**General Specifications**

- **DC**: up to 1 KV (dependent on plan form and capacitance)
- **Dielectric Working Voltage**
  - Minimum per line: Typically 22pF
  - Maximum per line: Typically up to 1μF
- **Capacitance**
  - -55ºc to +125ºc
- **Temperature**

**Filters**

**Filters General Specifications**

<table>
<thead>
<tr>
<th>Temperature</th>
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**Martec Filtered Interconnection Solutions**

As demand for EMC compliance increases, designers are increasingly specifying filtered interconnection solutions as a primary method of improving system performance from either radiated or conducted emissions sources.

Martec filtered connectors & assemblies can be used to reduce the level of interference which may be experienced from a variety of sources including radio transponders and transmitters, radar systems, mobile phones, Wi-Fi and other electronic devices.

The increased sensitivity of electronic systems can make transient protection, against Electromagnetic Pulse, Lightning Strike, Nuclear Effect and voltage transients, paramount in today’s system design.
Martec Filtered Interconnection Solutions

Applications
As demands for EMC compliance increase, designers are increasingly specifying filtered interconnection solutions as a primary method of providing system integrity under harsh interference conditions, from either radiated or conducted emission sources.

Martec's connectors & assemblies include components that reduce the levels of interference which may be experienced from: Radio transponders and transmitters, Radar systems, Mobile phones, Wi-Fi and other electronics devices.

Increased sensitivity of electronic systems and higher performance requirements can make transient protection against Electromagnetic Pulse, Lightning Strike, Nuclear Effect and voltage transients, paramount in system design today. This technology can be used in conjunction with EMU filtering or independently.

Planar Arrays
To achieve the capacitance within the housing ensures optimum location of filter. Space saving due to compact design. Improved performance and reliability due to fewer solder points. Metal plate and size of the metal ground plate and size of the array. Tubular filters are being replaced by planar arrays due to space constraints, ease of manufacture and cost. Tubular filters have been around since the early 1980’s and can be utilised to alleviate obsolescence concerns.

Surface Mount
The performance of surface mount in Planar may be reduced due to the number of solder points and nature of the technology. At high frequencies the attenuation is significantly lower when compared to equivalent planar arrays. Surface mount does facilitate designs with a wide choice of values for filter to be mixed. For low volumes surface mount does facilitate designs with a wide choice of values for filter to be mixed. For low volumes surface mount can offer a cost effective solution.

Tubular filters
The tubular capacitor is a tube that runs the length of the contact with electrodes buried inside. The wall thickness is dictated by the pi to pi spacing within the assembly, the metal ground plate and size of the array. Tubular components are being replaced by planar due to space constraints, ease of manufacture and cost. Tubular filters have been around since the early 1980's and can be utilized to alleviate obsolescence concerns.

Poly – filters
Pi filters can be implemented where high-performance is high-frequency application is required. The Pi type filter provides low impedance at the source and load. This Pi filter connection provides better performance if compared to C or L type filters. To provide effective filtering, low-pass filters are used to present a low shunt impedance to ground at the frequencies to be filtered.

C filters
C filters are standard filters with individual capacitance protection only, suitable for high load and high impedance where high current loss is not required at low frequencies.

LC & CL – filters
For certain applications it may be necessary to use filters and capacitance to achieve the filtering requirements.

Transient Protection
Increased sensitivity of electronic systems and performance requirements can make transient protection paramount in system design today. Braces and mating arrays can be surface mounted and be incorporated onto Martec connectors or assemblies to provide transient protection. Because of the levels of energy dissipated in the device, the design of these units is critical. Failure to design the correct device for an application can result in a lower level of protection than is required.

Planar Arrays

- Effective filtering due to optimum location of filter
- Space saving due to compact design
- Improved performance and reliability due to fewer solder points
- Mutability with other standard mil-spec environmental receptacles
- Rugged design
- Suitable for hostile environments
- Reduced piece part count
- Reduced insertion ‘U’ time
- Complete filtered solution

Surface Mount

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Additional inductors can be incorporated to create extended Pi or T filters, for optimum attenuation in low impedance circuits.

The new resource for: Hermetic connectors • Glass to metal seals • Ceramic feedthroughs

Advantages of Martec Filtered Interconnection Solutions

- Effective filtering due to optimum location of filter
- Space saving due to compact design
- Improved performance and reliability due to fewer solder points
- Mutability with other standard mil-spec environmental receptacles
- Rugged design
- Suitable for hostile environments
- Reduced piece part count
- Reduced insertion ‘U’ time
- Complete filtered solution

Technologies with Martec Filtered connectors and assemblies

- Pi – filters
- C – filters
- LC & CL – filters

Martec’s products are available using Surface Mount, Planar or Tubular filtered technologies in Pi, C, LC, CL and T configurations to provide the appropriate SMM and RFI suppression. Incorporating diode and resistor arrays, either surface mount or discrete to provide transient protection. Incorporating the filter elements within the housing ensures optimum suppression and reduces the pin to pin breakout.

Transient suppression built into the connector / assembly provides the most space efficient and effective protection against Electromagnetic Pulse, Lightning Strike, Nuclear Effect and voltage transients.