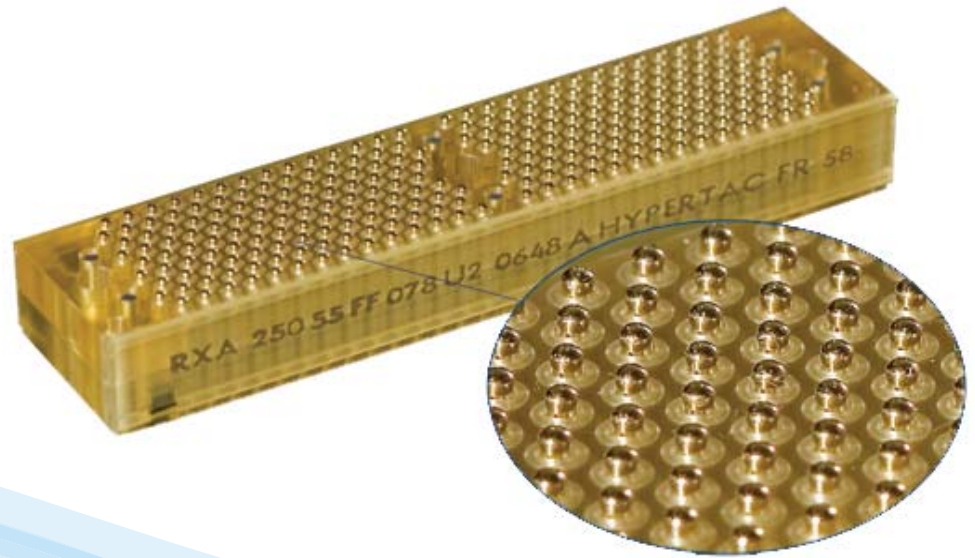


# HYPERSTAC SERIES

## STACKING SOLUTION FOR Z-AXIS INTERCONNECTIONS



- ▶ **ESA qualified**
- ▶ **No soldering**
- ▶ **High contact density**
- ▶ **Compensation of surface contact tolerances**

### HARSHEST ENVIRONMENTS

The Smiths Connectors HyperStac Series is a Z axis interconnection solution for mezzanine packaging designed for all types of micro-electronics applications requiring reliable and compact packaging solutions: interconnection of MCMs (MultiChip Module) to PCBs, MCM to MCM, PCB stacking, etc. It meets the needs of the military electronic market (missile computers, fighter aircrafts, UAVs, Future Soldier equipment, etc), avionics (radars and digital control boxes, etc) and space market (launchers, satellites, space vehicles, etc).

### FLEXIBLE DESIGN

Thanks to its adaptable geometry, the HyperStac connector can be adapted to any type of packaging: MCM, square, rectangular, and is also available in strips of different sizes (30 contacts or more).

### ESA QUALIFICATION

The HyperStac connector has already been used successfully in several space programmes such as the Pleiade observation satellites and the Inmarsat telecommunication satellites. In addition to its very compact size, 1.905mm pitch and contact height of 7.8mm, and its easy connection, the HyperStac ensures a full continuity of contact even in the harshest environments. The connector is fully ESA qualified after passing the most stringent of all tests which reproduces the maximal vibration conditions during take-off of rockets. The connector was successfully tested under 3-directional vibrations of 20g during 30 mns, without any nanocuts occurring.

# TECHNOLOGIES

## RFF contact technology

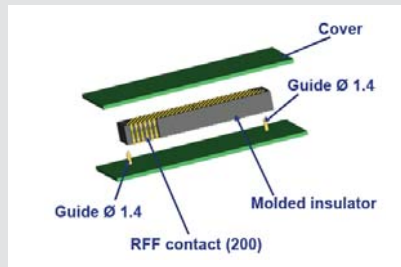
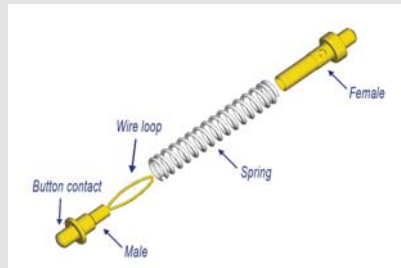
The key to the high performance of the HyperStac is the RFF contact.

The original multipoint connection design is based upon a sliding 2 loop wire pin, held within a passive socket to allow for a solderless compression contact, applicable to multi chip modules.

The compression spring enables a mechanical deflection of 1mm. This compensates for dimensional tolerances between the stacking pads located on the PCBs surface without performance loss and can handle signal frequencies of up to 5 GHz.

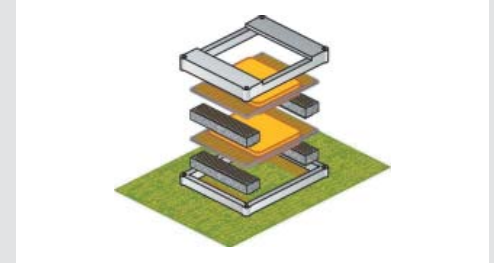
The RFF contact offers many advantages:

- ▶ Low mating force
- ▶ Ideally suited to micro-currents
- ▶ Very low contact resistance
- ▶ Shock and vibration immunity



Smiths Connector' Z-axis packaging solutions are required by a wide variety of electronic applications including:

- ▶ Module interconnections (MDC, ...) with PCB
- ▶ Module stacking (MCM, ...)
- ▶ PCB interconnections
- ▶ Interconnection between mother and daughter cards



The HyperStac meets the needs of a wide variety of markets such as Mil-aerospace, Test & Measurement...

# HYPERTAC SERIES

## TECHNICAL CHARACTERISTICS

### HyperStac Series Features

- ▶ 2 PCB board pacing dimensions are available 7.8 mm and 15.2 mm (insulator heights)
- ▶ **Pitch:** 1.905 mm between contacts  
1.524 mm between rows
- ▶ Other or specific arrangements are available on request

### Contact Plating Finishes

- ▶ **Button contact:** Brass, Gold over Nickel plating
- ▶ **Wire:** Copper Beryllium, Gold over Nickel plating
- ▶ **Insulator:** Thermoplastic in accordance with UL94-VO with very low outgassing characteristics complying with ESA PSS 01-702 specification.

### Environmental

- ▶ **Environmental category:** -55°C, +125°C, 56 days following EN 60068-1, CEI 68-1 (NF C 20-700)
- ▶ **Dry heat:** 1000h at 125°C following CEI 68-2-2 (NF C 20-702)
- ▶ **Salt spray:** 96 hours following CEI 68-2-11 (NF C 20-711)
- ▶ **Humidity:** 56 days following CEI 68-2-30 (NF C 20-703)
- ▶ **Rapid variation of temperature:** -55°C, +125°C following CEI 68-2-14 (NF C 20-714)

### Mechanical

- ▶ **Sinusoidal vibrations:** 10Hz/2000Hz - 1.5 mm - 20g following CEI 68-2-6
- ▶ **Random vibrations:** 90.2 m/s<sup>2</sup> during 10s per axis, 20 to 2500Hz following CEI 68-2-35
- ▶ **Shocks:** 600g/0.4ms following CEI 68-2-27
- ▶ **Electrical discontinuity:** ← 20ns

### Electrical

- ▶ **Working voltage:** 160Vrms
- ▶ **Dielectric withstanding voltage:** 640 Vrms
- ▶ **Current rating:** 1A
- ▶ **Contact resistance (at 50% compression):**  
↖ 25mΩ at 10mA, following CEI 512-2 test 2a (NF C 93-400 test 2a)

### Recommendations

- ▶ **PCB pad diameters:** 0.8mm
- ▶ **Plating:** Electrolytic Gold (1.27µm min.) over Nickel