North American Owned & Manufactured

LEO - Low Earth Orbit

SATELLITE SOLUTIONS

Contact us for custom requirements

High Reliability Services

- Special Testing Capabilities
- RF Testing Capabilities
- Upscreening Services
- Environmental Testing
- Quality Certifications
- Mil-Standards
- AEC-Q200

For Communication and Remote Sensing Satellite Systems

CERTIFICATIONS

AS9100 | CTPAT | ITAR

JOHANSON TECHNOLOGY

JOHANSON DIELECTRICS

Application to Products Chart

APPLICATIONS	Single Layer Capacitors	Thin Film Metallized Substrates	Planars & Discoidals	EMI Filters	High Voltage MLCCs (500V–6kV)	High Voltage Radial Leaded Capacitors	High Temp Class I & II Capacitors	High Cap X7R / Hi-Q MLCCs (1–1000µF)	Low Voltage NP0/X7R MLCCs	SMPS Stacked MLCCs	High Power High Q MLCCs	Ceramic Chip Antennas	High-Q Capacitors	RF Inductors
Solar Arrays			●		●	●	●	●		●				
Battery Packs			●	●	●	●	●	●		●				
Power Control Unit			●	●	●	●	●	●		●				
Transponders	●			●					●		●	●	●	●
RF Front-End Modules	●	●		●					●		●	●	●	●
Antennas	●	●									●	●	●	●
Software-Defined Radios (SDRs)	●	●		●				●	●	●	●	●	●	●
Sun Sensors	●	●							●				●	●
Earth Horizon Sensors														
Star Trackers	●	●							●				●	
Magnetometers	●	●							●				●	●
Gyroscopes	●	●							●					
Reaction Wheels			●		●	●	●	●		●				
Magnetorquers			●	●	●	●	●	●		●				
Control Moment Gyros (for larger satellites)			●		●	●	●	●		●				
Thrusters (sometimes used for both orientation and propulsion)			●	●	●	●	●	●		●				
Flight Computers / Microcontrollers	●	●	●	●				●	●	●				
Storage Modules: Solid-state drives (SSDs) or NOR flash			●	●				●	●	●				
Heaters (resistive)					●	●	●							
Louvers or Heat Switches				●	●	●	●							
Radar Systems (e.g. Synthetic Aperture Radar)	●	●	●	●	●	●	●	●		●	●		●	
Scientific Instruments (e.g. particle detectors, spectrometers)		●									●	●	●	●
IoT Sensors (for smallsat constellations)	●								●			●		
Data Buses: CAN, RS-422, I2C, or SpaceWire	●	●	●	●					●					
GPS Receivers	●		●	●					●		●	●	●	●
Control Electronics for Miniature Propulsion Units		●	●	●	●	●	●	●	●	●	●	●	●	●
Watchdog Timers & Reset Circuits	●								●					

In-House Testing Capabilities

As demand for compact, high-performance passive components in LEO applications continues to grow, Johanson North American Owned & Manufactured is uniquely positioned to deliver high-reliability components with in-house MIL-STD testing and qualification at our California facility. Backed by 60+ years of design and manufacturing experience, our engineers are ready to collaborate with you to develop custom solutions for your application.

Send your unique design requirements to Johanson Applications Engineers: https://www.johansontechnology.com/contact/ask-a-question/

In-House Testing Capabilities

In addition to manufacturing, the Camarillo facility has a complete High Reliability department with in-house testing capabilities.

Comprehensive Mil-Standard Testing Groups A, B & C

- Available as necessary

Electrical & Mechanical Inspections

- 100% Electrical Testing
- Cap, DF, IR, DWV, Voltage Breakdown
- 100% Visual Inspection (Mil 883 Class K or S Options)
- Full Data on Serialized Units
- Hot IR Testing
- Temperature Capacitance Coefficient (TCC)
- Temperature Voltage Coefficient (TVC)

Analytical Testing

- Destructive Physical Analysis (DPA)
- Radiographic Inspection
- SEM Inspection
- Solderability Testing
- Acoustic Microscopy (Sonoscan) Inspection
- XRF Analysis

RF & Microwave Testing Expertise

- Vector Network Analyzer Measurements
- Resonant Line Measurements for ESR at Frequency

Environmental Testing

- Burn In / Voltage Conditioning
- Life Testing
- Class H, K or S Element Evaluation
- HALT / HASS Testing
- Humidity Testing
- Moisture Resistance
- Resistance to Solder Heat
- Shear Test / Bond Pull Test
- Bend Testing
- Steam Age
- Temperature Cycling
- Thermal Shock Testing
- Shock / Vibration Testing
- Wire Bond Testing

RESOURCE: Simulation Software and Designer Libraries. . .

https://www.johansontechnology.com/downloads/designer-libraries/

https://www.johansontechnology.com/downloads/avago-appcad/

https://jtisoft.johansontechnology.com/

Available Termination Options

MLCC Termination Options (Replating of Commercial Products)

Termination Type	Barrier to Prevent Solder Leaching	RoHS	Primary Applications
Ni/Sn	Ni	Yes	All solder applications where RoHS is required. This is Johanson's standard termination used by the largest number of customers. Most likely to be in stock at Johanson or at Johanson authorized distributors.
Ni/SnPb	Ni	No	Military applications where the lead (Pb) mitigates Tin whisker growth.
Flexterm Ni/Sn	Ni	Yes	Flexible terminations for high physical stress applications
Flexterm Ni/SnPb	Ni	No	Flexible terminations for high physical stress applications
Ni/Au Gold Termination	Ni	Yes	Parts are epoxied in place or a mix of solder and epoxy attachment is used. Controlled Au thickness to avoid Gold embrittlement issues when soldering. Premium price.
Cu/Sn (Copper barrier)	Cu	Yes	This non-magnetic termination is best suited for application where very high inductance / magnetic fields are present. Use where RoHS is required. Most common non-magnetic termination.
Cu/SnPb (Copper barrier)	Cu	No	This non-magnetic termination is best suited for application where very high inductance / magnetic fields are present.
PdAg	None	Yes	No plating - solderable thick film PdAg alloy termination. Premium price.
PtAg	None	Yes	No plating - solderable thick film PtAg alloy termination. Premium price.

Single Layer Termination Options

TiW/Ni/Au	Ni	Yes	Chip & Au wire where capacitor is soldered in place or a mix of solder and epoxy attachment is used.
TiW/Au	None	Yes	Chip & Au wire where capacitor is epoxy attached. Optimum termination for wirebonding. Cannot solder this chip as substantial leaching will occur.

Lead-Frame Termination Options

Ni	None	Yes	Used in very high-temp applications
Cu/Ni/SnPb	Ni	No	Typically used in military applications
CuSn6 Phosphor Bronze	Ni	No	SnPb plate
Iron-Nickel Alloy	Ni	Yes	Sn plate
Pure Silver Leads	None	Yes	Used in very high power RF. Premium price.

Contact **JOHANSON** to quote your custom lead materials & types.

Ask a Question: If you have unique needs or require additional technical information, contact your Johanson Representative or submit a technical request on our website at: https://www.johansontechnology.com/ask-a-question

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