



Filters General Specifications

Temperature

-55°C to +125°C

Capacitance

Maximum per line; Typically up to 1µF

Minimum per line; Typically 22pF

Dielectric Working Voltage

(dependent on plan form and capacitance)

DC: up to 1 KV



Martec Limited

St Augustines Business Park
Swalecliffe, Whitstable
Kent CT5 2QJ
United Kingdom

T: +44 (0)1227 793 733
F: +44 (0)1227 793 735
E: sales@martec.ltd.uk
W: www.martec.ltd.uk



European Representatives

Argenta Elektronik GMBH

Oberhaaner Strasse 2
D-42653 Solingen
Germany
T: +49 212 2581 30
F: +49 212 25813-33
E: vertrieb@argenta-elektronik.com
W: www.argenta-elektronik.com

Precimaton AG

Erlenstrasse 35 A
CH - 2555 Brugg
Switzerland
T: +41 (0)32 366 69 99
F: +41 (0)32 366 69 90
E: welcome@precimaton.ch
W: www.precimaton.ch/ic

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 emission 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, Lighting Strike, Nuclear Effect and voltage transients, paramount in today's system design.



Martec Filtered Interconnection Solutions

Applications

As demands for EMC compliance increases, 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 filtered 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 electronic devices.

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

Technology

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 EMI and RFI suppression. Incorporating diodes and resistor arrays, either surface mount or discreet to provide Transient protection.

Incorporating the filter elements within the housing ensures optimum suppression and minimises the risk of EMI breakthrough.

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

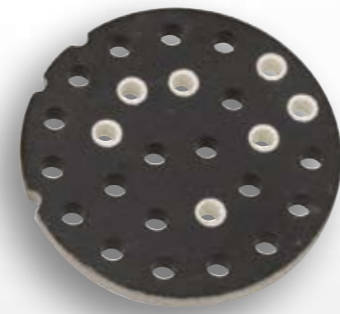
Advantages of Martec Filtered Interconnection Solutions

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

Technologies with Martec Filtered connectors and assemblies

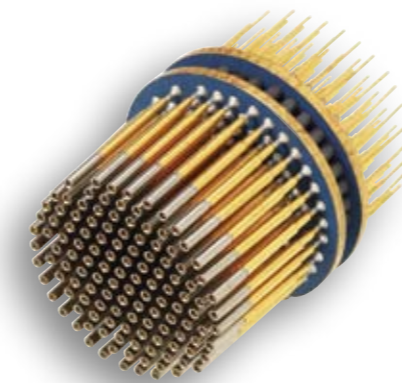
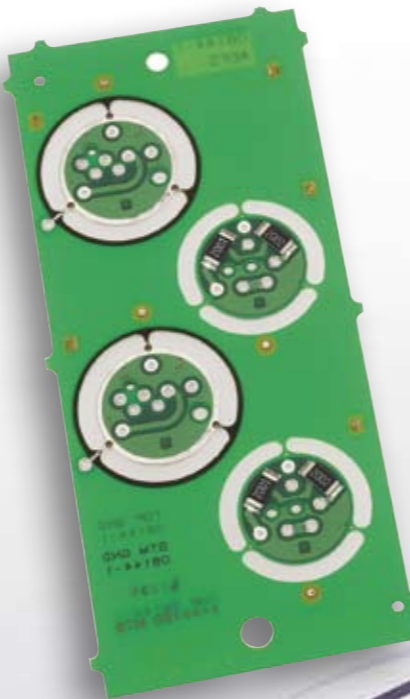
Planar Arrays

To achieve the capacitance within these connectors / assemblies a planar array is incorporated within the design. The array provides the required capacitance for each respective "through pin", with the inductance being provided by suitably placed ferrite beads on either side of the array. A grounding ring makes contact between the planar array and shell/housing. The advantages of a planar array is that it is compact in design with good space utilisation.



Surface Mount

The performance of surface mounts in comparison to Planar may be reduced due to the number of solder joints 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 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 pin to pin spacing within the assembly, the metal ground plate and size of the ferrite in the Pi section. Tubular components are being replaced by the planar 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.

Pi - filters

Pi filters can be implemented where high performance in high frequency applications is required. The Pi filter provides low impedance at the source and the load. The Pi filter connectors provide better performance if compared to C or L type filters. To provide effective filtering, low pass filters must 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 insertion loss is not required at low frequencies.

LC & CL- filters

For certain applications it may be necessary to use ferrites and capacitance to achieve the filtering requirements.

T - filters

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

Transient Protection

Increased sensitivity of electronic systems and performance requirements can make transient protection paramount in system design today. Diodes and resistor arrays can be surface mounted and be incorporated within 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.

