

Paricon Capability Presentation May2021



Company Overview

- Founded in 1997, technology acquired from Bell Labs
- Paricon holds 40 Patents, more pending
- Manufacturing of the elastomeric fabric PariPoser
- Strong application support and manufacturing of interconnect solutions featuring PariPoser fabric (sockets, interposer, etc)



PariPoser Material

- Highest performance interconnect – no solder!!
 - Low loss (milli Ohms/pitch)
 - Fine pitch (<0.1 mm)
 - Low profile (<0.4mm)
 - High bandwidth (>100GHz)
 - High current carrying capability of
>6000A/in², 10A/mm² both @40°C temp rise
 - High grade silicone (passes NASA outgassing requirements)

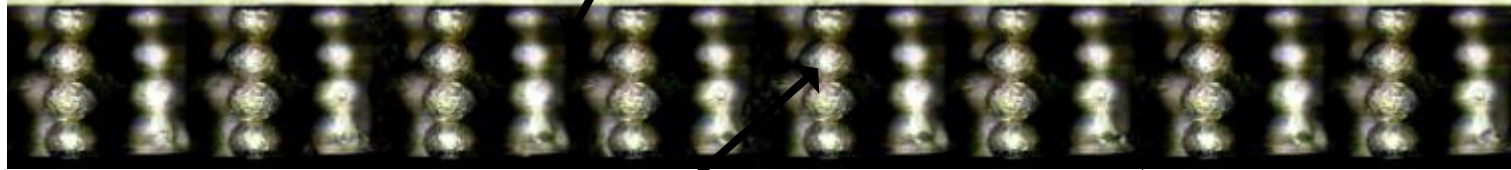


PariPoser[®]

Interconnection Fabric

~90% Silicone
~10% Metal

Silicone



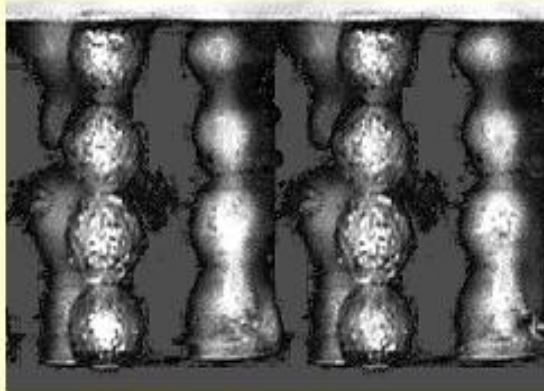
BallWire[®] Conductor

PariPoser takes
NO MECHANICAL SET
with multiple compressions

50 μ m-380 μ m thick
0.1mm – 1.27mm pitch

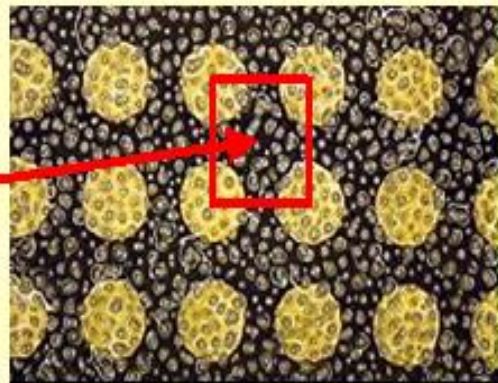
PariPoser

It Takes *BallWires*®
to Connect to 40 GHz
and Beyond!

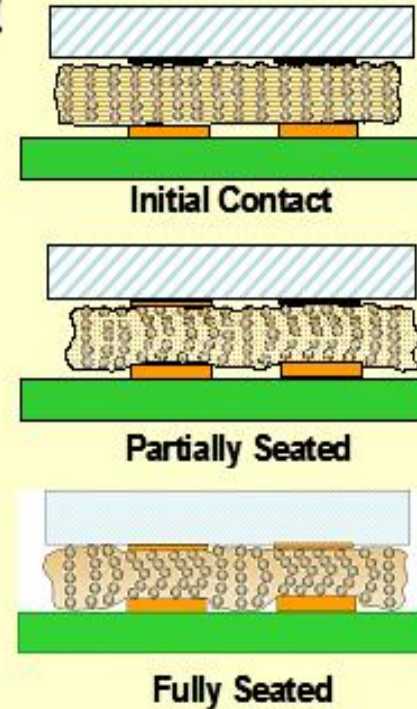


BallWire Contact

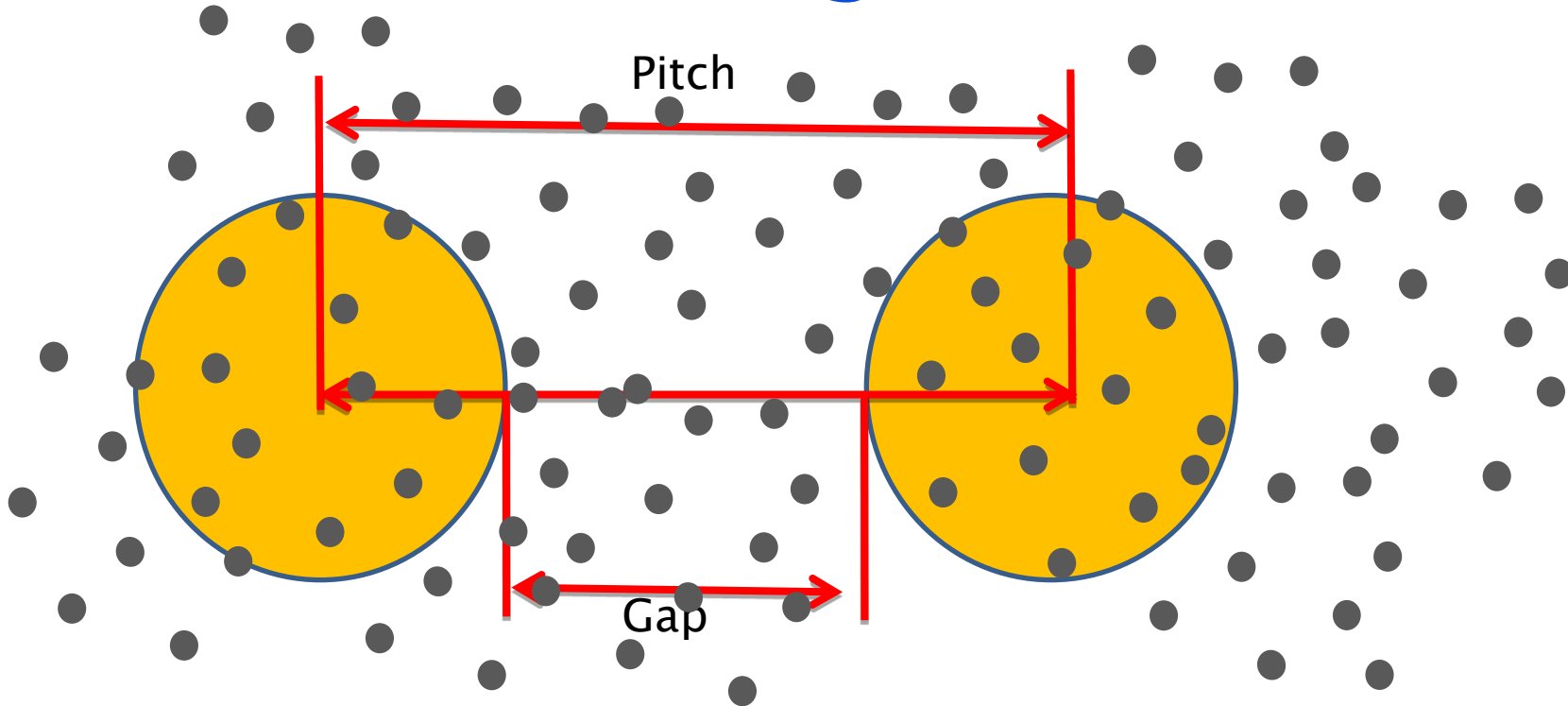
30 to 50 BallWires
per Pitch Square



PariPoser® Fabric on LGA Pads



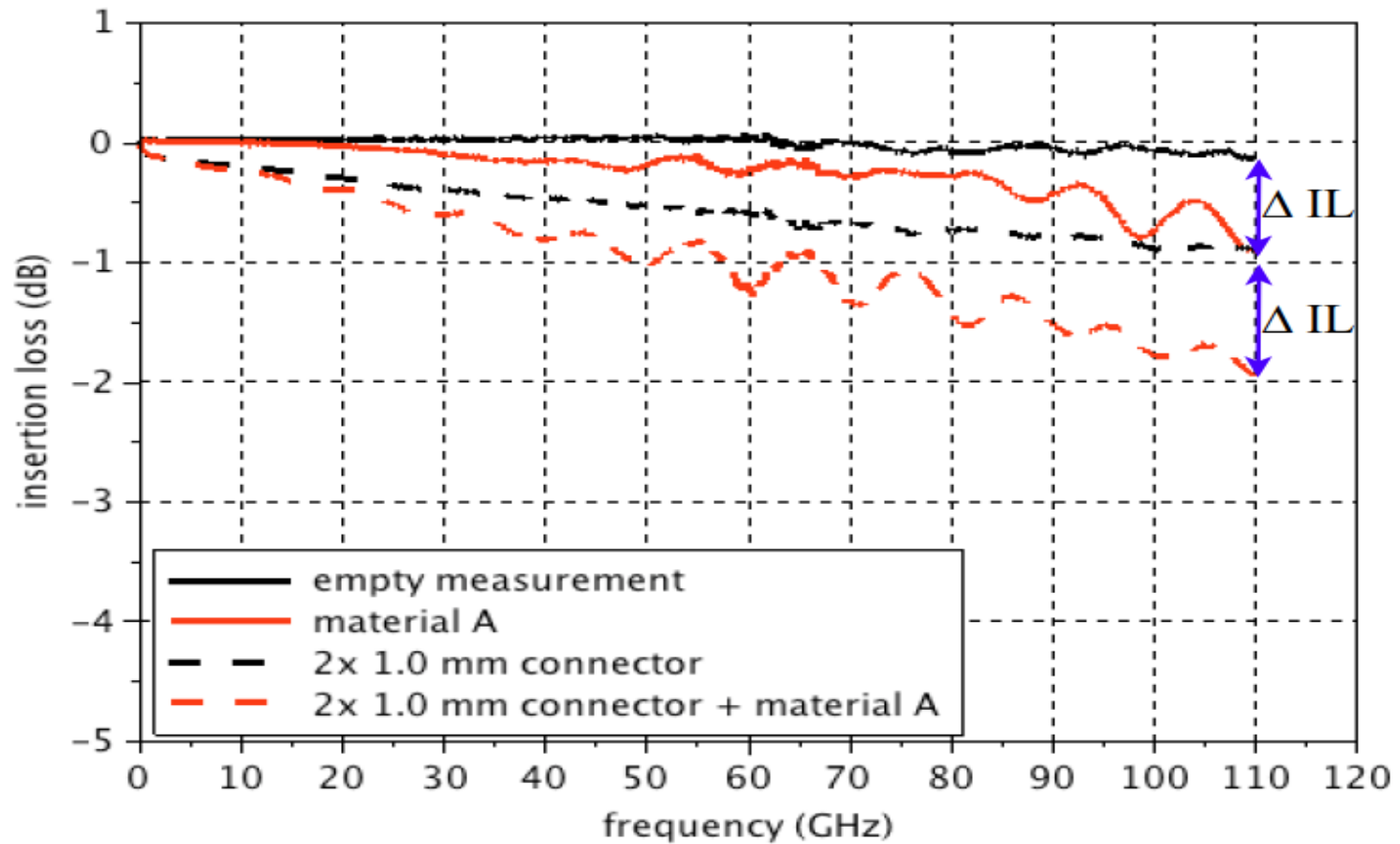
Contact Design Rules



Gap \geq 40% of Pitch (@1mm pitch, gap of 400 μ m required)

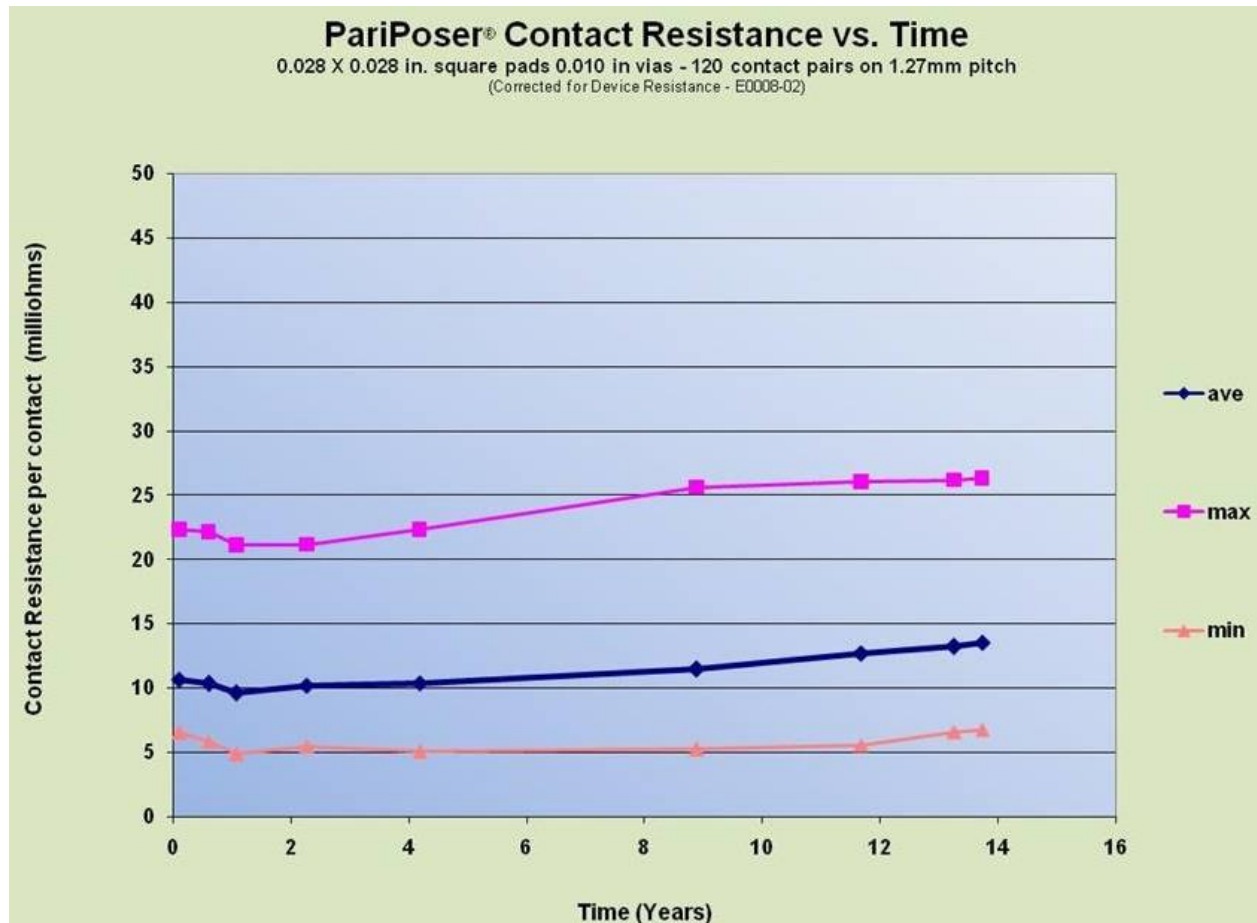
Pad $\geq \pi(60\% \text{ of Pitch})^2/4$ (@1mm pitch, 600 μ m pad dia)

High Frequency Performance



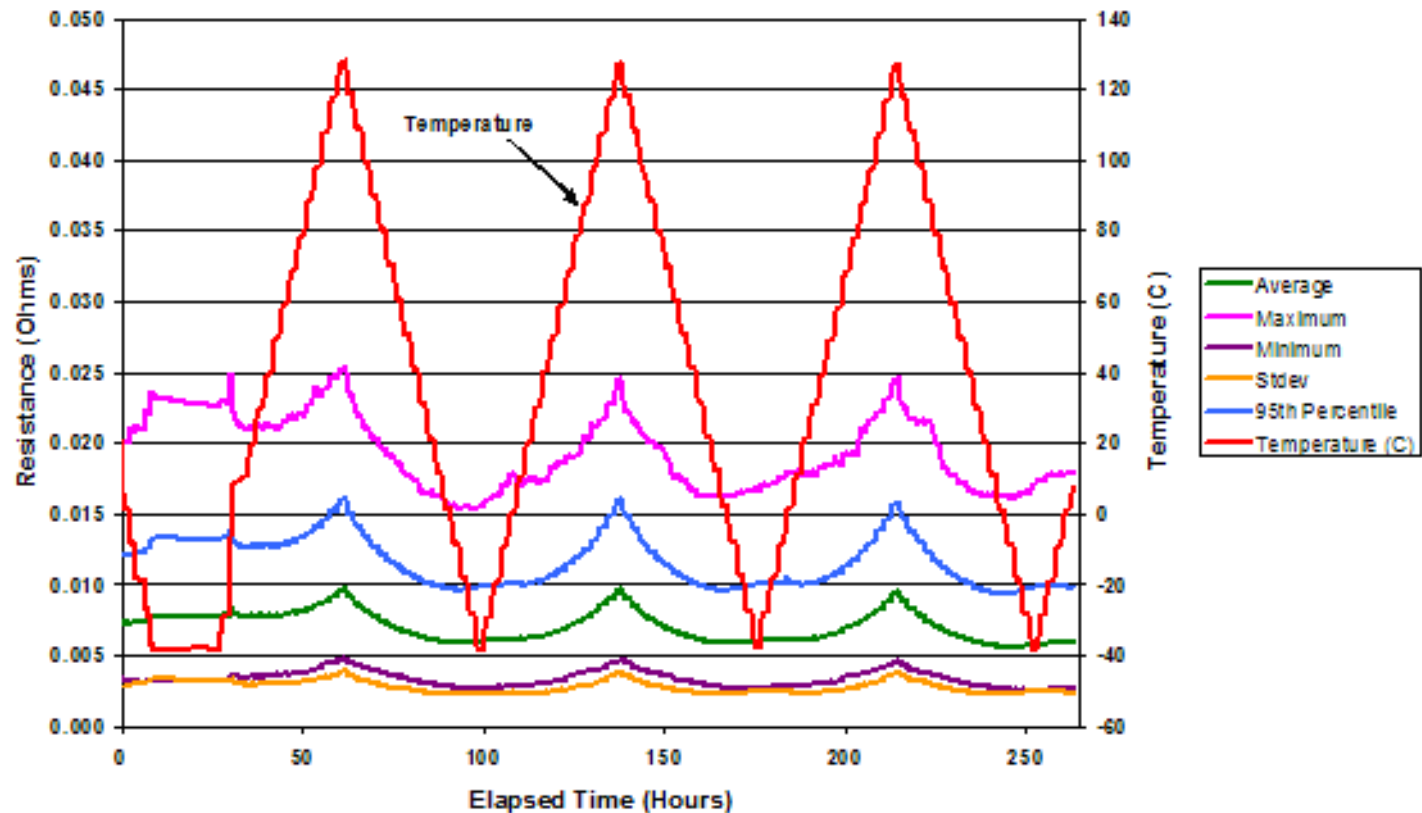
results curtesy University Erlangen

Long Term Stability

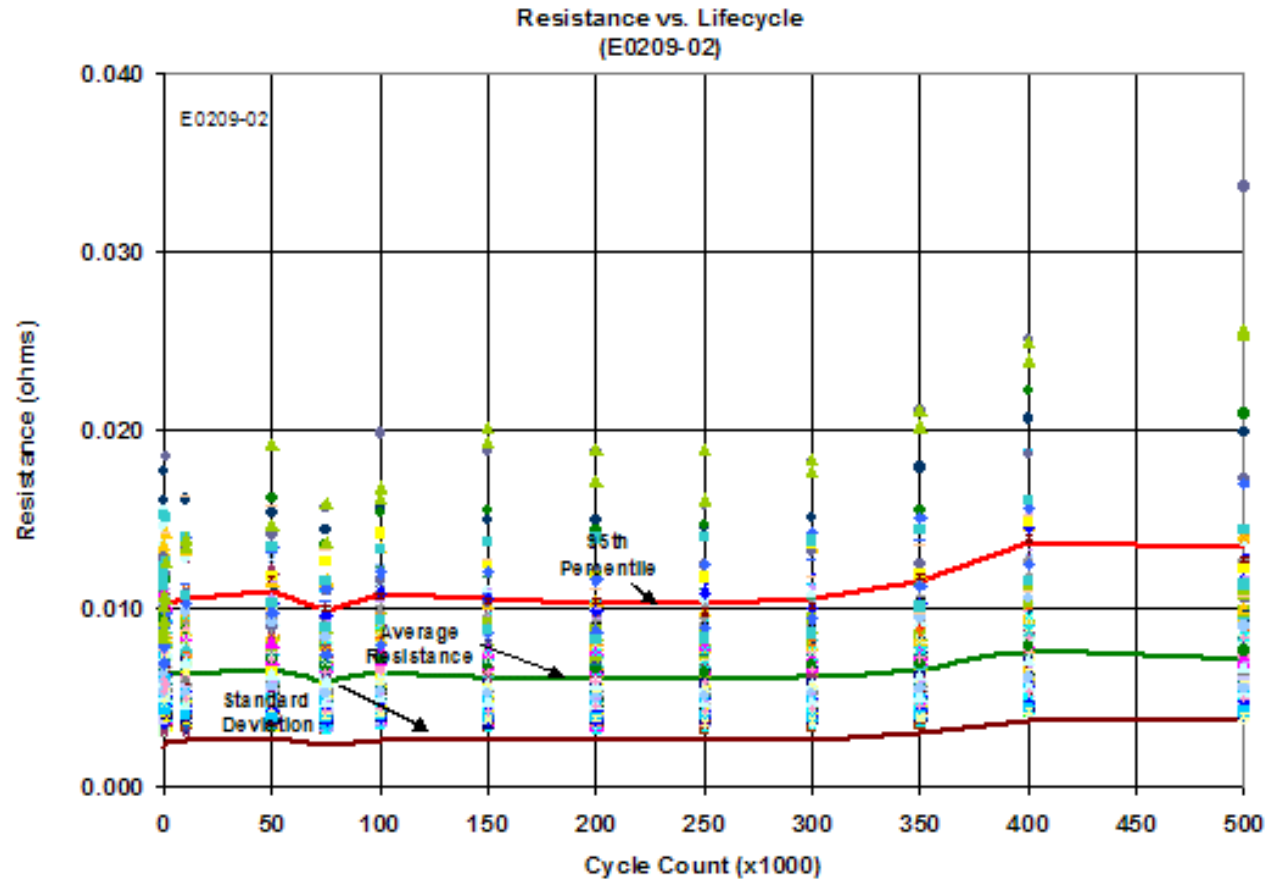


Thermal Cycling Studies

Resistance vs. Time at Temperature
(E0210-01)



Resistance vs Lifecycle



Variety of PariPoser Products

	1.27mm	1.0mm	0.8mm	0.65mm	0.5mm	0.4mm	0.3mm	0.2mm	0.1mm
Construction	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet	Ni/Ag Silicone Sheet
Thickness	0.38mm	0.25mm	0.22mm	0.17mm	0.14mm	0.11mm	0.09mm	0.06mm	0.05mm
Combined Min Pad Height (3)	0.071mm	0.071mm	0.053mm	0.053mm	0.036mm	0.036mm	0.027mm	0.018mm	0.018mm
Pad Diameter	0.76mm	0.6mm	0.48mm	0.39mm	0.3mm	0.24mm	0.18mm	0.12mm	0.06mm
Pad Gap (4)	0.51mm	0.4mm	0.32mm	0.26mm	0.20mm	0.16mm	0.12mm	0.08mm	0.04mm
Pad Loading (g/contact) (5)	80.6	50	32	21.1	12.5	8	4.5	2	0.5

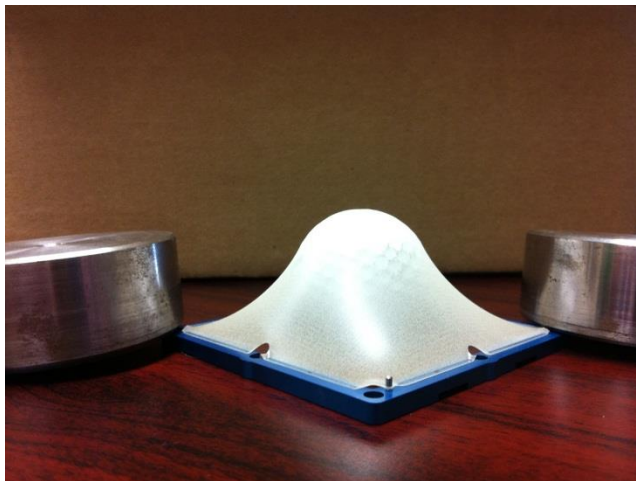
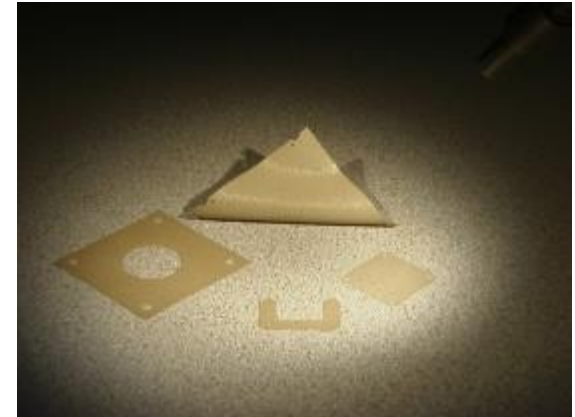


[_RUPPtronik_Paricon_PariPoser-Material_Data_Sheet REV H.pdf](#)



PariPoser Implementation

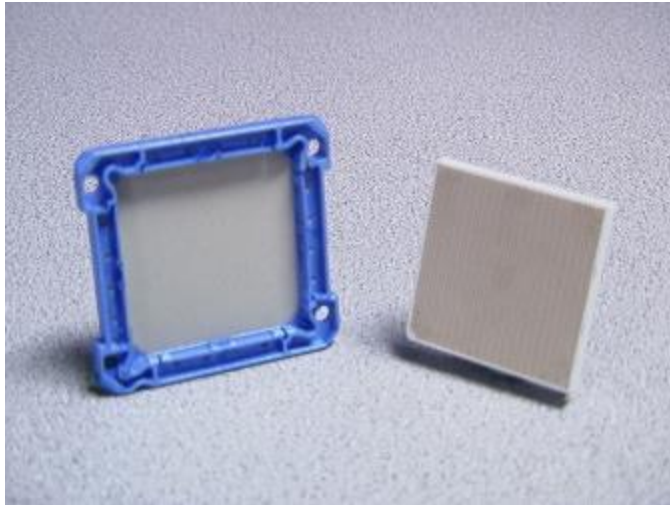
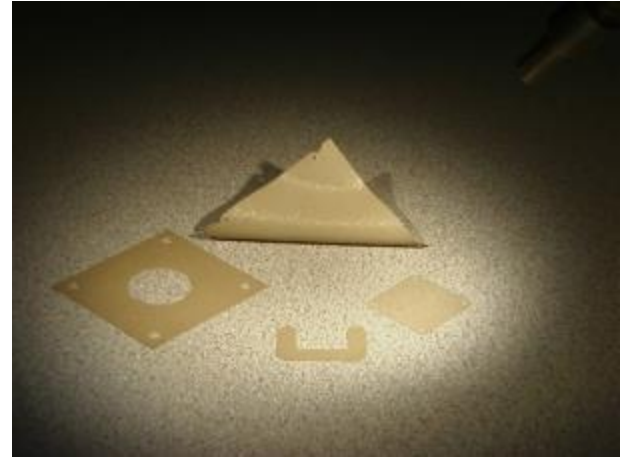
- PariPoser can be used on its own without the need of frames and fixtures
- No special tools are required to cut PariPoser



- PariPoser, because of its elastomeric properties, has the ability to be versatile - whatever your requirement

Temperature Performance

- Operating temperature range with loose PariPoser:
-55°C to +80°C.



Operating temperature range with PariPoser stretched on a frame:

- -55°C to +125°C
- -55°C to +150°C
- -55°C to +180°C/210°C 1h

Standard Paricon Test Sockets

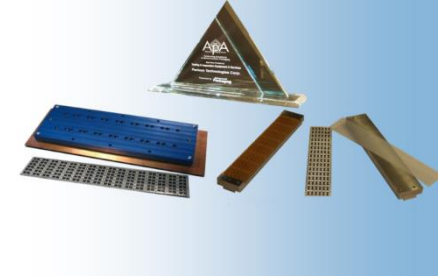
F01 Clam Shell Socket



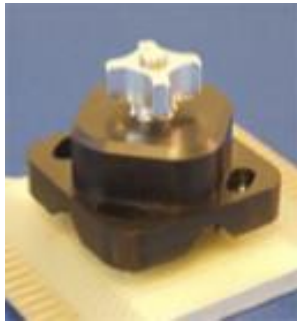
F12 Custom Socket



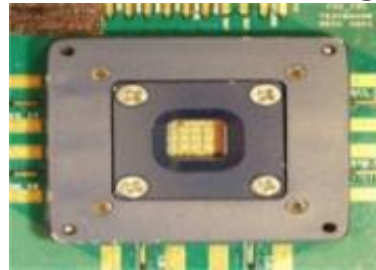
F05 Strip Line Socket



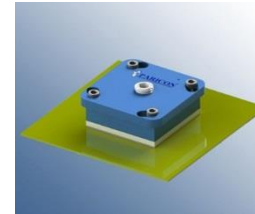
F14 Lock & Load



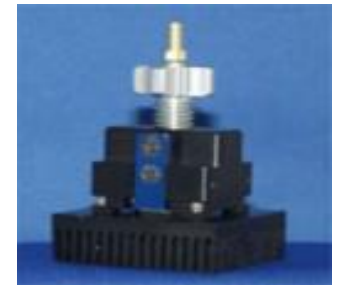
F07 Open Probing Socket



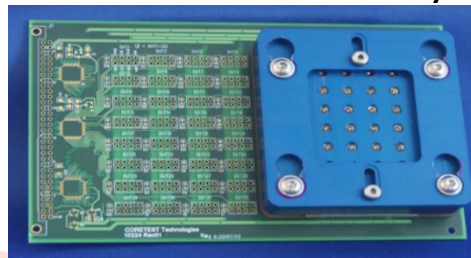
F10 Socket



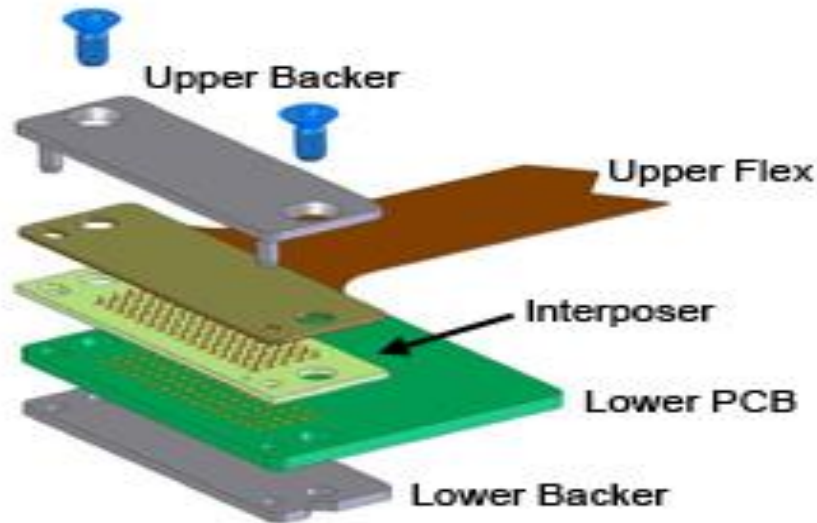
F15 Snap Socket



F06 Multi device socket system



Flex-to-Board

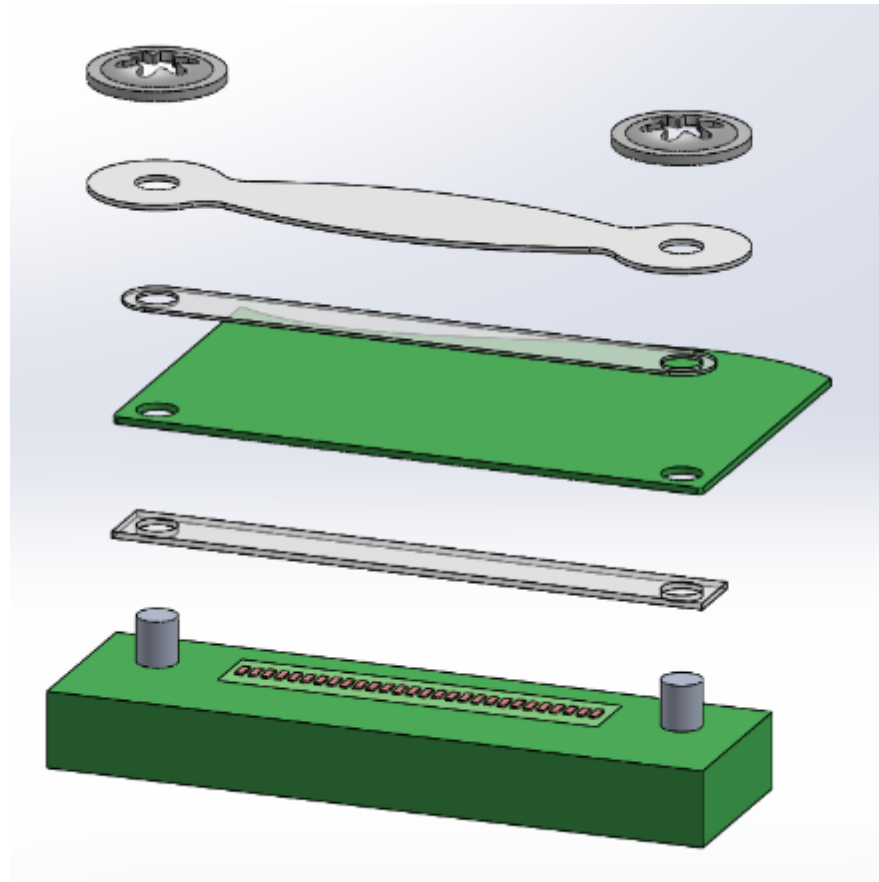


Example Flex-to-Board Assembly

- No solder compression mount
- High density
- Mixed signaling
- Low contact resistance

Low Profile Flex Connector

- Push nut
- Spring
- Load leveling interface
- Flex
- PariPoser interface
- Guiding pins
- PCB

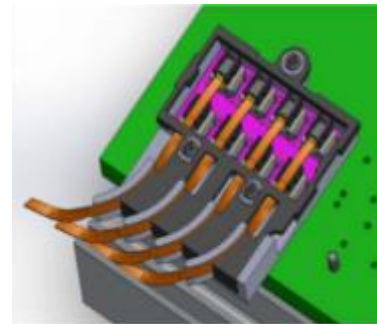


High Speed PCB Optical Engine Interconnect System

- No solder interconnection
- Suitable for high density IOs
- Low profile
- Reduces maintenance & rework, improves yield
- Optical engines with heat sink & cable interfaces

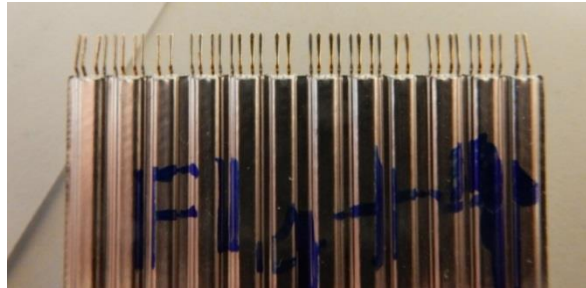


2way optical engine
assembly with
heat sink and optical cable



8way optical
engine assembly

High Speed Cable-to-Board Connector



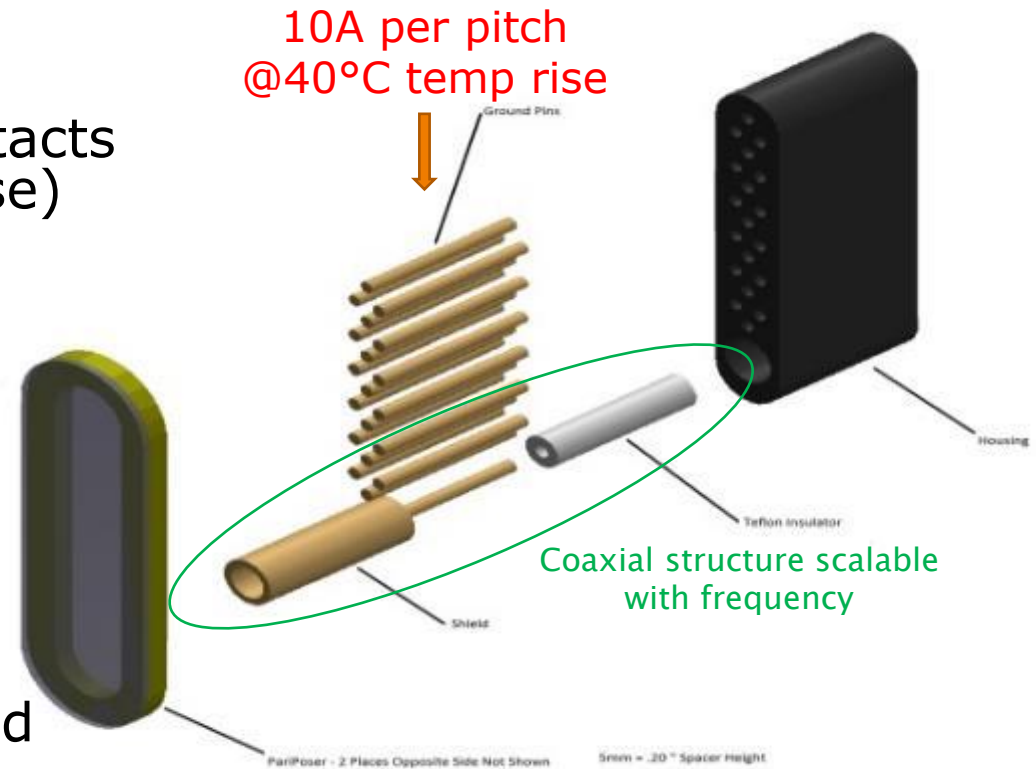
- No solder assembly
- High bandwidth ($>80\text{GHz}$)
- Low RF loss ($<0.3\text{db}$ @ 40GHz)
- Low profile (4.8 mm)
- Low interface resistance (<10 milliohms)

Board-to-Board Interconnect using PariPoser

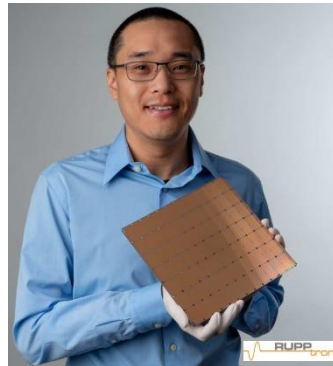
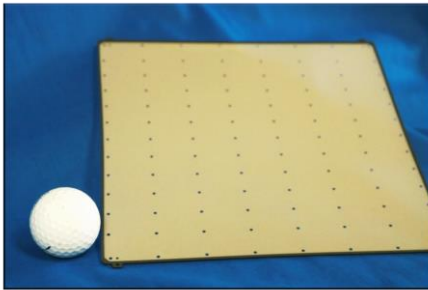
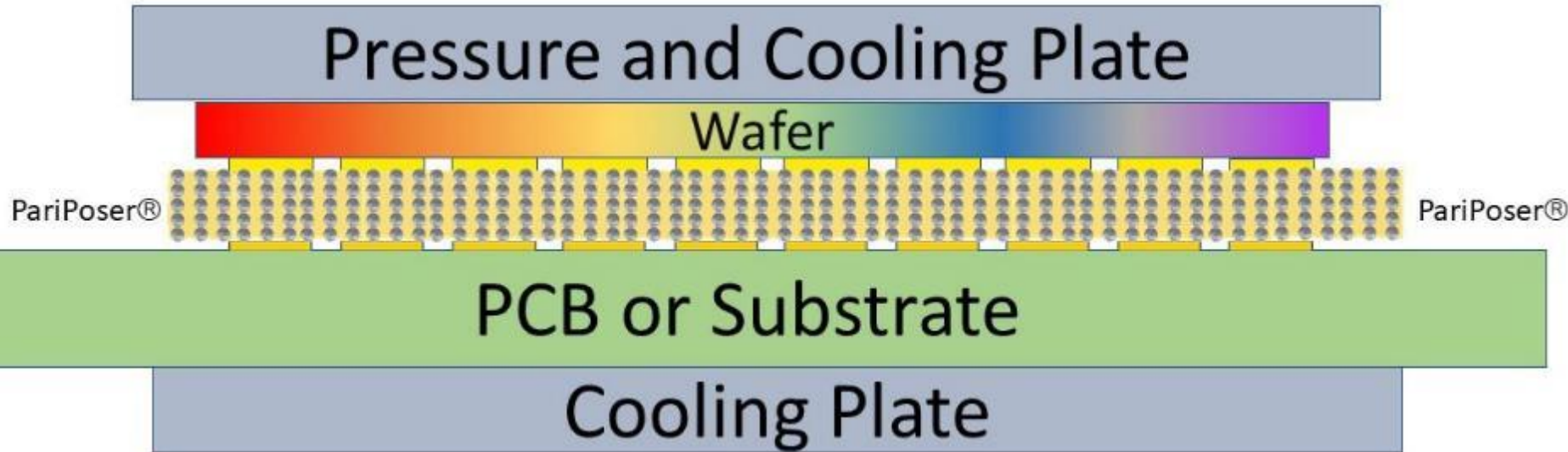
Applications:

- High current handling contacts (10A/mm² @40°C temp rise)
- Battery charging
- Humidity sealed contacts
- Military radar
- High speed data

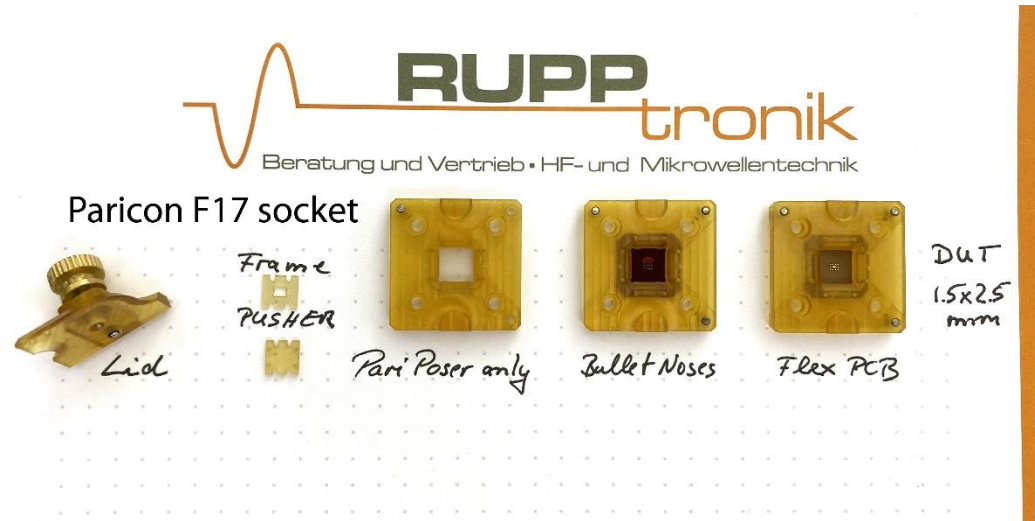
- Very reliable contact with ~8-10 vertical ballwires/pad
- High density I/O
- Mixed signal RF+DC
- Coaxial contacts to >100GHz



Wafer-to-PCB-Connector using PariPoser



Realized DUT contacting solutions using PariPoser




PariPoser®
elastomeric interconnection material,

when properly implemented

has the ability to meet reliably electronic
packaging, industry performance
and cost objectives
in long term interconnection applications



I would like to thank you very
much for your valuable time and
your interest in this
presentation!!





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