MIL-S-19500/330A(EL)
10 November 1969

SUPERSEDING
MIL-S-19500/330(EL)
28 April 1965

MILITARY SPECIFICATION

SEMICONDUCTOR DEVICE, TRANSISTOR, PNP, GERMANIUM, POWER
TYPES 2N1557A through 2N1560A

1. SCOPE

1.1 Scope.- This specification covers the detail requirements for germanium, PNP, power transistors for particular use in power-switching, electronic-circuit applications. (See 3.4 and 6.2 herein.)

1.2 Outline and dimensions.- See Fig. 1 herein. (TO-3)

1.3 Maximum ratings.- (At T_C=+25°C, unless otherwise specified):

	P_T 1/	T_J	V_{CBO}	V_{CEO}	V_{EBO}	I_B	I_C	T_A(range)
	W	°C	Vdc	Vdc	Vdc	Adc	Adc	°C
2N1557A	90	100	-50	-20	-20	-5	-15	-65 to +100
2N1558A	90	100	-60	-30	-30	-5	-15	-65 to +100
2N1559A	90	100	-80	-40	-40	-5	-15	-65 to +100
2N1560A	90	100	-100	-70	-50	-5	-15	-65 to +100

1/ Between T_C > 25°C and up to T_C=+100°C, derate linearly at 1.20W/°C.

FSC-5961

1.4 Particular electrical characteristics.- (At T_C = +25° C, unless otherwise specified):

	h_{FE}				V_{BE}(sat)		V_{CE}(sat)		$\|h_{fe}\|$		Switching			
									f=100kHz		t_d	t_r	t_s	t_f
	I_C=-5Adc V_{CE}=-2Vdc		I_C=-10Adc V_{CE}=-2Vdc		I_C=-10Adc V_{CE}=-1Vdc		I_C=-10Adc V_{CE}=-1Vdc		I_C=-5Adc V_{CE}=-2Vdc		(See Table I and Fig. 2 herein)			
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Max	Max	Max
	---	---	---	---	Vdc	Vdc	Vdc	Vdc	---	---	usec	usec	usec	usec
All Types	60	150	50	100	---	-0.7	---	-0.5	1.5	4.0	2	10	5	30

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS
MILITARY

MIL-S-19500 Semiconductor Devices, General Specification For

STANDARDS
MILITARY

MIL-STD-202 Test Methods For Electronic and Electrical Component Parts

MIL-STD-750 Test Methods For Semiconductor Devices

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer. Both the title and number or symbol should be stipulated when requesting copies.)

3. REQUIREMENTS

3.1 Requirements.- Requirements for the transistor shall be in accordance with Specification MIL-S-19500 and as otherwise specified herein.

3.2 Abbreviations and symbols.- The abbreviations and symbols used herein are defined in Specification MIL-S-19500.

3.3 Design and construction.- The transistor shall be of the design, construction, and physical dimensions specified in Figure 1.

3.3.1 Terminal arrangement.- The terminal arrangement on the transistor shall be as indicated in Figure 1.

3.3.2 Operating position.- The transistor shall be capable of proper operation in any position.

3.4 Performance characteristics.- The transistor performance characteristics shall be as specified in Tables I, II, and III herein. Except where specifically differentiated for the respective transistor types (see 1.3, 1.4, and Tables I, II, and III herein), the performance requirements, including operating characteristics, ratings, test conditions, and test limits, apply equally to all types covered herein.

3.5 Marking. - Except as otherwise specified herein, marking shall be in accordance with Specification MIL-S-19500.

4. QUALITY ASSURANCE PROVISIONS

4.1 General.- Except as otherwise specified herein, the responsibility for inspection, general procedures for acceptance, classification of inspection, and inspection conditions and methods of test shall be in accordance with Specification MIL-S-19500, Quality Assurance Provisions.

4.2 Qualification and acceptance inspection.- Qualification and Quality Conformance inspection shall be in accordance with Specification MIL-S-19500, Quality Assurance Provisions, and as otherwise specified herein. Groups A, B, and C inspection shall consist of the examinations and tests specified in Tables I, II, and III, respectively, herein. Quality Conformance inspection shall include inspection of Preparation for Delivery (see 5.1 herein).

4.2.1 Special Group A criteria for Qualification inspection. For Qualification inspection, only 10 failures will be permitted for all Group A tests combined. Hereto, where the manufacturer deems that the data in paragraph 4.4.2 of Specification MIL-S-19500 are invokable, notification shall be made to the Chief, Components and Materials Standardization Branch, Procurement and Production Directorate, Fort Monmouth, New Jersey 07703, attention: AMSEL-PP-EM-2.

4.2.2 Permissible Group B or Group C combined-subgroup testing.- At option of the manufacturer, all of the tests on one subgroup in Group B (Table II herein) may be combined with all of the tests in one or more other subgroup(s) of Group B for sequential performance; the same option applies to Group C (Table III herein) constituent subgroups. Under this option, the sample units per applicable LTPD or lambda (λ) for one of the subgroups may be used to form the sample quantity required per LTPD or lambda(λ) for anyone of the other subgroups. Accept-reject criteria normally applicable for each respective subgroup shall be effective. The following administrative requirements shall apply hereto:

a. It shall be understood that the above option may be adopted by manufacturer for Qualification testing of product, or for Quality Conformance inspection of any individual lot submitted by manufacturer for lot acceptance.

b. Prior notification as to adoption of this testing option, and concurrent information as to the predesignated sample quantities to be used shall be made to the Government inspection authority concerned.

c. Complete record of the combined-subgroup testing-program results shall be maintained and be available to the Government inspection authority.

4.2.3 Group B-Group C life test samples.- Samples that have been subjected to Group B, 340-hour life test may be continued on test for 1000 hours in order to satisfy Group C life test requirements. These samples shall be predesignated, and shall remain subjected to the Group C, 1000-hour evaluation after they have passed the Group B, 340-hour acceptance criteria. The cumulative total of failures found during 340-hour test and during the subsequent interval up to 1000 hours shall be computed for 1000-hour acceptance. (See 4.2.4 below.)

4.2.4 Group C testing.- Group C tests shall be performed on a lot every 6 months. (See Table III herein.) The contractor shall, throughout the course of a contract or order, permit the Government representative to scrutinize all test data and findings covering manufacturer's test program on Group C characteristics and parameters for the product concerned. Upon determination by the Government inspector (in advance of Group C, 6-month, test results) that Group C parameters are not being adequately met, the Government inspector may require lot-by-lot inspection, normally for a minimum of 3 consecutive lots, to be performed for required Group C tests.

4.2.5 Disposition of sample units.- Sample units that have been subjected to Group B, Subgroup 2 and 4 tests shall not be delivered on the contract or order. Sample units that have been subjected to and have passed Group B, Subgroups 1, 3, 5, 6, and 7 tests and all Group C tests (these tests to be considered non-destructive), may be delivered on the contract or order provided that, after Group B and C inspection is terminated, those sample units are subjected to and pass Group A inspection. Defective units from any sample group that may have passed group inspection shall not be delivered on the contract or order until the defect(s) has been remedied to the satisfaction of the Government.

4.3 Particular examination and test requirements.-

4.3.1 "Pulsed"-conditions measurements.- Measurements required herein to be effected under pulsed conditions, shall be made in accordance with "Pulse Measurements" requirements in Section 4 of Standard MIL-STD-750.

4.3.2 Hermetic seal test.- The transistors shall be subjected to hermetic seal test(s) in accordance with Method 1071 in Standard MIL-STD-750 except that the following test conditions therein shall apply hereto:

a. Fine-leak test: per Test Condition G or H; however, a maximum leakage rate of 5×10^{-7} atm cc/sec shall be effective for acceptance.

b. Gross-leak test: per Test Condition A, C, D, or F.

4.3.3 Safe operating area (DC operation) test.- Satisfactory endurance of the transistors throughout Test #1, #2, #3, respectively, (per Table II, Subgroup 5, herein) is directly related to the "safe operating area" for the transistors as determinable from the graphs of Figure 3 herein. (The 3 points tested per Test #1, 2, 3 are locatable on the boundaries of "safe operating area".)

4.3.4 Marking resistance to solvents test.- The device samples shall be subjected to test per Method 215 in Standard MIL-STD-202. The following details shall apply:

a. All surface areas on the body of the device where marking has been applied shall be brushed.

b. All marking shall have remained legible, and there shall be no evidence of mechanical damage to the device, upon examination after test.

4.3.5 Maximum current test.- With the base lead electrically connected to the collector terminal, the current specified shall be applied through the emitter lead for the time duration specified. Suitable means should be employed so that the case temperature will not exceed +71° C.

4.3.6 Mechanical damage resulting from tests.- Except for intentionally deforming, mutilating, or dismembering mechanical-stress tests to which samples are subjected, there shall be no evidence of mechanical damage to any sample unit as a result of any of the Group A, B, or C tests.

Table I. Group A inspection

Test Method per MIL-STD-750	Examination or test 1/	Conditions	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 1		20				
2071	Visual and mechanical examination	---		--	---	---	---
	Subgroup 2		15				
3001	Collector-base breakdown voltage:	Test Cond D I_C=-15mAdc		BV_{CBO}			Vdc
	2N1557A				-50	---	
	2N1558A				-60	---	
	2N1559A				-80	---	
	2N1560A				-100	---	
3011	Collector-emitter breakdown voltage:	Test Cond D I_C=-500mAdc 2/		BV_{CEO}			Vdc
	2N1557A				-20	---	
	2N1558A				-30	---	
	2N1559A				-40	---	
	2N1560A				-70	---	
3011	Collector-emitter breakdown voltage:	Test Cond C I_C=-300mAdc 2/		BV_{CES}			Vdc
	2N1557A				-30	---	
	2N1558A				-45	---	
	2N1559A				-60	---	
	2N1560A				-80	---	

Table I. Group A inspection - (Cont'd)

Test Method per MIL-STD-750	Examination or test 1/	Conditions	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 2 - (Cont'd)						
3036	Collector-base cutoff current:	Test Cond D		I_{CBO}			mAdc
	2N1557A	V_{CB}=-25Vdc			---	-3	
	2N1558A	V_{CB}=-40Vdc			---	-3	
	2N1559A	V_{CB}=-55Vdc			---	-3	
	2N1560A	V_{CB}=-65Vdc			---	-3	
3041	Collector-emitter cut-off current:	Test Cond A V_{BE}=+1Vdc		I_{CEX}			mAdc
	2N1557A	V_{CE}=-50Vdc			---	-20	
	2N1558A	V_{CE}=-60Vdc			---	-20	
	2N1559A	V_{CE}=-80Vdc			---	-20	
	2N1560A	V_{CE}=-100Vdc			---	-20	
3061	Emitter-base cutoff current:	Test Cond D		I_{EBO}			mAdc
	2N1557A	V_{EB}=-20Vdc			---	-10	
	2N1558A	V_{EB}=-30Vdc			---	-10	
	2N1559A	V_{EB}=-40Vdc			---	-10	
	2N1560A	V_{EB}=-50Vdc			---	-10	
3076	Forward-current transfer ratio	I_C=-5Adc V_{CE}=-2Vdc		h_{FE}	60	150	---

Table I. Group A inspection - (Cont'd)

Test Method per MIL-STD-750	Examination or test 1/	Conditions	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 2 -(Cont'd)						
3076	Forward-current transfer ratio	I_C=-10Adc V_{CE}=-2Vdc		h_{FE}	50	100	---
3076	Forward current transfer ratio	I_C=-15Adc V_{CE}=-2Vdc		h_{FE}	30	---	---
3020	Floating potential:	Voltmeter input resistance ≥10 Megohms		V_{EBF}			Vdc
	2N1557A	V_{CB}=-50V			---	-1	
	2N1558A	V_{CB}=-60V			---	-1	
	2N1559A	V_{CB}=-80V			---	-1	
	2N1560A	V_{CB}=-100V			---	-1	
3066	Base-emitter saturation voltage	Test Cond A I_C=-10Adc I_B=-1Adc		V_{BE}(sat)	---	-0.7	Vdc
3071	Collector-emitter saturation voltage	I_C=-10Adc I_B=-1Adc		V_{CE}(sat)	---	-0.5	Vdc

Table I. Group A inspection - (Cont'd).

Test Method per MIL-STD-750	Examination or test 1/	Conditions	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 3		10				
3251	Pulse response	Test Cond A except test circuit per Fig. 2 herein I_C=-10A V_{CC}=-10V I_{B1}=-I_{B2}=210mA					
	Rise time			t_r	---	10	usec
	Delay time			t_d	---	2	usec
	Storage time			t_s	---	5	usec
	Fall time			t_f	---	30	usec
3306	Magnitude of common-emitter small-signal short-circuit forward-current transfer ratio	I_C=-5Adc V_{CE}=-2Vdc f=100kHz		h_{fe}	1.5	4	----

1/ See 3.4 herein.

2/ See 4.3.1 herein.

Table II. Group B inspection.

Test Method per MIL-STD-750	Examination or test 1/	Conditions 2/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 1		20				
2066	Physical dimensions	See Fig. 1		---	---	---	---
	Subgroup 2		15				
2031	Soldering heat	1 cycle		---	---	---	---
1051	Temperature cycling	Test Cond B except $T_{(high)}$= $+100^{\circ}{}^{+3}_{-0}$C		---	---	---	---
1056	Thermal shock (glass strain)	Test Cond B		---	---	---	---
2036	Terminal strength:						
	Tension	Test Cond A Weight=10 lbs. t=15 sec.					
	Torque	Test Cond D1 Torque=6 oz-in t=15 sec.					
1071	Hermetic seal	3/		---	---	5×10^{-7}	atm cc/sec
1021	Moisture resistance	No initial conditioning		---	---	---	---

Table II. Group B inspection - (Cont'd)

Test Method per MIL-STD-750	Examination or test 1/	Conditions 2/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 2 - (Cont'd)						
	End-Point tests:						
3036	Collector-base cutoff current	Test Cond D		I_{CBO}			mAdc
	2N1557A	V_{CB}=-25Vdc			---	-3	
	2N1558A	V_{CB}=-40Vdc			---	-3	
	2N1559A	V_{CB}=-55Vdc			---	-3	
	2N1560A	V_{CB}=-65Vdc			---	-3	
3076	Forward current transfer ratio	I_C=-10Adc V_{CE}=-2Vdc		h_{FE}	50	100	---
	Subgroup 3		15				
2016	Shock	Non-operating 1500G 5 blows of 0.5 msec ea. in orientations X1, Y1, Y2, Z1 (total =20 blows)		---	---	---	---
2056	Vibration, variable frequency	10G		---	---	---	---
2006	Constant acceleration (centrifugal)	5000G Orientations X1, Y1, Y2, Z1		---	---	---	---
	End-Point tests:						
	Same as for Subgroup 2 above						

Table II. Group B inspection - (Cont'd).

Test Method per MIL-STD-750	Examination or test 1/	Conditions 2/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 4		15				
1041	Salt atmosphere (corrosion)	4/		---	---	---	---
	Subgroup 5		15				
3052	Safe operating area (pulsed):	5/ f=200 Hz t_p=250 usec		---	---	---	---
	Test #1:	I_C=-20A					
	2N1557A	V_{CE}=-25V					
	2N1558A	V_{CE}=-35V					
	2N1559A	V_{CE}=-45V					
	2N1560A	V_{CE}=-45V					
	Test #2:						
	2N1557A	I_C=-1.0A V_{CE}=-29V					
	2N1558A	I_C=-1.0A V_{CE}=-43V					
	2N1559A	I_C=-2.2A V_{CE}=-55V					
	2N1560A	I_C=-3.0A V_{CE}=-65V					

Table II. Group B inspection - (Cont'd).

Test Method per MIL-STD-750	Examination or test 1/	Conditions 2/	LTPD	Symbol	Limits Min.	Limits Max	Unit
	Subgroup 5 -(Cont'd)						
	Test #3:	$T_C \simeq +70°C$ $^{+3}_{-0}C$					
		t=5 minutes, min., continuous					
	2N1557A	I_C=-1.8A					
		V_{CE}=-20V					
	2N1558A	I_C=-1.25A					
		V_{CE}=-30V					
	2N1559A	I_C=-1.0A					
		V_{CE}=-37V					
	2N1560A	I_C=-0.75A					
		V_{CE}=-50V					
	End-Point tests:						
	Same as for Subgroup 2 above						
	Subgroup 6		10				
1032	High-temperature life (non-operating)	T_{stg}=+100° $^{+3°}_{-0°}$C t=340 hrs. 6/			---	---	---

Table II. Group B inspection - (Cont'd).

Test Method per MIL-STD-750	Examination or test 1/	Conditions 2/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 6 - (Cont'd)						
	End-Point tests:						
3036	Collector-base cutoff current:	Test Cond D		I_{CBO}			mAdc
	2N1557A	V_{CB}=-25Vdc			---	-4.5	
	2N1558A	V_{CB}=-40Vdc			---	-4.5	
	2N1559A	V_{CB}=-55Vdc			---	-4.5	
	2N1560A	V_{CB}=-65Vdc			---	-4.5	
3076	Forward-current transfer ratio	I_C=-10Adc V_{CE}=-2Vdc		h_{FE}	38	120	---
	Subgroup 7		20				
1027	Steady-state operation life	T_C=+80° $^{+3°}_{-0°}$ C P_T=20W V_{CB}=-15 $^{+10}_{-0}$ Vdc t=340 hrs. 6/		---	---	---	---
	End-Point tests:						
	Same as for Subgroup 6 above						

1/ See 3.4 herein.
2/ See 4.2.2 herein.
3/ See 4.3.2 herein.
4/ Electrical rejects from the same lot under evaluation may be used for this test.
5/ See 4.3.3 herein.
6/ See 4.2.3 herein.

Table III. Group C inspection. 1/

Test Method per MIL-STD-750	Examination or test 2/	Conditions 3/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 1		15				
4/	Marking resistance to solvents	5/		---	---	---	---
	Subgroup 2		15				
3151	Thermal resistance	---		θ_{J-C}	---	0.8	°C/W
6/	Maximum current	I_E=-15Adc t=1 hour		---	---	---	---
	End-Point tests:						
3036	Collector-base cutoff current	Test Cond D		I_{CBO}			mAdc
	2N1557A	V_{CB}=-25Vdc			---	-3	
	2N1558A	V_{CB}=-40Vdc			---	-3	
	2N1559A	V_{CB}=-55Vdc			---	-3	
	2N1560A	V_{CB}=-65Vdc			---	-3	
3076	Forward current transfer ratio	I_C=-10Adc V_{CE}=-2Vdc		h_{FE}	50	100	---
	Subgroup 3 7/		15				
8/	High-temperature operation:	T_C=+90° $^{+3°}_{-0°}$ C					

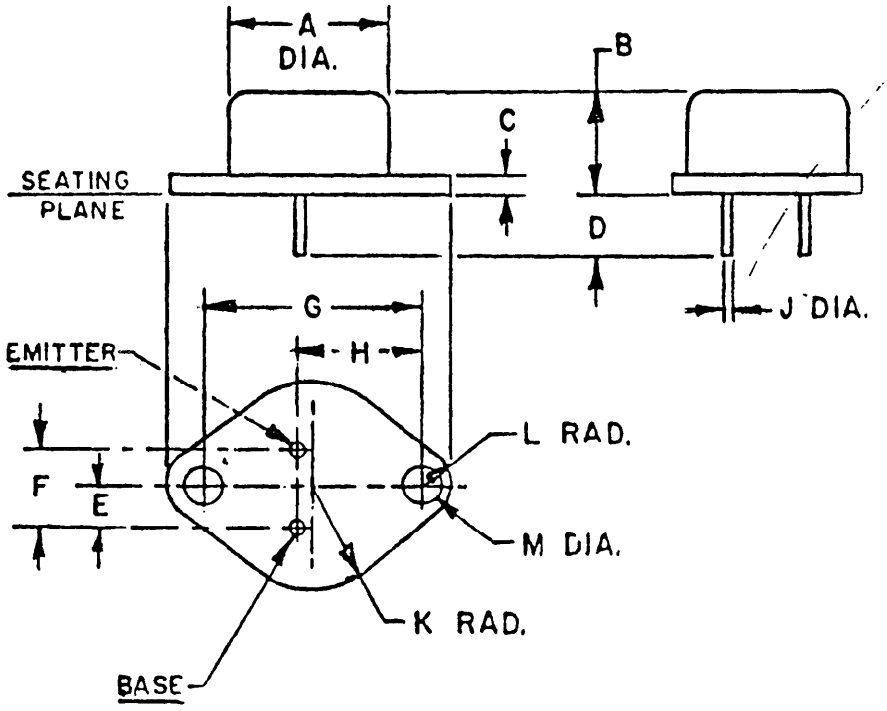
Table III. Group C inspection 1/ (Cont'd).

Test Method per MIL-STD-750	Examination or test 2/	Conditions 3/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 3 7/ - (Cont'd)						
3036	Collector-base cutoff current:	Test Cont D		I_{CBO}			mAdc
	2N1557A	V_{CB}=-25Vdc			---	20	
	2N1558A	V_{CB}=-40Vdc			---	20	
	2N1559A	V_{CB}=-55Vdc			---	20	
	2N1560A	V_{CB}=-65Vdc			---	20	
8/	Low-temperature operation:	T_C=-55° C $^{+0°}_{-3°}$ C					
3076	Forward-current transfer ratio:	I_C=-10Adc V_{CE}=-2Vdc		h_{FE}	38	---	---
	Subgroup 4		λ=10				
1031	High-temperature life (non-operating)	T_{stg}=+100° $^{+3}_{-0}$C t=1,000 hrs. 9/		---	---	---	---
	End-Point tests:						
3036	Collector-base cutoff current:	Test Cond D		I_{CBO}			mAdc
	2N1557A	V_{CB}=-25Vdc			---	-4.5	
	2N1558A	V_{CB}=-40Vdc			---	-4.5	
	2N1559A	V_{CB}=-55Vdc			---	-4.5	
	2N1560A	V_{CB}=-65Vdc			---	-4.5	
3076	Forward-current transfer ratio:	I_C=-10Adc V_{CE}=-2Vdc		h_{FE}	38	120	---

Table III. Group C inspection 1/ (Cont'd).

Test Method per MIL-STD-750	Examination or test 2/	Conditions 3/	LTPD	Symbol	Limits Min	Limits Max	Unit
	Subgroup 5		λ=20				
1026	Steady-state operation life	T_C=+80° $^{+3}_{-0}$C P_T=20 W V_{CB}=-15 $^{+10}_{-0}$ Vdc t=1,000 hrs. 9/		---	---	---	---
	End-Point tests: Same as for Subgroup 2 above						

1/ See 4.2.4 herein.
2/ See 3.4 herein.
3/ See 4.2.2 herein.
4/ See.4.3.4 herein.
5/ Electrical rejects from the same lot under evaluation may be used for this test.
6/ See 4.3.5 herein.
7/ In this Subgroup, the sample units subjected to the High-Temperature Operation test shall be permitted to return to and be stabilized at room ambient temperature prior to their being subjected to the Low-Temperature Operation test.
8/ Measurement(s) shall be made after thermal equilibrium has been reached at the temperature specified.
9/ See 4.2.3 herein.



DIMENSIONS					NOTE
LTR	INCHES		MILLIMETERS		
	MIN	MAX	MIN	MAX	
A	---	.875	---	22.23	
B	.250	.450	6.35	11.43	4
C	---	.135	---	3.43	
D	.312	---	7.92	---	3
E	.205	.225	5.21	5.72	
F	.420	.440	10.67	11.18	
G	1.177	1.197	29.90	30.40	
H	.655	.675	16.64	17.15	2
J	.038	.052	.97	1.32	3
K	---	.525	---	13.34	
L	---	.188	---	4.78	
M	.151	.161	3.84	4.09	

NOTES:
1. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.
2. This dimension should be measured at points .050 (1.27 mm) to .055 (1.40 mm) below seating plane. When gage is not used, measurement will be made at seating plane.
3. Two leads.
4. Collector shall be electrically connected to the case.

Figure 1. Outline and dimensions.

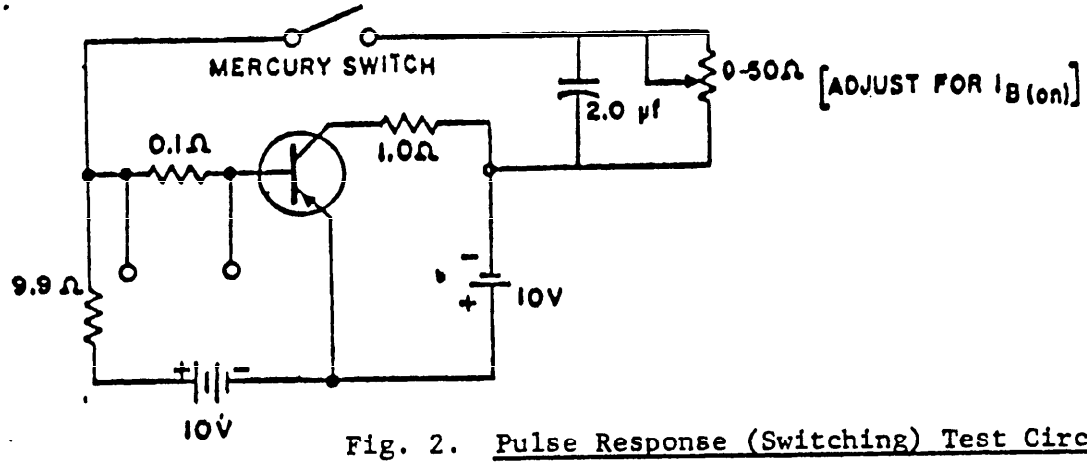


Fig. 2. Pulse Response (Switching) Test Circuit.

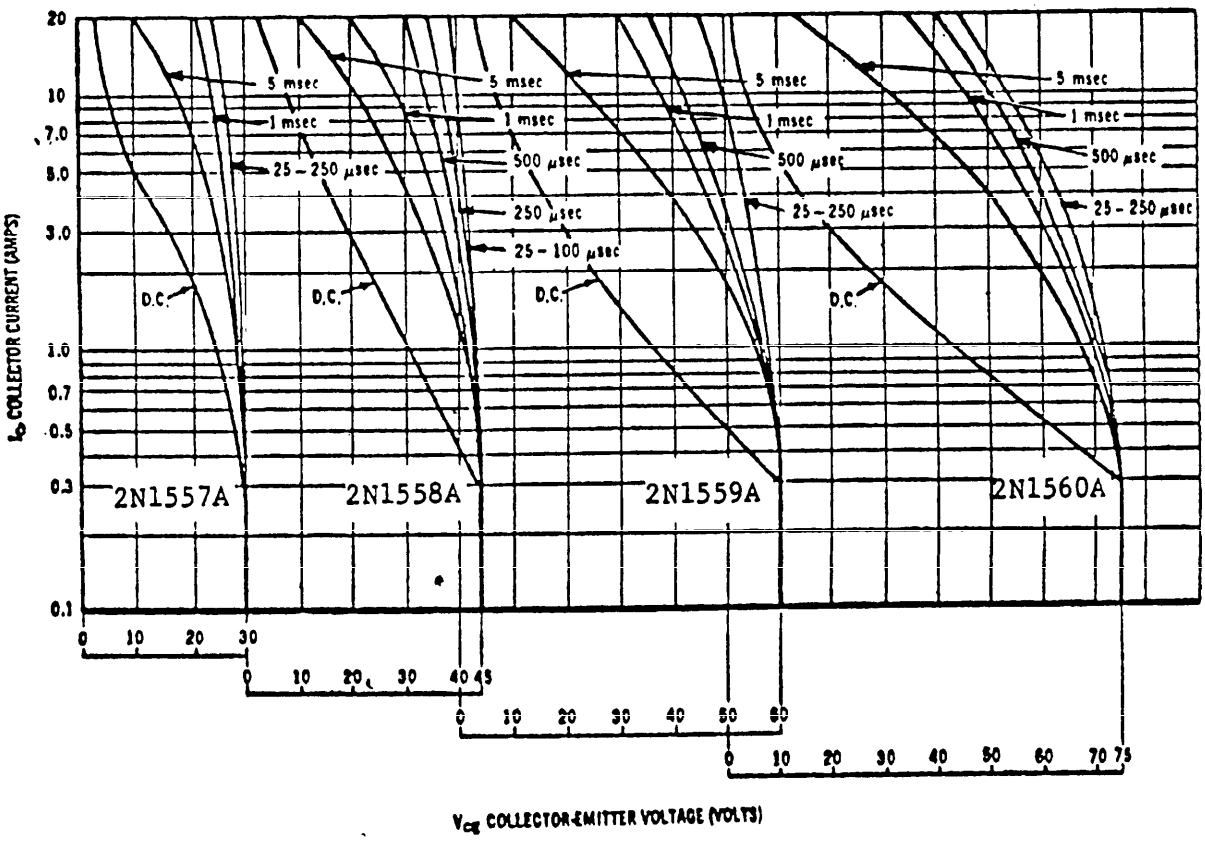


Fig. 3. Safe Operating Area Curves.

5. PREPARATION FOR DELIVERY

5.1 Preparation for delivery.- Preparation for delivery and the inspection of Preparation For Delivery shall be in accordance with Specification MIL-S-19500.

6. NOTES

6.1 Notes.- The notes included in Specification MIL-S-19500, with the following additions or exceptions, are applicable to this specification.

6.2 Application-and-replacement guidance.-

a. The transistors covered herein are mechanically and electrically interchangeable with, and are recommended for replacement of the following transistors types that may be in present use in military-equipment circuits,-as respectively indicated below:

Transistor Type	Replacement For
2N1557A	2N1557, 2N678, 2N1146
2N1558A	2N1558, 2N678A, 2N1146A
2N1559A	2N1559, 2N1146B
2N1560A	2N1560, 2N678B, 2N678C, 2N1146B, 2N1146C

b. To insure proper equipment-circuit application, particular attention should be given to the differential voltage and current ratings and performance characteristics pertinent to the individual transistor types covered herein.

6.3 Qualification.- With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in Qualified Products List (QPL)-19500, whether or not such products have actually been so listed by that date. Information pertaining to qualification of products covered by this specification should be requested from the Commanding General, U. S. Army Electronics Command, Fort Monmouth, New Jersey 07703, Attention: AMSEL-PP-EM-2.

6.4 Revision (document) changes.- Revision-letter symbols are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodian:
Army-EL

Preparing activity:
Army-EL

Project No. 5961-A265

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 22-R255

INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.

SPECIFICATION MIL-S-19500/330A(EL), SEMICONDUCTOR DEVICE, TRANSISTOR, PNP, GERMANIUM, POWER TYPES 2N1557A THROUGH 2N1560A

ORGANIZATION

CITY AND STATE

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO *(If "yes", in what way?)*

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity - Optional)*

DATE

DD FORM 1 JAN 66 1426

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.

ESC-FM 1068-68

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U.S.Army Electronics Command
Fort Monmouth, New Jersey 07703

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