MILITARY SPECIFICATION

SEMICONDUCTOR DEVICE, TRANSISTOR, NPN, SILICON, MEDIUM-POWER
TYPES 2N497, 2N498, 2N656, 2N657,
2N497S, 2N498S, 2N656S, 2N657S

This amendment forms a part of MIL-S-19500/74E, dated 17 October 1967, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

* Title, substitute new title as printed above.

* 1.1, adding the following:

"The suffix 'S' is used on devices that have 0.5 inch minimum to 0.75 inch maximum lead length."

* 1.3, add the following new type numbers: Following "2N497" add "2N497S"; following "2N498" add "2N498S"; following "2N656" add "2N656S"; following "2N657" add "2N657S". Make these same changes wherever they occur throughout the document.

1.4 Primary electrical characteristics, under $V_{CE(sat)}$ column, Min: Delete "0.1" and substitute "---".

PAGE 2

3.3.1: Delete and substitute:

"3.3.1 Lead material and finish. Lead material shall be Kovar or Alloy 52 and final finish shall be gold-plated. (Leads may be tin-coated if specified in the contract or order, and this requirement shall not be construed as adversely affecting the qualified-product status of the device, or applicable JAN marking (see 6.2)."

Add the following paragraph:

"3.3.1.1 Lead material. If lead material need be specified, it shall be specified in the contract or order (see 6.2)."

* Add the following new paragraph:

"3.5.1 'S' marking. The 'S' suffix shall be used on devices meeting the 0.5 inch minimum to 0.75 inch maximum lead length requirement."

The attached insertable replacement pages listed below are replacements for stipulated pages. When the new pages have been entered in the document, insert the amendment as the cover sheet to the specification.

Replacement page	Page replaced
3	3
4	4

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PAGE 5

TABLE I, Group A inspection, Subgroup 2, BV_{CEO} test, under details column: Delete "I_C = 30 mAdc; pulsed" and substitute "I_C = 80 mAdc; pulsed".

PAGE 6

TABLE I, Group A inspection, Subgroup 3, Collector to emitter voltage (saturated), under Limits column, Min: Delete "0.1" and substitute "---".

PAGE 8

TABLE II, Group B inspection, Subgroup 6, End points, BV_{CEO} test, under details column: Delete "I_C = 30 mAdc; pulsed" and substitute "I_C = 80 mAdc; pulsed".

PAGE 10

6.2, delete and substitute:

"6.2 Ordering data.

(a) Lead finish if other than gold-plated (see 3.3.1).
(b) Lead material (see 3.3.1.1.).
(c) Terminal lead length if other than specified on figure 1 (see 3.3.2)."

NOTE: The margins of this amendment are marked with asterisks to indicate where changes from the previous amendment 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 amendment.

Custodians:
Army - ER
Navy - EC
Air Force - 17

Review activities:
Army - AR, MI
Air Force - 11, 85, 99
DLA - ES

User activities:
Army - SM
Navy - AS, CG, MC, OS, SH
Air Force - 13, 15, 19

Preparing activity:
Navy - EC

Agent:
DLA - ES

(Project 5961-1017)

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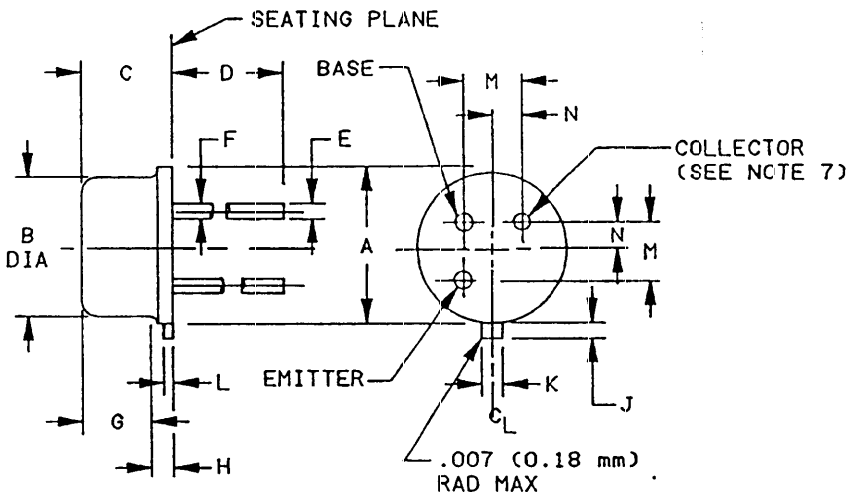

Ltr	Dimensions Inches Min	Dimensions Inches Max	Dimensions Millimeters Min	Dimensions Millimeters Max	Notes
A	.335	.370	8.51	9.40	
B	.305	.335	7.75	8.51	
C	.240	.260	6.10	6.60	
D	See notes 9, 10, and 11				
E	.016	.021	0.41	0.53	2, 9
F	.016	.019	0.41	0.48	3, 9
G	.100	--	2.54	--	4
H	--	--	---	---	5
J	.029	.045	0.74	1.14	8
K	.028	.034	0.71	0.86	
L	.009	.125	0.23	3.18	
M	.1414 Nom		3.592 Nom		6
N	.707 Nom		1.796 Nom		6

NOTES:
1. Metric equivalents are given for general information only.
2. Measured in the zone beyond .250 (6.35 mm) from the seating plane.
3. Measured in the zone .050 (1.27 mm) and .250 (6.35 mm) from the seating plane.
4. Variations on dimension B in this zone shall not exceed .010 (0.25 mm).
5. Outline in this zone is not controlled.
6. When measured in a gauging plane .054 +.001, -.000 (1.37 +0.03, -0.00 mm) below the seating plane of the transistor, maximum diameter leads shall be within .007 (0.18 mm) of their true location relative to a maximum width tab. Smaller diameter leads shall fall within the outline of the maximum diameter lead tolerance. Figure 2 preferred measured method.
7. The collector shall be internally connected to the case.
8. Measured from the maximum diameter of the actual device.
9. All three leads (see 33.1 and 33.2).
10. For transistor types 2N497S, 2N498S, 2N656S, and 2N657S, D is .500 (12.70 mm) minimum, and .750 (19.05 mm) maximum.
11. For transistor types 2N497, 2N498, 2N656, and 2N657, D is 1.500 (38.10 mm) minimum, and 1.750 (44.45 mm) maximum.

* FIGURE 1. Physical dimensions.

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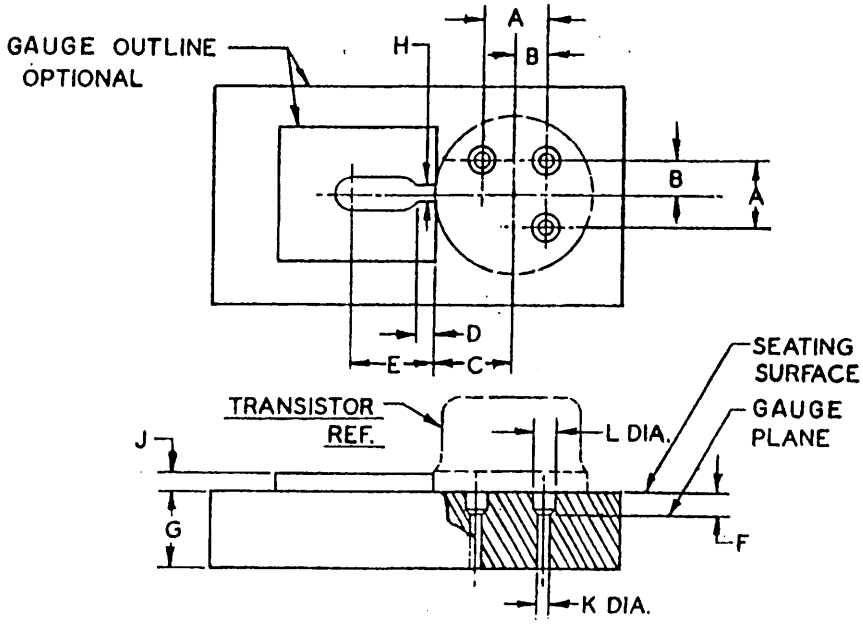

DIMENSIONS				
LTR	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.1409	.1419	3.58	3.60
B	.0702	.0712	1.78	1.81
C	.182	.199	4.62	5.05
D	.009	.011	.23	.28
E	.125 Nom		3.18 Nom	
F	.054	.055	1.37	1.40
G	.372	.378	9.45	9.60
H	.0350	.0355	.89	.90
J	.150 Nom		3.81 Nom	
K	.0325	.0335	.83	.85
L	.0595	.0605	1.51	1.54

NOTES:
1. The following gauging procedure shall be used: The use of a pin straightener prior to insertion in the gauge is permissible. The device being measured shall be inserted until its seating plane is .125 ±.010 (3.18 ±0.25 mm) from the seating surface of the gauge. A spacer may be used to obtain the .125 (3.18 mm) distance from the gauge seat prior to force application. A force of 8 oz ±.5 oz shall then be applied parallel and symmetrical to the device's cylindrical axis. When examined visually after the force application (the force need not be removed) the seating plane of the device shall be seated against the gauge.
2. The location of the tab locator, within the limits of dimension C will be determined by the tab and flange dimension of the device being checked.
3. Metric equivalents are given for general information only.

FIGURE 2. Gauge for leads and tab location.

Supersedes page 4 of MIL-S-19500/74E of 17 October 1967.

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