

INCH-POUND

MIL-DTL-55302/181C
w/AMENDMENT 1
15 April 2013
SUPERSEDING
MIL-DTL-55302/181C
23 January 2008

DETAIL SPECIFICATION SHEET

CONNECTORS, PRINTED CIRCUIT SUBASSEMBLY AND ACCESSORIES:
4 ROW, PIN ASSEMBLIES, RIGHT ANGLE, 100 THROUGH 684
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.

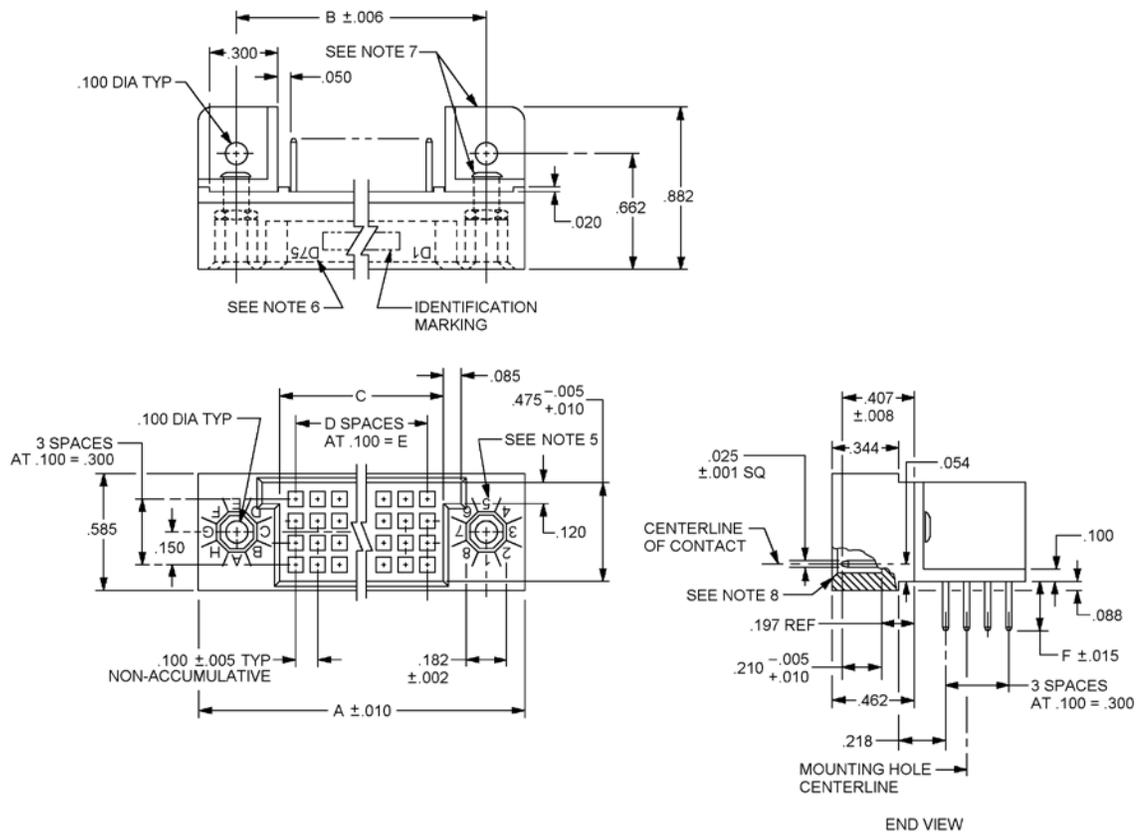
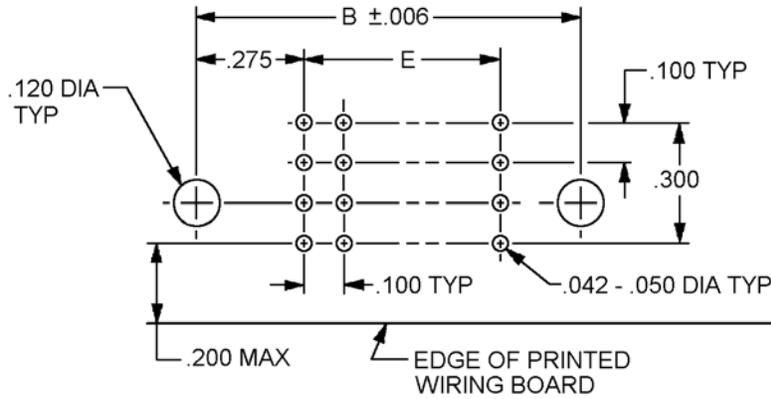


FIGURE 1. Connectors, pin assemblies .100 (2.54 mm) spacing, 100 through 300 contacts.

MIL-DTL-55302/181C
w/AMENDMENT 1



F ± .015 (0.38 mm)	Type	Type of termination
Inches mm		
.180 4.57	I	Solder post (see note 9)
.120 3.05	IV	

Inches	mm	Inches	mm
.001	0.03	.150	3.81
.005	0.13	.197	5.00
.006	0.15	.200	5.08
.008	0.20	.210	5.33
.010	0.25	.218	5.54
.015	0.38	.275	6.98
.020	0.51	.300	7.62
.025	0.64	.344	8.74
.042	1.07	.407	10.34
.050	1.27	.462	11.73
.054	1.37	.475	12.06
.085	2.16	.585	14.86
.088	2.24	.662	16.81
.100	2.54	.882	22.40
.120	3.05		

FIGURE 1. Connectors, pin assemblies .100 (2.54 mm) spacing, 100 through 300 contacts – Continued.

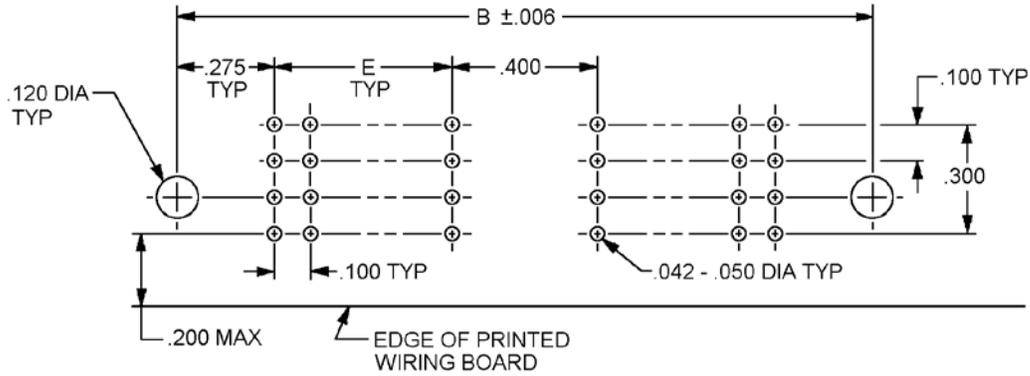
MIL-DTL-55302/181C
w/AMENDMENT 1

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerance is $\pm .005$ (0.13 mm) on decimals and $\pm 2^\circ$ on angles.
4. These connectors mate with connectors specified in MIL-DTL-55302/180.
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. Mounting ears and hardware are purchased separately. See MIL-DTL-55302/182 for mounting hardware.
8. Chamfers shall be .015 (0.38 mm) minimum at a 45° angle $\pm 5^\circ$.
9. Solder post shall be a .036 (0.91 mm) maximum diameter or .036 (0.91 mm) maximum across the diagonal.

FIGURE 1. Connectors, pin assemblies .100 (2.54 mm) spacing, 100 through 300 contacts – Continued.

MIL-DTL-55302/181C
w/AMENDMENT 1



Recommended circuit layout

F ± .015 (0.38 mm)		Type	Type of termination
Inches	mm	I	Solder post (see note 9)
.180	4.57	IV	
.120	3.05		

Inches	mm	Inches	mm	Inches	mm
.001	0.03	.080	2.03	.300	7.62
.002	0.05	.085	2.16	.344	8.74
.005	0.13	.088	2.24	.400	10.16
.006	0.15	.100	2.54	.407	10.34
.008	0.20	.120	3.05	.462	11.73
.010	0.25	.150	3.81	.475	12.06
.015	0.38	.182	4.62	.585	14.86
.020	0.51	.197	5.00	.662	16.81
.025	0.64	.200	5.08	.882	22.40
.042	1.07	.210	5.33		
.050	1.27	.218	5.54		
.054	1.37	.275	6.98		

FIGURE 2. Connectors, pin assemblies, right angle .100 (2.54 mm) spacing with one guide, 320 through 488 contacts - Continued.

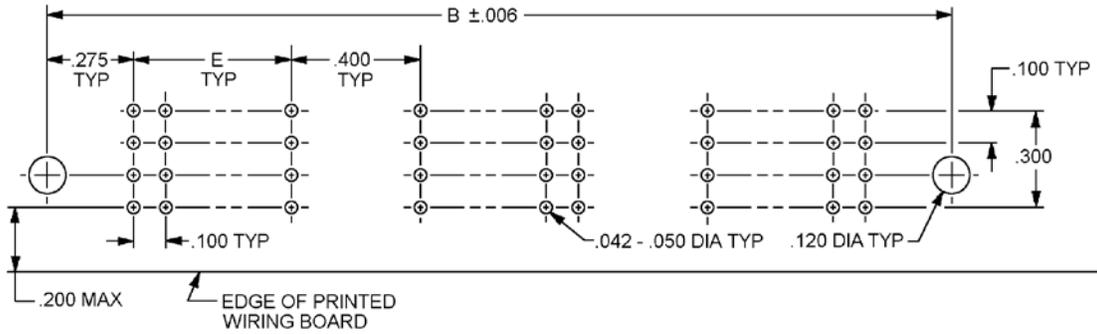
MIL-DTL-55302/181C
w/AMENDMENT 1

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerance is $\pm .005$ (0.13 mm) on decimals and $\pm 2^\circ$ on angles.
4. These connectors mate with connectors specified in MIL-DTL-55302/180.
5. Location indicators embossed on surface.
6. Numbers indicating end cavities, letters indicating row nearest to polarizing feature, and markings every ten positions stamped on this surface.
7. Mounting ears and hardware are purchased separately. See MIL-DTL-55302/182 for mounting hardware.
8. Chamfers shall be .015 (0.38 mm) minimum at a 45° angle $\pm 5^\circ$.
9. See figure 1 for solder post types. Solder post shall be a .036 (0.91 mm) maximum diameter or .036 (0.91 mm) maximum across the diagonal.
10. Guide pins are purchased separately. See MIL-DTL-55302/182.

FIGURE 2. Connectors, pin assemblies, right angle .100 (2.54 mm) spacing with one guide, 320 through 488 contacts - Continued.

MIL-DTL-55302/181C
w/AMENDMENT 1



F ± .015 (0.38 mm)		Type	Type of termination
Inches	mm		
.180	4.57	I	Solder post (see note 9)
.120	3.05	IV	

Inches	mm	Inches	mm
.005	0.13	.150	3.81
.006	0.15	.182	4.62
.008	0.20	.197	5.00
.010	0.25	.200	5.08
.015	0.38	.210	5.33
.020	0.51	.218	5.54
.025	0.64	.275	6.98
.042	1.07	.300	7.62
.050	1.27	.344	8.74
.054	1.37	.400	10.16
.080	2.03	.407	10.34
.085	2.16	.462	11.73
.088	2.24	.475	12.06
.100	2.54	.585	14.86
.120	3.05	.662	16.81
		.882	22.40

FIGURE 3. Connectors, pin assemblies, right angle .100 (2.54 mm) spacing with two guides, 516 through 684 contacts - Continued.

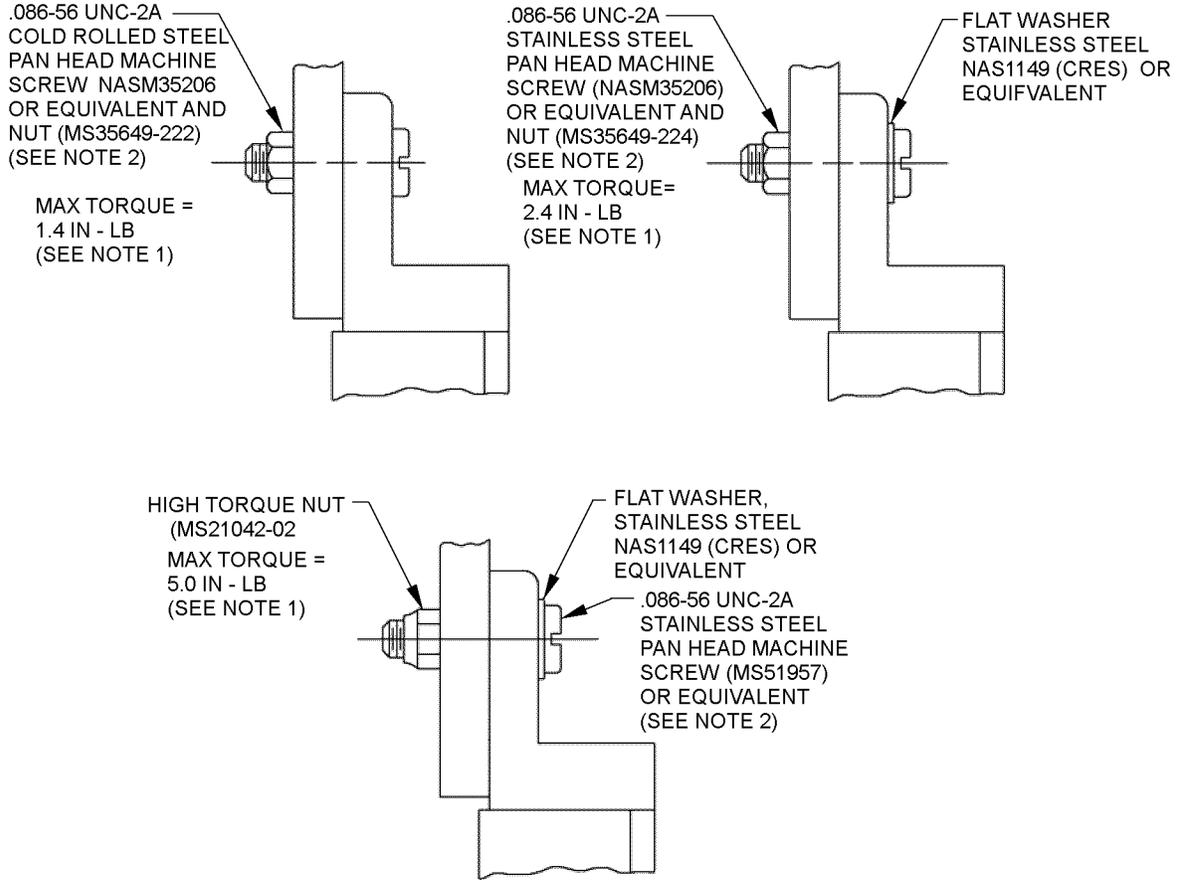
MIL-DTL-55302/181C
w/AMENDMENT 1

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerance is $\pm .005$ (0.13 mm) on decimals and $\pm 2^\circ$ on angles.
4. These connectors mate with connectors specified in MIL-DTL-55302/180.
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. Mounting ears and hardware are purchased separately. See MIL-DTL-55302/182 for mounting hardware.
8. Chamfers shall be .015 (0.38 mm) minimum at a 45° angle $\pm 5^\circ$.
9. Solder post shall be a .036 (0.91 mm) maximum diameter or .036 (0.91 mm) maximum across the diagonal.
10. Guide pins are purchased separately. See MIL-DTL-55302/182.

FIGURE 3. Connectors, pin assemblies, right angle .100 (2.54 mm) spacing with two guides, 516 through 684 contacts - Continued.

MIL-DTL-55302/181C
w/AMENDMENT 1



NOTES:

1. Torque wrench must be used when fastening connector to printed circuit board.
2. Length to be determined by user.

FIGURE 4. Mounting recommendations.

MIL-DTL-55302/181C
w/AMENDMENT 1

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

Dash no.	No. of contacts	Fig. no.	Contact type	A	B	C	D	E	G	H	Contact ident. no.
0104	100	1	I IV	3.250 (82.55)	2.950 (74.93)	2.550 (64.77)	24	2.400 (60.96)			1-25
0912	128	1	I IV	3.950 (100.33)	3.650 (92.71)	3.250 (82.55)	31	3.100 (78.74)			1-32
1720	160	1	I IV	4.750 (120.65)	4.450 (113.03)	4.050 (102.87)	39	3.900 (99.06)			1-40
21248	180	1	I IV	5.250 (133.35)	4.950 (125.73)	4.550 (115.57)	44	4.400 (111.76)			1-45
2526	200	1	I IV	5.750 (146.05)	5.450 (138.43)	5.050 (128.27)	49	4.900 (124.46)			1-50
3336	240	1	I IV	6.750 (171.45)	6.450 (163.83)	6.050 (153.67)	59	5.900 (149.86)			1-60
3740	260	1	I IV	7.250 (184.15)	6.950 (176.53)	6.550 (166.37)	64	6.400 (162.56)			1-65
4144	268	1	I IV	7.450 (189.23)	7.150 (181.61)	6.750 (171.45)	66	6.600 (167.64)			1-67
4548	280	1	I IV	7.750 (196.85)	7.450 (189.23)	7.050 (179.07)	69	6.900 (175.26)			1-70
4952	300	1	I IV	8.250 (209.55)	7.950 (201.93)	7.550 (191.77)	74	7.400 (187.96)			1-75
5760	344	2	I IV	9.650 (245.11)	9.350 (237.49)	8.950 (227.33)	42	4.200 (106.68)	4.675 (118.75)		1-86
6972	416	2	I IV	11.450 (290.83)	11.150 (283.21)	10.750 (273.05)	51	5.100 (129.54)	5.575 (141.61)		1-104
8184	488	2	I IV	13.250 (336.55)	12.950 (328.93)	12.550 (318.77)	60	6.000 (152.40)	6.475 (164.46)		1-222

See footnote at end of table.

MIL-DTL-55302/181C
w/AMENDMENT 1

TABLE I. Dash number, number for contacts, contact type, and dimensions – Continued. 1/ 2/

Dash no.	No. of contacts	Fig. no.	Contact type	A	B	C	D	E	G	H	Contact ident. no.
85 88	516	3	I IV	14.250 (361.95)	13.950 (354.33)	13.550 (344.17)	42	4.200 (106.68)	4.675 (118.75)	4.600 (116.84)	1-129
89 92	540	3	I IV	14.850 (377.19)	14.550 (369.57)	14.150 (359.41)	44	4.400 (111.76)	4.875 (123.83)	4.800 (121.92)	1-135
101 104	612	3	I IV	16.650 (422.91)	16.350 (415.29)	15.950 (405.13)	50	5.000 (127.00)	5.475 (139.07)	5.400 (137.16)	1-153
105 108	636	3	I IV	17.250 (438.15)	16.950 (430.53)	16.550 (420.37)	52	5.200 (132.08)	5.675 (144.15)	5.600 (142.24)	1.159
113 116	684	3	I IV	18.450 (468.63)	18.150 (461.01)	17.750 (450.85)	56	5.600 (142.24)	6.075 (154.31)	6.000 (152.40)	1-171

1/ Dimensions are in inches.

2/ Metric equivalents are given for information only.

TABLE II. Contact plating requirements. 1/

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 shall have a minimum plating in accordance with MIL-DTL-45204, class 1, type II, grade C or equivalent. Solder post area (contact type I; .195 minimum length; type IV; .135 minimum length) shall be tin-lead over nickel in accordance with MIL-DTL-55302.

1/ Type C finish is deleted and superseded by type A or B.

MIL-DTL-55302/181C
w/AMENDMENT 1

REQUIREMENTS:

Design and construction:

Dimensions and configurations: See figures 1, 2, 3, 4 and table I.

Material: 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.

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.

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: M55302/181 (and dash number from table I and type from table II).

MIL-DTL-55302/181C
w/AMENDMENT 1

Group qualification: See table III.

TABLE III. Group qualification.

Qualification of any of the following connectors <u>1/ 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.

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-55302/180
- MIL-DTL-55302/182
- MIL-DTL-45204
- MS51957
- NAS1149
- NASM35206

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 5935-2013-069)

Review activities:

Army - AR, AT, AV, CR4, MI
Navy - AS, MC, SH
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/>.