**Product Prefix** (MIL-DTL-38999)

**MIL-DTL-38999 Series**
- I - L
- II - blank
- III - A
- IV - B (receptacles only)

**Finish**
- N - Electroless Nickel (preferred)
- B - Olive Drab Chromate over Cadmium over Nickel
- R - Zinc alloy over Ni (RoHS compliant)

**Contact Type**
- P - pin
- S - socket
- PS - adapter pin side @ receptacle end
- SP - adapter socket side @ receptacle end

**Standard Capacitance Range**
- H - 1100pF ±20%
- T - 4200pF ±20%
- M - 10,100pF ±20%
- L - 38,000pF ±20%

**Filter Type**
- C - C filter
- P - Pi filter
- F - L filter

**Polarization**
- N, A, B, C, D, E per MIL-DTL-38999

**Shell Style**
- 0 - Front Wall Mount Receptacle
- 2 - Front Box Mount Receptacle
- 3 - Rear Wall Mount Receptacle
- 5 - Rear Box Mount Receptacle
- 7 - Jam Nut Mount Receptacle
- 6 - Plug - EMI Grounded
- 8 - In-line Adapter

(Note - styles 2, 3 and 5 for Series I & II only)

**Termination**
- E - pc tail, .250 extension, .25ø size 22, .035Ø size 20, .060ø size 16
- C - solder pot, .250 extension
- S - crimp piggy-back
- W - wire wrap, .400 extension, .025 square size 22

**Ordering Information**

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**Connector Product Locations**

**GERMANY**
Cannonstrasse 1
Weinstadt, 71384
phone: 49.7151.699.0
fax: 49.7151.699.217

**HONG KONG**
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Shun Tak Center
CB2602CChiu Nga Street
Central
phone: 852.2732.2720
toll-free: 852.2732.2919
fax: 852.2732.2919

**ITALY**
Via Pietro Fantoni 10
Milano, 20123
phone: 39.2.8480.1
toll-free: 39.2.87720.0
fax: 39.2.87720.0

**UK**
Jays Close, Viable Estate
Basingstoke, RG22 4BA
phone: 44.1256.311200
toll-free: 44.1256.323356
fax: 44.1256.323356

**USA**
666 East Dyer Road
Santa Ana, CA 92705
toll-free: 1.800.854.3028
phone: 1.714.557.4700
toll-free: 1.714.557.4700
fax: 1.714.628.2142

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Cannon’s new Chip-on-Flex filter connector has the additional benefit of being the lightest weight design. The 38999-Style Series III CoF offers up to a 15% savings in weight over the ceramic planar array equivalent.

The new Chip-on-Flex connector will protect critical circuits from electrical interference providing a “ultra signal barrier” upstream and away from electronic devices without affecting system function and performance.

The Chip-on-Flex filter connector provides all the same benefits of filter connector technologies.

1. Individual isolated pin filtering of high-frequency noise, allowed to ground via the connector shell, will protect critical circuits from electrical interference providing a "ultra signal barrier" upstream and away from electronic devices without affecting system function and performance.

2. Built-in ground plane barrier in the connector insert. This eliminates unwanted signals on the face of systems where connectors enter or exit boxes.

3. Filtering at the face of system boxes eliminating noise, shunted to ground via the connector shell, will protect critical circuits from electrical interference providing a "ultra signal barrier" upstream and away from electronic devices without affecting system function and performance.

Applications

The CoF filter connectors are ideal for high reliability military, aerospace and industrial applications.

- Integrated Avionics Systems
- Communication and Navigation
- Displays and Instrumentation
- Electronic Warfare Systems
- Radar and Air Surveillance Systems
- Weapons Controls and Targeting Systems
- Electronic Counter Measures
- Satellite and Space Systems

Cannon’s new Chip-on-Flex filter connector has passed MIL-DTL-38999 Series III tested for thermal shock, random vibration, humidity and high altitude DMV. These connectors are ideal for high reliability military aerospace and industrial applications.

This new filter technology is available in almost all series of Cannon standard connectors:

ML-3 SPEC
- MIL-DS-38999, Series I
- MIL-DS-38999, Series II
- MIL-DS-38999, Series III
- MIL-DTL-26482
- MIL-C-26482, Series II
- MIL-C-26482, Series IV
- MIL-C-24489
- MIL-C-24607
- MIL-C-81659 (ARINC-404)
- ARINC 608
- MIL-C-81659 (Series III)

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Rugged Design plus up to 15% Savings in Weight

New Design/Development Flexibility and Reduced Leadtimes

Cannon’s Chip-on-Flex filter design offers the system designer new and complete flexibility in defining or changing individual circuit requirements without the need to retool the ceramic planar array. The Chip-on-Flex design utilizes readily available flex circuits and devices allowing unwanted signals to enter the box.

- Individual isolated pin filtering of high-frequency noise, allowed to ground via the connector shell, will protect critical circuits from electrical interference providing a "ultra signal barrier" upstream and away from electronic devices without affecting system function and performance.

- Built-in ground plane barrier in the connector insert. This eliminates unwanted signals on the face of systems where connectors enter or exit boxes.

- Filtering at the face of system boxes eliminating noise, shunted to ground via the connector shell, will protect critical circuits from electrical interference providing a "ultra signal barrier" upstream and away from electronic devices without affecting system function and performance.

To assure the highest quality, Cannon tests all connector characteristics under design conditions prior to shipment. This includes electrical, mechanical and environmental tests which ensure that our connector performance meet or exceed all applicable requirements.

Contact Specifications

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Cannon’s new Chip-on-Flex filter connector technology provides a significant performance improvement in thermal shock and vibration to the ceramic planar array technology that is the current industry standard. The current planar array design utilizes a ceramic block capacitor with plated thru holes where feed thru contacts are associated with vibration, thermal expansion/contraction and aging. The ceramic block capacitor can be used as the solder joint and cause the ceramic material to crack resulting in a fail failure. As a consequence, costly thermal shock screening and burn in procedures are often used for quality assurance.

In the new Cannon Chip-on-Flex design, the internal thermal shock stresses are virtually eliminated. The fragile ceramic block capacitor has been replaced by a flex circuit where individual chip capacitors are surface mounted on a pad adjacent to the feed thru contact.

The result is a very robust filter connector with superior mechanical performance and improved reliability.

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Cannon’s new Chip-on-Flex filter connector has the additional benefit of being the lightest weight design. The 38999-Style Series III CoF offers up to a 15% savings in weight over the ceramic planar array equivalent.

The new Chip-on-Flex connector will protect critical circuits from electrical interference providing a “ultra signal barrier” upstream and away from electronic devices without affecting system function and performance.

The Chip-on-Flex filter connector provides all the same benefits of filter connector technologies.

1. Individual isolated pin filtering of high-frequency noise, allowed to ground via the connector shell, will protect critical circuits from electrical interference providing a "ultra signal barrier" upstream and away from electronic devices without affecting system function and performance.

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Applications

The CoF filter connectors are ideal for high reliability military, aerospace and industrial applications.

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### Cannon Chip-on-Flex Filter Connectors

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<tr>
<th>Product Prefix</th>
<th>Style</th>
<th>Filter Type</th>
<th>Standard Capacitance Range</th>
<th>Contact Type</th>
<th>Shell Style</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>38999</td>
<td></td>
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**Note:** Available in accordance with applicable portions of 24308-Style, 26482-Style, MIL-C-81659 & ARINC 600.

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Cannon’s new Chip-on-Flex filter connector has the additional benefit of being the lightest weight design. The MIL-DTL-38999 series B filter offers up to a 15% savings in weight over the ceramic planar array equivalent. The new Chip-on-Flex connector will protect critical circuits from electrical interference providing an “ultra filter barrier” upstream and away from electronic devices without affecting system performance and function. The Chip-on-Flex filter connector provides all the benefits of filter connector technologies.

1. Individual isolated pin filtering of high frequency noise, shielded to ground via the connector shell.
2. Reduced load in Pounds + / - 10%.
3. Maintenance of EMI integrity of the system by not allowing unwanted signals to enter the box.

Applications

The CoF filter connectors are ideal for high reliability military, aerospace and industrial applications:

• Integrated Avionics Systems
• Communication and Navigation
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This new filter technology is available in almost all series of Cannon standard connectors:

Contact Arrangements

Voltage (DWV)

300 Vdc

22 with ‘L’ range filters

125 Vdc

22 with ‘M’, ‘T’ & ‘H’ range filters

100 Vdc

22 with ‘L’ range filters

50 Vdc

10 Vdc

Current Planar Array Design

The Chip-on-Flex filter design offers the system designer new and complete flexibility in defining or changing individual circuit requirements without the need to select the ceramic planar array design. The Chip-on-Flex filter design utilizes readily available flex circuits and devices to retool the ceramic planar array. The Chip-on-Flex filter design maintains the benefit of being the lightest weight design.

MIL-DTL-38999 Type

Current Planar Array Design

The Ceramic Array Technology Update

The result is a very robust filter connector with superior mechanical performance and improved reliability.

New Design/Development Flexibility and Reduced Leadtimes

Cannon’s Chip-on-Flex filter design provides the system designer new and complete flexibility in defining or changing individual circuit requirements without the need to select the ceramic planar array design. The Chip-on-Flex filter design utilizes readily available flex circuits and devices leading to reduced design / development cycle time and overall production delivery.

1. Virtually no limitations on the variation in capacitance/lead-thru-end/ground/side choices that is readily available to the customer. The exact same flex circuit is used. Cannon notes the appropriate device in each location as selected by the customer.

2. EMP protection can be simply added by substituting a Zener diode in place of a ceramic planar array.

Rugged Design plus up to 15% Savings in Weight

Cannon’s new Chip-on-Flex filter connector has the additional benefit of being the lightest weight design. The MIL-DTL-38999 series B filter offers up to a 15% savings in weight over the ceramic planar array equivalent.

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This new filter technology is available in almost all series of Cannon standard connectors:
Cannon's new Chip-on-Flex filter connector has the additional benefit of being the lightest weight design. The MIL-DTL-38999 standard style CoF offers up to a 15% savings in weight over the ceramic planar array equivalent.

The new Chip-on-Flex connector will protect critical electronic circuits from electrical interference providing a “ultra-signal barrier” upstream and away from electronic devices managed through affecting system performance and function.

The Chip-on-Flex filter connector provides all the same benefits of filter connector technologies.

1. Individual isolated pin filtering of high-frequency noise, filtered to ground via the connector shell, ensuring no emissions will be heard by the user from the performance attenuation curves.

2. Built-in ground plane barrier in the connector insert. This eliminates any disturbances on the face of systems where connectors enter or exit boxes.

3. Filtering at the face of systems lessening filtering on the PCB, freeing up board space, and maintaining EM-1 integrity of the system by not allowing unwanted signals to enter the box.

Applications

The CoF filter connectors are ideal for high reliability military, aerospace and industrial applications:

- Integrated Avionics Systems
- Communication and Navigation
- Display and Instrumentation
- Electronic Warfare Systems
- Radar and Airborne Radar Equipment
- Weapons Controls and Targeting Systems
- Electronic Counter Measures
- Satellites and Space Systems

Cannon’s new Chip-on-Flex filter connector has passed MIL-STD-202F tests of thermal shock, random vibration, humidity and high altitude environments. These connectors are designed for the most demanding environments.

Contact Arrangements

Contact Spec: CoFJL
Electronic Counter Measures

• Electronic Counter Measures
• Radar and Sensors
• Electronic Warfare Systems
• Displays and Instrumentation
• Communication and Navigation

Rugged Design plus up to 15% Savings in Weight

Contact Arrangements

CoF - MIL STD 38999 Series II

Contact Spec: CoFKJL

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