

Z-Axis Signal Connectors

The Packaging Solution for Z-Axis interconnection

- As chip structures are minimized and board interconnection densities are maximized, growing into the third dimension is the logical progression in packaging efficiency.
- To meet this demand, Hypertac Interconnect has developed a Z-axis interconnect module especially suited for high speed applications in harsh environments.
- The HyperStac, based around the new RFF contact technology, offers a highly reliable and compact packaging solution for high density interconnections between low spacing parallel boards.

Main advantages:

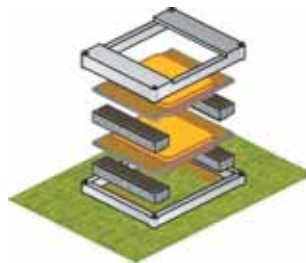
- High immunity to shock and vibration
- High deflection between button contacts
- Compensation of surface contact tolerances
- Easy to assemble/disassemble
- High contact density
- No soldering
- Space and weight saving
- ESA qualification in progress



A broad range of applications

Hypertac Z-axis packaging solutions are required by wide variety of electronic applications including:

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



By courtesy of Astrium: stacking MCMs with more than 900 I/Os

The HyperStac meets the needs of a wide variety of programs such as Military, Aeronautic, Space, Testing...

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.

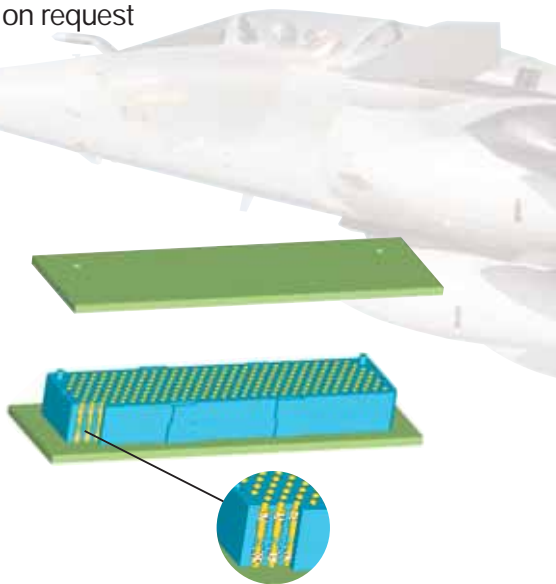
The compression spring enables a mechanical deflection of 1mm. This compensates for dimensional tolerances between the stacking pads located on the PCBs surface without performance loss and can handle signal frequencies of up to 5 GHz. The RFF contact offers many advantages:

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



HyperStac Series characteristics

- 2 PCB board spacing 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 UL 94VO with very low outgassing characteristics complying with ESA PSS 01-702 specification.

Environmental characteristics

- Environmental category: -55°C, +125°C, 56 days following EN 60068-1, CEI 68-1 (NF C 20-700)
- Dry heat: 1000 h 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 characteristics

- Sinusoidal vibrations: 10 Hz/2000 Hz – 1.5 mm – 20 g following CEI 68-2-6
- Random vibrations: 90.2 m/s² during 10 s per axis, 20 to 2500 Hz following CEI 68-2-35
- Shocks: 600 g/0.4 ms following CEI 68-2-27
- Electrical discontinuity: <20 ns

Electrical characteristics

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

Recommendations

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

Part number

		RX-	NNN	55	FF	HHH	AAA
Series	RX-						
Contact number	Up to 999						
Contact plating	55: 1.27 µm Gold over Nickel						
Contact							
Insulator height	078 = 7.8 mm 152 = 15.2 mm						
Custom specification	To be defined						