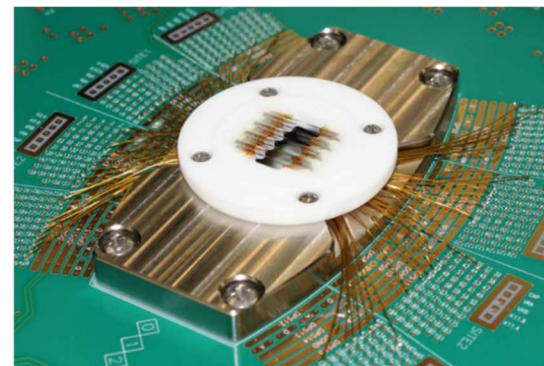


Celadon Tile-On-Card™ [TOC] Product Guide

Tile-On-Cards™: Celadon patented Ceramic and crash resistant probe technology is integrated with a customer provided PCB, epoxy ring card (conversion) or Celadon manufactured PCB.

■ Features / Benefits

- Celadon TOC™ probe cards are durable and repairable. You can expect millions of touch downs with TOC™ cards.
- Celadon Ceramic and crash resistant probe technology is proven and stable over a wide range of temperatures. Celadon sets the industry standard for high-temperature testing.
- Due to the long life, stability and low cost of ownership, Celadon TOC™ cards are used in production FABs world-wide.
- With a Celadon Tile-On-Card you get the benefit of stability and reliability of Celadon Patented Ceramic and crash resistant probe technology while utilizing existing PCB designs, or reusing the existing PCBs in the case of an epoxy ring conversion.
- A TOC™ using a Celadon designed board with Teflon Ceramic can achieve femto Amp level leakage, otherwise pico Amp leakage level is standard for Celadon Tile-On-Card applications.
- There are three different methods we use to develop TOC™s utilizing Celadon Patented Ceramic and crash resistant probe technology in order to meet our broad customer's requirements. Examples are shown in the pictures below the Material's Specification.
- Smallest pad size: 25µm x 25µm [layout dependent]; Smallest pitch: 40µm [layout dependent]
- Also used in high-voltage applications

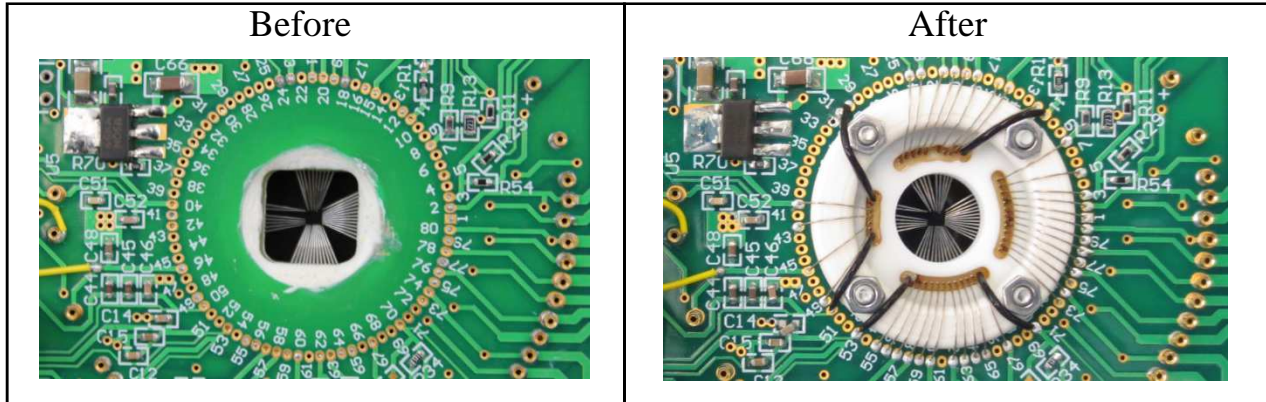


■ Board Materials for Celadon Built PCB

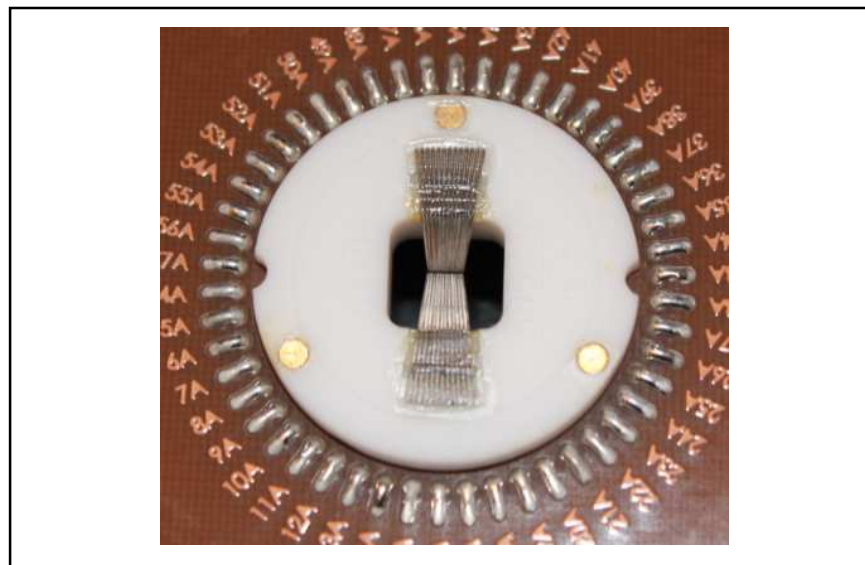
Board Material	Temperature Range	Coefficient of Thermal Expansion [pre TG]	TG Temp	Expected Leakage Level [10sec @ 25°C]
FR-4	7K [-266.15°C] – 80°C	X: 13 ppm/°C Y: 14 ppm/°C Z: 48 ppm/°C	180°C	100+ pA / V
Polyamide	Ambient – 150°C	X: 13 ppm/°C Y: 14 ppm/°C Z: 55 ppm/°C	260°C	10+ pA / V
Teflon Ceramic	Ambient – 200°C	X: 10 ppm/°C Y: 12 ppm/°C Z: 32 ppm/°C	280°C	<5fA/V

- Examples

- Converting existing epoxy ring card to Celadon technology



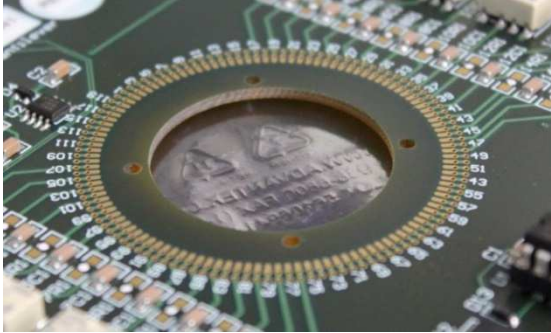
-
- Adding Ceramic and Probe to a Celadon Designed PCB



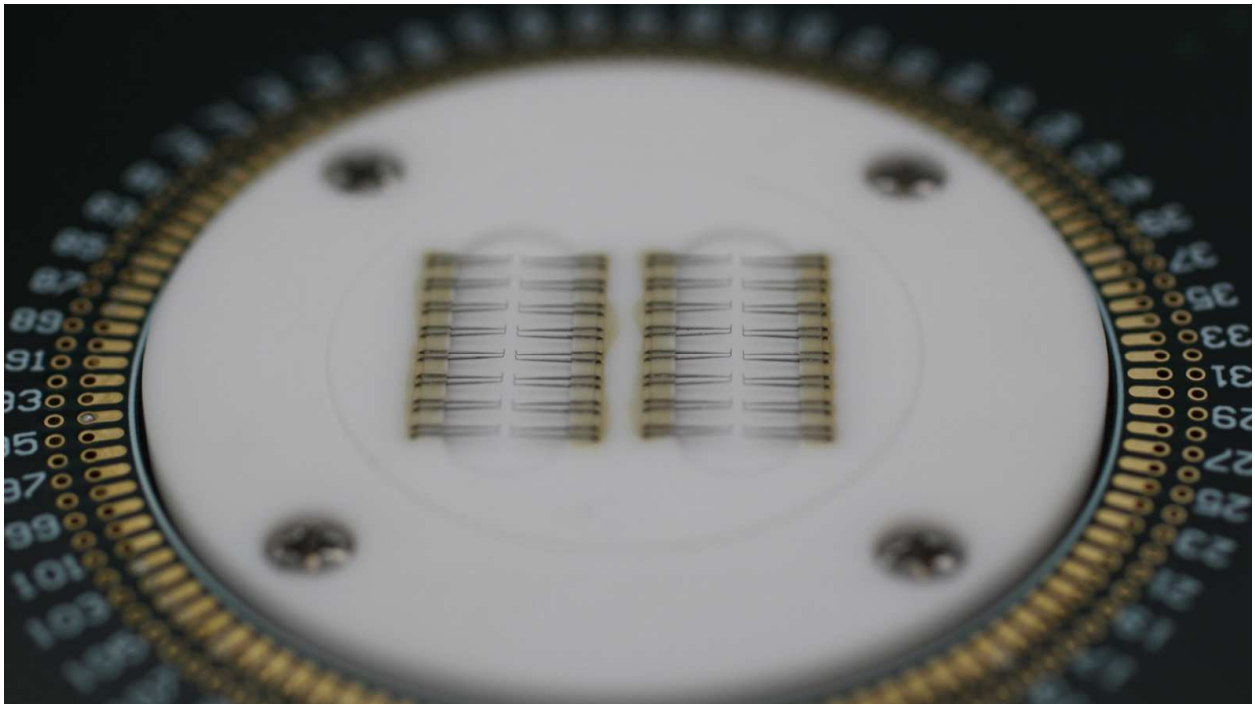
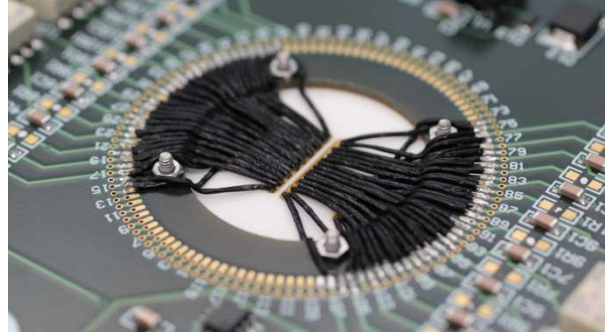
NOTE: 1x25 pad layout, 35 μ m square pads, **TWO** probes per pad!

-
- Customer redesigns PCB to fit Celadon Ceramic footprint

Customer Supplied Board

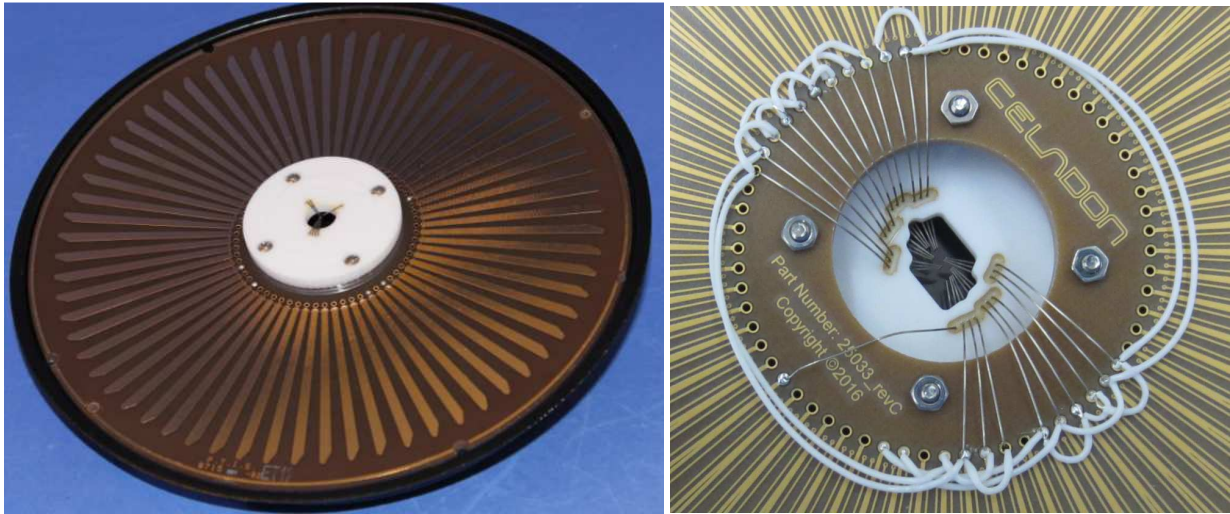


Celadon adds Ceramic

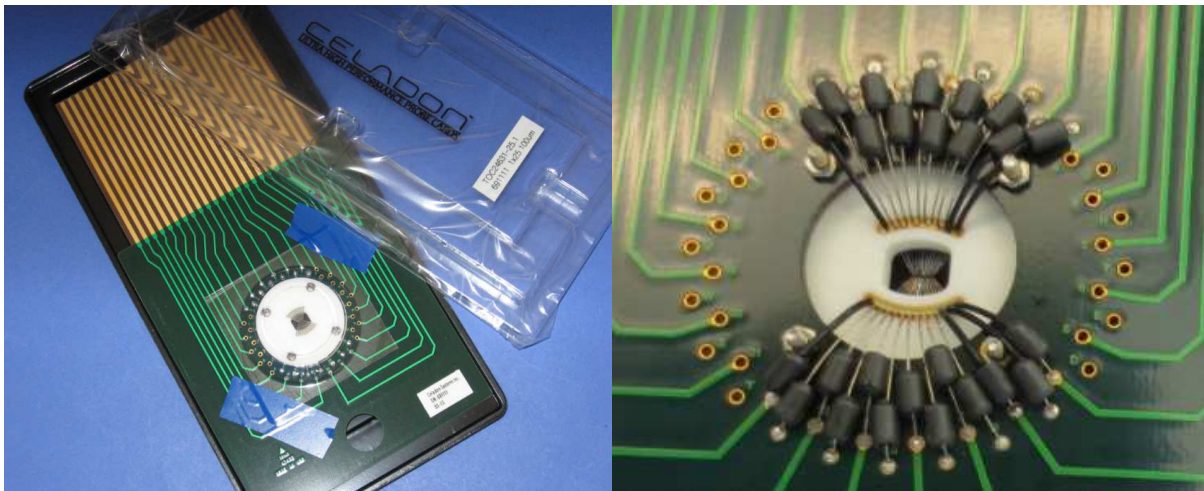


Other TOC Examples:

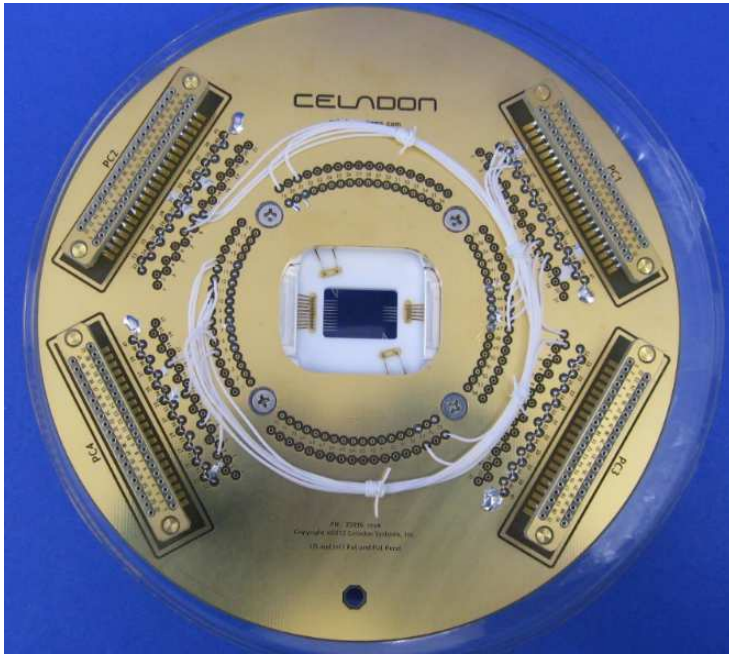
S400 [Celadon deisgned PCB]



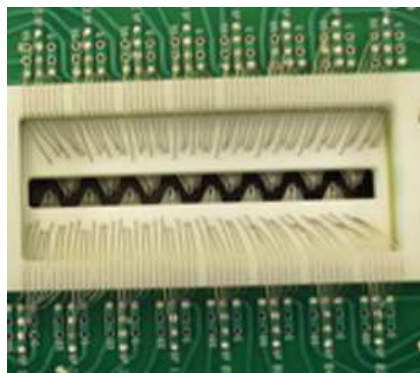
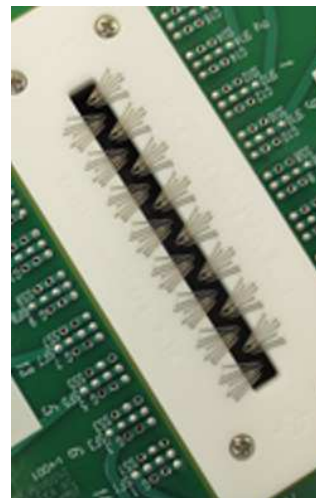
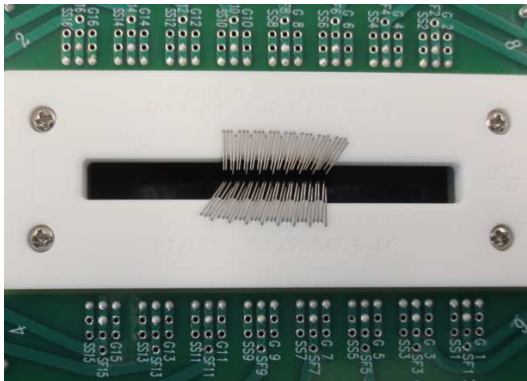
4.5inch 24/48 Edge Connect w/ Ferrite Beads [Celadon Designed PCB]



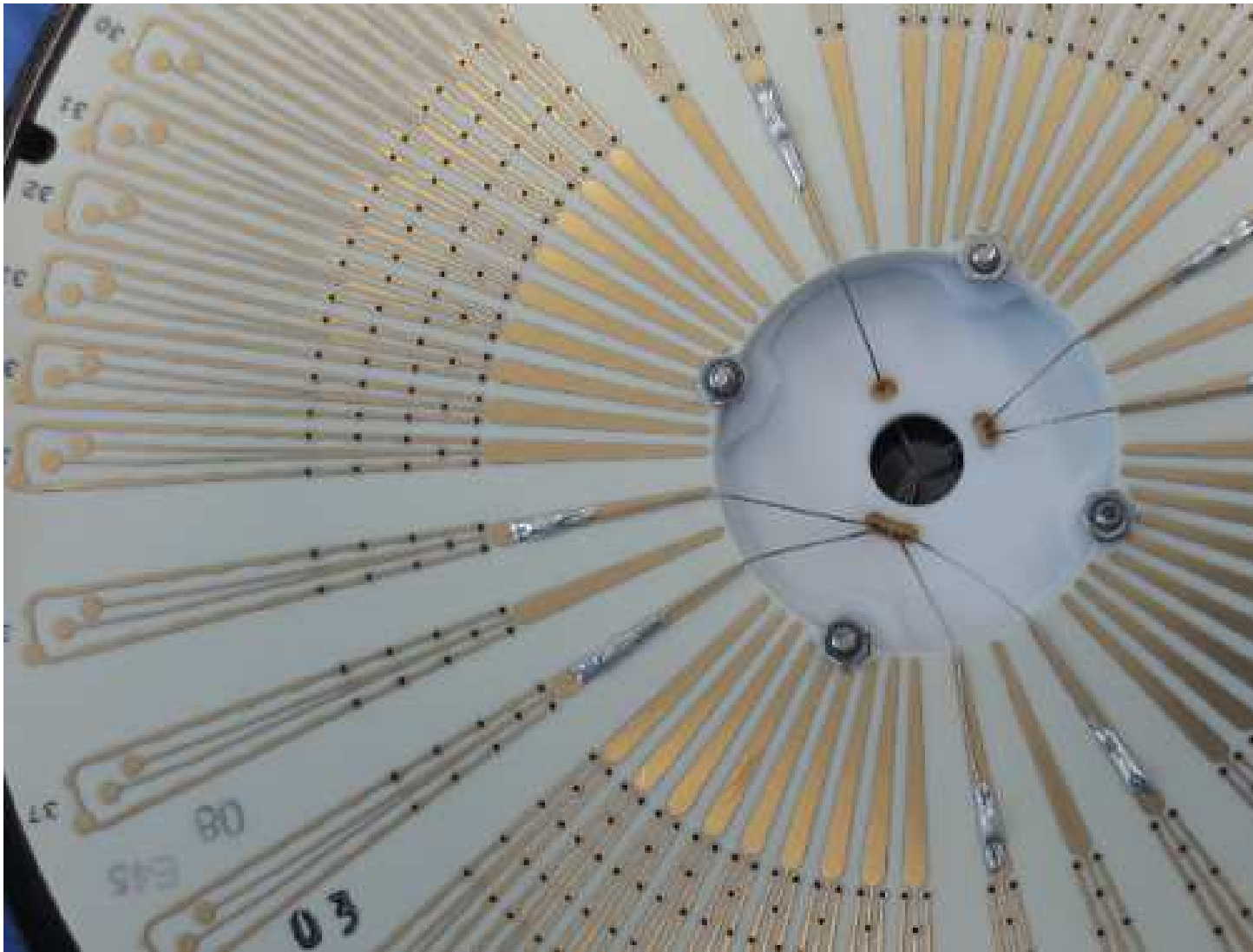
Custom Cryo Card [Celadon Designed PCB]



Functional test - multi-site



Celadon High Voltage TOC



Custom Celadon TOC's

