

INCH-POUND

MIL-DTL-55302/168C
w/AMENDMENT 2
28 February 2025
SUPERSEDING
MIL-DTL-55302/168C
w/AMENDMENT 1
9 January 2020

DETAIL SPECIFICATION SHEET

CONNECTORS, PRINTED CIRCUIT SUBASSEMBLY AND ACCESSORIES: LOW MATING FORCE, MALE BRUSH, RIGHT ANGLE, POLARIZED, FOR MULTILAYERED 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.

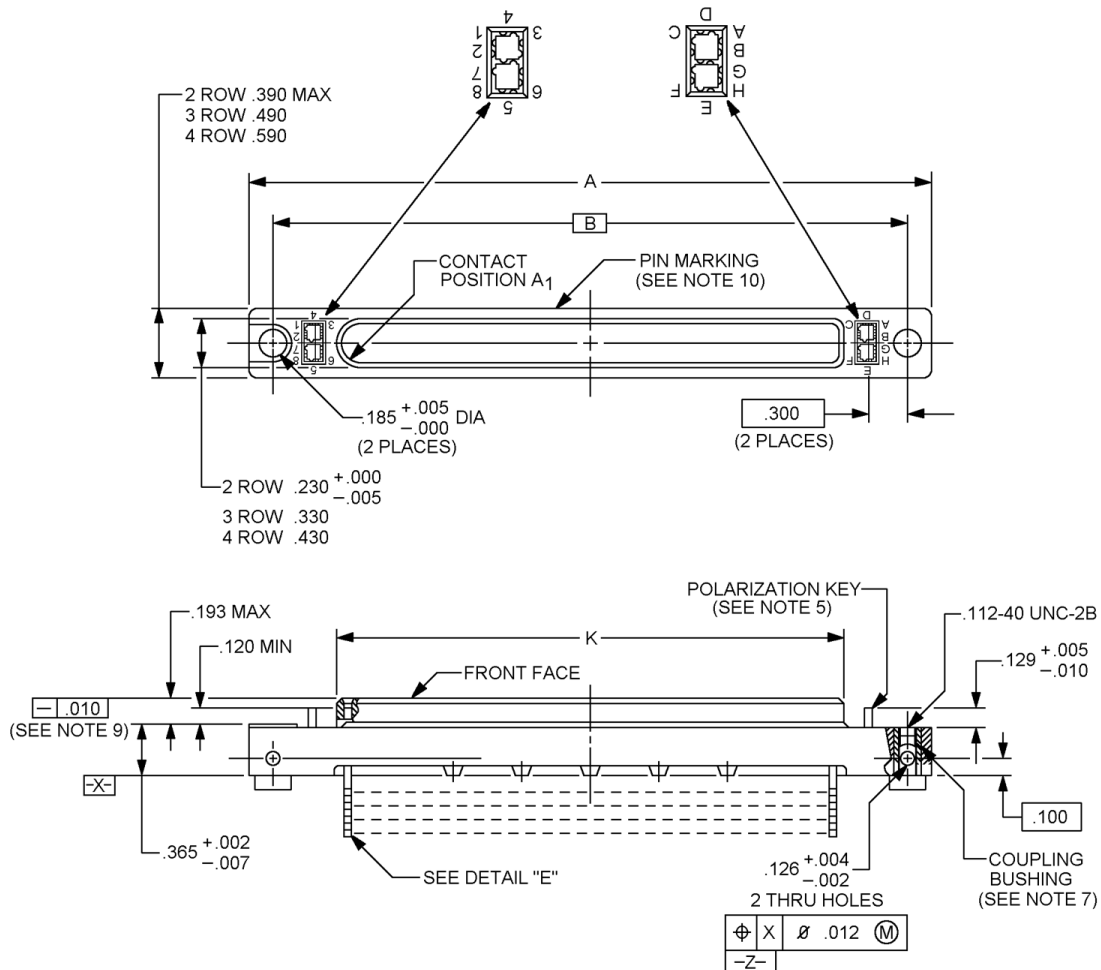
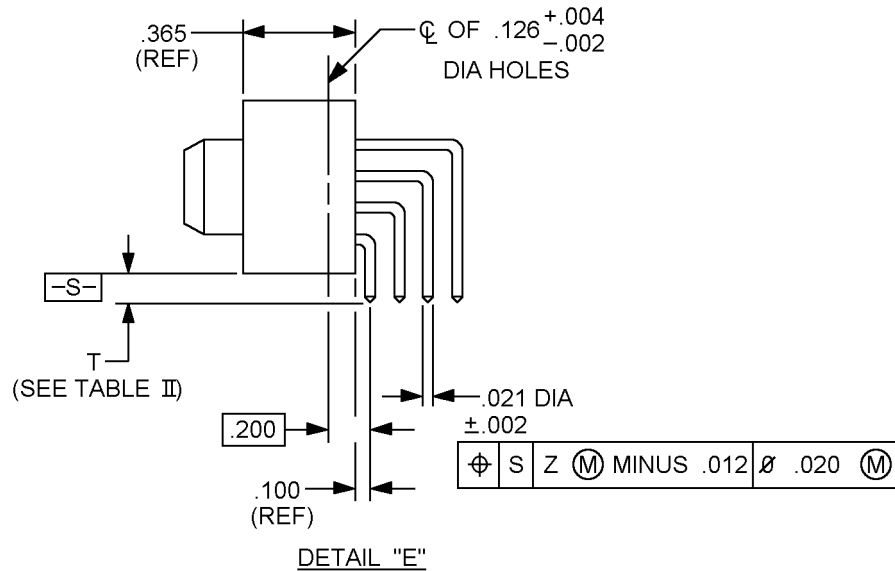


FIGURE 1. Connector, printed circuit, male brush, right angle for multilayered printed wiring boards .100 (2.54 mm) spacing.

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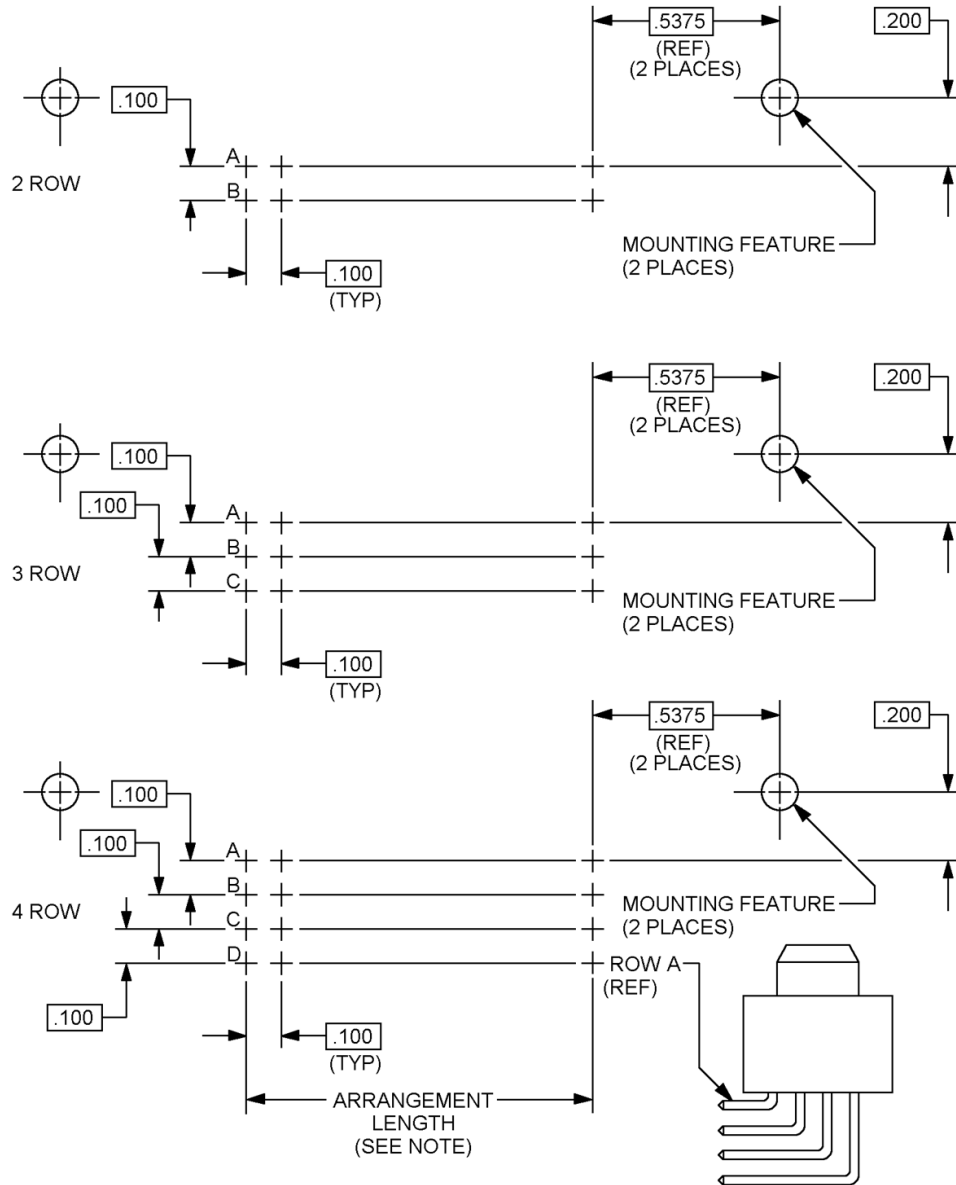
Inches	mm	Inches	mm	Inches	mm	Inches	mm
.002	0.05	.020	0.51	.129	3.28	.330	8.38
.004	0.10	.021	0.53	.185	4.70	.365	9.27
.005	0.13	.100	2.54	.193	4.90	.390	9.91
.007	0.18	.112	2.84	.200	5.08	.430	10.92
.010	0.25	.120	3.04	.230	5.84	.490	12.45
.012	0.30	.126	3.20	.300	7.62	.590	14.99

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerance is $\pm .010$ (0.25 mm).
4. These connectors mate with connectors specified in MIL-DTL-55302/169 and MIL-DTL-55302/170 and are primarily for use with single-sided, double-sided, or multilayered printed wiring boards.
5. The polarization feature, utilizing four M55302/78-02 polarizing keys which are not supplied with the connector, will provide 256 unique polarizing positions.
6. For dimensions A through K, see table I.
7. Coupling/mounting bushings are not supplied with the connector. See M55302/172-05.
8. Contact rows are identified by molded letters on the front and rear face. Numbers indicating every fifth contact per row appear on rear face, except for arrangements consisting of 10 contacts per row which lack numerals. Up to 9 contact locations at the high numeral end of the contact row will not be identified.
9. Perfect form at MMC not required. Dimension for user installation purposes only.
10. Part or Identifying Number (PIN).

FIGURE 1. Connector, printed circuit, male brush, right angle multilayered printed wiring boards .100 (2.54 mm) spacing – Continued.

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Inches	mm
.100	2.54
.200	5.08
.5375	13.652

NOTE:

The arrangement length is determined by $(N-1) \times .100$, where N is the number of contacts per row.
Example: For 60 contact row would be $(60-1) \times .100 = 5.90$ inches.

FIGURE 2. Insert arrangement for .100 (2.54 mm) contact spacing, male brush connectors (engaging face).

REQUIREMENTS

Dimensions and configurations: See figure 1 and tables I and II.

Contacts: Each contact shall contain 7 brush wires with a tolerance limit of ± 1 . Each brush wire diameter shall be .0073 to .0085 inch (0.185 mm to 0.216 mm).

Material:

Body: Glass filled thermoplastic molding material in accordance with ASTM D5948, type GPT-15F.

Contacts: In accordance with MIL-DTL-55302, ASTM B187/B187M or ASTM B272.

Plating: The contact termination plating shall be specified in table III. Brush wire plating shall be gold in accordance with ASTM B488, type II, code C, class 1.27 over nickel in accordance with SAE-AMS-QQ-N-290. Cut ends or brush wires need not be plated.

Contact identification: See figure 1 (note 8) and figure 2.

Oversized pin exclusion: Not applicable.

Contact engagement and separation forces: Not applicable, see mating and unmating.

Mating and unmating: The maximum mating and unmating force shall be 1.5 ounces times the total number of contacts.

Contact current rating: The connector may have any combination of current flow and ambient temperature provided the contact or connector temperature does not exceed 125°C. The test current shall be 5 amperes for individually connected contacts and 3 amperes for series wired contacts.

Contact resistance: The average resistance of all contact pairs measured on row A contacts shall not exceed 0.016 ohm, and no individual pair shall have a resistance exceeding 0.020 ohm. To allow for increased terminal lengths, add 0.001 ohm for each contact row beyond row A. The point of measurement shall be the point of terminal exit from the printed wiring board.

Contact retention: 3 pounds per contact minimum when the force is applied in the forward direction. The displacement shall not exceed 0.005 (0.13 mm). The displacement shall be recorded after a 1 pound preload is used to determine the zero displacement reference.

Dielectric withstanding voltage:

Sea level: 1,300 volts rms, 60 Hz, ac.

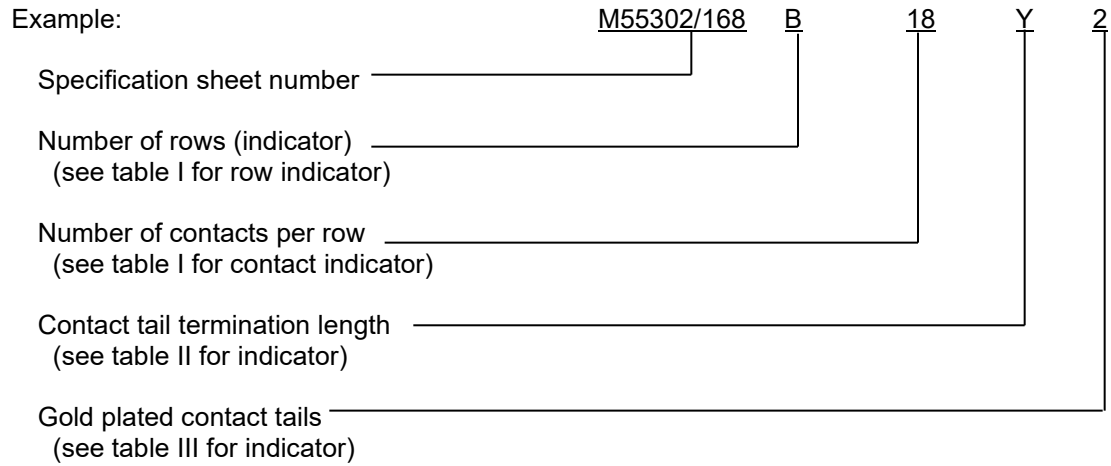
High altitude: 325 volts rms, 60 Hz, ac.

Extended contact life: Connector shall meet the performance requirements of MIL-DTL-55302, contact life, when subjected to 20,000 insertion and withdrawal cycles during qualification inspection.

Insert arrangement: See figure 2.

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PIN: Consists of the letter M, the basic number of the specification sheet, and a dash number compiled as follows:



User instructions: Each shipment of connectors shall include, as a minimum, instructions for coupling/mounting bushing usage, polarization key usage and electrical probing information.

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TABLE I. Indicators and dimensions.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/ 2/		
Indicator 3/	Total contacts	Indicator 3/	Total contacts	Indicator 3/	Total contacts	A Max	B	+ .004 K - .006
A10	20	B10	30	C10	40	2.295 (58.29)	1.975 (50.17)	1.115 (28.32)
A11	22	B11	33	C11	44	2.396 (60.86)	2.075 (52.71)	1.215 (30.86)
A12	24	B12	36	C12	48	2.495 (63.37)	2.175 (55.25)	1.315 (33.40)
A13	26	B13	39	C13	52	2.595 (65.91)	2.275 (57.79)	1.415 (35.94)
A14	28	B14	42	C14	56	2.695 (68.45)	2.375 (60.33)	1.515 (38.48)
A15	30	B15	45	C15	60	2.795 (70.99)	2.475 (62.87)	1.615 (41.02)
A16	32	B16	48	C16	64	2.895 (73.53)	2.575 (65.41)	1.715 (43.56)
A17	34	B17	51	C17	68	2.995 (76.07)	2.675 (67.95)	1.815 (46.10)
A18	36	B18	54	C18	72	3.095 (78.61)	2.775 (70.49)	1.915 (48.64)
A19	38	B19	57	C19	76	3.195 (81.15)	2.875 (73.03)	2.015 (51.18)
A20	40	B20	60	C20	80	3.295 (83.69)	2.975 (75.57)	2.115 (53.72)
A21	42	B21	63	C21	84	3.395 (86.23)	3.075 (78.11)	2.215 (56.26)
A22	44	B22	66	C22	88	3.495 (88.77)	3.175 (80.65)	2.315 (58.80)
A23	46	B23	69	C23	92	3.595 (91.31)	3.275 (83.19)	2.415 (61.34)
A24	48	B24	72	C24	96	3.695 (93.85)	3.375 (85.73)	2.515 (63.88)
A25	50	B25	75	C25	100	3.795 (96.39)	3.475 (88.27)	2.615 (66.42)
A26	52	B26	78	C26	104	3.895 (98.93)	3.575 (90.81)	2.715 (68.96)
A27	54	B27	81	C27	108	3.995 (101.47)	3.675 (93.35)	2.815 (71.50)
A28	56	B28	84	C28	112	4.095 (104.01)	3.775 (95.89)	2.915 (74.04)
A29	58	B29	87	C29	116	4.195 (106.55)	3.875 (98.43)	3.015 (76.58)
A30	60	B30	90	C30	120	4.295 (109.09)	3.975 (100.97)	3.115 (79.12)
A31	62	B31	93	C31	124	4.395 (111.63)	4.075 (103.51)	3.215 (81.66)
A32	64	B32	96	C32	128	4.495 (114.17)	4.175 (106.05)	3.315 (84.20)
A33	66	B33	99	C33	132	4.595 (116.71)	4.275 (108.59)	3.415 (86.74)
A34	68	B34	102	C34	136	4.695 (119.25)	4.375 (111.13)	3.515 (89.28)
A35	70	B35	105	C35	140	4.795 (121.79)	4.475 (113.67)	3.615 (91.82)
A36	72	B36	108	C36	144	4.895 (124.33)	4.575 (116.21)	3.715 (94.36)
A37	74	B37	111	C37	148	4.995 (126.87)	4.675 (118.75)	3.815 (96.90)
A38	76	B38	114	C38	152	5.095 (129.41)	4.775 (121.29)	3.915 (99.44)

See footnotes at end of table.

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TABLE I. Indicators and dimensions – Continued.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/ 2/		
Indicator 3/	Total contacts	Indicator 3/	Total contacts	Indicator 3/	Total contacts	A Max	B	+ .004 K - .006
A39	78	B39	117	C39	156	5.195 (131.95)	4.875 (123.83)	4.015 (101.98)
A40	80	B40	120	C40	160	5.295 (134.49)	4.975 (126.37)	4.115 (104.52)
A42	82	B41	123	C41	164	5.395 (137.03)	5.075 (128.91)	4.215 (107.06)
A42	84	B42	126	C42	168	5.495 (139.57)	5.175 (131.45)	4.315 (109.60)
A43	86	B43	129	C43	172	5.595 (142.11)	5.275 (133.99)	4.415 (112.14)
A44	88	B44	132	C44	176	5.695 (144.65)	5.375 (136.53)	4.515 (114.68)
A45	90	B45	135	C45	180	5.795 (147.19)	5.475 (139.07)	4.615 (117.22)
A46	92	B46	138	C46	184	5.895 (149.73)	5.575 (141.61)	4.715 (119.76)
A47	94	B47	141	C47	188	5.995 (152.27)	5.675 (144.15)	4.815 (122.30)
A48	96	B48	144	C48	192	6.095 (154.81)	5.775 (146.69)	4.915 (124.84)
A49	98	B49	147	C49	196	6.195 (157.35)	5.875 (149.23)	5.015 (127.38)
A50	100	B50	150	C50	200	6.295 (159.89)	5.975 (151.77)	5.115 (129.92)
A51	102	B51	153	C51	204	6.395 (162.43)	6.075 (154.31)	5.215 (132.46)
A52	104	B52	156	C52	208	6.495 (164.97)	6.175 (156.85)	5.315 (135.00)
A53	106	B53	159	C53	212	6.595 (167.51)	6.275 (159.39)	5.415 (137.54)
A54	108	B54	162	C54	216	6.695 (170.05)	6.375 (161.93)	5.515 (140.08)
A55	110	B55	165	C55	220	6.795 (172.59)	6.475 (164.47)	5.615 (142.62)
A56	112	B56	168	C56	224	6.895 (175.13)	6.575 (167.01)	5.715 (145.16)
A57	114	B57	171	C57	228	6.995 (177.67)	6.675 (169.55)	5.815 (147.70)
A58	116	B58	174	C58	232	7.095 (180.21)	6.775 (172.09)	5.915 (150.24)
A59	118	B59	177	C59	236	7.195 (182.75)	6.875 (174.63)	6.015 (152.78)
A60	120	B60	180	C60	240	7.295 (185.29)	6.975 (177.17)	6.115 (155.32)
A61	122	B61	183	C61	244	7.395 (187.83)	7.075 (179.71)	6.215 (157.86)
A62	124	B62	186	C62	248	7.495 (190.37)	7.175 (182.25)	6.315 (160.40)
A63	126	B63	189	C63	252	7.595 (192.91)	7.275 (184.79)	6.415 (162.94)
A64	128	B64	192	C64	256	7.695 (195.45)	7.375 (187.33)	6.515 (165.48)
A65	130	B65	195	C65	260	7.795 (197.99)	7.475 (189.87)	6.615 (168.02)
A66	132	B66	198	C66	264	7.895 (200.53)	7.575 (192.41)	6.715 (170.56)

See footnotes at end of table.

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TABLE I. Indicators and dimensions – Continued.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/ 2/		
Indicator 3/	Total contacts	Indicator 3/	Total contacts	Indicator 3/	Total contacts	A Max	B	+ .004 K - .006
A67	134	B67	201	C67	268	7.995 (203.07)	7.675 (194.95)	6.815 (173.10)
A68	136	B68	204	C68	272	8.095 (205.61)	7.775 (197.49)	6.915 (175.64)
A69	138	B69	207	C69	276	8.195 (208.15)	7.875 (200.03)	7.015 (178.18)
A70	140	B70	210	C70	280	8.295 (210.69)	7.975 (202.57)	7.115 (180.72)
A71	142	B71	213	C71	284	8.395 (213.23)	8.075 (205.11)	7.215 (183.26)
A72	144	B72	216	C72	288	8.495 (215.77)	8.175 (207.65)	7.315 (185.80)
A73	146	B73	219	C73	292	8.595 (218.31)	8.275 (210.19)	7.415 (188.34)
A74	148	B74	222	C74	296	8.695 (220.85)	8.375 (212.73)	7.515 (190.88)
A75	150	B75	225	C75	300	8.795 (223.39)	8.475 (215.27)	7.615 (193.42)
A76	152	B76	228	C76	304	8.895 (225.93)	8.575 (217.81)	7.715 (195.96)
A77	154	B77	231	C77	308	8.995 (228.47)	8.675 (220.35)	7.815 (198.50)
A78	156	B78	234	C78	312	9.095 (231.10)	8.775 (222.89)	7.915 (201.04)
A79	158	B79	237	C79	316	9.195 (233.55)	8.875 (225.43)	8.015 (203.58)
A80	160	B80	240	C80	320	9.295 (236.09)	8.975 (227.97)	8.115 (206.12)
A81	162	B81	243	C81	324	9.395 (238.63)	9.075 (230.51)	8.215 (208.66)
A82	164	B82	246	C82	328	9.495 (241.17)	9.175 (233.05)	8.315 (211.20)
A83	166	B83	249	C83	332	9.595 (243.71)	9.275 (235.59)	8.415 (213.74)
A84	168	B84	252	C84	336	9.695 (246.25)	9.375 (238.13)	8.515 (216.28)
A85	170	B85	255	C85	340	9.795 (248.79)	9.475 (240.67)	8.615 (218.82)

See footnotes at end of table.

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TABLE I. Indicators and dimensions - Continued.

2 Contact rows		3 Contact rows		4 Contact rows		Dimensions 1/ 2/		
Indicator 3/	Total contacts	Indicator 3/	Total contacts	Indicator 3/	Total contacts	A Max	B	+ .004 K - .006
A86	172	B86	258	C86	344	9.895 (251.33)	9.575 (243.21)	8.715 (221.36)
A87	174	B87	261	C87	348	9.995 (253.87)	9.675 (245.75)	8.815 (223.90)
A88	176	B88	264	C88	352	10.095 (256.41)	9.775 (248.29)	8.915 (226.44)
A89	178	B89	267	C89	356	10.195 (258.95)	9.875 (250.83)	9.015 (228.98)
A90	180	B90	270	C90	360	10.295 (261.49)	9.975 (253.37)	9.115 (231.53)
A91	182	B91	273	C91	364	10.395 (264.03)	10.075 (255.91)	9.215 (234.06)
A92	184	B92	276	C92	368	10.495 (266.57)	10.175 (258.45)	9.315 (236.60)
A93	186	B93	279	C93	372	10.595 (269.11)	10.275 (260.99)	9.415 (239.14)
A94	188	B94	282	C94	376	10.695 (271.65)	10.375 (263.53)	9.515 (241.68)
A95	190	B95	285	C95	380	10.795 (274.19)	10.475 (266.07)	9.615 (244.22)
A96	192	B96	288	C96	384	10.895 (276.73)	10.575 (268.61)	9.715 (246.76)
A97	194	B97	291	C97	388	10.995 (279.27)	10.675 (271.15)	9.815 (249.30)
A98	196	B98	294	C98	392	11.095 (281.81)	10.775 (273.69)	9.915 (251.84)
A99	198	B99	297	C99	396	11.195 (284.35)	10.875 (276.23)	10.015 (254.38)
A00	200	B00	300	C00	400	11.295 (286.89)	10.975 (278.77)	10.115 (256.92)

1/ All dimensions are in inches.

2/ Metric equivalents are given for information only.

3/ Indicators consist of, a letter designating number of contact rows and two digits indicating number of contacts per row. Indicators A00, B00, and C00 denotes 100 contacts per row.

TABLE II. Contact tail termination length.

Indicator	T dimension
Z	.095 + .035 - .025
Y	.150 + .035 - .025

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TABLE III. Contact tail plating.

Indicator	Plating
1	Tin lead in accordance with SAE-AMS-P-81728, 50 to 70 percent tin, .0001 minimum thick over copper plating in accordance with SAE-AMS2418
2	Gold in accordance with ASTM B488, type II, code C, class 0.51 over nickel in accordance with SAE-AMS-QQ-N-290

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-55302/169
MIL-DTL-55302/170
ASTM B187/B187M
ASTM B272
ASTM B488
ASTM D5948
SAE-AMS2418
SAE-AMS-QQ-N-290
SAE-AMS-P-81728

CONCLUDING MATERIAL

Custodians:
Air Force – 85
DLA – CC

Preparing activity:
DLA - CC

(Project 5935-2025-005)

Review activities:
Air Force – 19

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/>.