



WIN series

New Precision Product

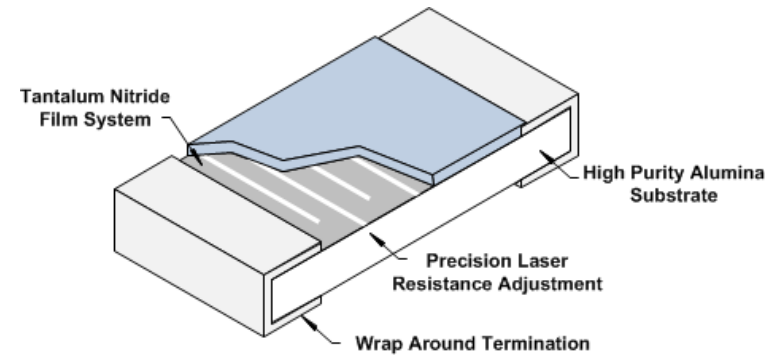
Water Insoluble Nitride Resistor



WIN Key Benefits and Markets

Tantalum Nitride precision thin film offers

- Inherent moisture resistance
- Superior to passivated nichrome
- Typical 85°C 85% biased humidity 2000 hour stability <0.1%
- Sulfur resistant
- Safety-critical precision 0.1%, 25 ppm/°C



Industrial:

- Process / automation control in harsh environments
- High current power supplies for servers (precision current measurement)
- Telecom circuits in uncontrolled environments
- Energy metering (burden resistor)

Medical

- Patient diagnostic and monitoring
- Clinical test equipment

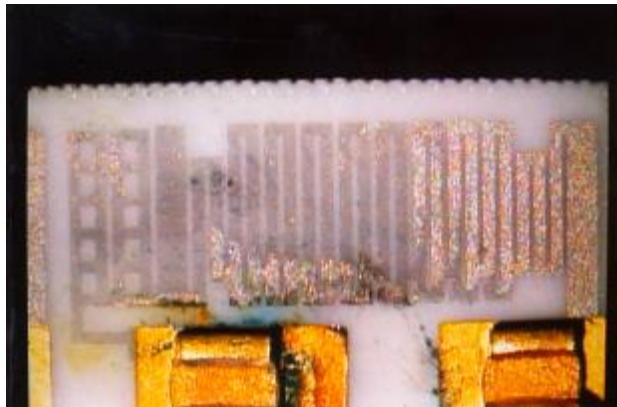
WIN (Water Insoluble Nitride)

Why Tantalum Nitride?

Tantalum Nitride is inherently resistant to moisture!

Deionized water droplet test: Nichrome opened in 10 sec

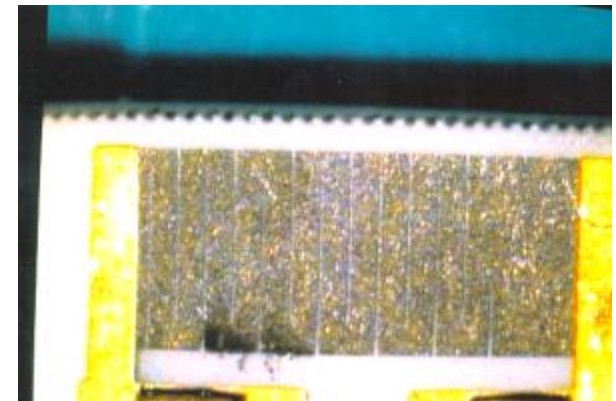
Failed Open



Nichrome

After
Water Drop Test

Unchanged

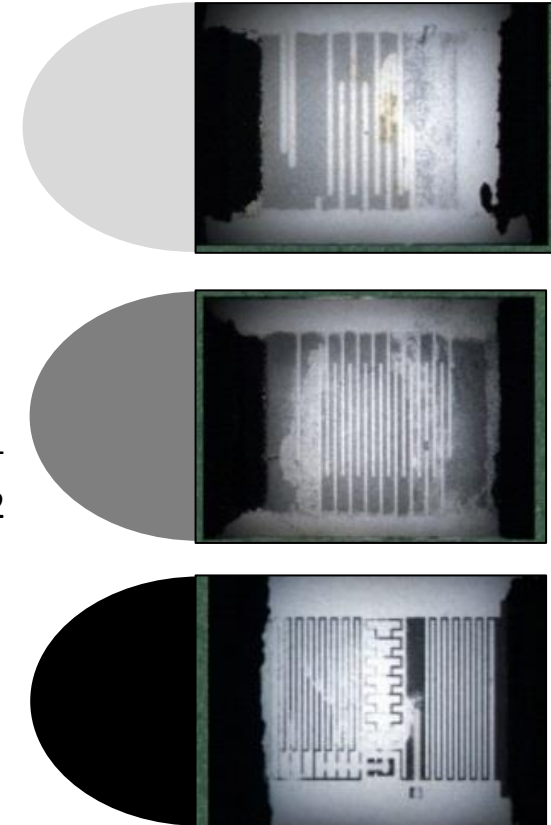
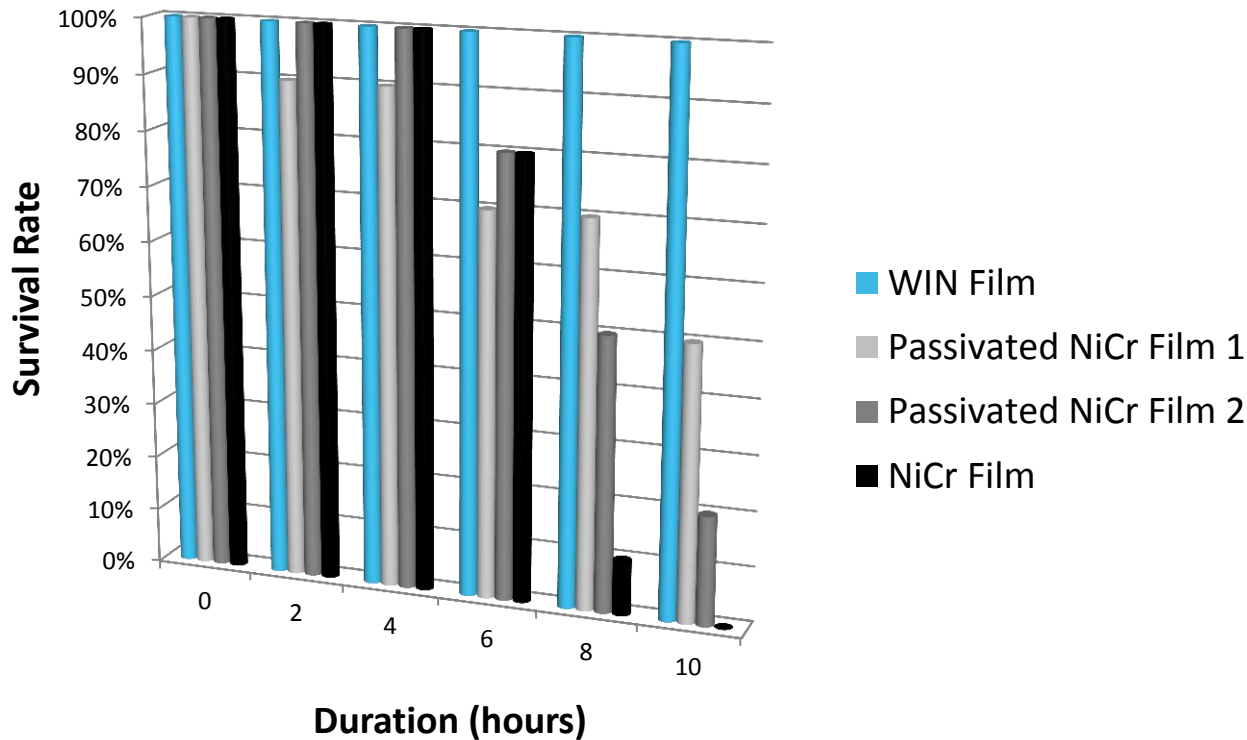


TaNFilm[®]

[Video hyperlink](#)

Superior Moisture Performance

Accelerated Life Test (Pressure Cooker 15 psi, 120°C , 10 hours)



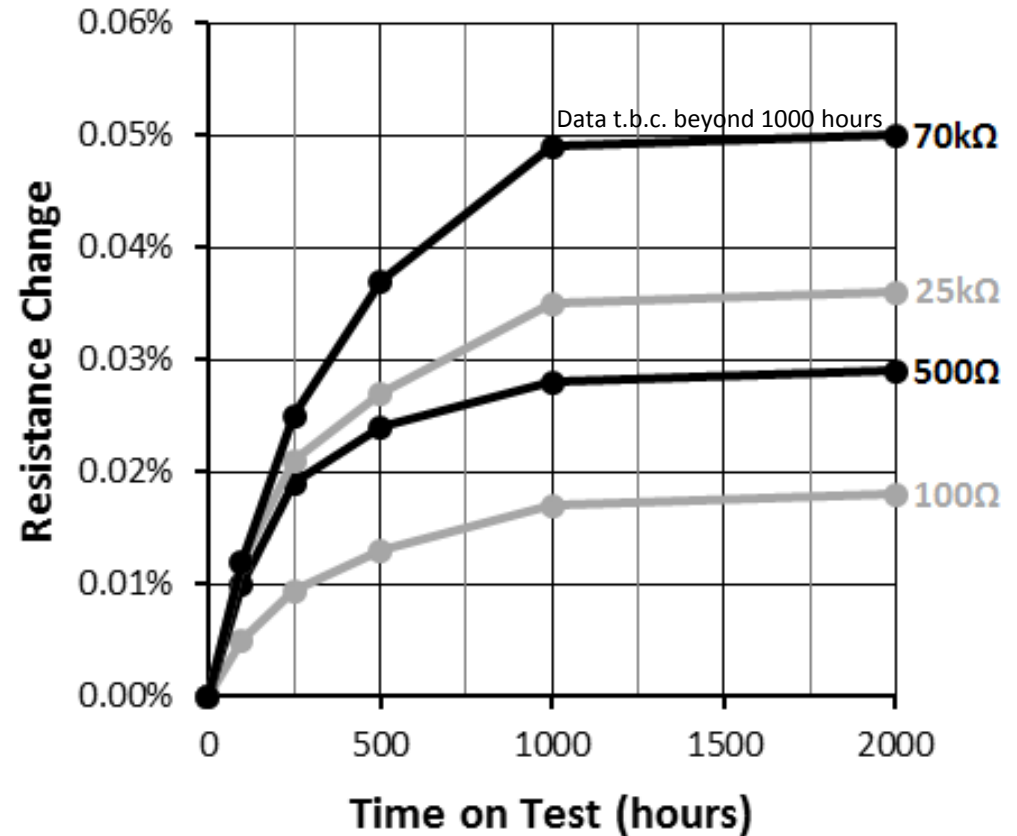
Takeaway: Why pay a premium price for passivated NiCr without benefit!

Equivalent Lifetime Stability

- **Performance:** New manufacturing equipment and process optimizations have lead to a design that maintains the trusted stability of our military capable product.
- **Improved product lead times:** permits greater flexibility for design engineers and supply chain management. (4 – 6 weeks)

Biased Damp Heat Stability

Typical @ 85°C, 85%RH, 10% P_r bias



PFC v/s WIN v/s Passivated NiCr



Aerospace



Defence



Medical



Energy

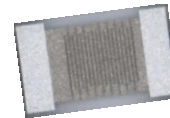


Industrial



PFC (55342 qualified)

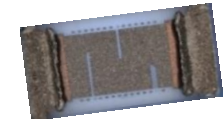
- ✓ TCR = 25ppm/°C
- ✓ Tolerance = 0.1%
- ✓ 0603, 0805, & 1206 Sizes
- ✓ Inherent Moisture Resistance



WIN

- ✓ TCR = 25ppm/°C
- ✓ Tolerance = 0.1%
- ✓ 0603, 0805, & 1206 Sizes
- ✓ Inherent Moisture Resistance

Vs.



Passivated NiCr

- ✓ TCR = 25ppm/°C
- ✓ Tolerance = 0.1%
- ✓ 0603, 0805, & 1206 Sizes
- ✗ **Inherent Moisture Resistance**



Medical

Energy

Industrial

Circuit Uses

Voltage dividers

- Wheatstone Bridge

Op Amps

- Comparators
- Differential Amplifiers
- Gain Control
- Voltage Reference

Application Areas

Signal Conditioning

Voltage Measurement

Precision Voltage Dividers

Precision Amplifiers

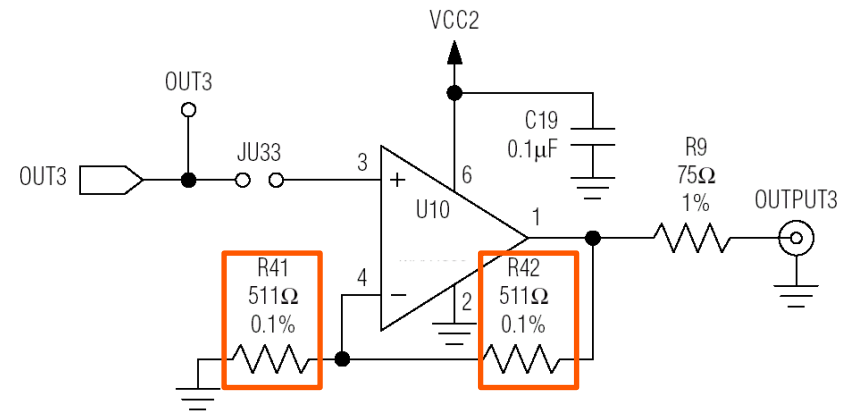
Monitoring and Control

Reference Resistance

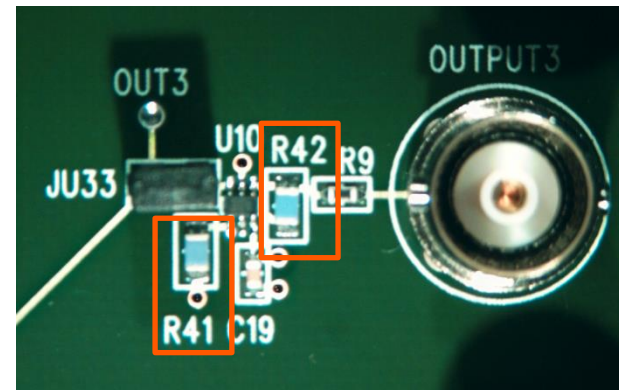
Precision Amplifier Gain Control

Benefits:

- Precise, Accurate Gain Control
- Stable Amplifier Gain over Time And Temperature
- Suitable for Outdoor Applications in Humid Environments



WIN Chips

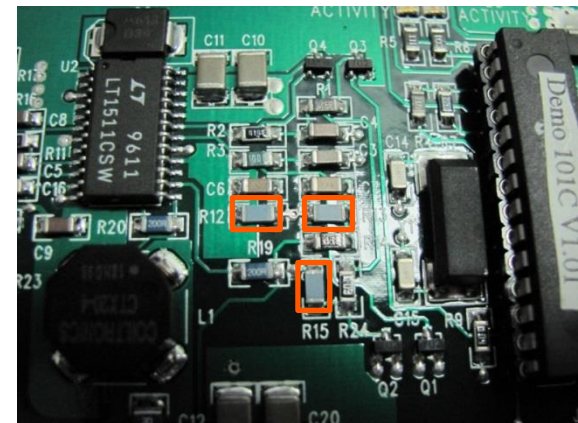
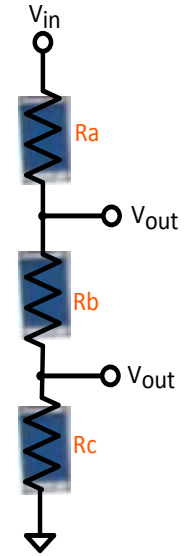


Precision Voltage Divider – Voltage Regulator Module

Benefits:

- Precise, Stable Output Voltage Feedback
- Ohmic Values selected for Exact Nominal Required for Desired Voltages
- Suitable for Outdoor Applications in Humid Environments

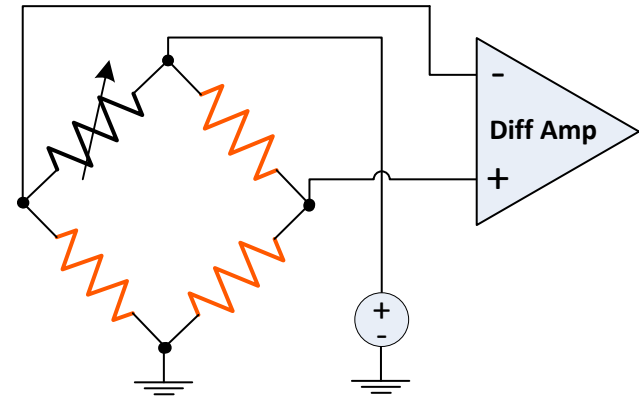
WIN Chips



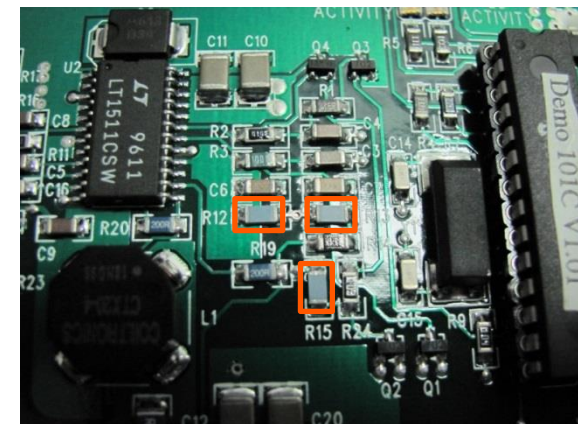
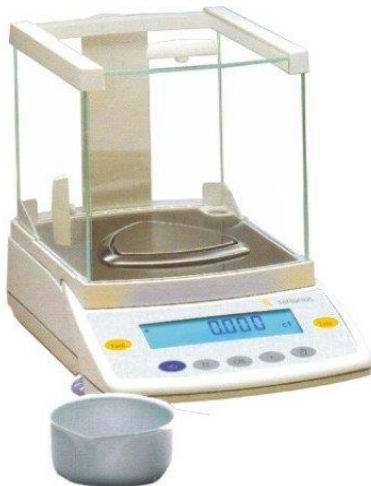
Precision Wheatstone Bridge

Benefits:

- Precise values that improve measurement accuracy
- Low TCR minimizes measurement error that can result from temperature changes
- Long stability minimizes lifetime drift



WIN Chips



Thank You

