

INCH-POUND

MIL-DTL-55302/173C  
w/AMENDMENT 1  
15 April 2013  
SUPERSEDING  
MIL-DTL-55302/173C  
14 December 2007

### DETAIL SPECIFICATION SHEET

#### CONNECTORS, PRINTED CIRCUIT SUBASSEMBLY AND ACCESSORIES: 2 ROW, PIN ASSEMBLIES, 20 THROUGH 150 CONTACT POSITIONS, FOR PRINTED WIRING BOARDS (.100 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.

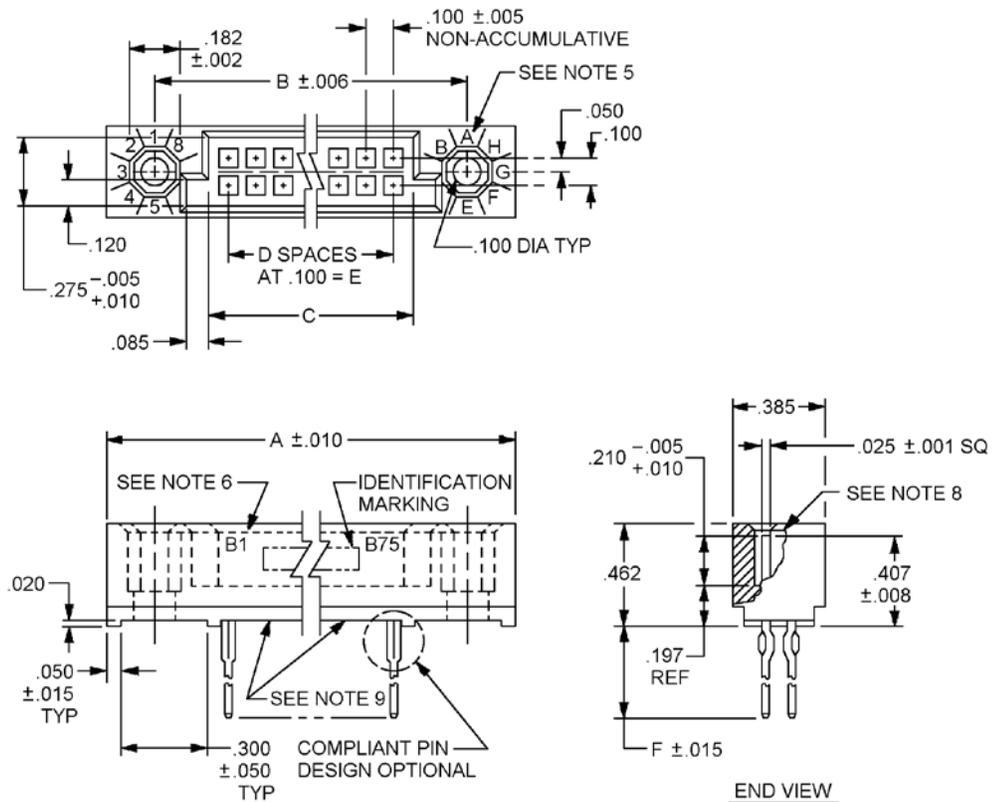
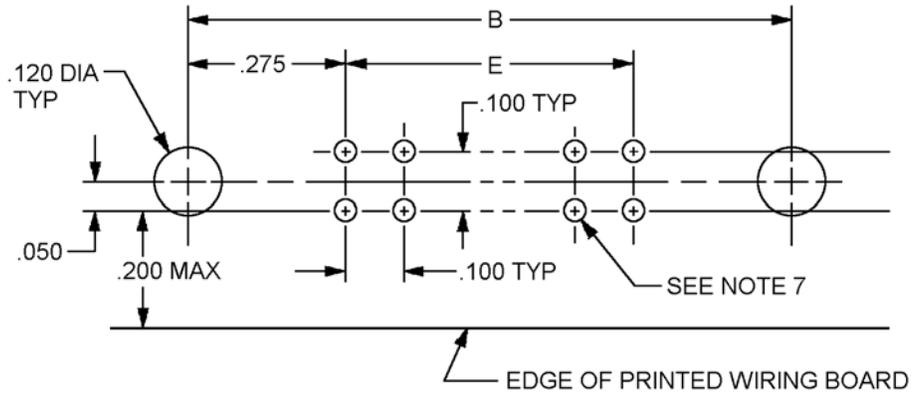


FIGURE 1. Connectors, pin assemblies .100 inch (2.54 mm) spacing, 20 through 150 contacts.

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Recommended circuit layout

F ± .015 (0.38 mm)		Type	Type of termination
Inches	mm		
.733	18.62	I	Compliant pin (wrappost)
.533	13.54	II	
.250	6.35	IV	
.190	4.83	VI	Solder post (see note 10)

Inches	mm	Inches	mm
.001	0.03	.100	2.54
.002	0.05	.120	3.05
.005	0.13	.182	4.62
.006	0.15	.197	5.00
.008	0.20	.210	5.33
.010	0.25	.275	6.98
.015	0.38	.300	7.62
.020	0.51	.385	9.78
.025	0.64	.407	10.34
.050	1.27	.462	11.73
.085	2.16		

FIGURE 1. Connectors, pin assemblies .100 inch (2.54 mm) spacing, 20 through 150 contacts – Continued.

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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) on decimals and  $\pm 2^\circ$  on angles.
4. These connectors mate with connectors in accordance with MIL-DTL-55302/174.
5. Location indicators embossed on surface.
6. Numbers and indicating end cavities, letters indicating row nearest to polarizing feature, and markings every ten positions stamped on this surface.
7. Holes for solder type shall be .042 - .050 inch (1.07 – 1.27 mm). Holes for compliant pin shall be manufactured as follows: .0453  $\pm$  .0010 inch (1.151  $\pm$  0.025 mm) drilled hole (1.15 mm drill) .001 - .003 inch (0.03 – 0.08 mm) thick copper on wall, .0003 inch (0.008 mm) minimum tin lead plating, finished hole diameter .037 - .043 inch (0.94 – 1.09 mm) after plating, .036 - .043 inch (0.91 – 1.09 mm) after reflow, copper hardness (knoop) 150 maximum.
8. Chamfers shall be .015 inch (0.38 mm) minimum at a  $45^\circ$  angle  $\pm 5^\circ$ .
9. There shall be a minimum of two standoffs per inch of connector length for the balance of the part. Standoffs shall not compromise the terminating area washout feature.
10. Solder post shall be a .036-inch (0.91 mm) maximum diameter or .036 inch (0.91 mm) maximum across the diagonal.

FIGURE 1. Connectors, pin assemblies .100 inch (2.54 mm) spacing, 20 through 150 contacts – Continued.

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TABLE I. Dash number, number of contacts, contact type, and dimensions. 1/ 2/

Dash number	No. of contacts	Contact type	A	B	C	D	E	Contact ident. no.
01 02 04 06	20	I II IV VI	1.750 (44.45)	1.450 (36.83)	1.050 (26.67)	9	.900 (22.86)	1-10
10 11 13 15	30	I II IV VI	2.250 (57.15)	1.950 (49.53)	1.550 (39.37)	14	1.400 (35.56)	1-15
19 20 22 24	40	I II IV VI	2.750 (69.85)	2.450 (62.23)	2.050 (52.07)	19	1.900 (48.26)	1-20
28 29 31 33	50	I II IV VI	3.250 (82.55)	2.950 (74.93)	2.550 (64.77)	24	2.400 (60.96)	1-25
37 38 40 42	56	I II IV VI	3.550 (90.17)	3.250 (82.55)	2.850 (72.39)	27	2.700 (68.58)	1-28
46 47 49 51	60	I II IV VI	3.750 (95.25)	3.450 (87.63)	3.050 (77.47)	29	2.900 (73.66)	1-30
64 65 67 69	80	I II IV VI	4.750 (120.65)	4.450 (113.03)	4.050 (102.87)	39	3.900 (99.06)	1-40
82 83 85 87	100	I II IV VI	5.750 (146.05)	5.450 (138.43)	5.050 (128.27)	49	4.900 (124.46)	1-50
127 128 130 132	134	I II IV VI	7.450 (189.23)	7.150 (181.61)	6.750 (171.45)	66	6.600 (167.64)	1-67
145 146 148 150	150	I II IV VI	8.250 (209.55)	7.950 (201.93)	7.550 (191.77)	74	7.400 (187.96)	1-75

1/ Dimensions are in inches.

2/ Metric equivalents are given for information only.

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TABLE II. Contact plating requirements.

Type	Finish requirement
A	Overall contact finish: Shall be gold in accordance with MIL-DTL-45204, class 1, type II, grade C or equivalent.
B	Localized contact finish. Contact engagement area, .170 inch minimum length, shall be gold over nickel in accordance with MIL-DTL-45204, class 1, type II, grade C or equivalent. Compliant pin area (contact type 1, .748 inch minimum length, type II, .548 inch minimum length; type IV, .265 inch minimum length) shall be tin-lead over nickel in accordance with MIL-DTL-55302. Solder post area contact type VI, .205 inch minimum length, shall be tin-lead over nickel in accordance with MIL-DTL-55302.

REQUIREMENTS:

Design and construction:

Dimensions and configurations: See figure 1 and table I.

Materials: Shall be in accordance with MIL-DTL-55302.

Plating: See table II.

Current rating: 3.0 amperes maximum per contact, 2.25 amperes continuous per contact at room ambient with no more than two adjacent contacts carrying this current.

Keying (see MIL-DTL-55302/31):

Two keys, Part or Identifying Number (PIN) M55302/31-04, and two .086-56 UNC-2A mounting screws are recommended. Keys and screws shall be ordered separately.

Jackscrews (see MIL-DTL-55302/182):

Use M55302/182-11, -12, -13, -14, -15, or -16. Jackscrews are purchased separately.

Mating and unmating: The mating force in pounds shall be the number of contacts multiplied by .250; the withdrawal force in pounds shall be a minimum of .025 times the number of contacts and shall not exceed the measured insertion force.

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Contact resistance: No individual contact pair shall have a resistance exceeding .015 ohm initial and .020 after testing.

Contact retention: Not applicable.

Dielectric withstanding voltage:

Sea level: 900 volts rms.

70,000 feet: 200 volts rms.

2 milliamperes maximum leakage current.

PIN: M55302/173 (and dash number from table I and type from table II).

Group qualification: See table III.

TABLE III. Group qualification.

Qualification of any of the following connectors <u>1/</u> <u>2/</u>	Qualifies the following connectors	Retains qualification on the following
M55302/173-*** M55302/175-***	M55302/173-*** M55302/175-***	M55302/173-*** M55302/175-*** M55302/176-*** M55302/178-*** M55302/179-*** M55302/181-***
M55302/176-*** M55302/178-***	M55302/173-*** M55302/175-*** M55302/176-*** M55302/178-***	
M55302/179-*** M55302/181-***	M55302/173-*** M55302/175-*** M55302/176-*** M55302/178-*** M55302/179-*** M55302/181-***	

1/ For initial qualification, connectors with the largest number of contact positions from the left hand column shall be used to obtain qualification for parts in corresponding center column.

2/ For qualification retention, data may be supplied on any two parts from the left hand column in order to retain qualification for the parts listed in the right hand column.

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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-55302/31  
MIL-DTL-55302/174  
MIL-DTL-55302/182  
MIL-DTL-45204

CONCLUDING MATERIAL

Custodians:

Army – CR  
Navy - EC  
Air Force - 85  
DLA – CC

Preparing activity:  
DLA - CC

(Project 5935-2013-061)

Review activities:

Army – AR, AT, AV, CR4, MI  
Navy – AS, MC  
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 <https://assist.dla.mil/>.