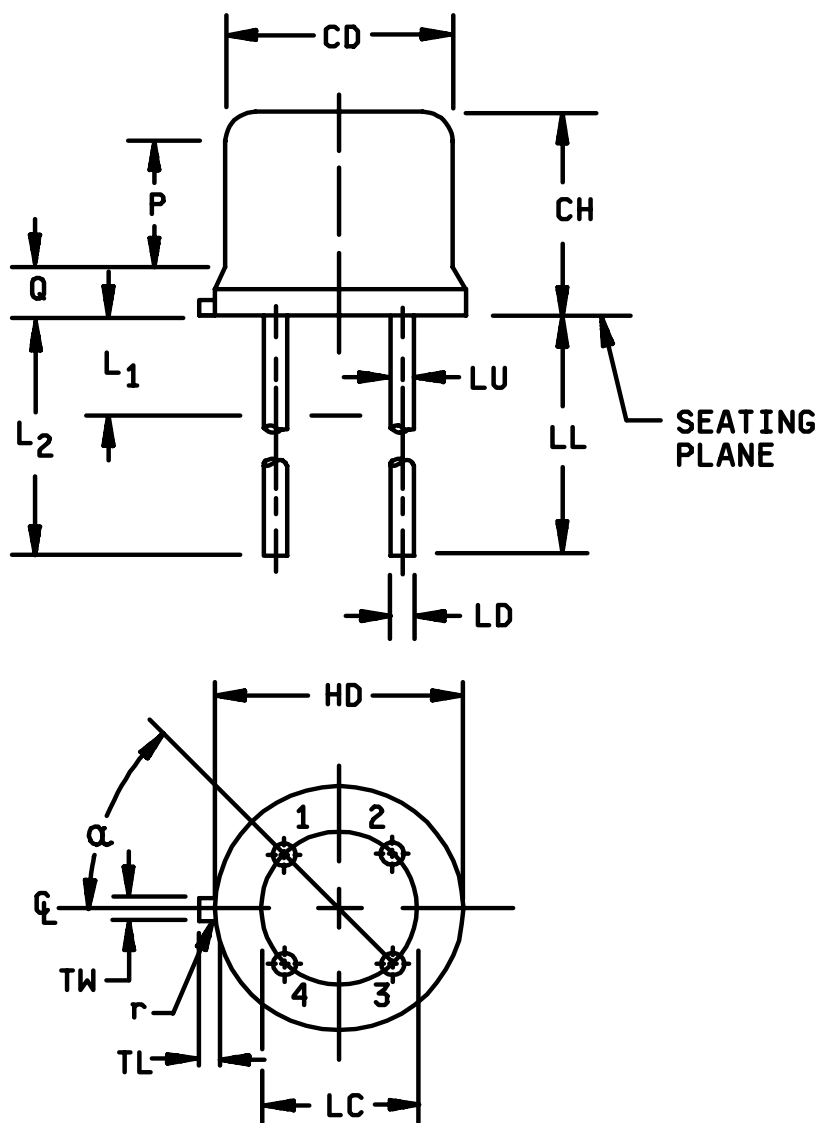
P_T (1) $T_A = +25^\circ\text{C}$	V_{CE0}	V_{CB0}	I_C	V_{EBO}	T_{STG} and T_J
<u>mW</u>	<u>V dc</u>	<u>V dc</u>	<u>mA dc</u>	<u>V dc</u>	<u>°C</u>
200	30	30	30	3.0	-65 to +200

(1) Derate at 1.14 mW/°C above $T_A > +25^\circ\text{C}$.

* 1.4 Primary electrical characteristics (common to all types).

Limits	h_{FE3}	$ h_{fe} $	$r_b'C_C$	$r_b'C_C$	C_{cb}	G_{pe}	NF
	$V_{CE} = 10$ V dc $I_C = 5.0$ mA dc	$I_E = 2.0$ mA dc $V_{CE} = 10$ V dc $f = 100$ MHz	$I_E = 2.0$ mA dc $f = 63.6$ MHz $V_{CB} = 10$ V dc (2N4957 only)	$I_E = 2.0$ mA dc $f = 63.6$ MHz $V_{CB} = 10$ V dc (2N4957UB only)	$V_{CB} = 10$ V dc $I_E = 0$ 100 kHz $\leq f \leq 1$ MHz	$I_C = 2.0$ mA dc $f = 450$ MHz $V_{CE} = 10$ V dc	$I_C = 2.0$ mA dc $V_{CE} = 10$ V dc $f = 450$ MHz
			<u>ps</u>	<u>ps</u>	<u>pF</u>	<u>dB</u>	<u>dB</u>
Min	30	12	1.0	1.0		17	
Max	165	36	8.0	16.0	0.8	25	3.5

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 East Broad Street, Columbus, OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.



* FIGURE 1. Physical dimensions of transistor type 2N4957.

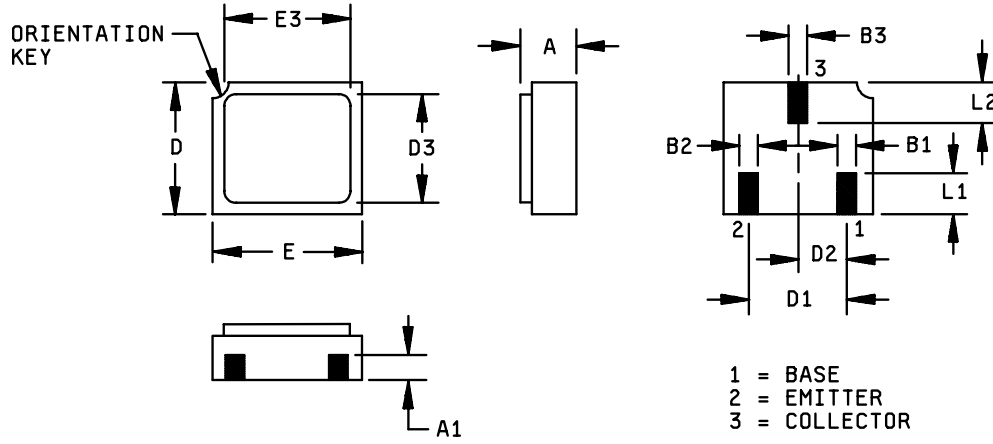
MIL-PRF-19500/426D

Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	0.178	0.195	4.52	4.95	5
CH	0.170	0.210	4.32	5.33	
HD	0.209	0.230	5.31	5.84	5
LC	.100 TP		2.54 TP		
LD	0.016	0.021	0.406	0.533	7,8
LL	0.500	0.750	12.70	19.05	7,8
LU	0.016	0.019	0.41	0.48	7,8
L1		0.050		1.27	8
L2	0.250		6.35		8
P	0.100		2.54		
Q		0.050		1.27	5
r		.007		0.18	
TL	0.028	0.048	0.71	1.22	
TW	0.036	0.046	0.91	1.17	
α	45° T. P.		45° T. P.		

NOTES:

1. Dimension are in inches.
2. Metric equivalents are given for general information only.
3. Beyond r (radius) maximum, TH shall be held for a minimum length of .011 (0.28 mm).
4. Dimension 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 -0.00 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.
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 four leads.
9. Dimension r (radius) applies to both inside corners of tab.
10. In accordance with ANSI Y14.5M, diameters are equivalent to ϕ x symbology.
11. Lead 1 = emitter, lead 2 = base, lead 3 = collector, lead 4 = case (electrically connected).

* FIGURE 1. Physical dimensions of transistor type 2N4957 Continued.



Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
A	.046	.056	0.97	1.42	
A1	.017	.035	0.43	0.89	
B1	.016	.024	0.41	0.61	
B2	.016	.024	0.41	0.61	
B3	.016	.024	0.41	0.61	
D	.085	.108	2.41	2.74	
D1	.071	.079	1.81	2.01	
D2	.035	.039	0.89	0.99	
D3	.085	.108	2.41	2.74	
E	.115	.128	2.82	3.25	
E3		.128		3.25	
L1	.022	.038	0.56	0.96	
L2	.022	.038	0.56	0.96	

NOTES:

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

FIGURE 2. Physical dimensions, surface mount (2N4957UB version).

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 and Production Services (DAPS), Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 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 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. 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 figure 1 (T0-72) and 2 (UB, surface mount).

3.4.1 Lead finish. Unless otherwise specified, lead finish shall be solderable in accordance with 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. Devices shall be marked in accordance with MIL-PRF-19500, except for the UB suffix package. Marking on the UB package shall consist of an abbreviated part number, the date code, and the manufacturer's symbol or logo. The prefixes JAN, JANTX, JANTXV, and JANS can be abbreviated as J, JX, JV, and JS respectively. The "2N" prefix and the "UB" suffix can also be omitted.

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

3.7 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table I, group A herein.

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).

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

* 4.3 Screening (JANTX, JANTXV and JANS 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	
	JANS level	JANTX and JANTXV levels
3c	Thermal impedance, method 3131 of MIL-STD-750	Thermal impedance, method 3131 of MIL-STD-750
7	Hermetic seal (optional)	(1)
9	I_{CBO1} , h_{FE3}	Not applicable
10	24 hours minimum	24 hours minimum
11	I_{CBO1} ; h_{FE3} ; ΔI_{CBO1} = 100 percent of initial value or 10 nA dc, whichever is greater. Δh_{FE3} = ± 20 percent	I_{CBO1} , h_{FE3}
12	See 4.3.1, 240 hours minimum	See 4.3.1, 80 hours minimum
13	Subgroups 2 and 3 of table I herein; ΔI_{CBO1} = 100 percent of initial value or 10 nA dc, whichever is greater; Δh_{FE3} = ± 20 percent	Subgroup 2 of table I herein; ΔI_{CBO1} = 100 percent of initial value or 10 nA dc, whichever is greater; Δh_{FE3} = ± 20 percent

(1) Hermetic seal test shall be performed in either screen 7 or screen 14.

4.3.1 Power burn-in. Power burn-in conditions are as follows: T_A = Room ambient as defined in the general requirements of 4.5 of MIL-STD-750, $V_{CB} = 10 - 20$ V dc. A power dissipation $P_D = 100$ percent of P_T maximum as defined in 1.3 shall be used.

4.4 Conformance inspection. Conformance inspection shall be in accordance with MIL-PRF-19500, and as specified herein. If alternate screening is being performed in accordance with appendix E, "Alternate procedure for screening of JANTX and JANTXV types", of MIL-PRF-19500, a sample of screened devices shall be submitted to and pass the requirements of group A1 and A2 inspection only (table VIb, group B, subgroup 1 is not required to be performed again if group B has already been satisfied in accordance with 4.4.2).

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 tests and conditions specified for subgroup testing in table VIa (JANS) of MIL-PRF-19500 and 4.4.2.1 herein. (See 4.4.2.2 for JAN, JANTX, and JANTXV group B testing.) Electrical measurements (end-points) and delta requirements shall be in accordance with table II herein as specified in the footnotes for table II.

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

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
B4	1037	$V_{CB} = 10$ V dc.
B5	1027	$V_{CB} = 10 - 20$ V dc minimum $P_D =$ maximum rated P_T (see 1.3), $T_J = +150^\circ\text{C}$ minimum, $t = 1000$ hours minimum.

4.4.2.2 Group B inspection, (JAN, JANTX, and JANTXV). Separate samples may be used for each step. For rules on resubmission for failed steps, see MIL-PRF-19500 rules on resubmission of failed subgroups.

<u>Step</u>	<u>Method</u>	<u>Condition</u>
1.	1039	Steady-state life: Test condition B, 340 hours, $V_{CB} = 10 - 20$ V dc. $n = 45$ devices, $c = 0$. Maximum rated power as defined in 1.3 shall be applied to the device to achieve a $T_J = 150^\circ\text{C}$ minimum.
2.	1039	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. Group B step 2 shall not be required more than once for any single wafer lot. $n = 45$ devices, $c = 0$
3.	1032	High-temperature life (non-operating), $T_A = +200^\circ\text{C}$ $n = 22$, $c = 0$

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

- a. 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. For JANS, samples shall be selected from each inspection lot. See MIL-PRF-19500.
- b. 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 (subgroups B4 and B5 for JANS, and group B for JAN, JANTX and JANTXV) may be pulled prior to the application of final lead finish.

4.4.3 Group C inspection, JANS. Group C inspection shall be conducted in accordance with the tests and conditions specified for subgroup testing in table VII of MIL-PRF-19500, and 4.4.3.1 herein (JANS). See 4.4.3.2 for JAN, JANTX, and JANTXV group C testing. Electrical measurements (end points) and delta requirements shall be in accordance with the steps of table II herein and as specified in the notes for table II.

4.4.3.1 Group C inspection, table VII (JANS) of MIL-PRF-19500.

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
C2	2036	Test condition E; not applicable for UB devices.
C6	1026	$V_{CB} = 10 - 20$ V dc; $P_T =$ maximum rated power as defined in 1.3. Adjust T_A to achieve $T_J = +150^\circ\text{C}$ minimum.

4.4.3.2 Group C inspection, JAN, JANTX, and JANTXV. Group C inspection (JAN, JANTX, and JANTXV), see table VII of MIL-PRF-19500.

<u>Subgroup</u>	<u>Method</u>	<u>Condition</u>
C2	2036	Condition E; not applicable to UB devices.
C6		Not applicable.

4.4.3.3 Group C sample selection. Samples for subgroups in group C shall be chosen at random from any inspection 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 subgroup using a single device type enclosed in the intended package type shall be considered as complying with the requirements for that subgroup.

* 4.4.4 Group E inspection. Group E inspection shall be performed in accordance with table III herein for qualification or re-qualification only. In case qualification was awarded to a prior revision of the specification sheet that did not request the performance of table III tests, the tests specified in table III herein must be performed to maintain qualification.

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.

4.5.2 Collector -base time constant. This parameter may be determined by applying an RF signal voltage of 1 volt (rms) across the collector-base terminals, and measuring the ac voltage drop (V_{eb}) with a high impedance rf voltmeter across the emitter-base terminals. With $f = 63.6$ MHz used for the 1 volt signal, the following computation applies: C_c (ps) = $2 \times V_{eb}$ (millivolts).

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TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limit		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1 2/</u>						
Visual and mechanical Inspection <u>3/</u>	2071	n = 45 devices, c = 0				
Solderability <u>3/ 4/</u>	2026	15 leads, c = 0				
Resistance to solvents <u>3/ 4/ 5/</u>	1022	15 devices, c = 0				
Temperature cycling <u>3/ 4/</u>	1051	Test condition C, 25 cycles. n = 22 devices, c = 0				
Hermetic seal <u>4/</u> Fine leak Gross leak	1071	n = 22 devices, c = 0				
Electrical measurements <u>4/</u>		Group A, subgroup 2				
Bond strength <u>3/ 4/</u>	2037	Precondition $T_A = +250^\circ\text{C}$ at t = 24 hrs or $T_A = +300^\circ\text{C}$ at t = 2 hrs. n = 11 wires, c = 0				
<u>Subgroup 2</u>						
Breakdown voltage, collector to emitter	3011	Bias condition D; $I_C = 1.0 \text{ mA dc}$, $I_B = 0$	$V_{(BR)CEO}$	30		V dc
Collector to base cutoff current	3036	Bias condition D; $V_{CB} = 30 \text{ Vdc}$	I_{CB02}		100	$\mu\text{A dc}$
Emitter to base cutoff current	3061	Bias condition D; $V_{EB} = 3 \text{ Vdc}$	I_{EB02}		100	$\mu\text{A dc}$
Collector to base cutoff current	3036	Bias condition D; $V_{CB} = 20 \text{ V dc}$, $I_E = 0$	I_{CB01}		100	nA dc
Forward-current transfer ratio*	3076	$V_{CE} = 10 \text{ V dc}$; $I_C = 0.5 \text{ mA dc}$;	h_{FE1}	15		
Forward-current transfer ratio*	3076	$V_{CE} = 10 \text{ V dc}$; $I_C = 2.0 \text{ mA dc}$;	h_{FE2}	20		
Forward-current transfer ratio*	3076	$V_{CE} = 10 \text{ V dc}$; $I_C = 5.0 \text{ mA dc}$;	h_{FE3}	30	165	

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>		$T_C = +150^\circ\text{C}$				
High temperature operation:						
Collector to base cutoff current	3036	Bias condition D; $V_{CE} = 20\text{ V dc}$, $I_E = 0$	I_{CB02}		100	$\mu\text{A dc}$
Low temperature operation:		$T_A = -55^\circ\text{C}$				
Forward-current transfer ratio	3076	$V_{CE} = 10\text{ V dc}$; $I_C = 5\text{ mA dc}$;	h_{FE4}	10		
<u>Subgroup 4</u>						
Magnitude of common-emitter small-signal short-circuit forward-current transfer ratio	3306	$V_{CE} = 10\text{ V dc}$; $I_E = 2.0\text{ mA dc}$; $f = 100\text{ MHz}$; case lead grounded	$ h_{fe} $	12	36	
Collector to base feedback capacitance	3236	$V_{CB} = 10\text{ V dc}$; $I_E = 0$; $100\text{ kHz} \leq f \leq 1\text{ MHz}$; case and emitter leads shall be guarded	C_{cb}		0.8	pF
Collector to base time constant (2N4957 only)	3236	$V_{CB} = 10\text{ V dc}$; $I_E = 2.0\text{ mA dc}$; $f = 63.6\text{ MHz}$; case and emitter leads shall be grounded (see 4.5.2 and figure 3)	$r_b'C_C$	1.0	8.0	ps
Collector to base time constant (2N4957UB only)	3236	$V_{CB} = 10\text{ V dc}$; $I_E = 2.0\text{ mA dc}$; $f = 63.6\text{ MHz}$; case and emitter leads shall be grounded (see 4.5.2 and figure 3)	$r_b'C_C$	1.0	16.0	ps
Noise figure	3246	$V_{CE} = 10\text{ V dc}$; $I_C = 2.0\text{ mA dc}$; $f = 450\text{ MHz}$; $R_L = 50\ \Omega$; case lead shall be grounded (see figure 4)	NF		3.5	dB
Common-emitter small signal power gain	3256	$V_{CE} = 10\text{ V dc}$; $I_C = 2.0\text{ mA dc}$; $f = 450\text{ MHz}$; case lead shall be grounded (see figure 4)	G_{PE}	17	25	dB
<u>Subgroups 5, 6, and 7</u>						
Not applicable						

1/ For sampling plan (unless otherwise specified), see MIL-PRF-19500.

2/ For resubmission of failed subgroup A1, double the sample size of the failed test or sequence of tests. A failure in group A, subgroup 1 shall not require retest of the entire subgroup. Only the failed test shall be rerun upon submission.

3/ Separate samples may be used.

4/ Not required for JANS devices.

5/ Not required for laser marked devices.

TABLE II. Groups B and C electrical end-point inspection measurements. 1/ 2/ 3/ 4/

Step	Inspection	MIL-STD-750		Symbol	Limits		Unit
		Method	Conditions		Min	Max	
1.	Collector to base cutoff current	3036	Bias condition D; $V_{CB} = 20 \text{ V dc}$, $I_E = 0$	I_{CB01}		100	nA dc
2.	Collector to base cutoff current	3036	Bias condition D; $V_{CB} = 20 \text{ V dc}$, $I_E = 0$	ΔI_{CB01}		± 100 percent of initial value or 10 nA dc, whichever is greater.	
3.	Forward current transfer ratio	3076	$I_C = 5 \text{ mA dc}$, $V_{CE} = 10 \text{ V dc}$	h_{FE3}	30	165	
4.	Forward current transfer ratio	3076	$I_C = 5 \text{ mA dc}$, $V_{CE} = 10 \text{ V dc}$	Δh_{FE3}	30	± 20 percent change from initial reading.	

- 1/ The electrical measurements for table VIa (JANS) of MIL-PRF-19500 are as follows:
- Subgroup 3, see table II herein, steps 1 and 3.
 - Subgroup 4 and 5, see table II herein, steps 1, 2, 3, and 4.
- 2/ The electrical measurements for group B of 4.4.2.2 herein (JAN, JANTX, and JANTXV) are as follows:
- Steps 1, 2, and 3, of 4.4.2.2, see table II herein, all steps.
- 3/ The electrical measurements for table VII (JANS) of MIL-PRF-19500 are as follows:
- Subgroup 2, see table II herein, steps 1 and 3.
 - Subgroups 6, see table II herein, steps 1, 2, 3 and 4.
- 4/ The electrical measurements for group C, 4.4.3.2 herein (JAN, JANTX, and JANTXV) are as follows:
- Step 2 of 4.4.3.2, see table II herein, steps 1 and 3.

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

Inspection	MIL-STD-750		Qualification
	Method	Conditions	
<u>Subgroup 1</u>			45 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 and table II herein.	
<u>Subgroup 2</u>			45 devices c = 0
Intermittent life	1037	$V_{CB} = 10$ V dc, 6000 cycles	
Electrical measurements		See group A, subgroup 2 and table II herein.	
<u>Subgroups 3, 4, 5, 6, and 7</u>			
Not applicable			
<u>Subgroup 8</u>			45 devices c = 0
Reverse stability	1033	Condition A for devices ≥ 400 V, condition B for devices < 400 V.	

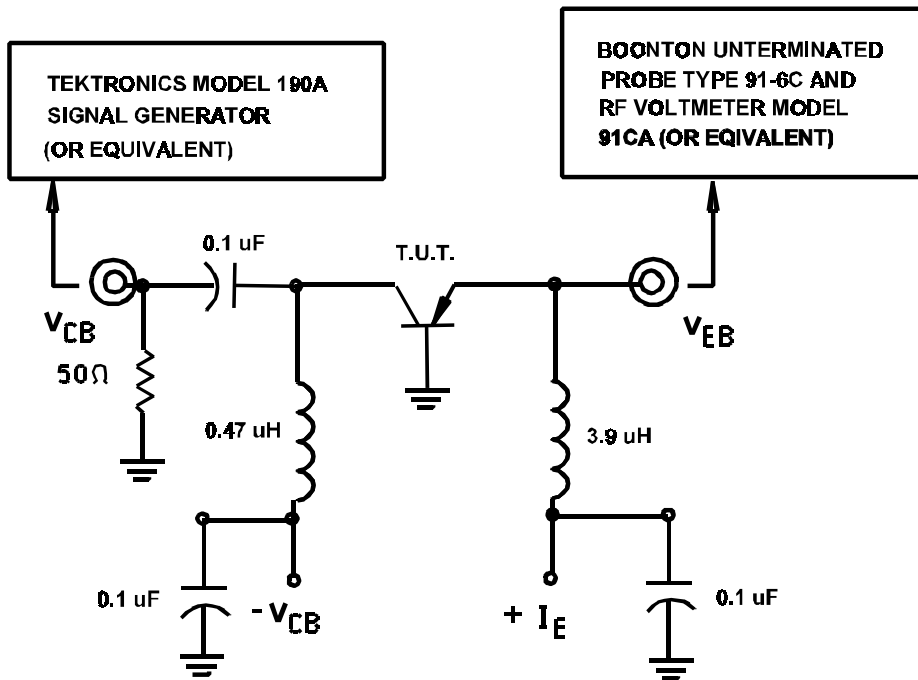
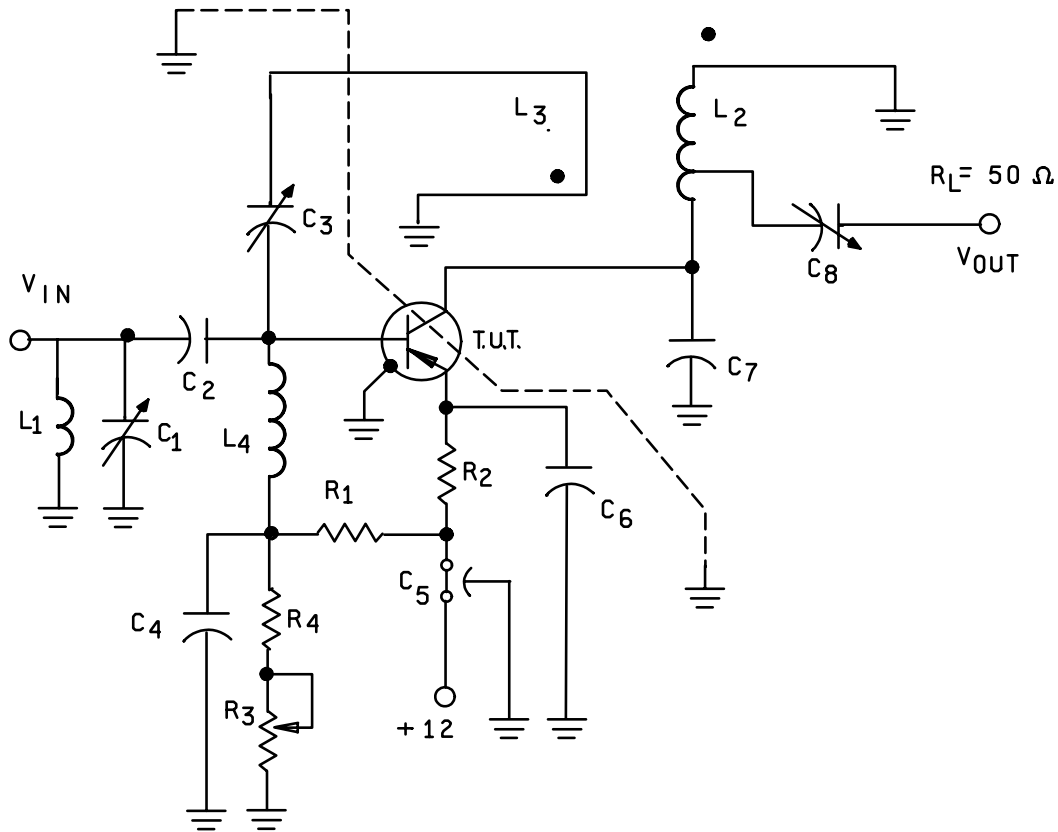


FIGURE 3. RF amplifier for collector to base time constant tests.



Values:

C_1, C_7 = 1-10 pF (Variable air-piston type capacitors)
 C_2, C_4, C_6 = 500 pF (button type capacitors)
 C_3, C_8 = .4 - 6.0 pF (Variable air-piston type capacitors)
 C_5 = 1,000 pF

R_1 = 2.7 k Ω
 R_2, R_4 = 1 k Ω
 R_3 = 20 k Ω

L_1 = silver-plated brass bar, 1.0 inch long by 0.25 inch o.d. (straight bar)

L_2 = silver-plated brass bar, 1.5 inches long by 0.25 inch o.d. Tap is 0.25 inch from collector (straight bar).

L_3 = 1/2 turn of AWG number 16 wire, loop o.d. approximately 0.5 inch, located 0.25 inch from, and parallel to L_2 .

L_4 = 0.22 μ H

The noise source is a hot-cold body, (AIL type 70 or equivalent) with a test receiver (AIL type 70 or equivalent).

FIGURE 4. RF amplifier for power gain and noise figure tests.

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, and if required, the specific issue of individual documents referenced (see 2.2).
- c. Packaging requirements (see 5.1).
- d. Lead finish (see 3.4.1).

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 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
DLA - CC

Preparing activity:
DLA - CC

(Project 5961-2576)

Review activities:
Army - AR, MI
Navy - SH
Air Force - 19

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.

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I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE
	MIL-PRF-19500/426D	28 December 2001

3. DOCUMENT TITLE
SEMICONDUCTOR DEVICE, TRANSISTOR, PNP, SILICON, AMPLIFIER TYPE 2N4957 AND 2N4957UB JAN, JANTX, JANTXV, AND JANS

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)	7. DATE SUBMITTED
	COMMERCIAL DSN FAX EMAIL	

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@dsccl.dla.mil
c. ADDRESS Defense Supply Center, Columbus ATTN: DSCC-VAC P.O. Box 3990 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