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MSMC

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MICROMINIATURE  
SURFACE MOUNT  
CONNECTORS

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Cannon

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**ITT Industries**  
*Engineered for life*



**Contents**

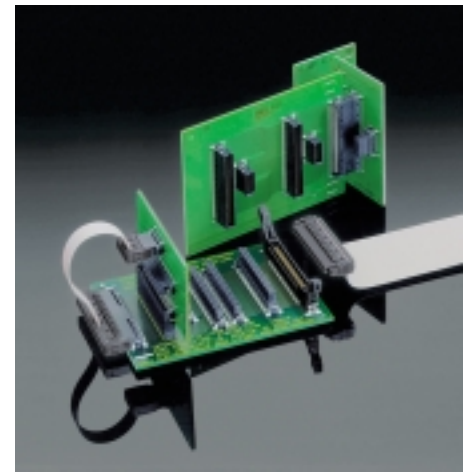
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**Introduction**

The Cannon MSMC series is the internal microminiature connection with a pitch of 1,27 mm for board to board as well as board to flat ribbon cable solutions.

MSMC microminiature connectors are available as 12-, 26-, 50-, 68- and 80 way pin and socket types with straight and right angle SMT termination and as socket IDC version with integrated latches. MSMC connectors provide a high current rating and high electrical performance at minimized outline dimensions.

The straight pin and socket board to board connectors are available in two different heights each. This offers four different heights for sandwich packaging and gives high flexibility concerning the board to board height from 8 to 12,2 mm. A variety of pin and socket straight and right angle versions offer a wide flexibility of board to board solutions in sandwich as well as mother / daughter board technology. All straight and right angle versions



feature metal SMT brackets for a secure fixing to the PCBoard. MSMC SMT versions are supplied in tape packaging on reels for automatic assembly. The straight SMT versions are supplied with a pre-assembled cover for easy picking with a robot. For a secure recognition the insulators are made of black material.

For further versions please consult the factory.

**Order Numbers**

Description	Cannon Designation	Order Reference
<b>Female 90° SMT</b> Page 5	MSMC12FH	121685-0014
	MSMC26FH	121685-0015
	MSMC50FH	121685-0016
	MSMC68FH	121685-0037
	MSMC80FH	121685-0038
<b>Male 90° SMT</b> Page 5	MSMC12MH	121685-0022
	MSMC26MH	121685-0023
	MSMC50MH	121685-0024
	MSMC68MH	121685-0039
	MSMC80MH	121685-0040
<b>Female, High, Straight SMT</b> Page 6	MSMC12FL	121685-0002
	MSMC26FL	121685-0006
	MSMC50FL	121685-0007
<b>Male, High, Straight SMT</b> Page 6	MSMC12ML	121685-0008
	MSMC26ML	121685-0009
	MSMC50ML	121685-0010
<b>Female, Low, Straight SMT</b> Page 7	MSMC12F90	121685-0017
	MSMC26F90	121685-0018
	MSMC50F90	121685-0019
<b>Male, Low, Straight SMT</b> Page 7	MSMC12M90	121685-0020
	MSMC26M90	121685-0021
	MSMC50M90	121685-0001
	MSMC68M90	121685-0041
	MSMC80M90	121685-0042
<b>Female, IDC for flat ribbon cable</b> Page 8	MSMC12FIDC	121685-0032
	MSMC26FIDC	121685-0033
	MSMC50FIDC	121685-0034
	MSMC68FIDC	121685-0035
	MSMC80FIDC	121685-0036

## Technical Data

**Material**

Insulator	LCP GV, black
Flammability	UL 94 V-0
Contacts	Copper alloy
Finish	Au over Ni (Mating end)
	SN over Ni (Termination end)

**Mechanical Data**

Layouts	12-, 26-, 50-, 68-, 80- way
Mating cycles	500
Temperature range	- 65 / 125°C
Max. solder temperature	260°C for 10 sec.
Contact Pitch	1,27 x 1,27 mm
Coplanarity	≤ 0,1mm

Insulators with molded-in coding slots  
 Wide lead-in chamfers for reliable pre-guidance during mating / unmating  
 Two-beam socket contacts for a reliable electrical connection

**Electrical Data**

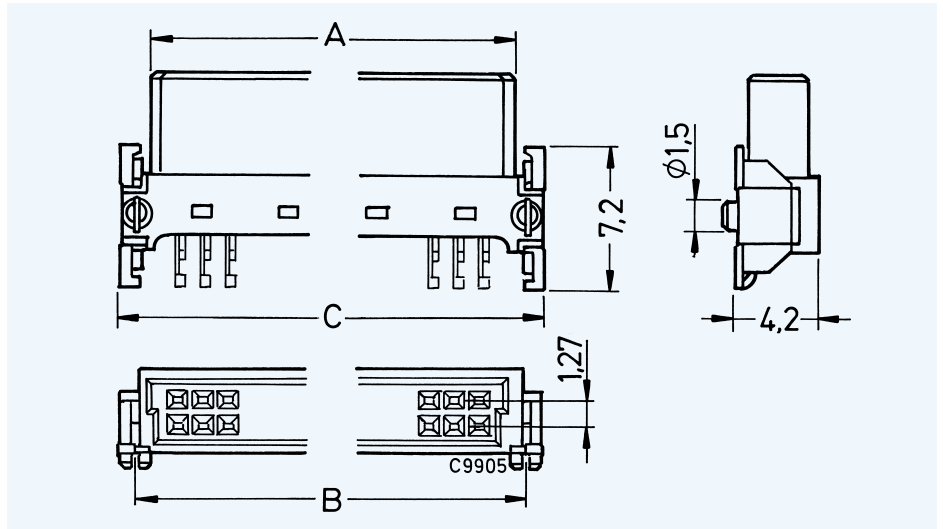
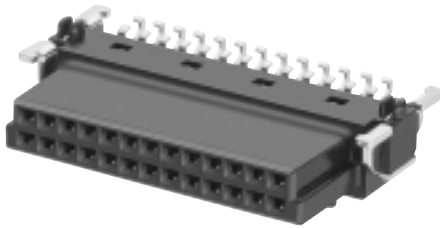
Current Rating	1,2 A at 20°C / 0,9 A at 70°C (Board to Board) 1 A at 20°C / 0,7 A at 70°C (Board to IDC)
Contact Resistance	≤ 20 mΩ max.
Insulation Resistance	≤ 10 <sup>4</sup> mΩ
Test Voltage	Contact / Contact: 500 V rms Contact / Ground: 750 V rms Contact to contact
Creepage and Clearance distances	Clearance ⊕ 0,4 mm Creepage ⊕ 0,4 mm

**Assembly caps**

for pick and place robot assembly

pre-assembled to all straight male and female SMT connectors

**Female Connector, 90° SMT**



**Order references**

Size	Designation	Order number
12-way	MSMC12F90	121685-0017
26-way	MSMC26F90	121685-0018
50-way	MSMC50F90	121685-0019

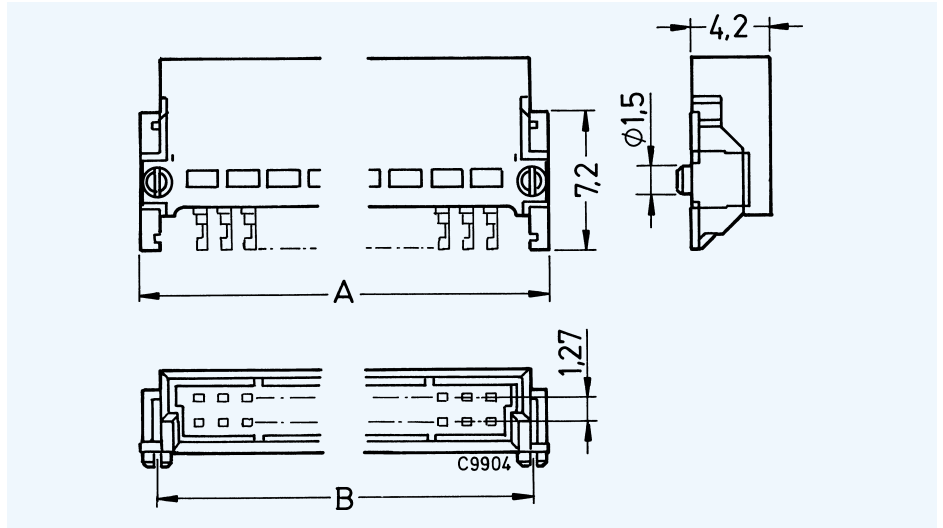
Packaging unit 560 pcs / reel

**Dimensions**

No of contacts	A	B	C
12	9,37 (.369)	10,77 (.424)	12,70 (.500)
26	18,26 (.719)	19,66 (.774)	21,60 (.851)
50	33,50 (1.319)	34,90 (1.374)	36,80 (1.449)

Other sizes please consult factory

**Male Connector, 90° SMT**



**Order references**

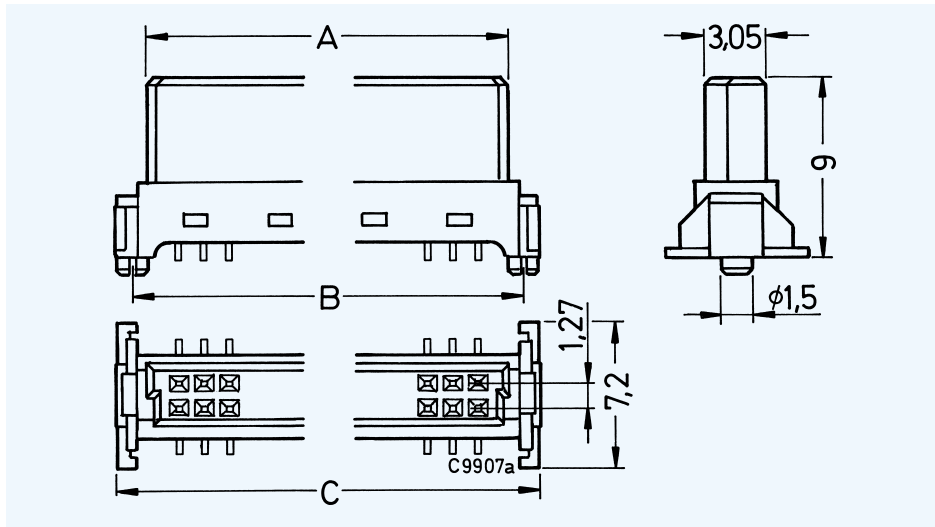
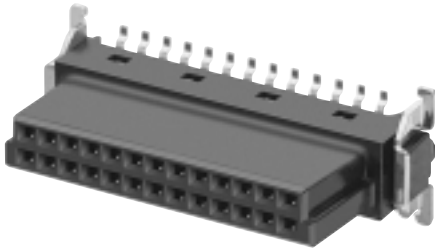
Size	Designation	Order number
12-way	MSMC12M90	121685-0020
26-way	MSMC26M90	121685-0021
50-way	MSMC50M90	121685-0001
68-way	MSMC68M90	121685-0041
80-way	MSMC80M90	121685-0042

Packaging unit 560 pcs / reel

**Dimensions**

No of contacts	A	B
12	12,70 (.500)	10,77 (.424)
26	21,60 (.851)	19,66 (.774)
50	36,80 (1.449)	34,90 (1.374)
68	48,20 (1.898)	46,33 (1.824)
80	55,80 (2.197)	53,95 (2.124)

Female Connector, high, straight SMT



Order references

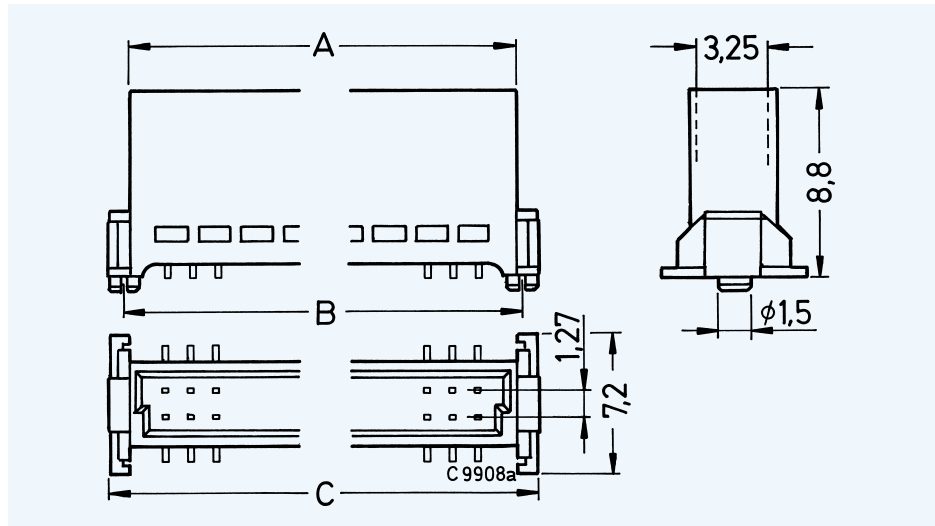
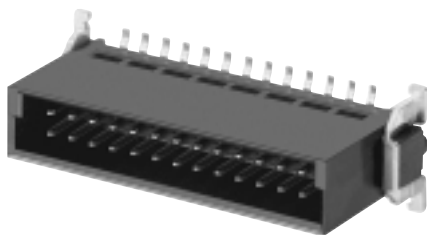
Size	Designation	Order number
12-way	MSMC12FH	121685-0014
26-way	MSMC26FH	121685-0015
50-way	MSMC50FH	121685-0016
68-way	MSMC68FH	121685-0037
80-way	MSMC80FH	121685-0038

Packaging unit 280 pcs / reel

Dimensions

No of contacts	A	B	C
12	9,40 (.370)	10,77 (.424)	12,70 (.500)
26	18,30 (.720)	19,66 (.774)	21,60 (.850)
50	33,50 (1.319)	34,90 (1.374)	36,80 (1.449)
68	44,90 (1.768)	46,33 (1.824)	48,20 (1.898)
80	52,55 (2.069)	53,95 (2.124)	55,80 (2.197)

Male Connector, high, straight SMT



Order references

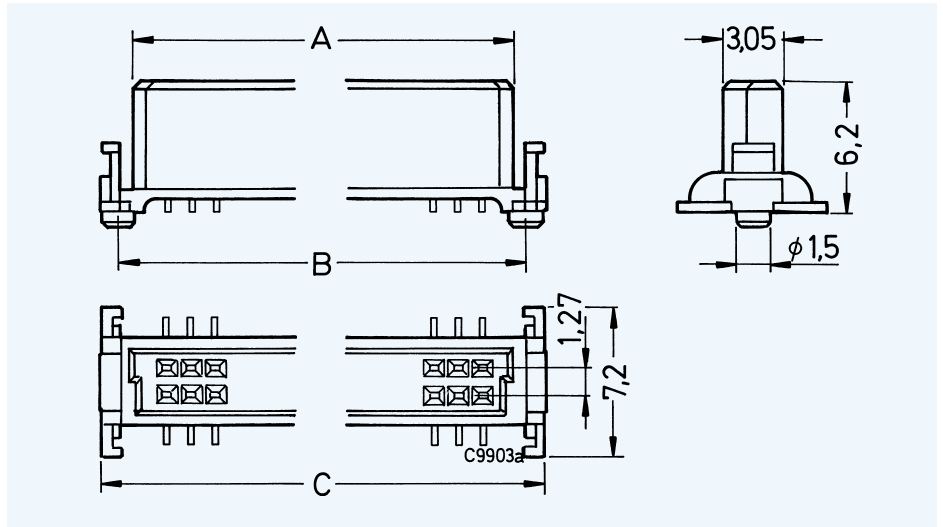
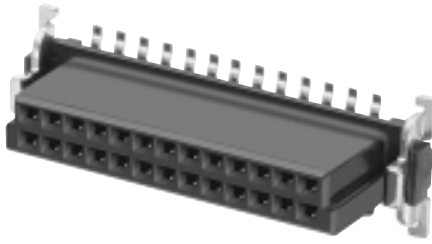
Size	Designation	Order number
12-way	MSMC12MH	121685-0022
26-way	MSMC26MH	121685-0023
50-way	MSMC50MH	121685-0024
68-way	MSMC68MH	121685-0039
80-way	MSMC80MH	121685-0040

Packaging unit 280 pcs / reel

Dimensions

No of contacts	A	B	C
12	10,40 (.409)	10,77 (.424)	12,70 (.500)
26	19,30 (.760)	19,66 (.774)	21,60 (.850)
50	34,50 (1.358)	34,90 (1.374)	36,80 (1.449)
68	45,90 (1.807)	46,33 (1.824)	48,20 (1.898)
80	53,50 (2.106)	53,95 (2.124)	55,80 (2.197)

Female Connector, low, straight SMT



Order references

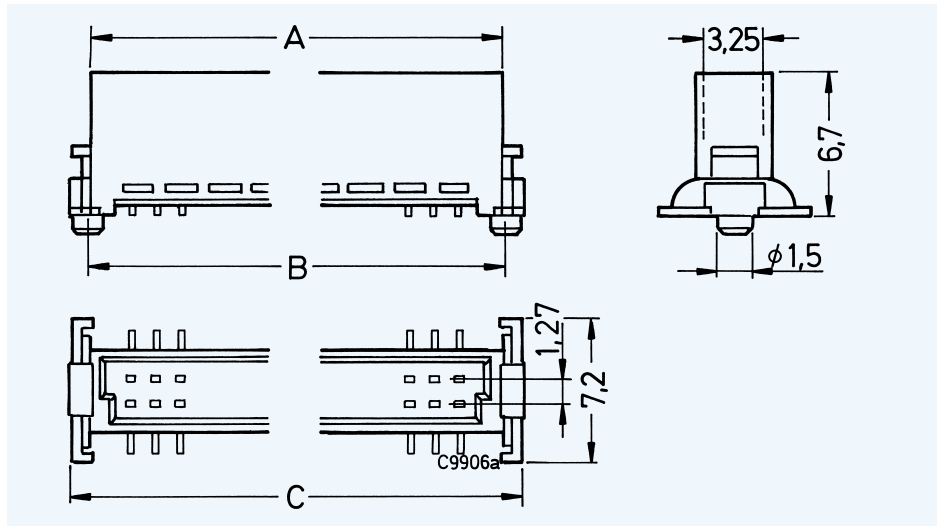
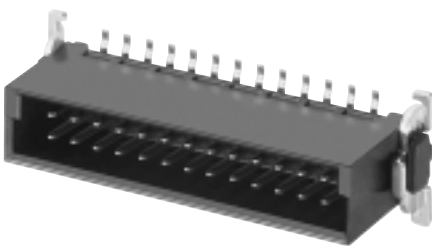
Size	Designation	Order number
12-way	MSMC12FL	121685-0002
26-way	MSMC26FL	121685-0006
50-way	MSMC50FL	121685-0007

Packaging unit 280 pcs / reel

Dimensions

No of contacts	A	B	C
12	9,40 (.370)	10,77 (.424)	12,50 (.492)
26	18,30 (.720)	19,66 (.774)	21,40 (.843)
50	33,50 (1.319)	34,90 (1.374)	36,60 (1.441)

Male Connector, low, straight SMT



Order references

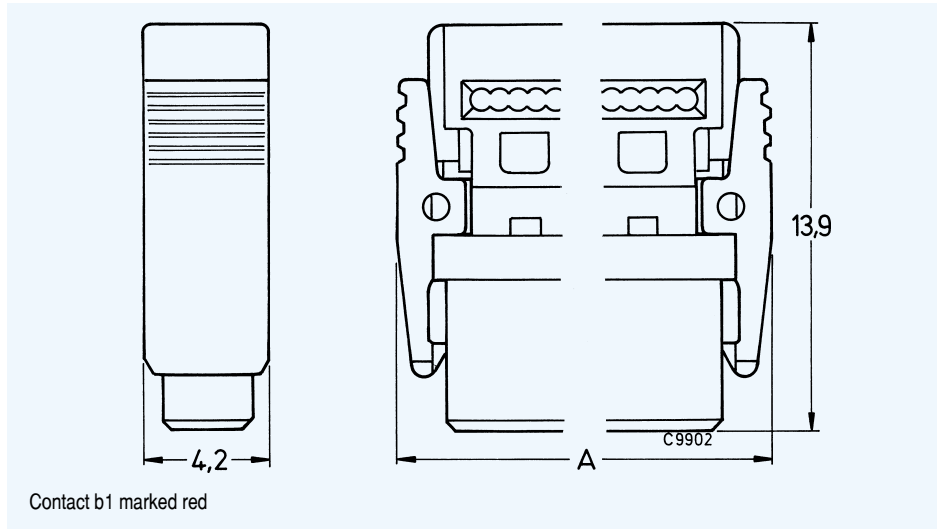
Size	Designation	Order number
12-way	MSMC12ML	121685-0008
26-way	MSMC26ML	121685-0009
50-way	MSMC50ML	121685-0010

Packaging unit 280 pcs / reel

Dimensions

No of contacts	A	B	C
12	10,40 (.409)	10,77 (.424)	12,50 (.492)
26	19,30 (.760)	19,66 (.774)	21,40 (.843)
50	34,50 (1.358)	34,90 (1.374)	36,60 (1.441)

Female Connector, IDC for flat ribbon cable



**Order references**

Size	Designation	Order number
12-way	MSMC12FIDC	121685-0032
26-way	MSMC26FIDC	121685-0033
50-way	MSMC50FIDC	121685-0034
68-way	MSMC68FIDC	121685-0035
80-way	MSMC80FIDC	121685-0036

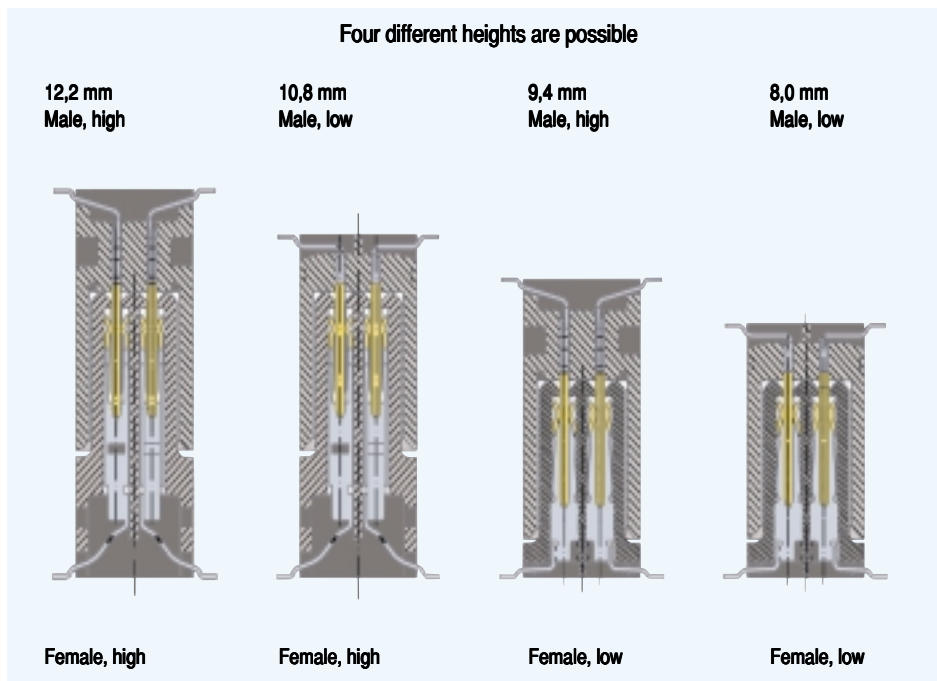
**Dimensions**

No of contacts	A
12	12,70 (.499)
26	21,60 (.850)
50	36,80 (1.450)
68	48,30 (1.9016)
80	55,90 (2.2008)

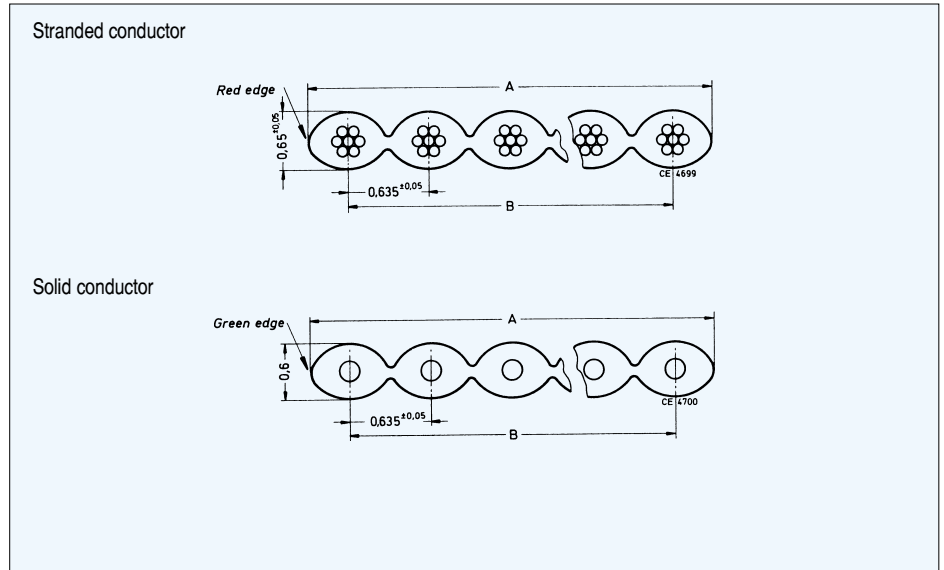
**Packaging units**

Pieces in trays
450
250
150
100
100

Board to Board Plug and Receptacle



Flat Ribbon Cable



Dimensions

Number of conductors	A		B	
12	7.62 ± 0.15	(.30 ± .006)	6.99 ± 0.15	(.275 ± .006)
26	16.51 ± 0.15	(.65 ± .006)	15.88 ± 0.15	(.625 ± .006)
50	31.75 ± 0.20	( 1.25 ± .008)	31.12 ± 0.20	(1.225 ± .008)
68	43.18 ± 0.20	( 1.70 ± .008)	42.55 ± 0.20	(1.680 ± .008)
80	50.80 ± 0.20	( 2.00 ± .008)	50.17 ± 0.20	(1.980 ± .008)

Stranded Conductor

Temperature	105°C
Voltage rating	150 V
Insulation resistance	min 10 <sup>10</sup> Ω / 3 m
Insulation material	PVC
Conductor	stranded, AWG 30 (7 / 38). tinned copper
Impedance	75 Ω
Capacitance	80 pf / m
Propagation delay	4.5 ns / m
Crosstalk	NE 9.6 % FE 2.8 %
Spacing	.635 mm

Solid Conductor

Temperature	105°C
Voltage rating	150 V
Insulation resistance	min 10 <sup>10</sup> Ω / 3 m
Insulation material	Teflon FEP
Conductor	solid, AWG 30, silver plated copper
Impedance	88 Ω
Capacitance	49 pf / m
Propagation delay	4.3 ns / m
Crosstalk	NE 8.1 % FE 2.3 %
Spacing	.635 mm

Note:

**THIS NOTE SHOULD BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOGUE. FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/CATALOGUE COULD RESULT IN HAZARDOUS SITUATIONS.**

### 1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials.

Contact materials vary with type of connector and also application and are usually manufactured from either copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

### 2. FIRE CHARACTERISTICS AND ELECTRICAL SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionisation and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the Product Data Sheet/Catalogue are exceeded and can cause breakdown of insulation and hence electric shock.

### 3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers.

Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

### 4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

### 5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages can not be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Insulation resistance should be checked to make certain that no low resistance joints or spurious conducting paths are existing between contacts and exposed metal parts of the connector body. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires, and leakage currents through carbonisation of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes.

Overheating may not be visually apparent. Burns may result from touching overheated components. Always use the correct application tools as specified in the Data Sheet/Catalogue.

Do not permit untrained personnel to wire, assemble or tamper with connectors.

For operation voltage please see appropriate national regulations.

### IMPORTANT GENERAL INFORMATION.

1. Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations. For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

#### 2 Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

3. Other important information Cannon continuously endeavours to improve their products. Therefore, Cannon products may, deviate from the description, technical data and shape as shown in this catalogue and data sheets.

4. Harnessing and Assembly Instructions If applicable, our special harnessing and/or assembly instruction has to be adhered to.

This is provided at request. Further the contact resistance of the connectors should be measured within the electrical circuit in order to identify high resistances which result in excessive connector heating.

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