



# **LEADED ROL<sup>®</sup> 200KR**

## **KELVIN-READY**

FOR QFP, SO, SOT AND OTHER LEADED-STYLE APPLICATIONS

## **More Than Just Precision Measurements. Add System Monitoring Feedback, Field Configurability, and Load Board Friendly. That's Kelvin-Ready™.**

The Johnstech *Leaded ROL<sup>®</sup> 200KR Kelvin-Ready™* Contactor provides test engineers with unprecedented test objective versatility for their leaded devices. When populated with only force contacts, it has all the high performance features of the industry-leading, standard *Leaded ROL<sup>®</sup> 200* Contactor.

But its Kelvin-Ready™ design that accommodates field configurable sense contacts to be used for any given I/O, enabling precision Kelvin measurements and test system monitoring feedback loops to improve a wide variety of test objectives. Test engineers are now using Kelvin for improved characterization and removing it when their devices go to production.

All of these advantages come without the requirement to narrow load board traces like other Kelvin technologies do. Standard size load board traces helps to minimize manufacturing expenses while maintaining production test reliability.

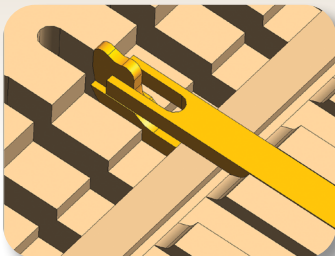
## **Delivers Precision Measurements**

- Simplified Kelvin Testing
- Enhanced Characterization
- Accommodates RF Signals
- Faster High Power Testing

## **Configurable, System Feedback Loops**

- DUT-Only Measurements Increase Yields
- Determine Cleaning / Increase MTBA
- Eliminate False Failures / Retests
- Troubleshooting

**Only Kelvin-Ready™ technology can optimize test system parameters for precision analog, high speed digital, RF, mixed signal, high current and high power devices, all with a single contactor.**



The Kelvin-Ready™ contact design is optimized using a unique combination of our traditional high current, high frequency Force contact and a redundant-touch Sense contact to ensure a good connection regardless of device variations. The design also provides for a dual self-cleaning wipe action to remove debris build-up from the contact tip and from between the two contacts. The wipe function provides long MTBA and lowers the overall cost of test.



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## KELVIN-READY

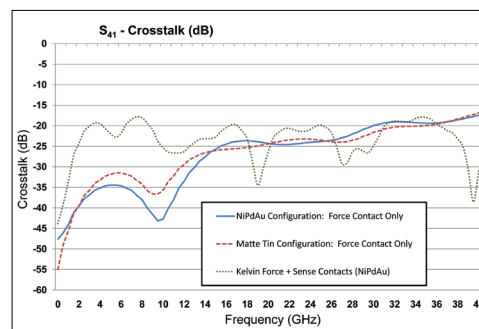
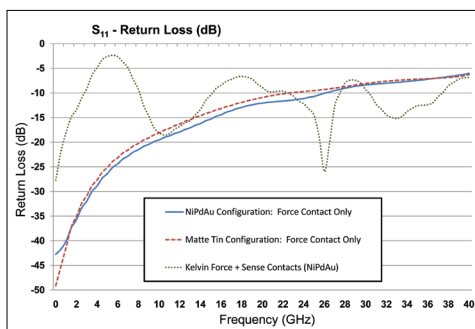
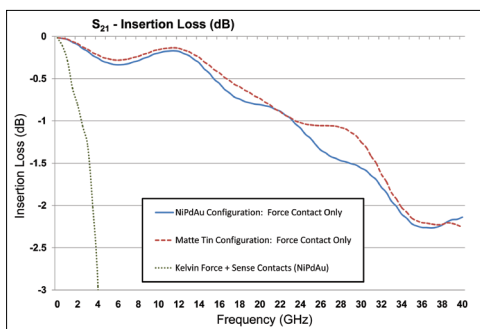
Electrical Specifications	Matte Tin Configuration Force Contact Only (Force and Sense Contact)	NiPdAu Configuration	Mechanical Specifications	Matte Tin and NiPdAu Configurations
Inductance:	Self: 0.46 nH (3.09 nH) Mutual: 0.04 nH (0.49 nH)	Self: 0.46 nH (3.26 nH) Mutual: 0.03 nH (0.81 nH)	Compressed Height: Electrical Length	1.34 mm 2.00 mm
Capacitance:	Ground: 0.10 pF (0.63 pF) Mutual: 0.02 pF (.118 pF)	Ground: 0.10 pF (0.64 pF) Mutual: 0.02 pF (0.125 pF)	Contact Forces: Force Contact Only (Force + Sense Contact)	NiPdAu 30 grams (60 grams) Matte Tin 50 grams (80 grams)
S <sub>21</sub> Insertion Loss (GSG):	-1 dB @ 23.3 GHz (-1 dB @ 1.8 GHz)	-1 dB @ 23.1 GHz (-1 dB @ 2.4 GHz)	Component Life***: (# of insertions)	Elastomers = 300,000 Force Contacts = 500,000+ Sense Contacts = 300,000+ Housing = 2,000,000+
S <sub>11</sub> Return Loss (GSG):	-20 dB @ 8.2 GHz (-20 dB @ 0.8 GHz)	-20 dB @ 9.4 GHz (-20 dB @ 0.6 GHz)	Contact Compliance:	0.20 mm
S <sub>41</sub> Crosstalk (GSSG):	-20 dB @ 34.7 GHz (-20 dB @ 5.0 GHz)	-20 dB @ 29.9 GHz (-20 dB @ 3.0 GHz)	Temperature:	-40°C to +155°C
Average DC Contact Resistance (CRES):	60 mΩ Force Contact 400 mΩ Sense Contact	30 mΩ Force Contact 330 mΩ Sense Contact	Housing Material:	Torlon <sup>®</sup> 5030
Current Carrying Capacity*: (Duty Cycle 100%, 50%, 1%)	Force Contact 2.8A, 4.1A, 5.9A Sense Contact 1.0A, 1.8A, 2.3A	Force Contact 3.6A, 5.0A, 7.5A Sense Contact 1.0A, 1.8A, 2.3A	Force Contacts:	Low-Force XL-2 Kelvin Fine Tip
RMS Current Carrying Capacity**: (Duty Cycle 100%, 50%, 1%)	2.8A, 4.0A, 28.0A Force Contact 1.0A, 1.4A, 10.0A Sense Contact	3.6A, 5.1A, 36.0A Force Contact 1.0A, 1.4A, 10.0A Sense Contact	Nearest Decoupling	1.80 mm
Current Leakage:	<1 pA @ 10 V			

\*\*\* Contact, elastomer, and housing life values are TYPICAL based on Johnstech internal testing. Actual production life will vary based on a wide range of variables including: handler, Contactor, and load board interface; handler plunge depth and velocity; device presentation; alignment plate condition; package plating material and characteristics; test floor conditions; maintenance activities; mounting/fastening techniques; site-to-site coplanarity; docking coplanarity; and temperature extremes.

NOTE: Specifications for 0.5mm pitch configurations shown here. These specifications are based on a combination of internal and third-party measured testing.

\* Test conditions: 300 msec pulse, 20°C temperature rise. Higher currents allowed for higher temperature rises.

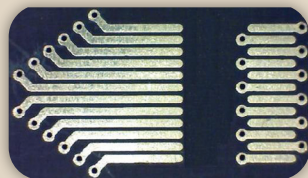
\*\* RMS current carrying capacity for pulsed applications. Values based on measured steady state current capacity, standardized to 1 Hz test cycle, 20°C temperature rise. Higher currents allowed for higher temperature rises.information.



### Kelvin-Ready™ Load Boards

#### More Reliable, Less Expensive

The *Leaded ROL<sup>®</sup> 200KR* load board solution separates the Force and Sense load board traces in a front and back format, allowing standard size load board traces to route test signals. These relatively larger traces maintain testing reliability and simplify load board design, reducing load board manufacturing expenses relative to other socket designs. For I/Os where Kelvin is not needed, removing the Sense line creates additional load board real estate and can also provide a straight line path to high speed connectors when testing RF and other high speed signals.

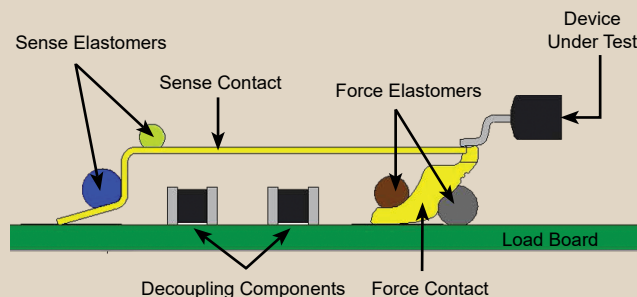


Kelvin-Ready™ Front/Back Design



Spring Pin Side-by-Side Design

### Methodology



**Johnstech<sup>®</sup>**

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