

INCH-POUND

MIL-DTL-28754/61A
7 June 2016
SUPERSEDING
MIL-C-28754/61 (NAVY)
29 April 1985

DETAIL SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, MODULAR, TYPE IV, CONNECTOR, 100 PIN,
CENTER, CROSSOVER, CONTACT TAILS ON .100 CENTERS (CERAMIC COMPATIBLE)

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-28754.

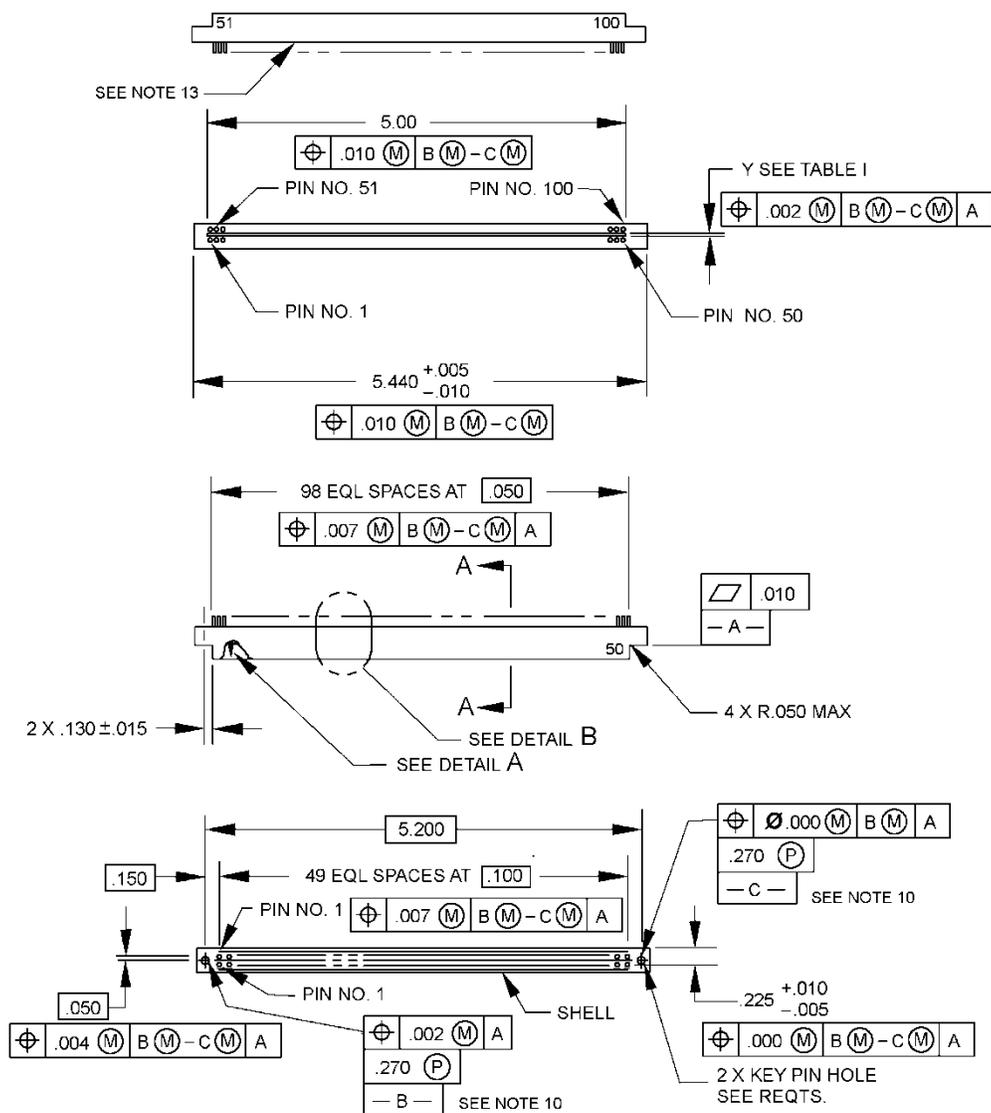


FIGURE 1. Dimensions and configurations.



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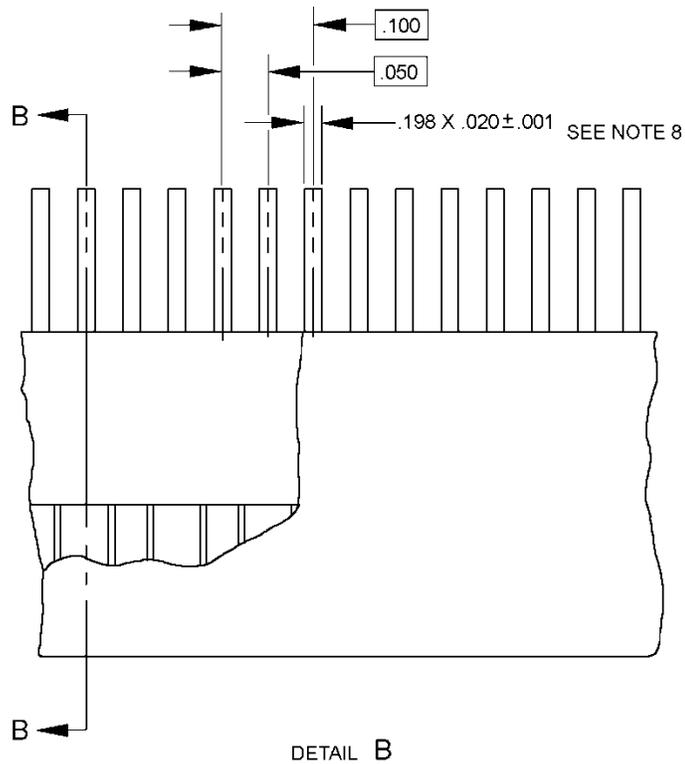
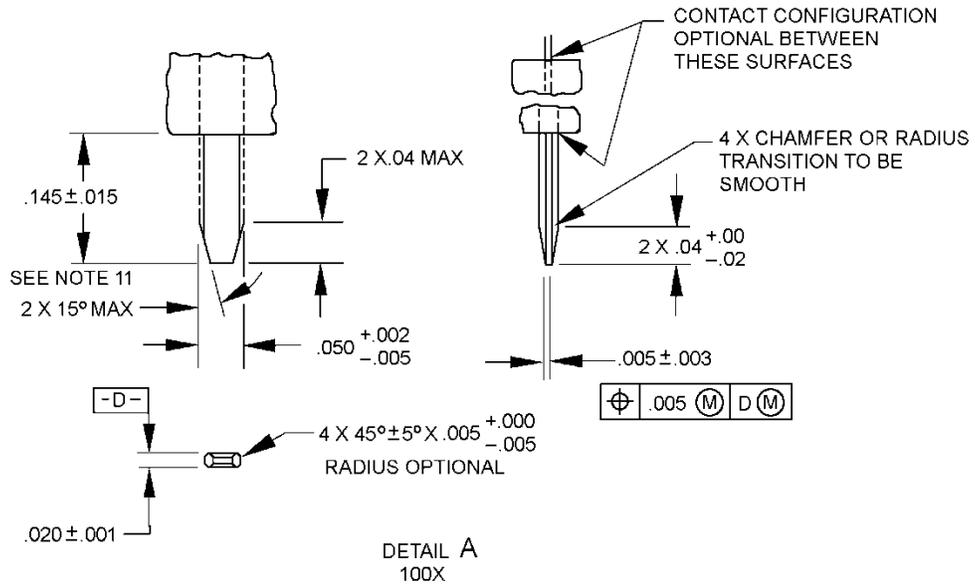


FIGURE 1. Dimensions and configurations – Continued.

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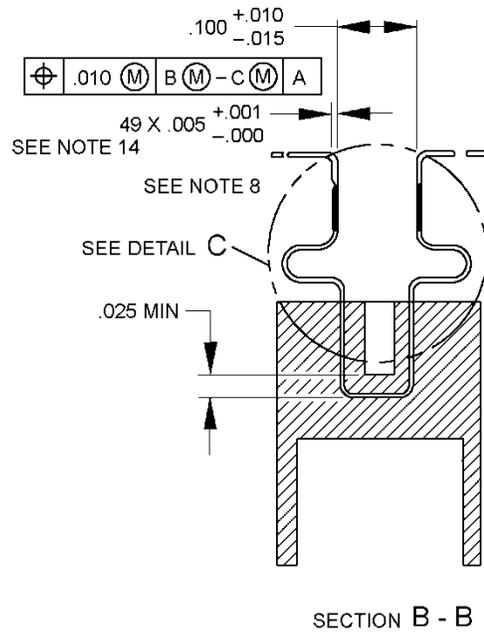
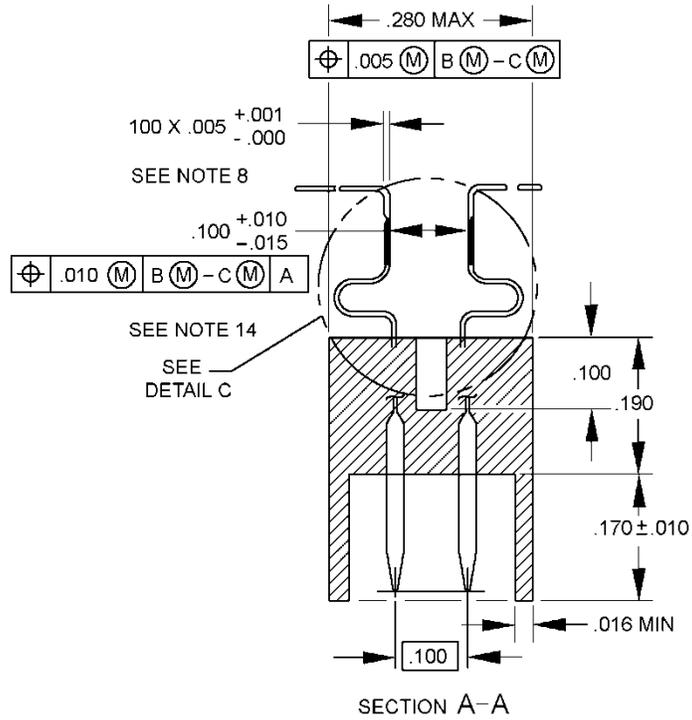
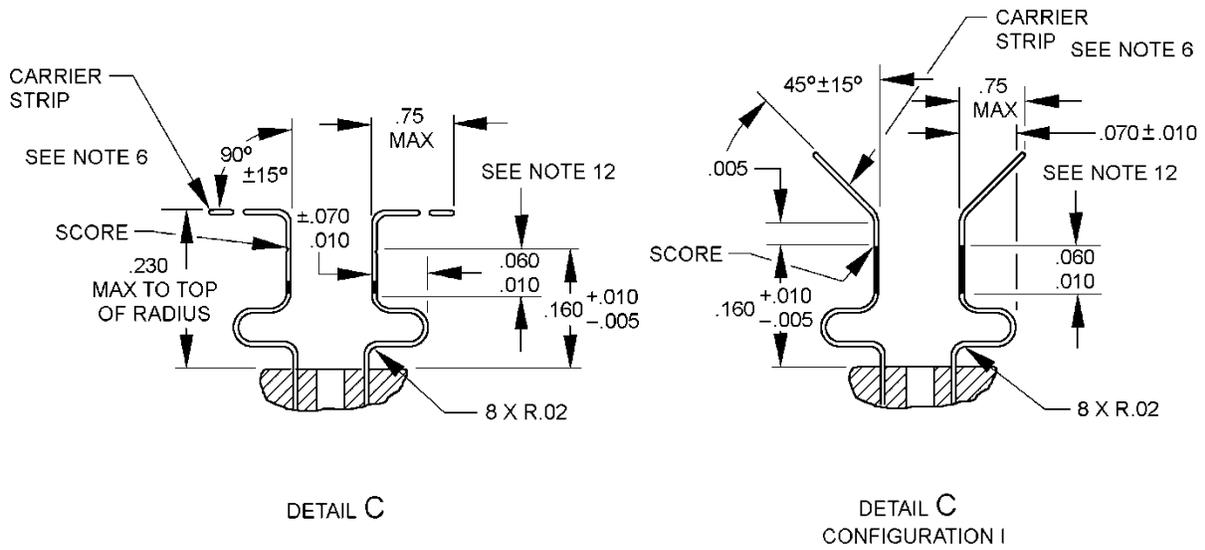


FIGURE 1. Dimensions and configurations – Continued.

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| Inches | mm | Inches | mm | Inches | mm | Inches | mm | Inches | mm |
|--------|-----|--------|------|--------|------|--------|--------|--------|--------|
| .001 | .03 | .015 | .38 | .070 | 1.77 | .190 | 4.83 | 5.200 | 132.08 |
| .002 | .05 | .016 | .41 | .100 | 2.54 | .225 | 5.72 | 5.440 | 138.18 |
| .003 | .08 | .020 | .51 | .130 | 3.30 | .230 | 5.84 | | |
| .004 | .10 | .025 | .64 | .145 | 3.68 | .270 | 6.86 | | |
| .005 | .13 | .040 | 1.02 | .150 | 3.81 | .280 | 7.11 | | |
| .007 | .18 | .050 | 1.27 | .160 | 4.06 | .750 | 19.05 | | |
| .010 | .25 | .060 | 1.52 | .170 | 4.31 | 5.000 | 127.00 | | |

FIGURE 1. Dimensions and configurations – Continued.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only and are based upon 1.00 inch = 25.4 mm.
3. Unless otherwise specified, tolerances are $\pm .005$ (.13 mm) inch for three place decimals, $\pm .01$ (.3 mm) inch for two place decimals and $\pm 2^\circ$ for angles.
4. Flash around blade contacts not to exceed .010 (.25 mm) inch from the surface of the insulator and shall be firmly attached.
5. Pin shield shall be marked with contact numbers 1, 50, 51 and 100 in contrasting color ink .06 (1.5 mm) inch high.
6. The carrier strip shall remain attached to the contact tails to facilitate shipping and may be tinned. It shall be scored at the point indicated to facilitate removal at final assembly. The carrier strip is not required to be continuous.
7. Single or multiple piece construction is optional provided that the end requirements of the drawing are met. It is permissible for the connector to be installed in either an aluminum or thermoplastic shell which provides the pin shield and key pin hole features. The thermoplastic shall be type GLT-30F.
8. Dimension prior to solder coating.
9. Dimensions apply after plating.
10. See Table I for key pin hole size and body material.
11. Contact engagement length.
12. Shaded area shall be solder coated.
13. Connector shall be marked in approximate location shown with part number, manufacturer's number and date code with contrasting ink in characters .06 (1.5 mm) inch high.
14. This applies only to the $.060 \pm .010$ surfaces.
15. Plating defects on the carrier strip above the score line are acceptable.

FIGURE 1. Dimensions and configuration – Continued.

REQUIREMENTS:

Dimensions and configuration: See Figure 1 and Table I.

Materials: Contacts shall be either copper alloy sheet or strip, UNS Number C72500, temper 1/4 hard minimum, in accordance with ASTM B 122/B122M or brass, ASTM B36/B36M, UNS number C26000, temper H02.

Connector body shall be either polyetherimide, Type GLT-20F or GLT-30F, molded thermoplastic in accordance with MIL-M-24519 or molding plastic, diallyl phthalate Type GDI-30F or Type SDG-F in accordance with ASTM D5948. Optional end block shall be aluminum alloy 6061-T6 in accordance with SAE AMS4150.

The pin shield shall be aluminum alloy 5052-H34 in accordance with SAE AMS4017, 6063-T6 in accordance with ASTM B241/B241M or ASTM B221, or molded thermoplastic type GLT-20F or GLT-30F, in accordance with MIL-M-24519. Pin shield thickness for molded thermoplastic shall be 0.020 (.51 mm) inch minimum.

Plating: Contacts shall be finished on all exposed surfaces. The contact engagement length indicated shall be finished with gold plate, MIL-DTL-45204, Type II, Grade C, Class 1 or equivalent, over nickel plating, SAE-AMS-QQ-N-290, Class 1, 0.000050 (0.00013 mm) inch minimum thickness.

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Plating requirements for connector solder tails shall be as follows:

Steps 1, 2, 4, 5, 7 – Clean prior to plating in accordance with SAE AMS-P-81728.

Step 3 – Cu plate in accordance with SAE AMS2418 to a thickness of 0.0001 (0.0025 mm) inch.

Step 6 – Plate in accordance with SAE-AMS-P-81728 to a thickness of 0.0003 – 0.0005 (0.0076 – 0.0127 mm) inch. Alloy 90% SN-10% Pb.

Step 8 – Bake in accordance with SAE AMS-P-81728.

Step 9 – Form.

Step 10 – Fuse/reflow with peanut oil as suggested. Quality assurance of SAE-AMS-P-81728 shall apply. No sign of dewet or poor solderability will be accepted.

Step 11 – Avoid chlorinated solvents in rinse.

Step 12 – Selectively solder coat the leads as shown in the shaded area in accordance with J-STD-006, SN60 or SN63 to a thickness of 0.0005 – 0.003 (0.0005 – 0.0800 mm) inch using flux, J-STD-004, Type RMA.

All aluminum alloy parts shall be anodic coated in accordance with MIL-A-8625, Type III, Class 2, black.

Key pin holes: For M28754/61-05 material and -06 material, $.098 \pm .001$ (2.48 \pm .03 mm) inch diameter x .150 (3.81 mm) inch deep.

For M28754/61-03 and -04 material, $.098 \pm .01$ (2.48 \pm .13 mm) inch diameter x .150 (3.81 mm) inch deep.

For M28754/61-01 and -02 material, $.114 +.000-.005$ (2.90 $+00-.13$ mm) inch dia x .150 (3.81 mm) inch deep.

C'bore $.134 +.005-.000$ (3.40 $+ .13-.00$ mm) inch dia x $.020 +.005-.000$ (.51 $+ .13 -.00$ mm) inch deep.

Three equally spaced 0.010 (.25 mm) inch rad beads x .150 (3.81 mm) inch deep around the periphery of the .114 (2.90 mm) inch diameter shall be utilized.

Electrical requirements:

Dielectric withstanding voltage: The connector shall be tested in accordance with test procedure EIA-364-20, Method A, test condition IV, test voltage 600 VAC (rms) 60 Hz, or 850 VDC. The point of measurement shall be between adjacent contacts.

Low level (dry circuit): Voltage drop shall not exceed 36 millivolts. Wire size is not applicable.

Contact resistance: Voltage drop shall not exceed 36 millivolts. Current Rating, 3 Amp.

Temperature rating: -55°C to +125°C.

Voltage rating: 300 Volts, AC (RMS), at sea level.

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Durability: In accordance with MIL-DTL-28754 and shall not exceed 36 millivolts.

Solderability: In accordance with MIL-DTL-28754.

Military part number: M28754/61- (Dash number from Table I).

TABLE I

| Dash number | Dimension "Y" | Key pin hole Inch (mm) | Shell material |
|-----------------|--------------------------|------------------------------------|-------------------------|
| 01 | .060 ± .002 (1.52 ± .05) | .114 +.000-.005 (2.90 +.00-.13 mm) | Type GDI-30F or SDG-F |
| 02 | .034 ± .002 (0.86 ± .05) | .114 +.000-.005 (2.90 +.00-.13 mm) | Type GDI-30F or SDG-F |
| 03 | .060 ± .002 (1.52 ± .05) | .098 ± .001 (2.49 ± .03) | Aluminum Alloy |
| 04 | .034 ± .002 (0.86 ± .05) | .098 ± .001 (2.49 ± .03) | Aluminum Alloy |
| 05 | .060 ± .002 (1.52 ± .05) | .095 ± .001 (2.41 ± .03) | Type GLT-20F or GLT-30F |
| 06 | .034 ± .002 (0.86 ± .05) | .095 ± .001 (2.41 ± .03) | Type GLT-20F or GLT-30F |
| CONFIGURATION 1 | | | |
| 07 | .060 ± .002 (1.52 ± .05) | .114 +.000-.005 (2.90 +.00-.13 mm) | Type GDI-30F or SDG-F |
| 08 | .034 ± .002 (0.86 ± .05) | .114 +.000-.005 (2.90 +.00-.13 mm) | Type GDI-30F or SDG-F |
| 09 | .060 ± .002 (1.52 ± .05) | .098 ± .001 (2.49 ± .03) | Aluminum Alloy |
| 10 | .034 ± .002 (0.86 ± .05) | .098 ± .001 (2.49 ± .03) | Aluminum Alloy |
| 11 | .060 ± .002 (1.52 ± .05) | .095 ± .001 (2.41 ± .03) | Type GLT-20F or GLT-30F |
| 12 | .034 ± .002 (0.86 ± .05) | .095 ± .001 (2.41 ± .03) | Type GLT-20F or GLT-30F |

Warning: The GLT-20F or GLT-30F may be susceptible to stress cracking when exposed to certain cleaning solvents.

First article testing: Perform the applicable tests as specified in MIL-DTL-28754 and the appendix thereto.

Number of units to be inspected: Twelve (12) of each dash number to be qualified shall be inspected.

Changes from previous issue. The margins of this specification are marked with vertical lines 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 previous issue.

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Referenced documents. In addition to MIL-DTL-28754, this document references the following:

MIL-A-8625
MIL-M-24519
MIL-DTL-45204
ASTM D5948
ASTM B 122/B122M
ASTM B36/B36M
ASTM B221
ASTM B241/B241M
EIA-364-20
J-STD-004
J-STD-006
SAE AMS2418
SAE AMS4017
SAE AMS4150
SAE-AMS-P-81728
SAE-AMS-QQ-N-290

CONCLUDING MATERIAL

Custodians:
Navy – AS
Air Force - 85
DLA - CC

Preparing activity:
DLA – CC

(Project 5935-2016-081)

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