



MHz Technologies

Introduction to Paricon





Company Overview

- Founded in 1997 by Roger Weiss, formerly 23 years at Bell Labs
- Technology was 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)



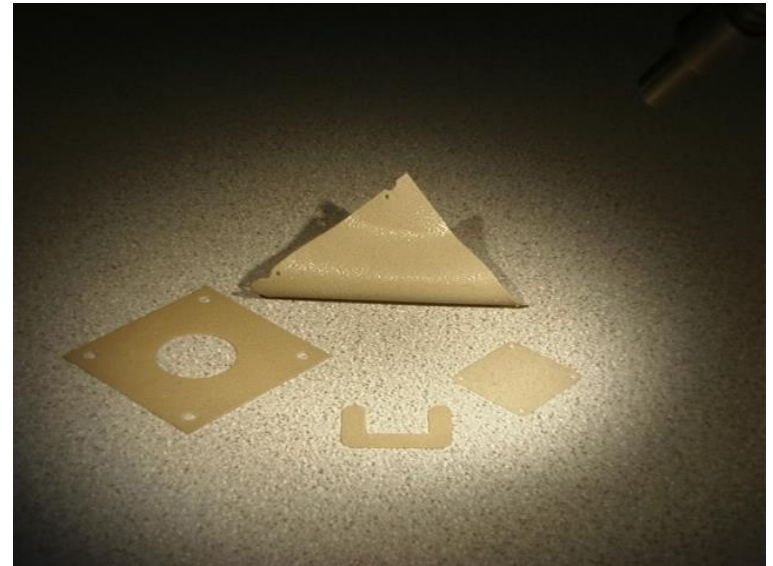
Business Focus

- Applications

Test & production sockets
Board-to-Board connectors
High speed interconnect
OEM interconnect

- Markets

Instrumentation
Medical
Automotive
Military
Space

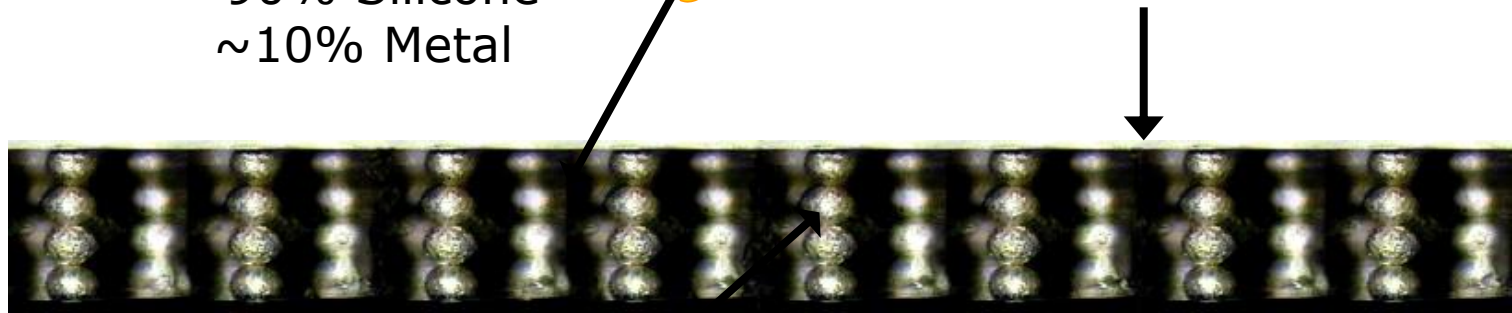




PariPoser[®] Interconnection Fabric

~90% Silicone
~10% Metal

Silicone



BallWire[®] Conductor

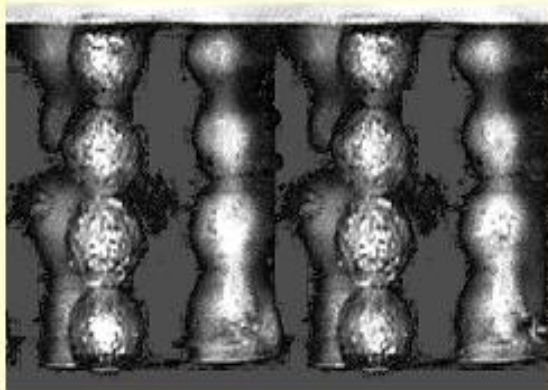
PariPoser takes
NO MECHANICAL SET
with multiple compressions

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



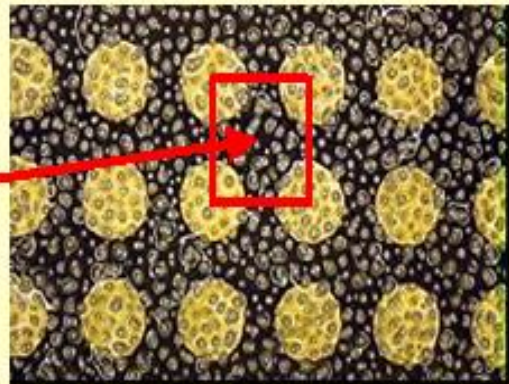
PariPoser

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

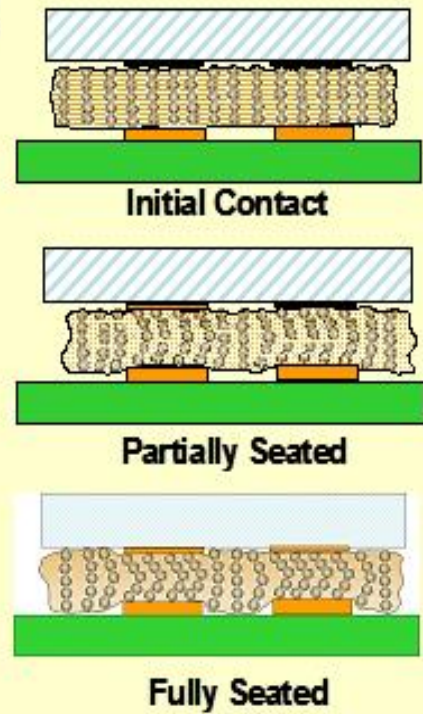


BallWire Contact

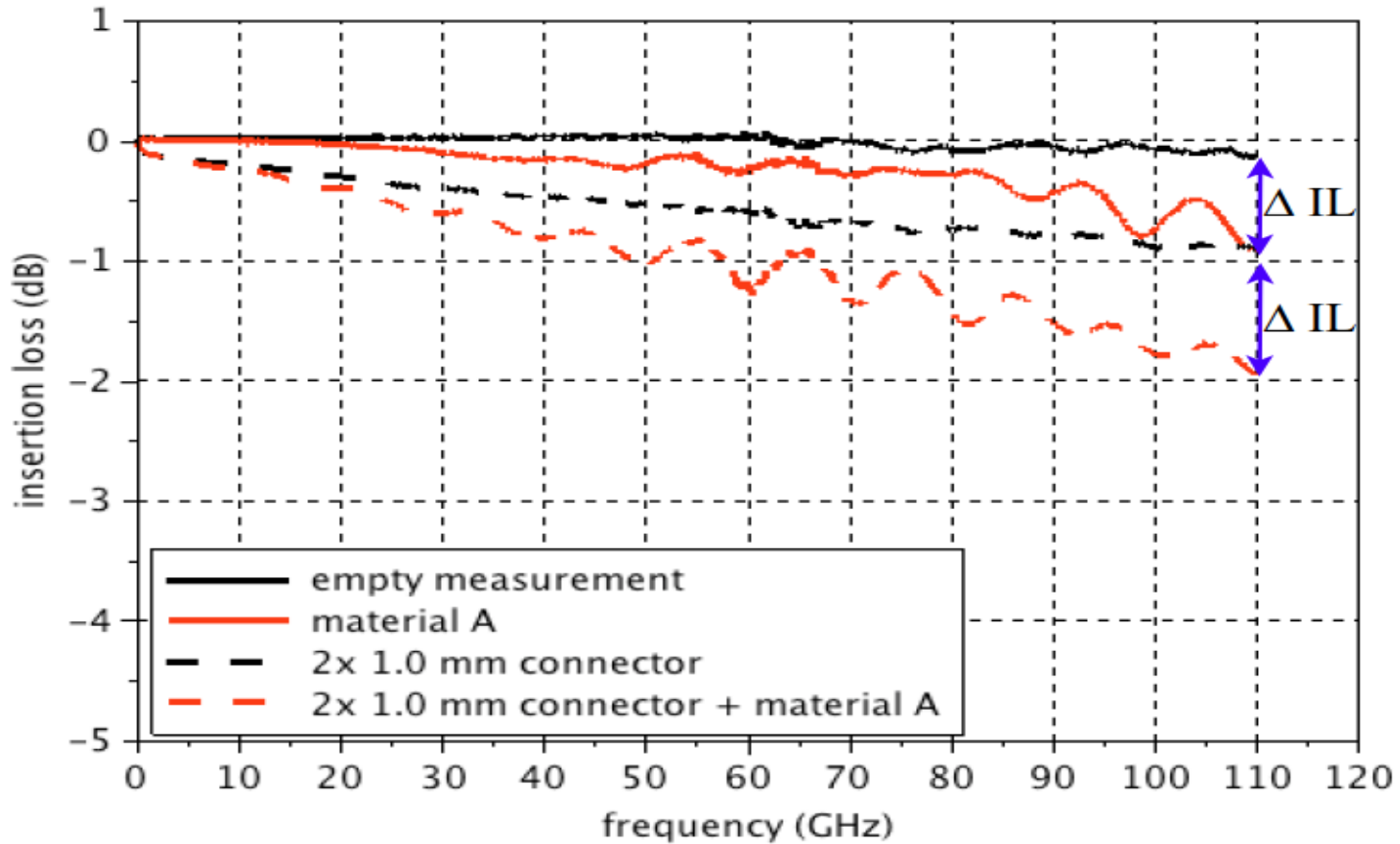
30 to 50 BallWires
per Pitch Square



PariPoser[®] Fabric on LGA Pads

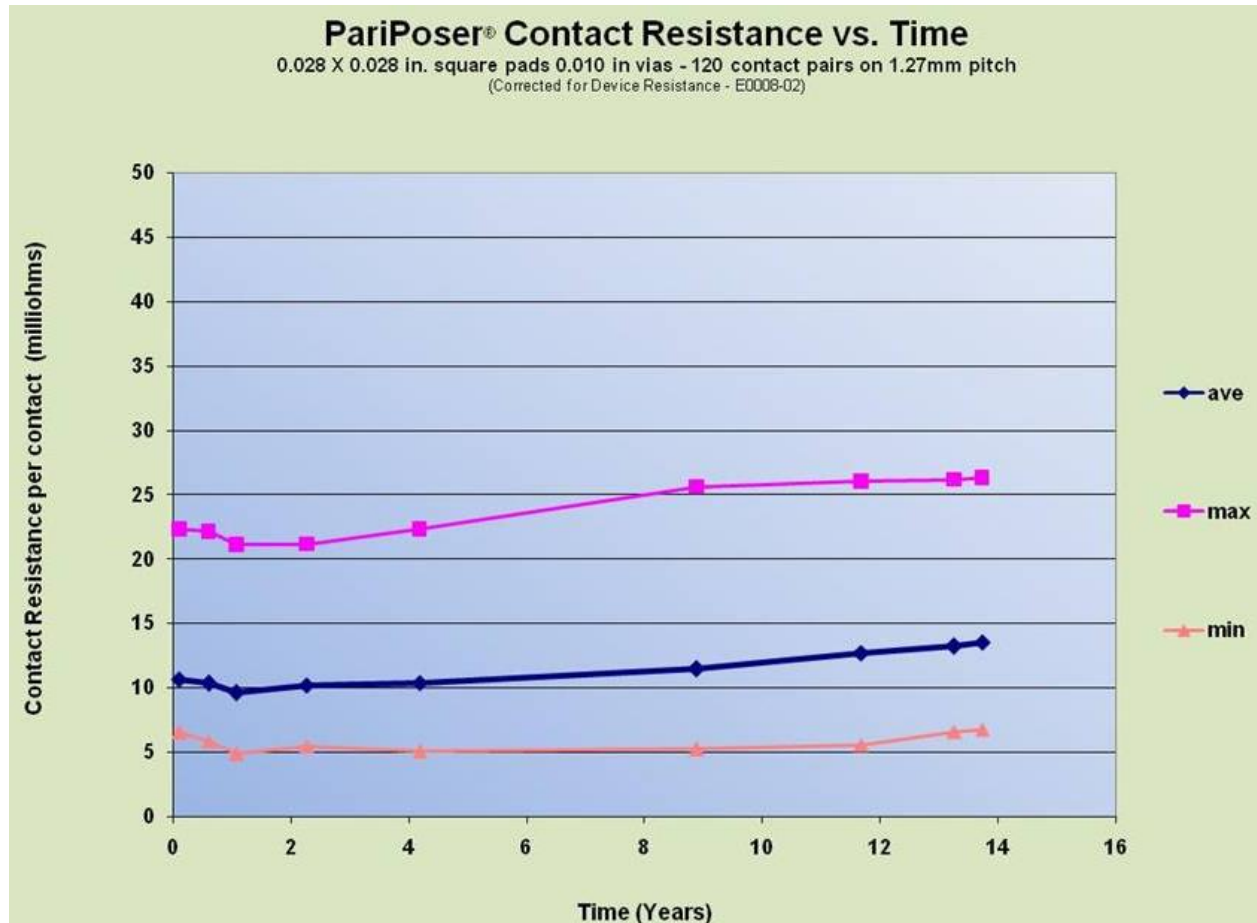


High Frequency Performance



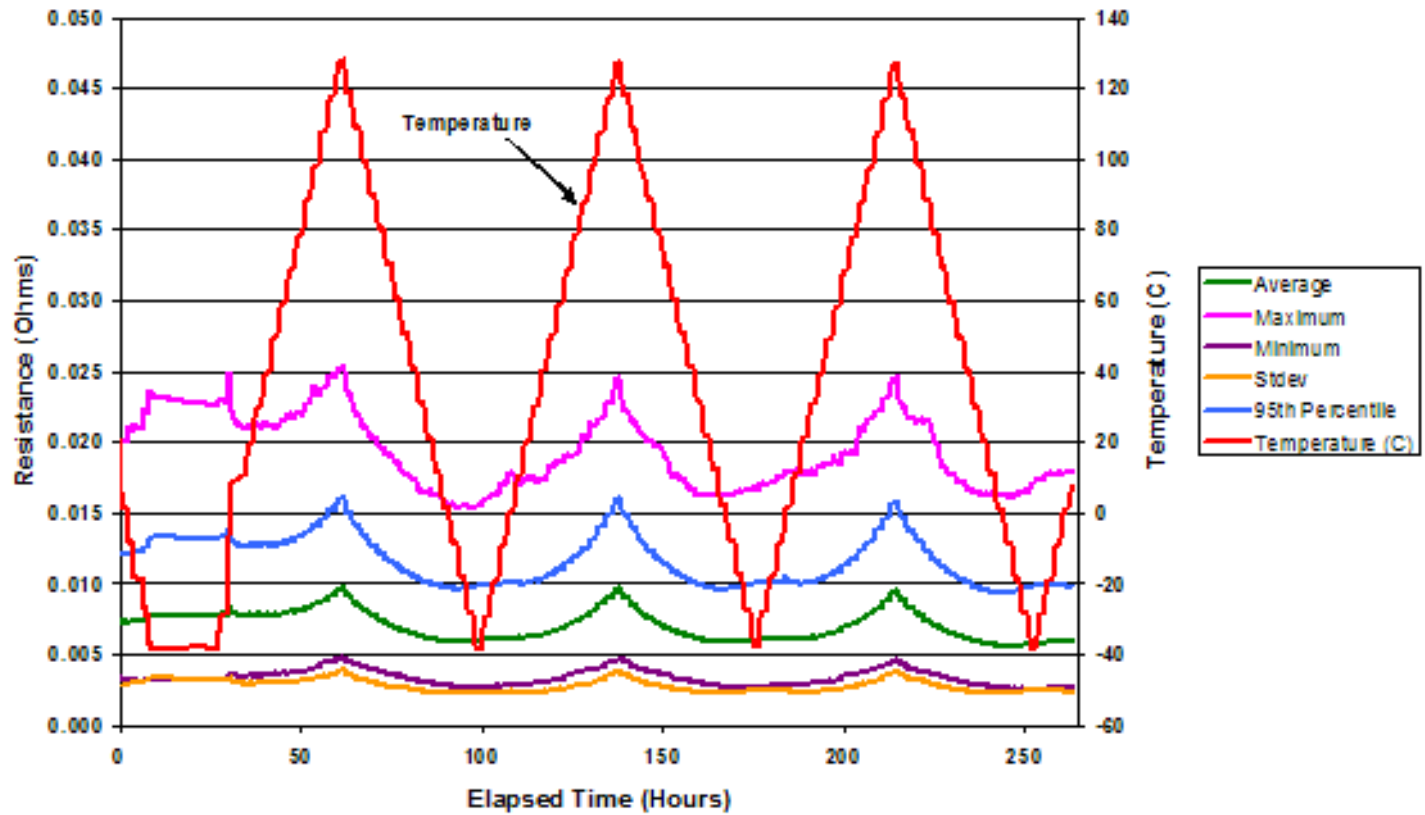
results curtesy University Erlangen

Long Term Stability

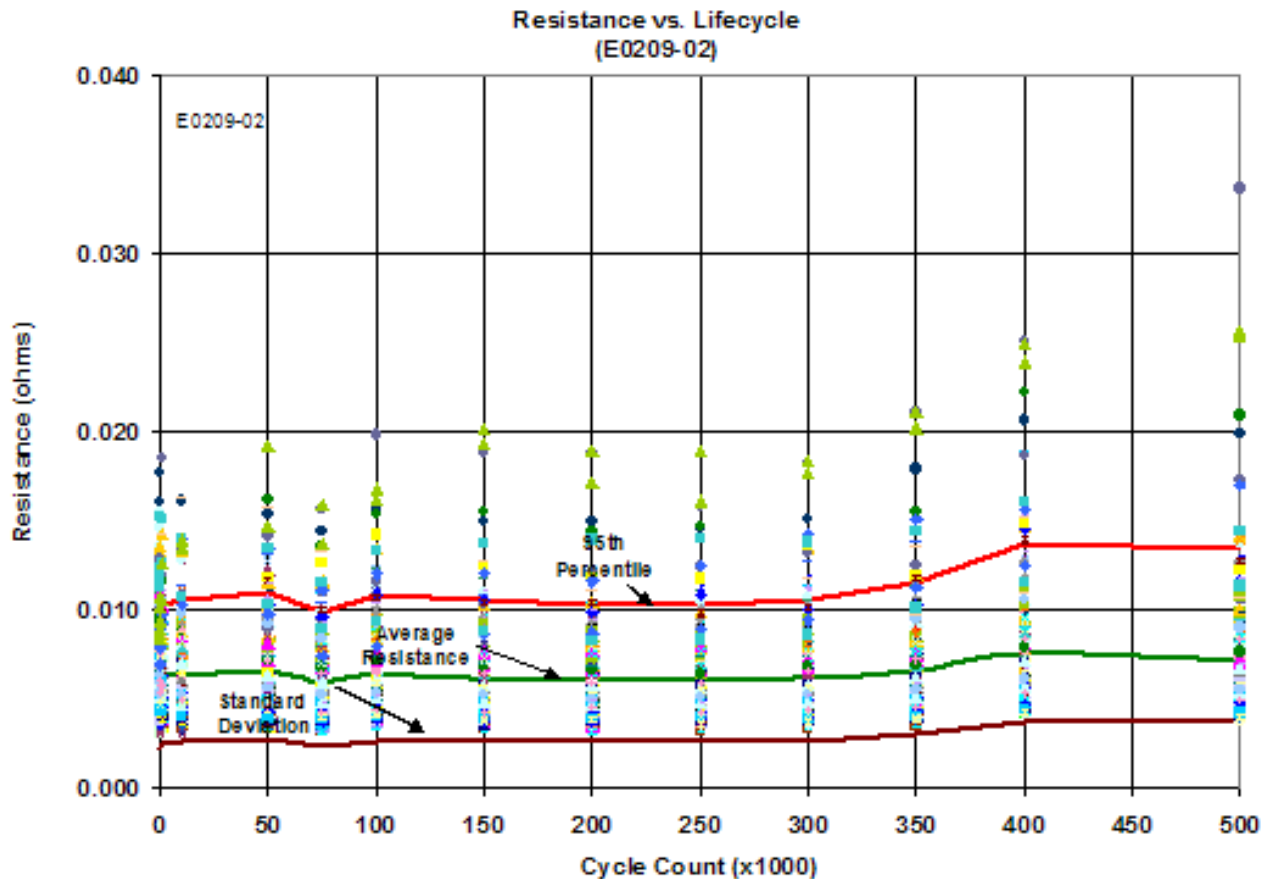


Thermal Cycling Studies

Resistance vs. Time at Temperature
(E0210-01)



Resistance vs Lifecycle



Variety of PariPoser Products

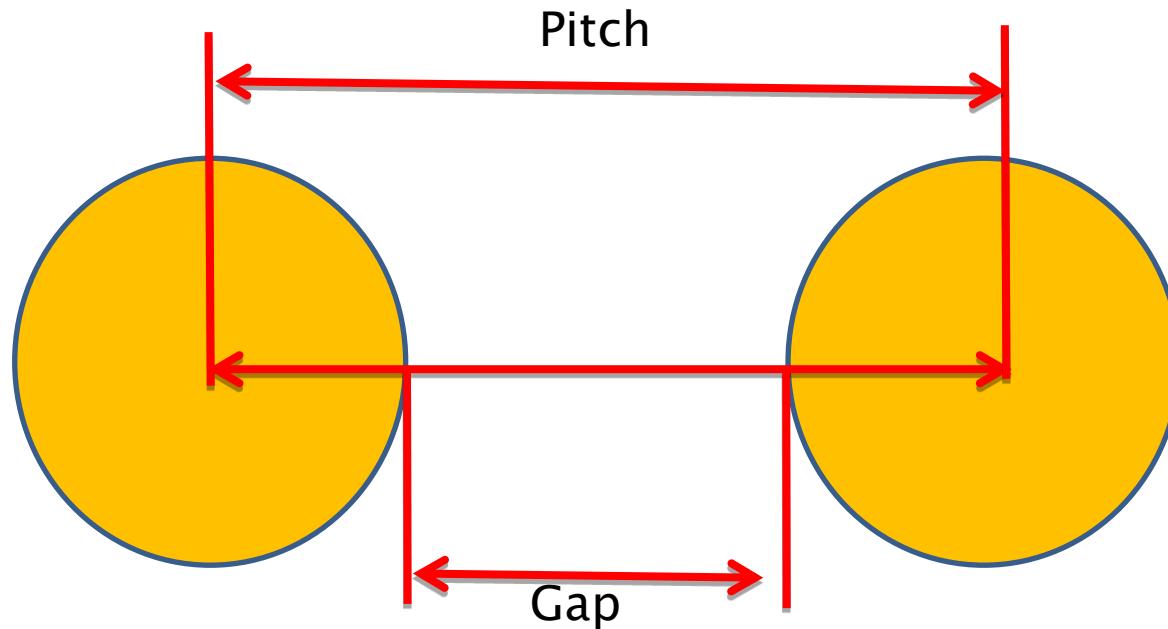
Contact Pitch (mm)	Minimum Gap (mm)	Minimum Pad Area (mm) ²	Minimum Combined Pad Height (Cu weight oz)	Minimum Combined Pad Height (inches)	Sheet Thickness (inches)	Sheet Thickness (mm)
1.27	0.51	0.46	2oz	0.0028	0.0150	0.38
1.00	0.40	0.28	2oz	0.0028	0.0100	0.25
0.80	0.32	0.18	1.5oz	0.0021	0.0087	0.22
0.65	0.26	0.12	1.5oz	0.0021	0.0068	0.17
0.50	0.20	0.071	1oz	0.0014	0.0056	0.14
0.40	0.16	0.045	1oz	0.0014	0.0044	0.11
0.30	0.12	0.025	0.75oz	0.000105	0.0034	0.09
0.20	0.08	0.011	0.5oz	0.0007	0.0025	0.06
0.10	0.04	0.0028	0.5oz	0.0007	0.0021	0.05



Parcon_pariposer material



Contact Design Rules

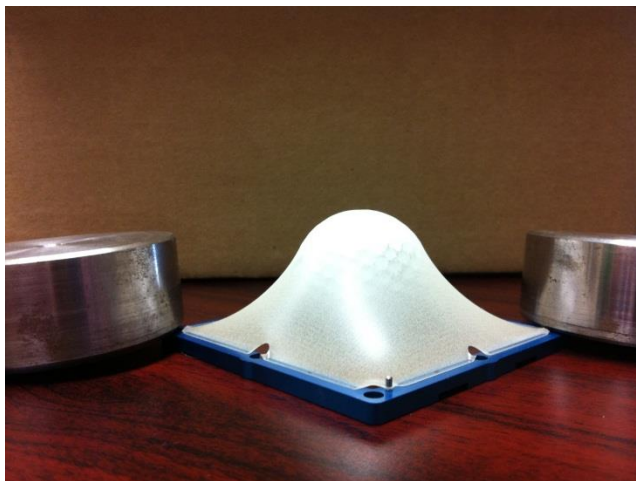
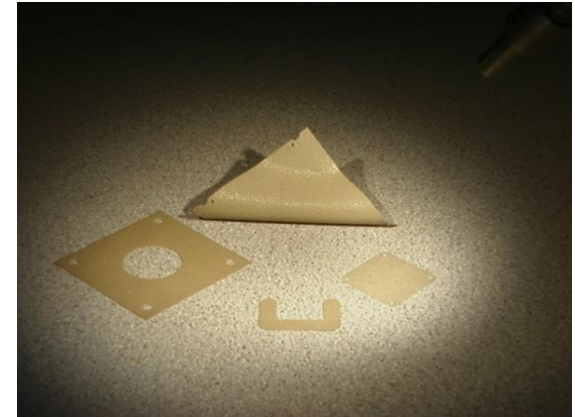


Gap \geq 40% of Pitch (@1 mm pitch, gap of 400 μ m required)

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

PariPoser Implementation

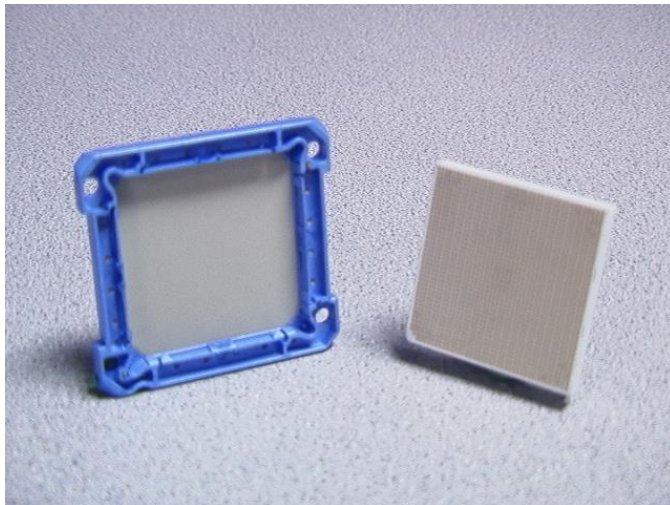
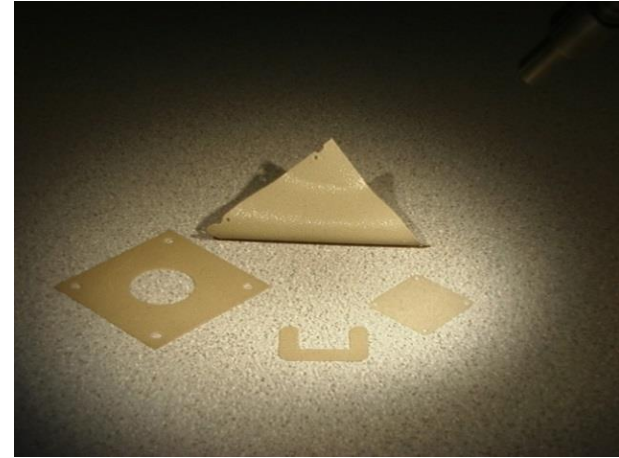
- PariPoser can be used on its own without the need of frames and fixtures
- No special tools are required to cut PariPoser



- 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 +210°C

Standard Paricon Test Sockets

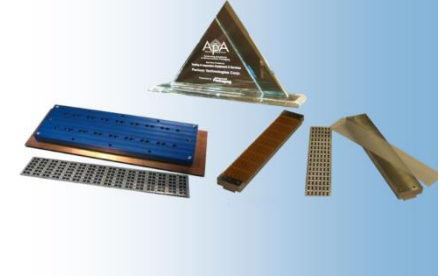
F01 Clam Shell Socket



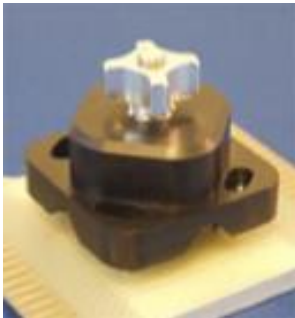
F12 Custom Socket



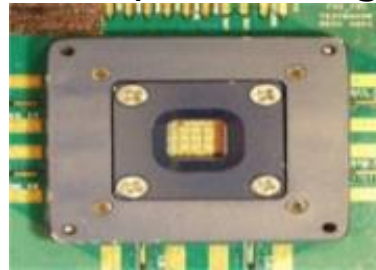
F05 Strip Line Socket



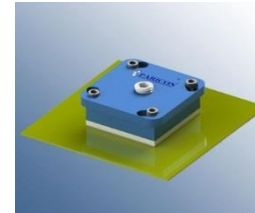
F14 Lock & Load



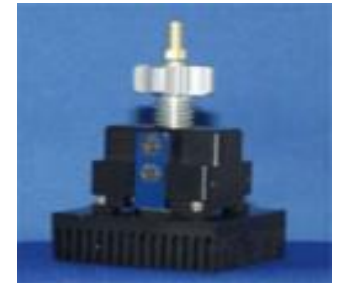
F07 Open Probing Socket



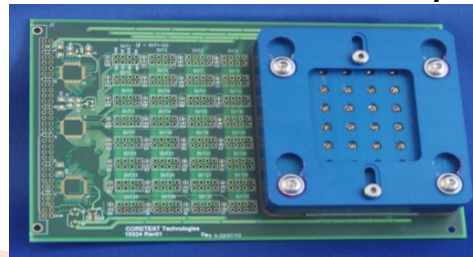
F10 Socket



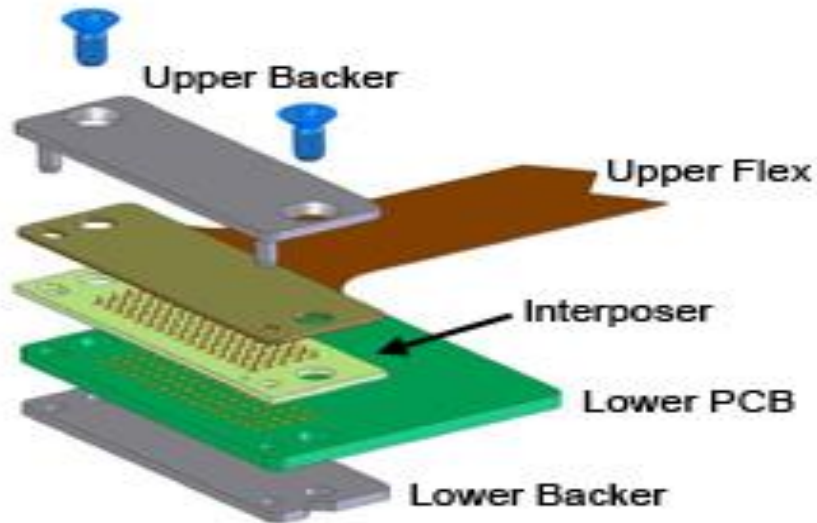
F15 Snap Socket



F06 Multi device socket system



Flex-to-Board

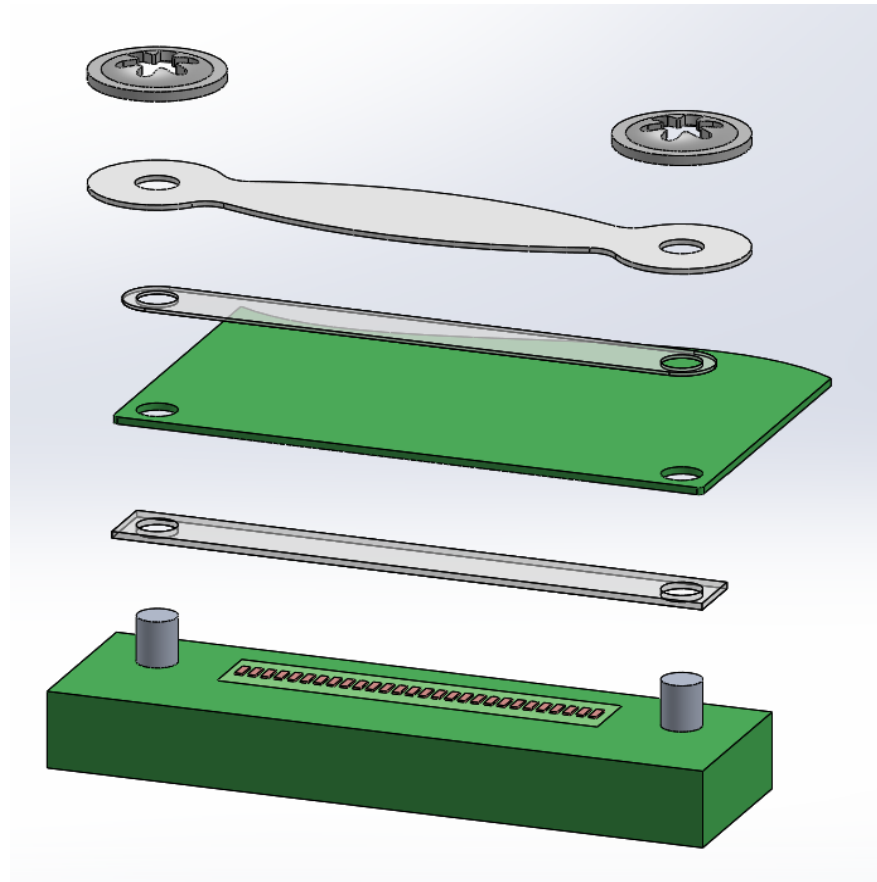


Example Flex-to-Board Assembly

- 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

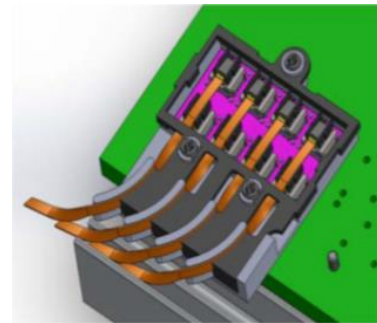


High Speed PCB Optical Engine Interconnect System

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

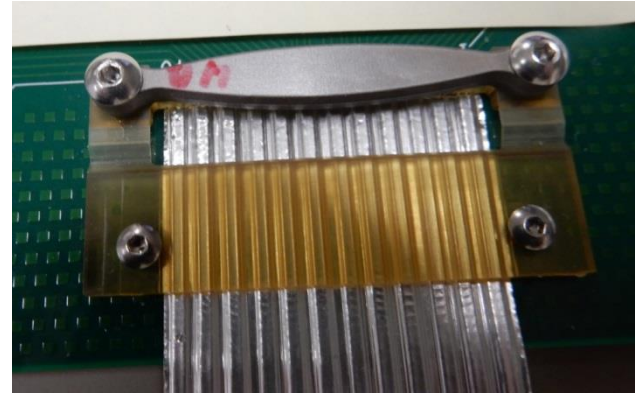
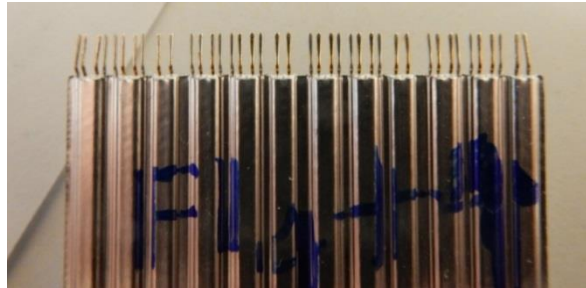


2way optical engine assembly with heat sink and optical cable



8way optical engine assembly

High Speed Cable-to-Board Connector



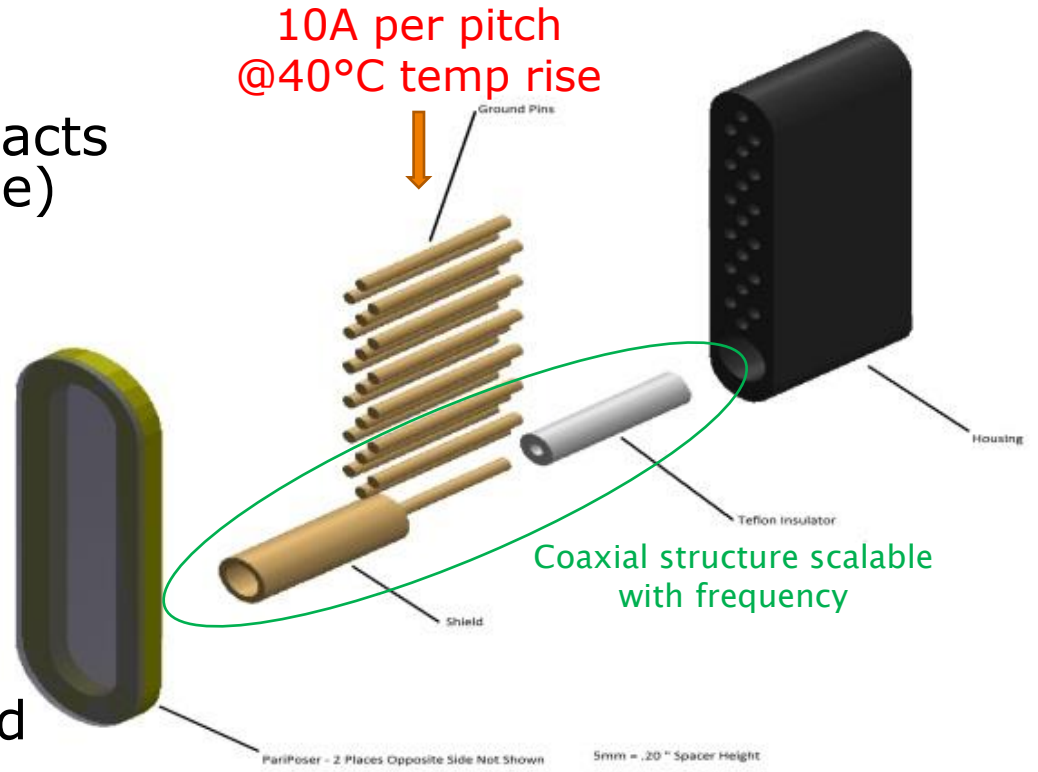
- No solder assembly
- High bandwidth (>80GHz)
- Low RF loss (<0.3db @ 40GHz)
- Low profile (4.8 mm)
- Low interface resistance (<10 milliohms)

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

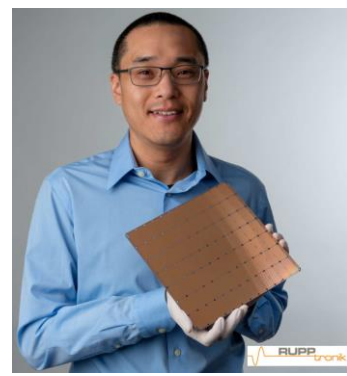
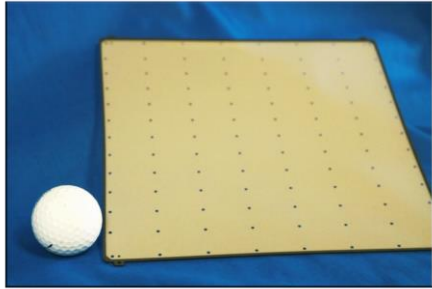
Pressure and Cooling Plate

Wafer

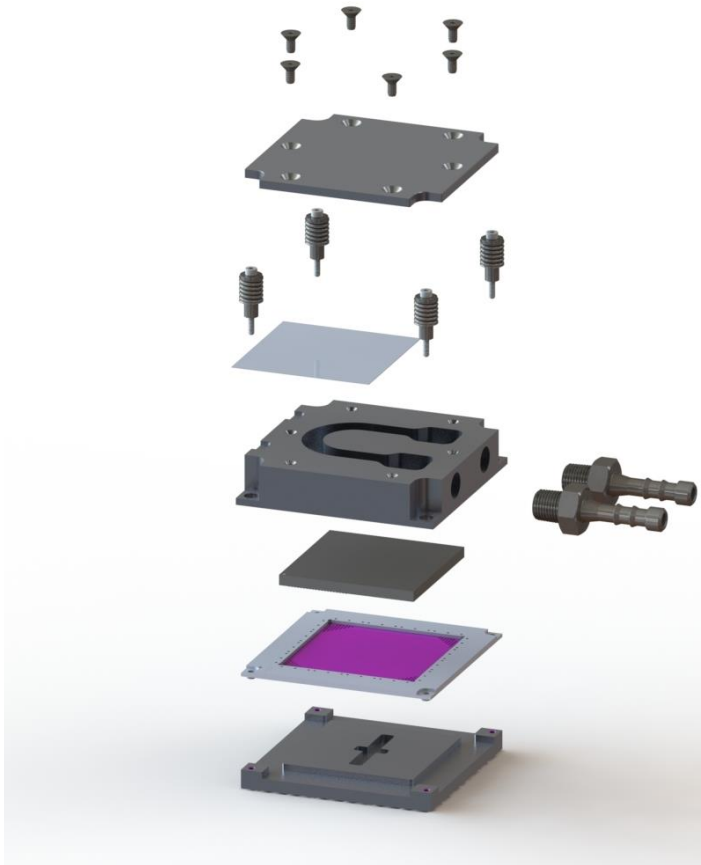


PCB or Substrate

Cooling Plate

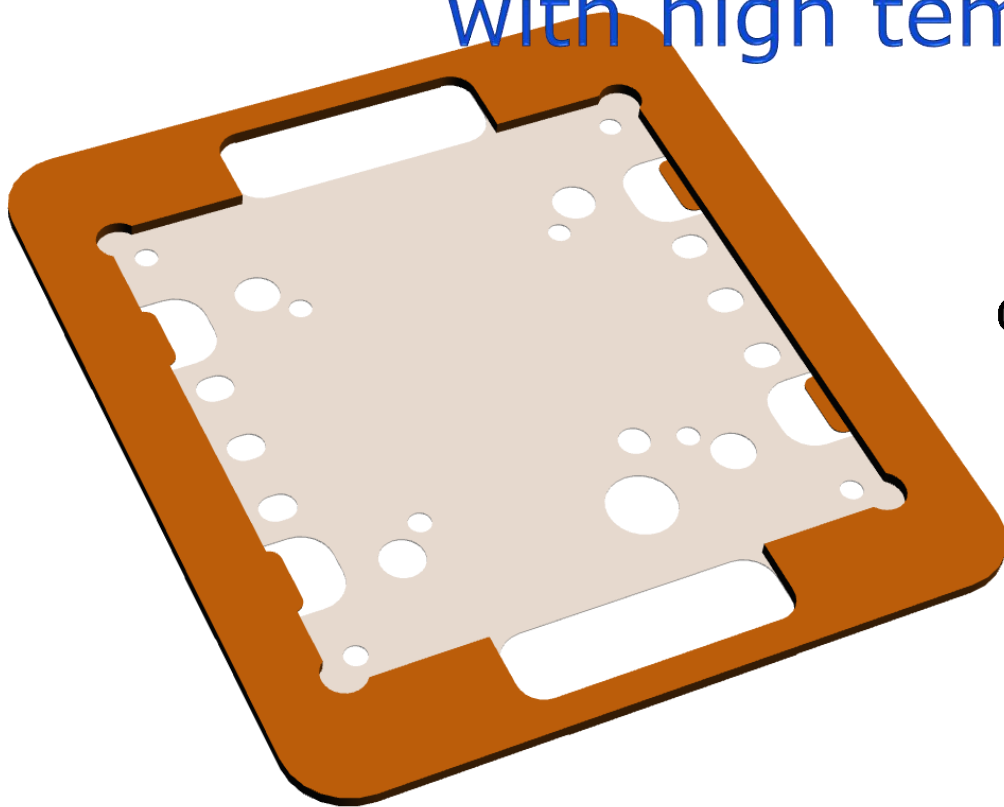


Realized DUT 45x45mm, 2000BGAs, 100W dissipated power



Paricon_F18

Realized DUT 45x45mm, Contactor with high temp stretch



Contactor Frame Concept_3D.PDF



paricon_S02-EAA





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





Thank You
Please contact us for any information
or requirement of Paricon products

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