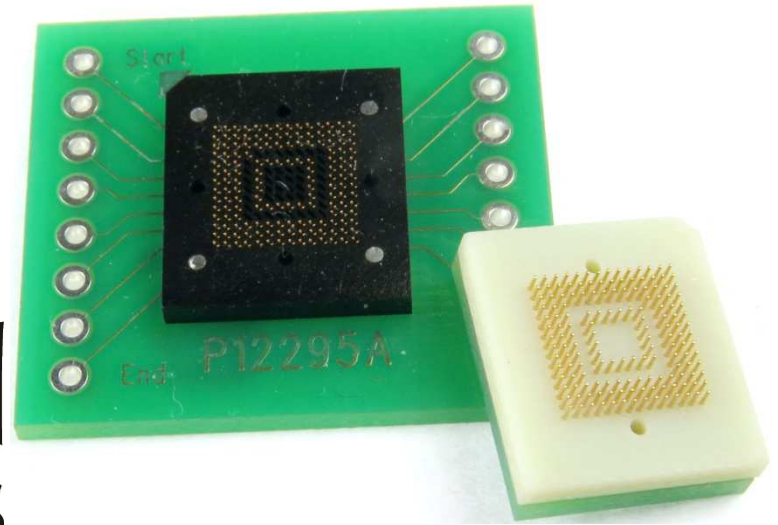




Ironwood
ELECTRONICS
www.ironwoodelectronics.com



**0.5mm, 0.65mm
Pitch Giga-snaP™**
Emulation, System Development,
Field Upgrade, Production
Socket Adapters

**High Performance
IC Sockets And
Test Adaptors**

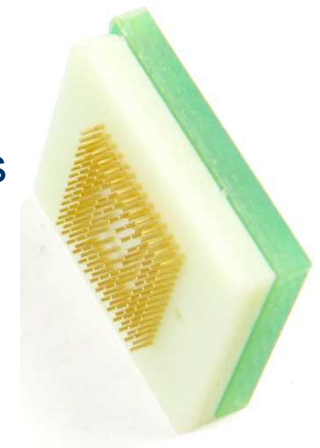
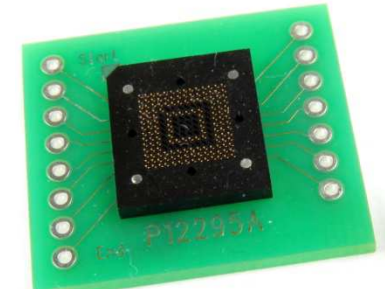
Application Need

- *In-circuit emulation of a system board that has 0.5mm and 0.65mm pitch array pattern.*
- *Test and debug of a system development board that has 0.5mm and 0.65mm pitch area array devices such as BGA, LGA.*
- *Debugging production board that has 0.5mm and 0.65mm pitch area array devices such as BGA, LGA.*
- *Reworking 0.5mm and 0.65mm pitch BGA devices by removing from the board (both development and production) and reattaching to the target land pattern.*
- *Upgrading production systems that has 0.5mm and 0.65mm pitch BGA devices.*

Solution – Chip Size Adapters

Plug and Play Giga-snaP™ Adapters

- An economical and reliable alternative to soldering BGA devices directly to the motherboard.
- Same footprint as BGA device.
- RoHS compliant materials.
- Soldering very similar to IC package using conventional methodology and no external hardware required.
- RoHS compliant materials.
- PCB can be reflowed with Giga-snaP™ assembled (withstands multiple reflow cycles).
- Compact, low-profile design maximizes PC board space in system development.
- Access to BGA pads for in-circuit emulation, test and interconnection.
- Connection via Gold plated terminals that has optimized insertion/extraction force for reliability and robustness.
- Shortest interconnect length enables high speed applications.



Giga-snaP™ Interconnect



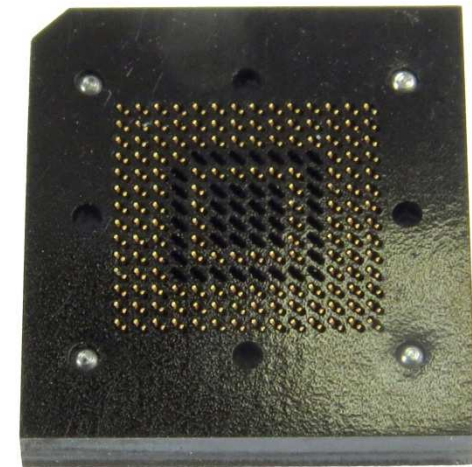
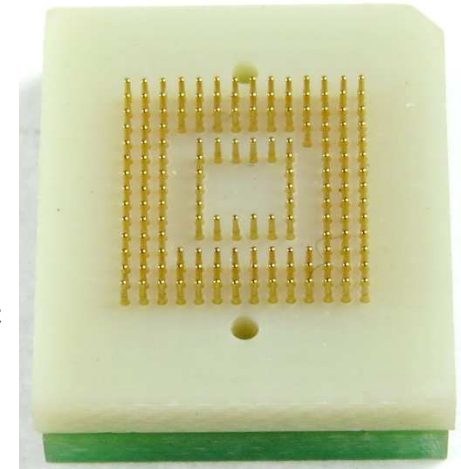
DUT

Top adapter substrate
High temperature plastic

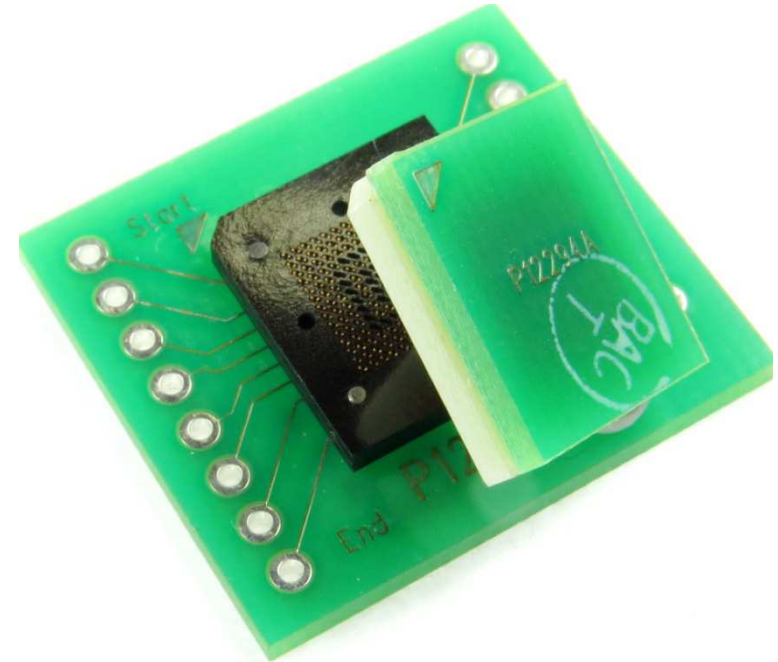
Terminal pins
360 Brass
Gold plated

BeCu Contact
Gold plated

Bottom socket substrate
High temperature plastic

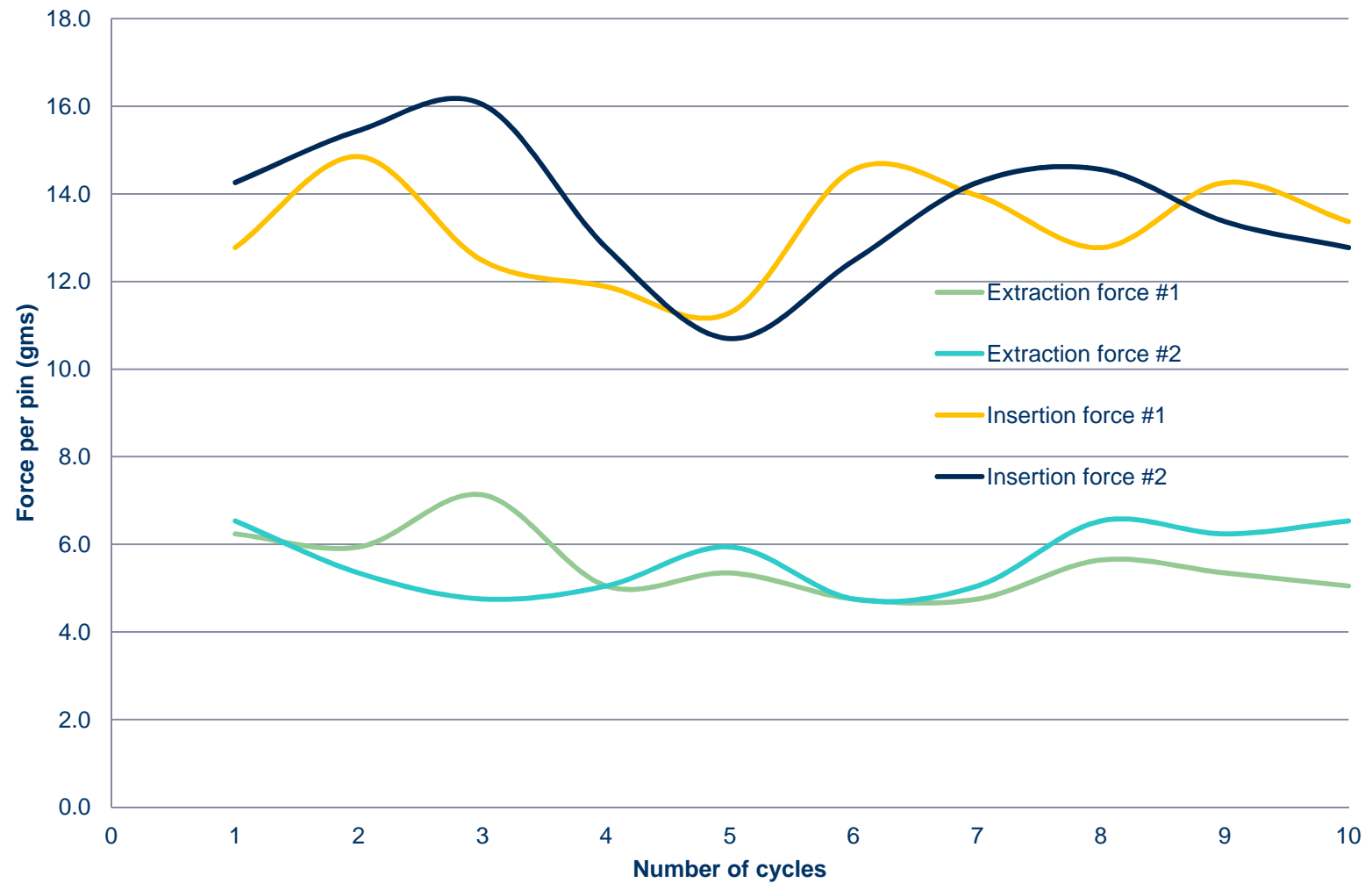


0.5mm Pitch Giga-snaP™ Contact Typical Characteristics



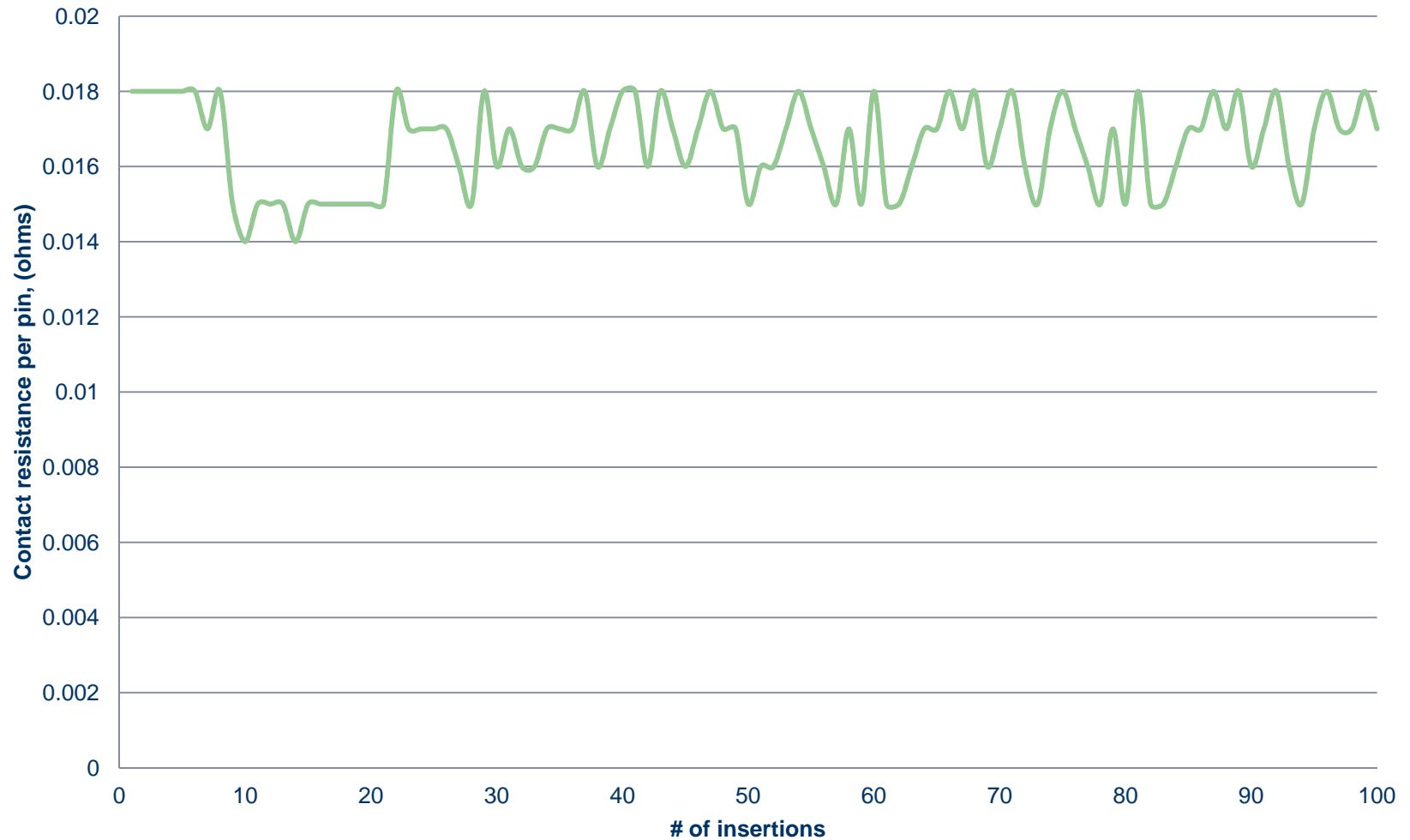
- Contact resistance < 20 mΩ
- Self Inductance < 0.79nH
- Bandwidth > 20.1GHz @ -1dB
- Mutual Capacitance < 0.088pF
- Insertion force 16grams per pin
- Extraction force 7grams per pin
- Operating temperature -55 to +160° C
- Insertion/Extraction cycles > 100
- Current rating 3A per contact

Insertion and Extraction Force Data



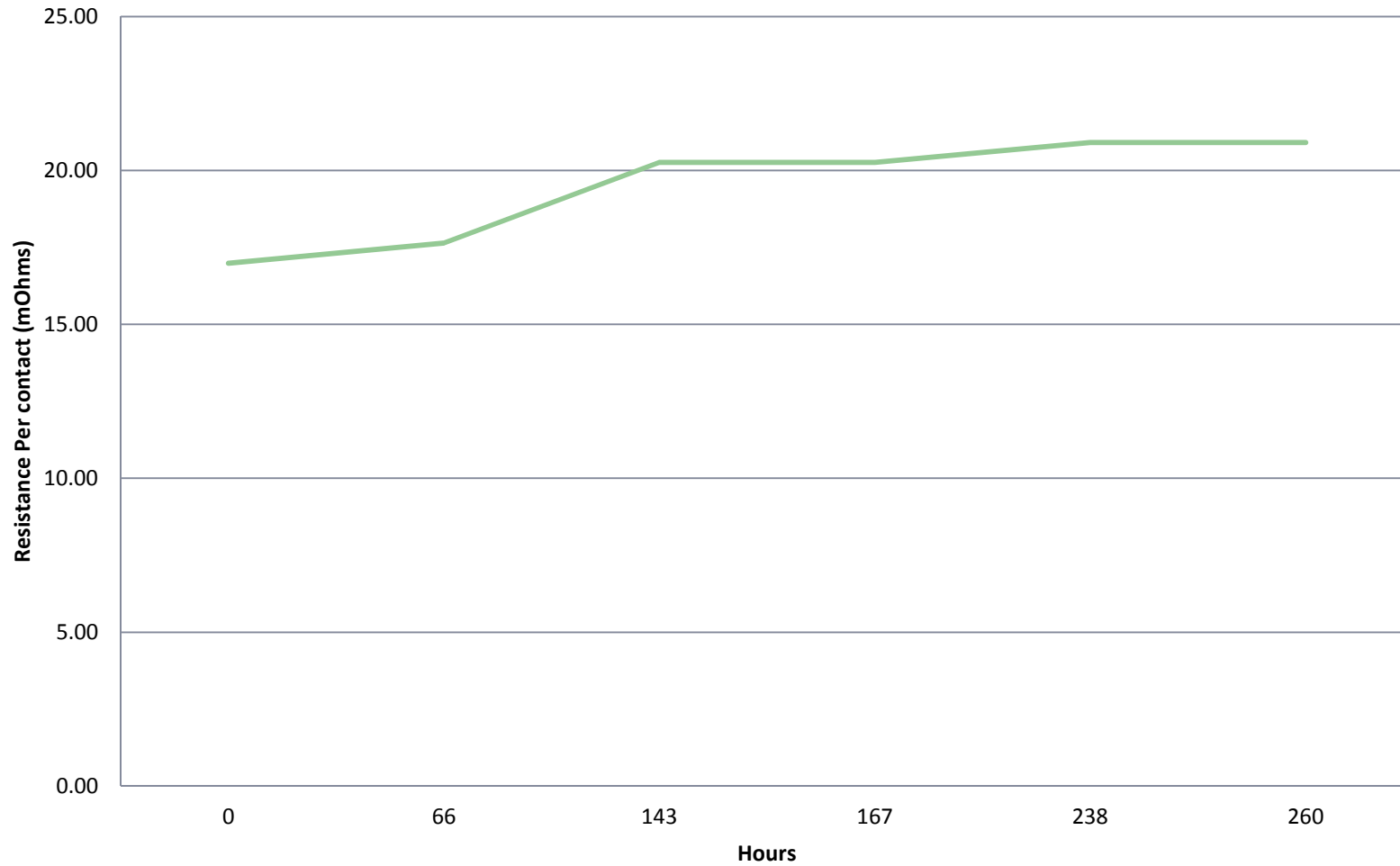
Contact Resistance Data

0.5mm Gigasnap, room temperature, endurance data

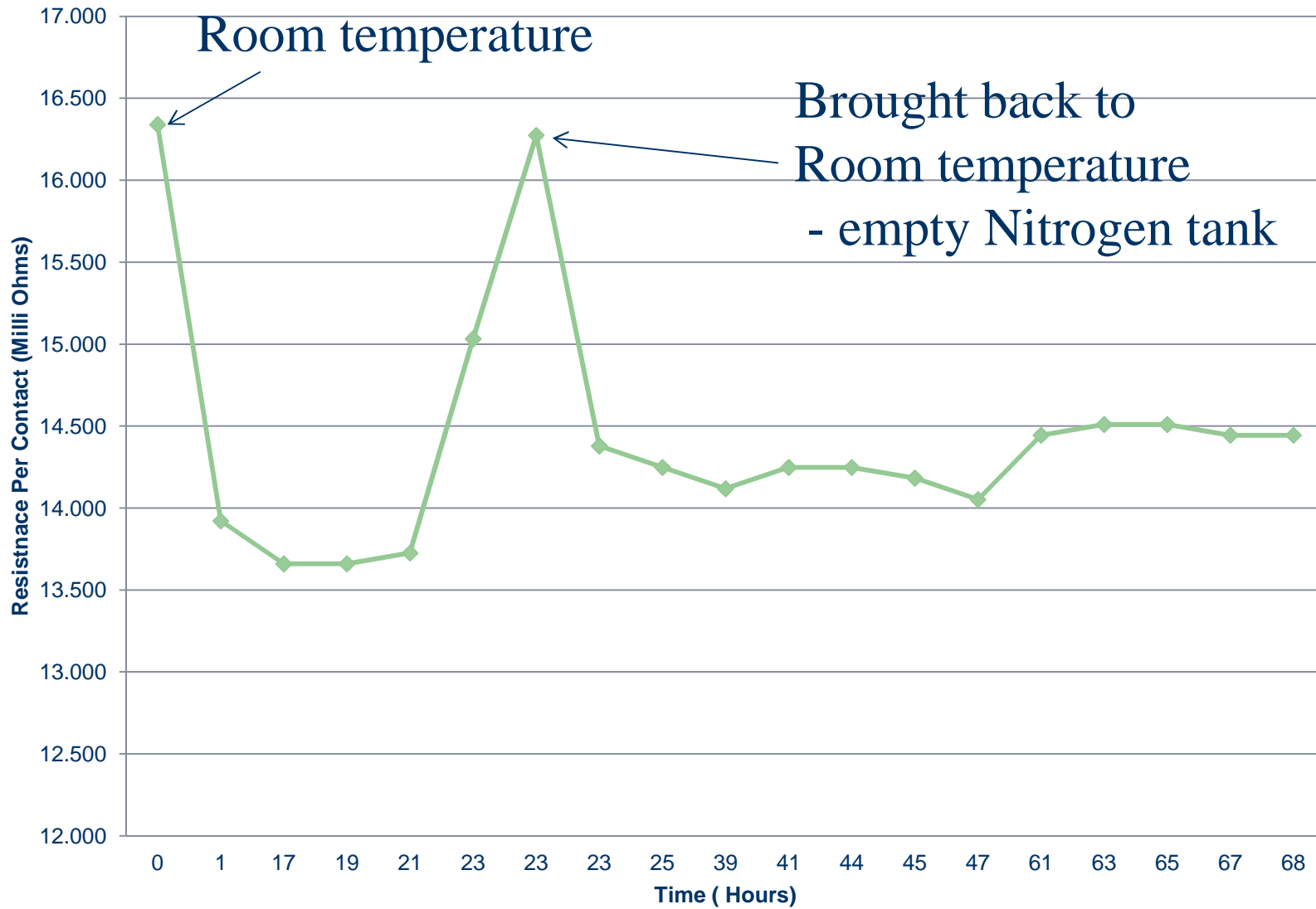


Mechanical Characterization +160C

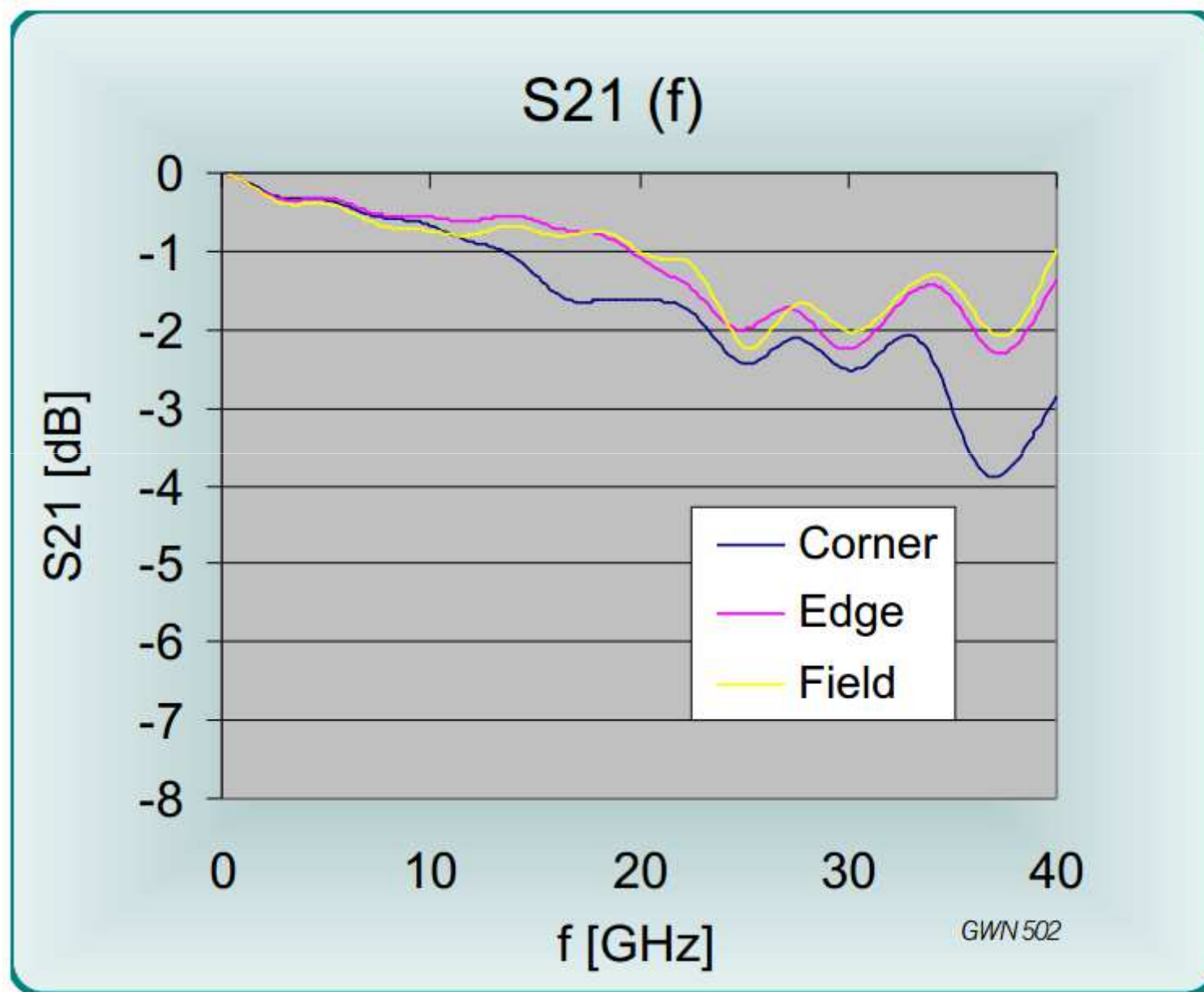
BGA153 GigaSnap 0.5mm Test @ 160°C



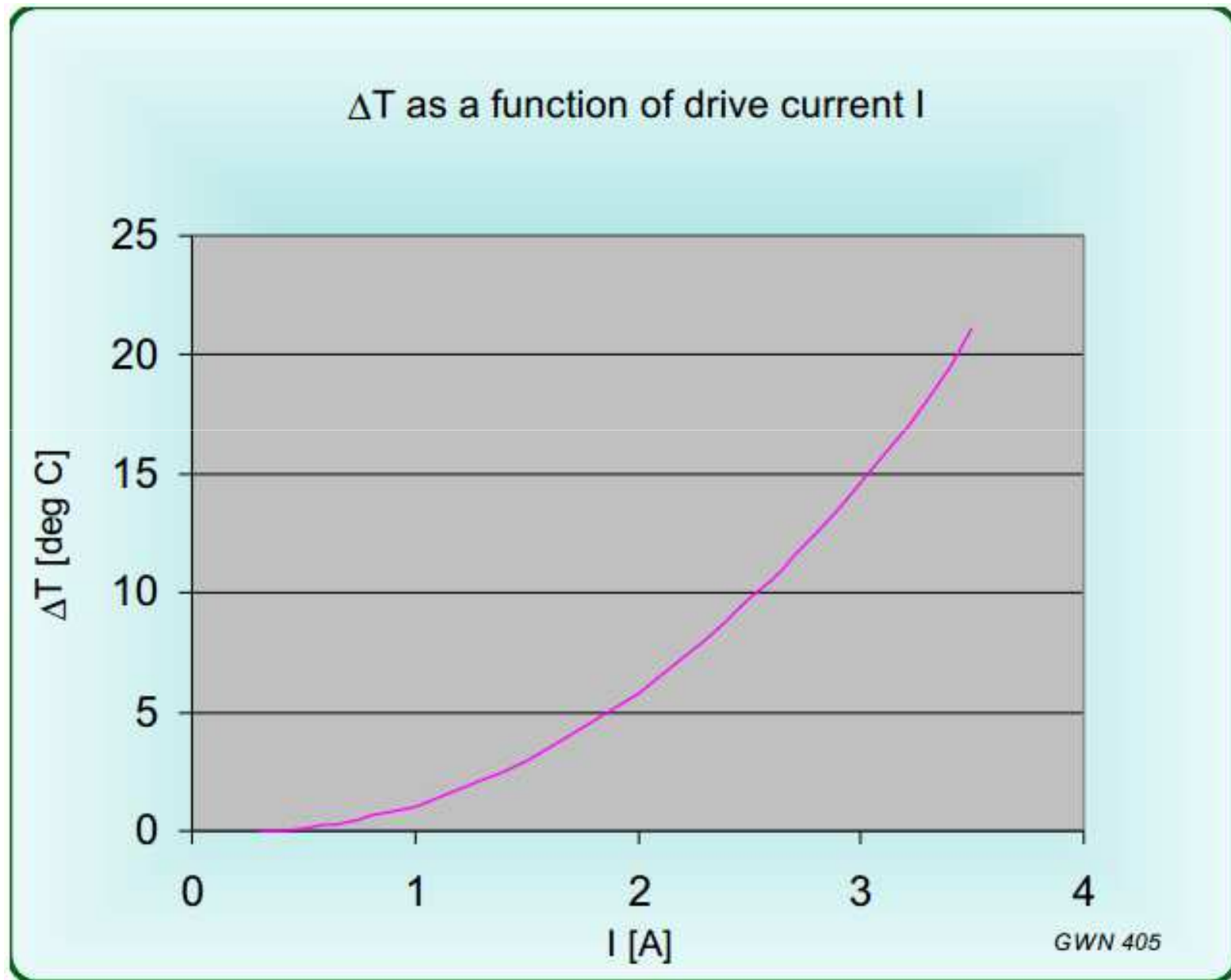
Mechanical Characterization -55C



Electrical Characterization AC



Electrical Characterization DC



High Volume Manufacturing

Pick & Place SMT Line, Reflow Oven



Stencil/Screen Printer, Tape & Reel Packaging



CNC & Screw Machines



Optical Inspection Unit



Value Proposition

- Proven solution for automobile applications due to extreme temperature capability.
- Shortest electrical path, proven solution for high speed digital and RF applications (excellent bandwidth >20GHz).
- Reliable and Robust due to low and stable contact resistance throughout life cycle.
- Low insertion and extraction force for ease of operation.
- Established processes eliminate non-value added steps in the manufacturing sequence which enables low cost for end customers.
- Established manufacturing flow which enables short lead time for various order sizes.
- Pick & Place, Tape & Reel support for end users.
- No substrate warping, No CTE mismatch, Co-planarity <100µm.
- Component heat dissipation does not affect solder connection.
- Solders same as the IC it emulates.