

New!

Configurable Kelvin Contactor

PAD ROL™ 200K (Kelvin) Contactor

For QFN, DFN, and Other Pad-Style Applications

Kelvin Ready. Configurable Design.

The Johnstech Pad ROL™ 200K configurable Contactor is the ultimate high performance engineering and production Kelvin solution. Ideal for high power and precision analog devices that require very tight test guard-bands, this Kelvin-capable solution delivers unprecedented mechanical and electrical performance, flexibility and value.

Solid Force Contact and Dual Touch Sense Design

The Pad ROL™ 200K guarantees a perfect high current, low resistance connection every time. Its design is a unique combination of our traditional high current solid Pad ROL™ 200 Force contact and a dual touch, flexible Sense contact that surrounds the Force on both sides. This design ensures a good Kelvin connection regardless of device variations.



Self-Cleaning Wipe Action

Two self-cleaning features ensure that the Pad ROL™ 200K delivers the lowest and most repeatable Kelvin contact resistance available on the market today. The Force contacts include the debris removal wipe action of Johnstech's patented ROL™ technology, which automatically prevents surface build-up on the contact tip. In addition, the Force and Sense work in combination to remove debris between the two contacts. These inherent wipe functions provide long Mean Time Between Assists (MTBA) and contact life, lowering the overall cost of test.

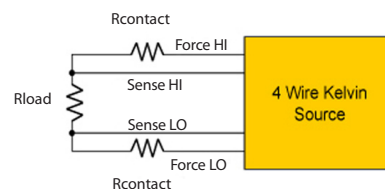
Field Configurable Design

With its unique configurable design, the Pad ROL™ 200K Kelvin Contactor lowers overall acquisition cost and provides the ultimate in customer flexibility and operating value. The "Kelvin Ready" design allows you to configure and reconfigure your Contactor for standard contacting, "selective Kelvin" or full Kelvin testing. Parts can be tested with both Kelvin and non Kelvin requirements.

Why Kelvin?

Kelvin measurements are the ultimate connection for low level, low frequency measurements. In the four-wire Kelvin bridge configuration (shown below), a current source is applied with one pair of wires (Force), while the voltage is measured across the DUT with the other two (Sense).

By separating the Force and Sense circuits, the current flowing through the Sense leads becomes negligible. As a result, the voltage accuracy is only limited by the internal impedance of the voltmeter (typically 10 to 100 MΩ). This gives an inherent voltage accuracy of parts per million.



Configurable PAD ROL™ 200K

Electrical Specifications	Force Contact (Non Kelvin)	Force + Sense (Kelvin)
Electrical Length (compressed height):	2.00 mm	2.00 mm
Inductance:	Self: 0.47 nH Mutual: 0.10 nH	Self: 3.5 nH Mutual: 0.77 nH
Capacitance:	Ground: 0.16 pF Mutual: 0.06 pF	Ground: 0.85 pF Mutual: 0.25 pF
S ₂₁ Insertion Loss/Bandwidth (Ground-Signal-Ground):	-1dB @ 19.9 GHz	-1dB @ 3.0 GHz
S ₁₁ Return Loss/Bandwidth (Ground-Signal-Ground):	-20dB @ 7.8 GHz	-20dB @ 0.8 GHz
S ₄₁ Crosstalk/Bandwidth (Ground-Signal-Signal-Ground):	-20dB @ 34.7 GHz	-20dB @ 17.3 GHz
Average Contact DC Resistance:	40 mΩ	<1 mΩ
Current Carrying Capability:	2.8A Force	2.8 A Force/0.8 A Sense
Current Leakage:	<1pA @ 10 V	<1pA @ 10 V
Nearest Decoupling Area:	1.58 mm	1.58 mm
Mechanical Specifications	Force Contact (Non Kelvin)	Force + Sense (Kelvin)
Contact Force (per contact):	30 grams (Force Only)	60 grams Total (Force + Sense)
Physical Contact Length:	2.63 mm (Force Contact)	
Physical Compressed Height:	1.4 mm	
Contact Life (# of insertions):	Elastomers = 300,000 Force Contacts = 500,000+ (matte tin) Force Contacts = 500,000+ (NiPdAu) Sense Contacts = 1,000,000 Housing = 2,000,000	
Contact Compliance:	0.20 mm	
Contact Wipe on Pad:	0.17 mm	
Contact Tip Coplanarity:	0.05 mm	
Environmental:	-40°C to 155°C	
Housing Material:	Torlon® 5030	

Results for 0.5mm pitch configurations. Specifications provided here are based on internal testing at Johnstech, customer production sites, and third party electrical testing. Actual individual results may vary based on a wide range of variables including: handler/contactor/load board interface, handler/plunge depth and velocity, device presentation, alignment/plate condition, package/plating characteristics, test floor conditions, maintenance activities, mounting/fastening techniques, non-coplanarity from site to site, non-coplanar docking, and temperature extremes.

Manual Actuator

- Double-Latch (DL-VCMA)
- Single-Latch (SL-VCMA)

Housing Options

Housing are offered in standard handler-specific sizes with custom sizes also available. Contact Johnstech for assistance.

Contact Profile Options

Matte Tin & NiPdAu - Gold-Plated XL-2K Fine Tip

Johnstech Services/Resource Options

- Test Floor Technical Support
- Worldwide Field Service Offices
- First-Pass Yield Enhancement
- Performance Audits
- Customized Training and Applications Engineering
- Online Tech Support at: www.johnstechhelp.com

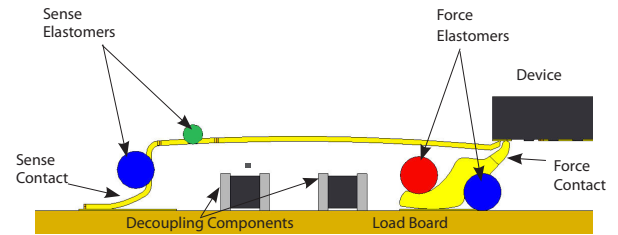
Engineering Services

- Load Board Evaluation & Testing
- Electrical Performance Analysis
- Contactor S Parameter Data
- Thermal Conductivity Analysis
- PCB/Contactor/ Device Optimization
- HFSS 3D Modeling
- Advanced Design System (ADS)

Website (www.johnstech.com)

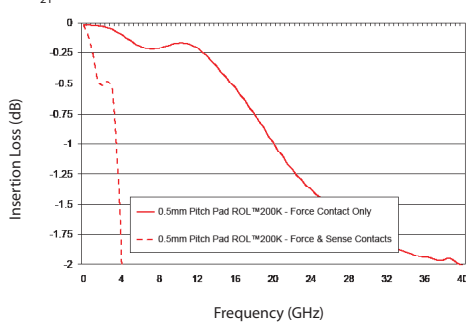
- Product, Test, Industry Support Information
- Downloadable - Product Spec Sheets, Maintenance and Inspection Guides, Tech Papers and Application Notes.

Methodology

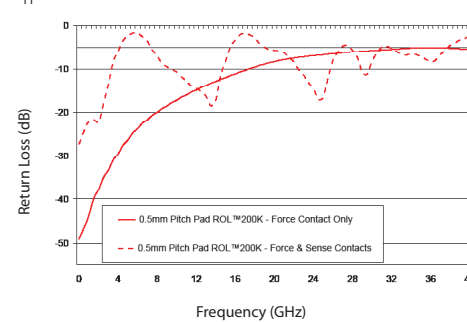


Configurable Pad ROL™ 200K Performance

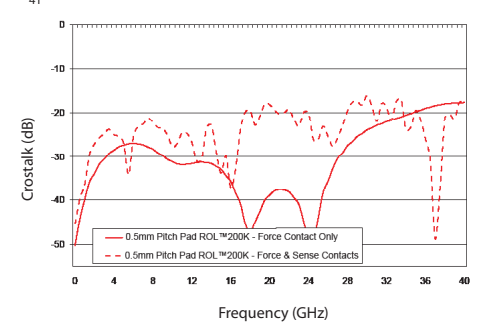
S₂₁ Insertion Loss



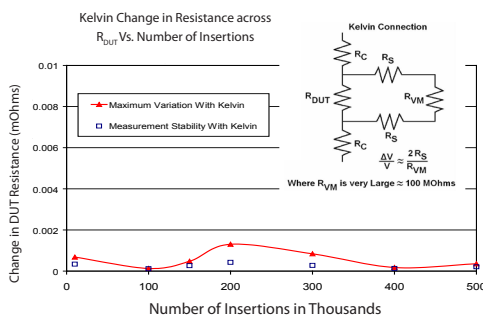
S₁₁ Return Loss



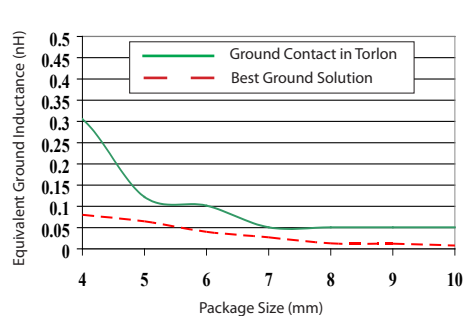
S₄₁ Crosstalk



Contact Resistance



Ground Inductance



Grounding Options

RTH - ROL™ contacts in housing is one of Johnstech's recommended grounding options (shown on front). Other available are options shown here.

