

IF3

Performance Evaluation: T033 Vs Conductive Elastomer

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Smiths Interconnect



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Slide 1

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Ira Feldman, 7/7/2018

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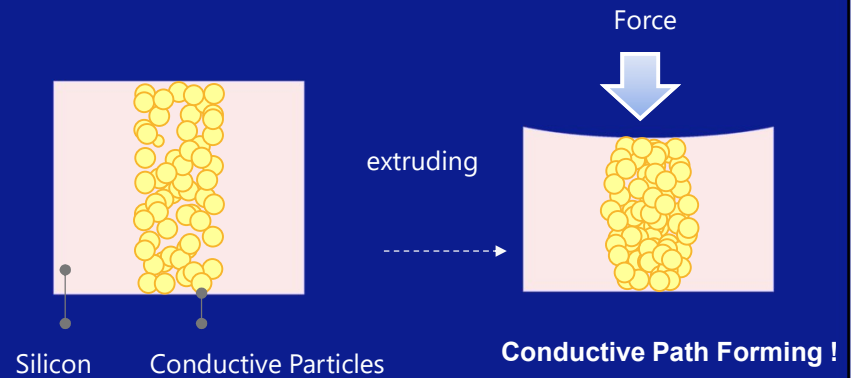
Brief H-Pin

- The H-Pin is a stamped spring probe contact.
 - Fully automated, high volume manufacturing process
 - Electrical & Mechanical at enabling cost
- Extensive portfolio for applications

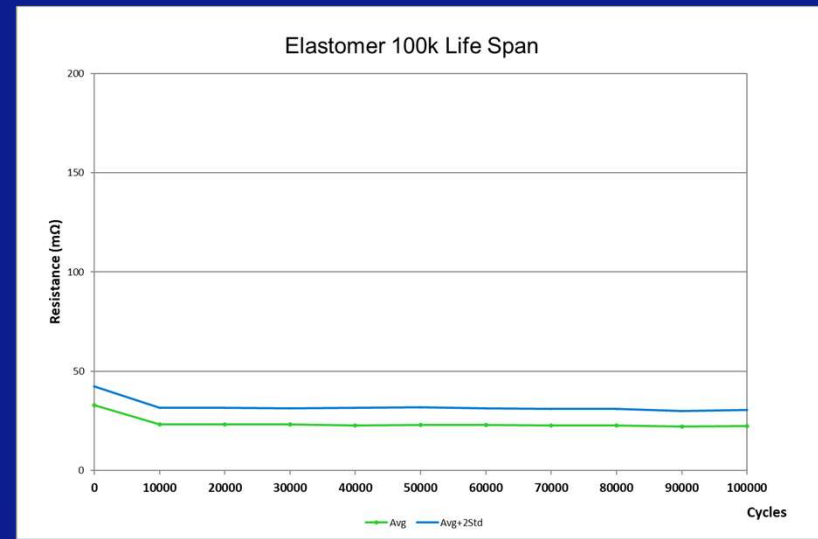
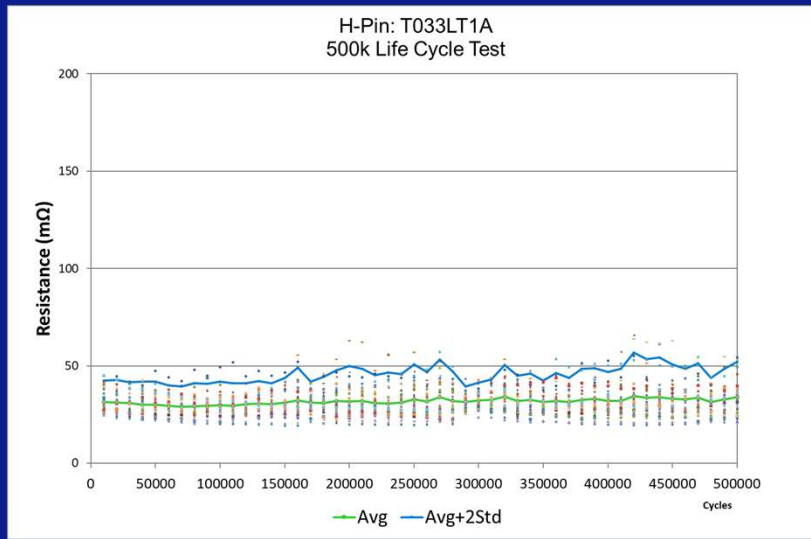


Brief H-Pin & Elastomer

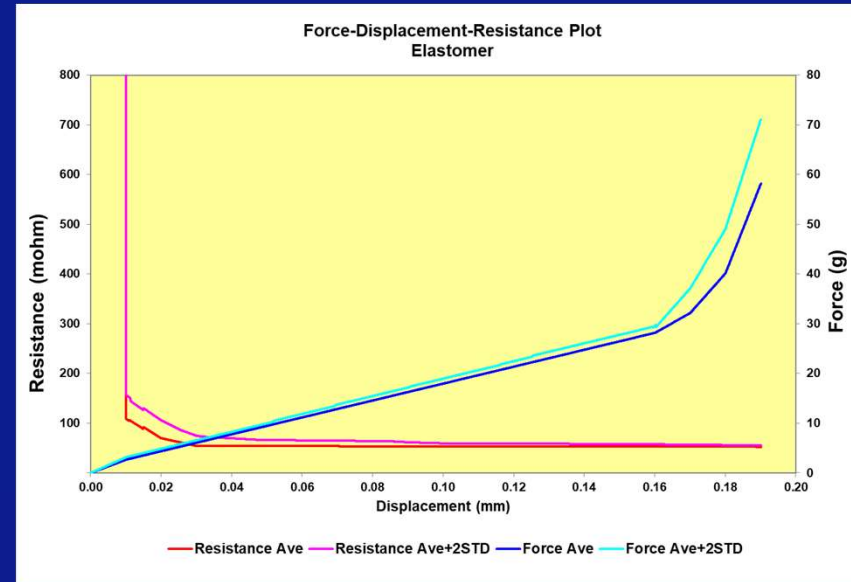
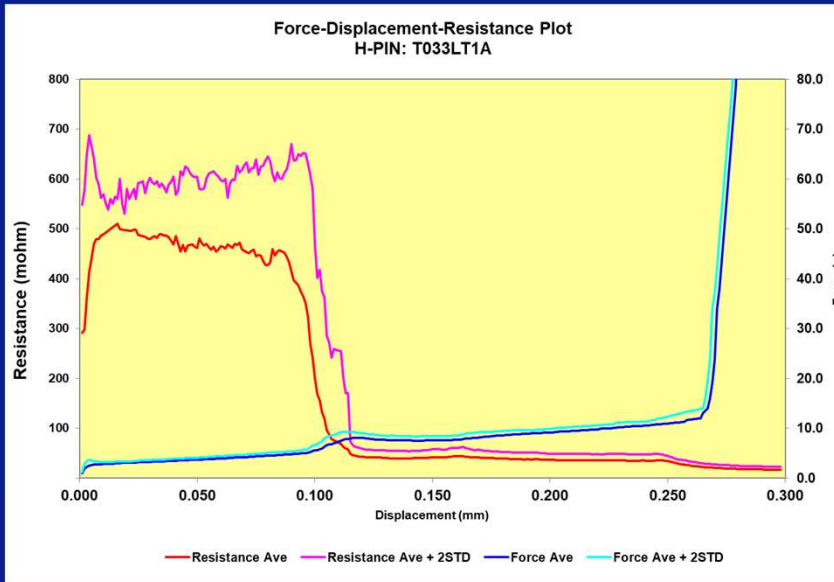
1.0mm	MECHANICAL PROPERTIES	
	PITCH:	0.40mm (min)
	WORKING TRAVEL:	0.25mm
	CONTACT FORCE:	9.2gf
	FULL LENGTH:	1.26mm
	COMPRESSED LENGTH:	1.00mm
	OPERATING TEMPERATURE:	+150°C
	ELECTRICAL PROPERTIES	
	CONTACT RESISTANCE:	<60mΩ
	CURRENT RATING (FREE AIR):	1.8 amp
	SELF INDUCTANCE:	0.31nH
	BANDWIDTH @ -1DB:	47.4GHz
	MATERIALS	
T033LT1A	STAMPED CONTACT:	BeCu , Au Plate
	SPRING:	SS, Au Plate



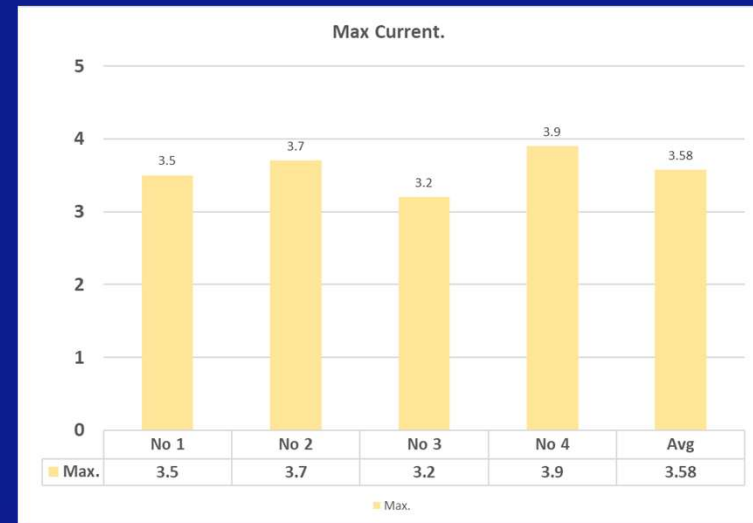
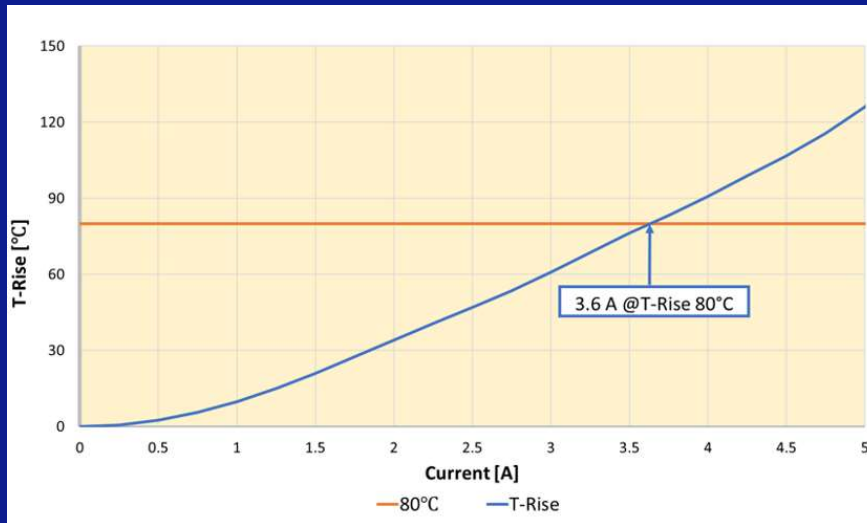
LCT: T033LT1A vs Contact Elastomer



FDR: T033LT1A vs Elastomer



CCC: T033LT1A vs Elastomer



Current Carrying Capacity

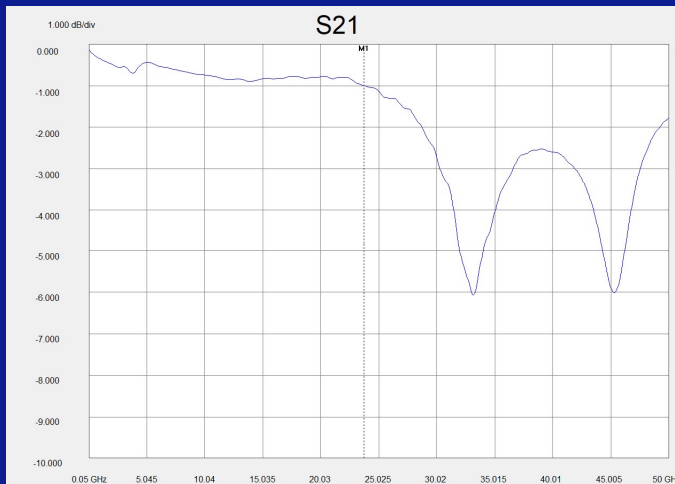


H-Pin T033 vs Contact Elastomer

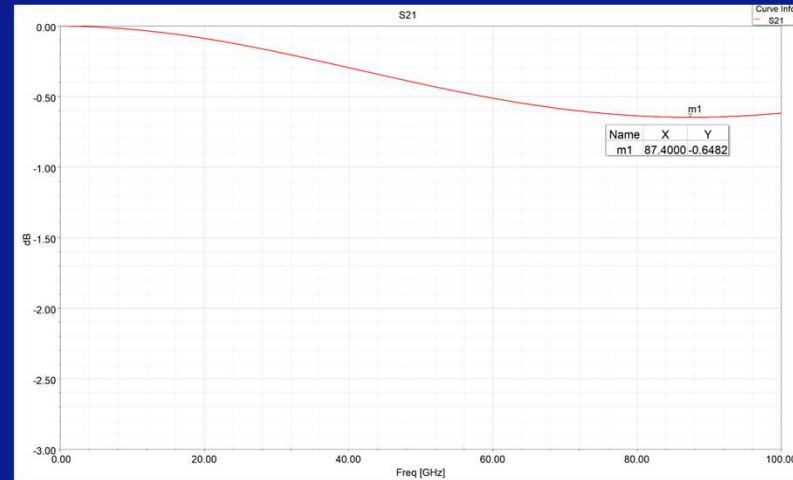
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Electrical Performance: Insertion Loss

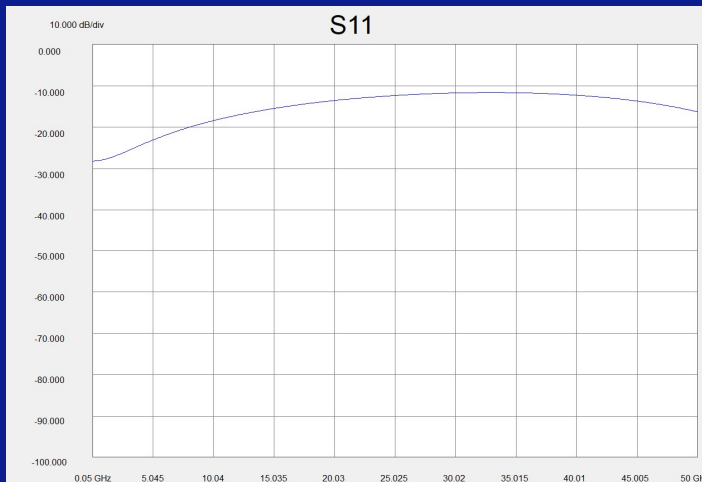


0.4mm pitch, 8A Pattern
IL: 23.7GHz @ -1dB

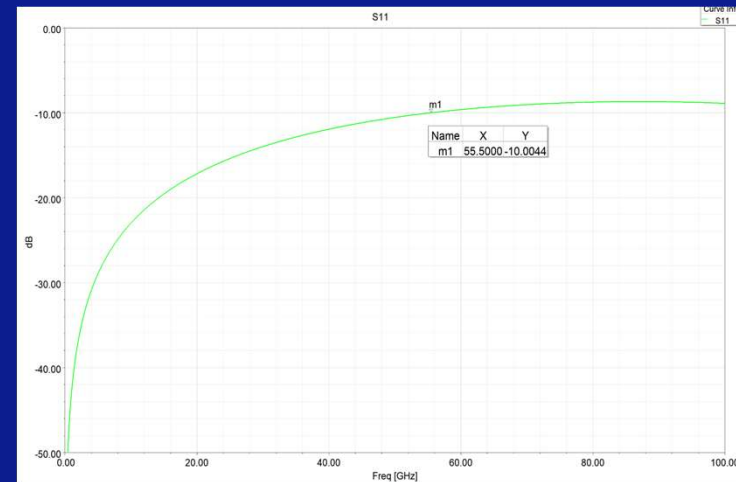


0.4mm pitch 8A Pattern
IL>100GHz @ -1dB

Electrical Performance: Return Loss



0.4mm pitch, 8A Pattern
RL: >50GHz @ -10dB



0.4mm pitch 8A Pattern
RL: >56 GHz @ -10dB

Other Comparison

- Temperature rating:
 - H-Pin: $-55^{\circ}\text{C} - 180^{\circ}\text{C}$
 - Elastomer: $-40^{\circ}\text{C} - 125^{\circ}\text{C}$ or $-55^{\circ}\text{C} - 150^{\circ}\text{C}$.
- Ease of use:
 - H-Pin: Any traditional cleaning method applied to spring probe.
 - Elastomer: tapes, soft brushes, special cleaning tools.
 - H-pin: individual replacement.
 - HVM manufacturability, lead time.

Conclusion

- With performance comparable to the best attributes of contact elastomer solution, H-pin delivers mechanical and electrical performance for a broad spectrum of semiconductor products.
- H-pin's highly scalable manufacturing capacity can eliminate delivery and lead time issues.
- The H-pin hits the "sweet spot" with robust performance, fast delivery, and economies of scale.

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