

INCH-POUND

MIL-DTL-55302/120B  
w/AMENDMENT 1  
12 October 2007  
SUPERSEDING  
MIL-DTL-55302/120B  
6 December 2004

DETAIL SPECIFICATION SHEET

CONNECTORS, PRINTED CIRCUIT SUBASSEMBLY AND ACCESSORIES:  
PLUG, PIN CONTACTS, 128 CONTACT POSITIONS, FOR PRINTED  
WIRING BOARDS (.050 INCH SPACING)

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-55302.

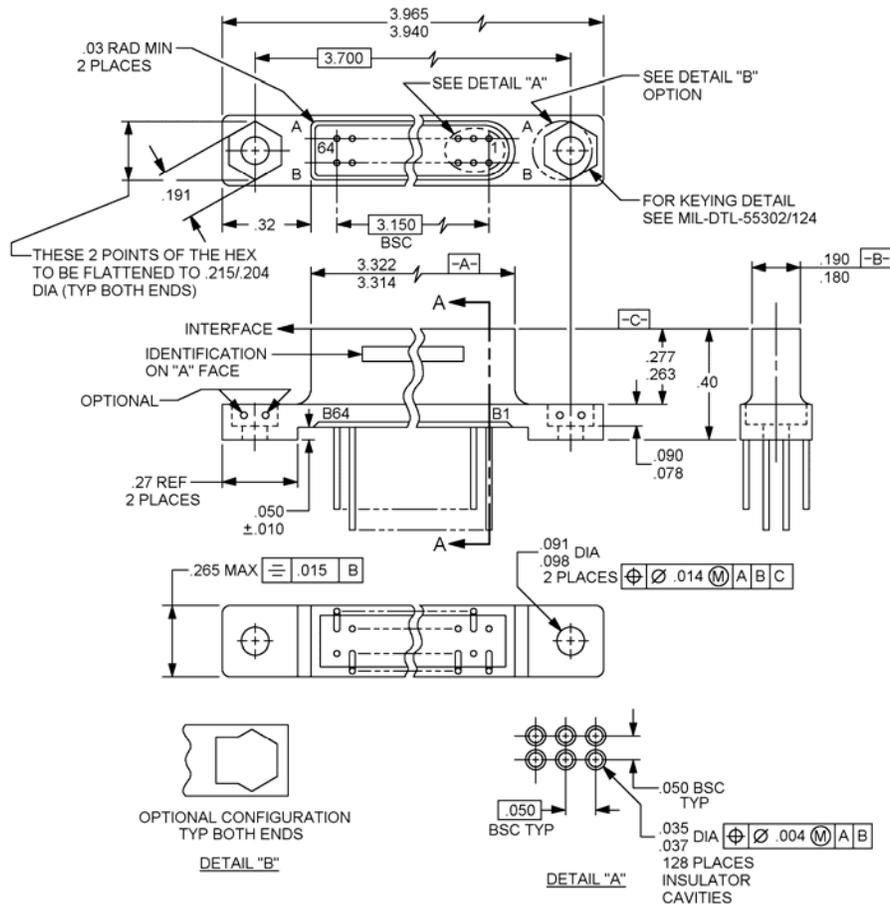
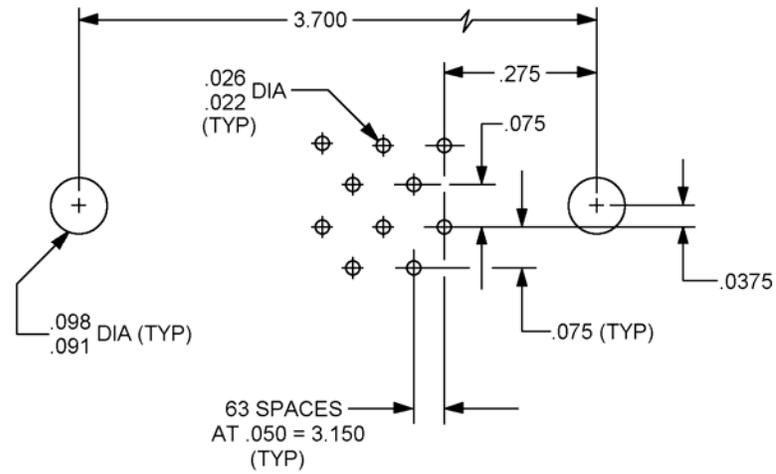
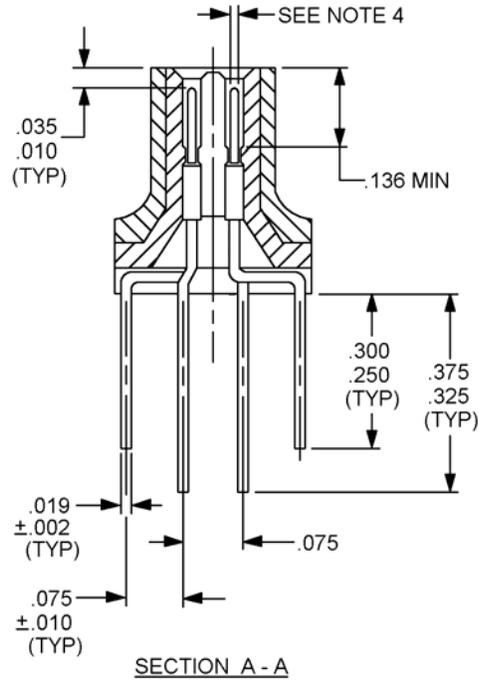


FIGURE 1. Connectors, plug (.050 spacing).

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RECOMMENDED PRINTED CIRCUIT BOARD LAYOUT

FIGURE 1. Connectors, plug (.050 spacing) - Continued.

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Inches	mm	Inches	mm	Inches	mm
.002	0.05	.078	1.98	.275	6.99
.004	0.10	.090	2.29	.277	7.04
.010	0.25	.091	2.31	.300	7.62
.014	0.36	.098	2.49	.32	8.13
.015	0.38	.136	3.45	.325	8.26
.019	0.48	.180	4.57	.375	9.52
.022	0.56	.190	4.83	.40	10.16
.026	0.66	.191	4.85	3.150	80.01
.030	0.76	.204	5.18	3.314	84.18
.035	0.81	.215	5.46	3.322	84.38
.037	0.94	.250	6.35	3.700	93.98
.0375	0.952	.263	6.68	3.940	100.08
.050	1.27	.265	6.73	3.965	100.71
.075	1.91	.27	6.86		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerances are  $\pm .005$  (0.13 mm) for three place decimals and  $\pm .02$  (0.51 mm) for two place decimals.
4. Refer to individual contact engaging and separating forces under requirements.
5. These connectors mate with connectors specified in MIL-DTL-55302/121.

FIGURE 1. Connectors, plug (.050 spacing) - Continued.

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REQUIREMENTS:

Design and construction:

Dimensions and configuration: See figure 1. This specification sheet describes the motherboard or pin side of a metal shell two-piece edgeboard connector system. This system uses reverse gender contacts; i.e., the live pin is recessed in the insulator with the static socket protruding from a shrouded interface.

Material and finish:

Pin contact: Copper alloy. Gold plate in accordance with ASTM B488, type II, code C, class 1.27. A suitable copper or gold underplate is permissible for adhesion.

Insulator: Diallyl phthalate in accordance with ASTM D5948.

Pin shell: Aluminum alloy electroless nickel in accordance with SAE-AMS-2404, class 3 or 4.

Keys: In accordance with MIL-DTL-55302/124.

Contact identification: Contact rows are identified by molded letters "A" and "B" in mating side of plug. End contact numbers are marked on the side of the plug or are molded into the interface of the plug. See figure 1 for further details.

Oversize pin exclusion test: Not applicable to reverse gender connectors.

Individual contact engaging and separation force: 8.0 ounces maximum engaging, 0.5 ounce minimum separation. Contact resistance not to exceed 36 millivolts at 3 amps rated current.

Mating and unmating: The maximum mating force, in pounds, shall not exceed a value equal to .6 times the number of contacts, and the unmating force, in pounds, shall be a minimum of .03 times the number of contacts and shall not exceed the measured insertion force.

Current rating, maximum: 3 amperes per contact.

Contact retention: Not applicable.

Contact connections: The pin contact (being recessed in the insulator) is normally connected to the live side of the circuit.

Dielectric withstanding voltage:

Sea level: 800 volts rms, 60 hertz.

High altitude (70,000 feet): 200 volts rms, 60 hertz.

Low level circuit: The low level circuit resistance shall not exceed 20 milliohms.

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Conformance inspection: In accordance with MIL-DTL-55302, except under group "A" inspection, add tests for dielectric withstanding voltage and insulation resistance. Under group "B" inspection delete the test for insulation resistance; add tests for contact separation and mating and unmating.

Sampling plan: Group "B" statistical sampling and inspection shall be in accordance with table I.

TABLE I. Lot and sample size.

Lot size	Sample size
2 to 13	100%
14 to 1200	13
1201 to 35,000	50
35,001 to 500,000	80
500,001 and over	125

Vibration: Vibration shall be in accordance with test procedure EIA-364-28, condition III shall apply.

Shock: Shock shall be in accordance with test procedure EIA-364-27, condition A shall apply.

Keys: When required, are installed by user. See MIL-DTL-55302/124 for further details and installation instructions.

Mating receptacle: Mating receptacle shall be in accordance with MIL-DTL-55302/121.

Group A testing:

High temperature contact resistance: Sample connectors from each lot shall be subjected to a contact resistance test at 10 milliamps and  $120 \pm 5^{\circ}\text{C}$ . The contact dc resistance shall be 10 milliohms maximum per mated pair contacts.

Test contacts – user option: When required by the user purchase order, a quantity of 4 contacts per connector or 30 contacts per shipment, whichever is less, with terminal wires attached shall be supplied separately for plating and crimp inspection by the buyer. These contacts shall be from the same plating and crimp lots as those installed in the connectors delivered.

QPL and periodic testing:

X-ray: Representative sample connectors shall be X-rayed by the wet film process to produce 1 to 1 contact images. Two different lateral images shall be taken at  $\pm 26.5^{\circ}$  incident angles to view both rows of contacts simultaneously in each image. The developed film shall be inspected at 10 power minimum magnification for proper pin bundle and terminal wire insertion depth and for the presence of uncrimped or loose strands.

High temperature contact resistance: Representative sample connectors shall be tested as in group A, high temperature contact resistance.

Contact inspection: Representative sample contacts with terminal wires crimped shall be tested for plating thickness, plating porosity, crimp impression penetration and crimp pull strength.

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Part or Identifying Number (PIN): M55302/120-01.

Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Referenced documents. In addition to MIL-DTL-55302, this document references the following:

MIL-DTL-55302/121  
MIL-DTL-55302/124  
ASTM B488  
ASTM D5948  
SAE-AMS-2404  
EIA-364-27  
EIA-364-28

CONCLUDING MATERIAL

Custodians:  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5935-2005-176)

Review activities:  
Air Force - 19, 99

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 <http://assist.daps.dla.mil>.