

INCH-POUND

MIL-DTL-12883/42F
6 April 2004
SUPERSEDING
MIL-S-12883/42E
28 June 1996

DETAIL SPECIFICATION SHEET

SOCKETS AND ACCESSORIES FOR PLUG-IN ELECTRONIC COMPONENTS
(POWER TRANSISTOR, 2 CONTACT, 10 AMPERES, TO-3), RADIAL)

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-DTL-12883.

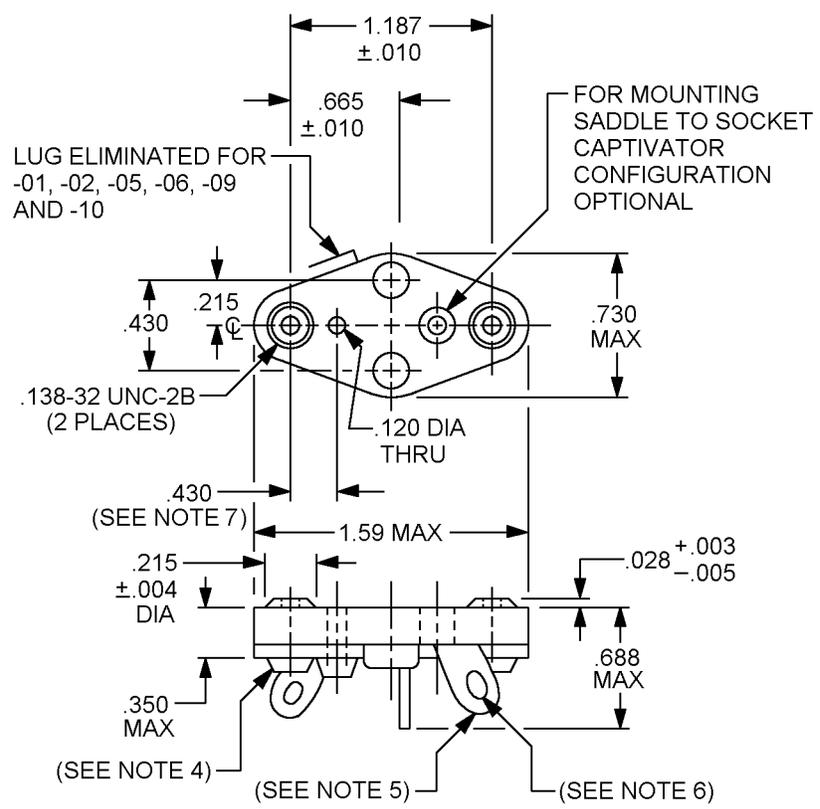
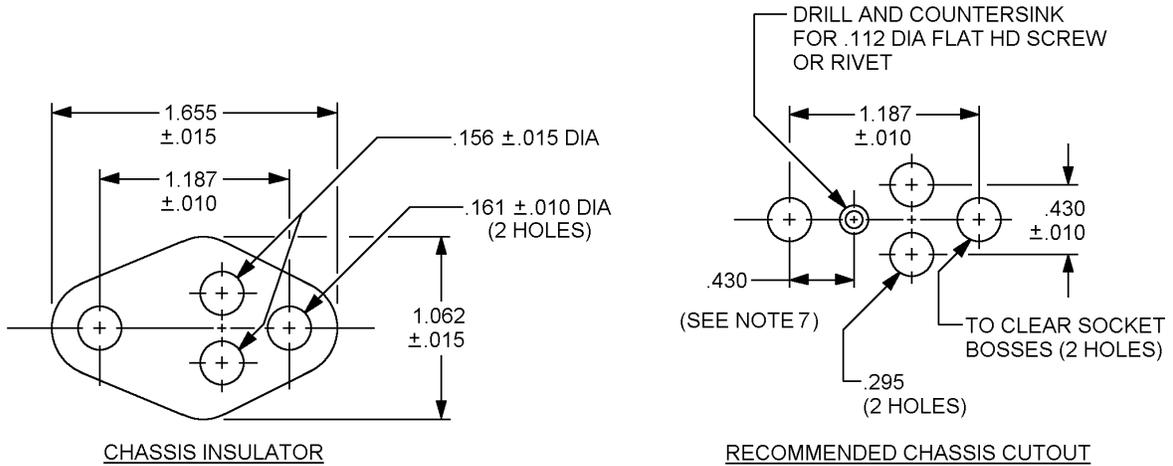


FIGURE 1. Socket configuration.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.003	0.07	.112	2.84	.295	7.49	1.062	26.97
.004	0.10	.120	3.05	.350	8.89	1.187	30.15
.005	0.13	.138	3.51	.430	10.92	1.59	40.39
.010	0.25	.156	3.96	.665	16.90	1.655	42.04
.015	0.38	.161	4.09	.688	17.47		
.028	0.71	.215	5.41	.730	18.54		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerance is $\pm .005$ inch (0.13 mm).
4. Direction of threaded boss optional may face inward or outward.
5. Lug shall be bent between 45 and 90 degrees and must remain in the confines of the .730 inch (18.54 mm) and the 1.59 inch (40.39 mm) max dimensions. Location of lug optional.
6. Lug and contact tables shall have either 1 wire hole of .040 inch (1.02 mm) minimum width and .120 inch (3.18 mm) minimum length or 2 holes of .040 inch (1.02 mm) minimum width and .075 inch (.191 mm) minimum length. The hole or holes shall lie on the longitudinal centerline of the contact tab within $\pm .008$ inch (0.20 mm).
7. For dash numbers 01 through 08 the mounting saddle dimension hole is .335 inches (8.51 mm).

FIGURE 1. Socket configuration - Continued.

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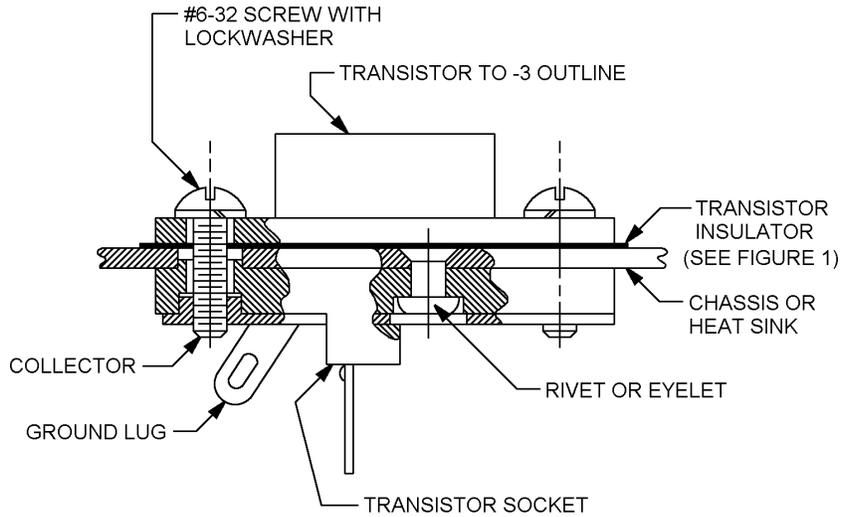


FIGURE 2. Suggested mounting.

TABLE I. Dash number and characteristics.

Dash number	Contact engagement area and termination finish	Mounting thread sizes
-01 (1 lug) <u>1/</u>	Gold in accordance with ASTM B488, type II, code C, class 0.76 (30 microinches) over nickel in accordance with SAE-AMS-QQ-N-290, 50 to 100 microinches (1.27 to 2.54 μm) thick.	.138-32 UNC-2B
-02 (1 lug) <u>1/</u>	Tin/lead in accordance with SAE-AMS-P-81728, 50 to 95 percent tin, 100 to 300 microinches (2.54 to 7.62 μm) thick.	.138-32 UNC-2B
-03 <u>1/</u>	Gold in accordance with ASTM B488, type II, code C, class 0.76 (30 microinches) over nickel in accordance with SAE-AMS-QQ-N-290, 50 to 100 microinches (1.27 to 2.54 μm) thick.	138-32 UNC-2B
-04 <u>1/</u>	Tin/lead in accordance with SAE-AMS-P-81728, 50 to 95 percent tin, 100 to 300 microinches (2.54 to 7.62 μm) thick.	138-32 UNC-2B
-05 <u>1/</u>	Gold in accordance with ASTM B488, type II, code C, class 0.76 (30 microinches) over nickel in accordance with SAE-AMS-QQ-N-290, 50 to 100 microinches (1.27 to 2.54 μm) thick.	M3X0.5
-06 <u>1/</u>	Tin/lead in accordance with SAE-AMS-P-81728, 50 to 95 percent tin, 100 to 300 microinches (2.54 to 7.62 μm) thick.	M3X0.5
-07 <u>1/</u>	Gold in accordance with ASTM B488, type II, code C, class 0.76 (30 microinches) over nickel in accordance with SAE-AMS-QQ-N-290, 50 to 100 microinches (1.27 to 2.54 μm) thick.	M3X0.5
-08 <u>1/</u>	Tin/lead in accordance with SAE-AMS-P-81728, 50 to 95 percent tin, 100 to 300 microinches (2.54 to 7.62 μm) thick.	M3X0.5
-09 (1 lug)	Gold in accordance with ASTM B488, type II, code C, class 0.76 (30 microinches) over nickel in accordance with SAE-AMS-QQ-N-290, 50 to 100 microinches (1.27 to 2.54 μm) thick.	.138-32 UNC-2B
-10 (1 lug)	Tin/lead in accordance with SAE-AMS-P-81728, 50 to 95 percent tin, 100 to 300 microinches (2.54 to 7.62 μm) thick.	.138-32 UNC-2B

1/ These dash numbers are not available and are for reference only.

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REQUIREMENTS:

Dimensions and configurations: See figure 1 and table I.

Application: Sockets shall accept components with 0.040 +.003, -.002 inch (1.02 +0.08, -0.05 mm) diameter leads.

Reference material: See MIL-DTL-12883.

Insulating material: Diallyl Ortho-Phthalate in accordance with ASTM D5948 type, SDG-F, color optional.

Contact

Contact material: Beryllium copper in accordance with ASTM B194, copper alloy no. C17200 or Copper-Nickel-Tin alloy in accordance with ASTM B740 Spinodal or Pfinodal hardened, alloy C72900 (copper alloy UNS No. C72900 (Cu-15 Ni-8 Sn).

Contact finish: See table I.

Mounting: Mounting saddle and eyelet (use of eyelet optional): Brass in accordance with ASTM B36 or ASTM B121, plated tin-lead, 50 to 70 percent tin, in accordance with SAE-AMS-P-81728.

Chassis insulator: 0.002 inch (50 μ m) thick polyimide or polymeric resin in accordance with ASTM D5213.

Environmental:

Operating temperature: -55°C to +125°C.

Electrical

Insulation resistance: 1,000 megohms minimum. Test pin diameter size 16, .040 \pm .001 inch (1.02 \pm .03 mm).

Dielectric withstanding voltage:

Sea level test voltage: 1,500 volts root mean square (rms). Test pin diameter size 16, .040 \pm .001 inch (1.02 \pm .03 mm).

High altitude test voltage: 660 volts rms. Test pin diameter size 16: .040 \pm .001 inch (1.02 \pm .03 mm).

Contact resistance: Contact resistance shall be measured using a brass jumper having a pin length, diameter and center-to-center spacing as shown in table II. The test leads shall be attached to the terminals as close to the socket body as possible. Test gauge shall be in accordance with table I.

Average for all contacts: 0.015 ohm maximum.

Individual contacts: 0.03 ohm maximum.

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Test gage details: See table II and MIL-DTL-12883 appendix.

TABLE II. Test gage details. 1/ 2/

Inspection	A Pin length (mm)	B Pin dia (mm)	M Test-end dia (mm)	C Pin-circle dia basic (mm)	N Probe-end dia (mm)
Insertion and withdrawal force <u>3/</u>	.150 min (3.81)	.039 ±.0001 (0.99 ±0.002)		.4300 (10.92)	
Contact resistance	.150 min (3.81)			.4300 (10.92)	
Contact retention <u>4/ 5/</u>	.150 min (3.81)	.039 ±.0001 (0.99 ±0.002)	.039 ±.0001 (0.99 ±0.002)		.041 ±.0001 (1.04 ±0.002)
Durability <u>3/</u>	.150 min (3.81)	.039 ±.0001 (0.99 ±0.002)		.4300 (10.92)	

1/ Dimensions are in inches.

2/ Metric equivalents are given for information only.

3/ Test gage shall be similar in construction to MIL-DTL-12883 appendix.

4/ See MIL-DTL-12883 appendix, contact/retention test gage.

5/ Total weight of gage (± 5 percent) 2 ounces (56.7 grams).

Mechanical:

Contact clearance: Clearance between the cavity wall and the contact, with the contact in any position, shall be such that a .039 inch (0.99 mm) round nose pin with a force of 5 pounds-force (22.24 newton) will not penetrate between the cavity and contact.

Float: With a pin of .041 inch (1.04 mm) diameter and .271 inch (6.88 mm) length fully inserted in a socket contact, the contact shall be capable of free movement (float) within the contact cavity.

Insertion and withdrawal force:

Initial:

Initial insertion force: 6 pound-force (22.41 Newton) maximum.

Withdrawal force: 6 pound-force (22.41 Newton) maximum, .18 pound-force (0.08 Newton) minimum.

After durability testing:

Insertion force: 6 pound-force (22.41 Newton) maximum.

Withdrawal force: 6 pound-force (22.41 Newton) maximum and .125 pound-force (0.56 Newton) minimum.

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Vibration: Sockets shall meet the requirements of MIL-STD-202, method 204, test condition B, (10 - 2,000 Hz) with a power transistor inserted for use as a test gauge.

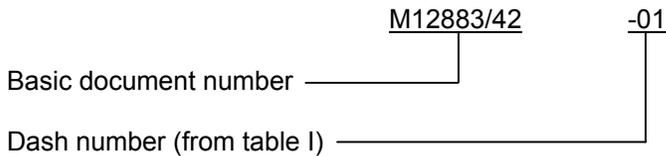
Mechanical shock: Sockets shall meet the shock requirements specified in MIL-DTL-12883, with a power transistor inserted for use as a test gauge

Durability 50 cycles: Socket shall be capable of meeting the insertion and withdrawal forces specified herein.

Weight: 2 ounces (56.7 gram) maximum

Part or Identifying Number (PIN): The PIN shall consist of the basic number of this specification sheet and the dash number from table II.

Example



The Government PIN, specified in table III, supersedes the following commercial PINs.

TABLE III. Supersession and cross reference data.

Active Government PIN	Superseded PIN
	CAGE 72825
M12883/42-09	ST3A-X3A-X5-03
M12883/42-10	ST3A-X3A-X5-43

Replacement information: See table IV.

TABLE IV. Replacement information.

Superseded PIN M12883/42-	Replacement PIN M12883/42-
01	09 Same except mounting saddle dimension hole is .450 (11.43 mm)
02	10 Same except mounting saddle dimension hole is .450 (11.43 mm)
03	No replacement PIN
04	No replacement PIN
05	No replacement PIN
06	No replacement PIN
07	No replacement PIN
08	No replacement PIN

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Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

In addition to MIL-DTL-12883, this specification sheet references the following documents:

MIL-STD-202	ASTM D5948
ASTM B36	ASTM D5213
ASTM B121	SAE-AMS-P-81728
ASTM B194	SAE-AMS-QQ-N-290
ASTM B488	CDA-UNS C17200
ASTM B740	CDA-UNS C72900

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 5935-4573-002)

Review activities:

Army - AR, AT, AV, CR4, MI
Navy - CG, MC, OS
Air Force - 19, 99

NOTE: The activities listed above were interested in this document as the date of this document. Since organizations and responsibilities change, you should verify the currency of the information above using the ASSIST Online database at <http://www.dodssp.daps.mil/>.