

High Reliability Capabilities

Sensors and Specialist Components

BI Technologies OPTEK Technology



Who we are.

TT Electronics is a global provider of engineered electronics for performance critical applications. We provide our customers with engineering support and expertise through our global network of specialists and world class facilities. Our experience and understanding of highly regulated markets enables us to continue to develop and deliver reliable products and solutions for our customers, helping them solve challenging problems to meet the needs of their customers.

We provide
complete high
reliability
solutions

We supply
a full range
of radiation
hardened
products

We provide
leading
expertise
that put our
customers
ahead

We offer highly
customised
solutions with
competitive
lead times

TT Electronics is a leading manufacturer of customisable, high reliability components and assemblies.

We supply a comprehensive range of high reliability assemblies, advanced sensor technology, and precision potentiometers designed for demanding industrial environments, aerospace, and defence, through our OPTEK Technology and BI Technologies brands.

Our customised, commercial Off-the-Shelf (COTS) and MIL-spec products – including innovative discrete semiconductors, microelectronics, sensors, optoelectronics and passive components and our integrated manufacturing services solutions are supported by a wealth of technical expertise and application experience of hi-rel, extreme performance designs.

Our accreditations include QML and QPL certification for JAN/JANTX level , Nadcap, IPC-A-610D, J-STD-001 and we hold multiple resistor approvals in the US and Europe to CECC, DSCC, US MIL Standards.

TT Electronics is playing a role in many major current defence and aerospace programs and is involved closely with contractors at every level to help them meet the challenges of the industry.



High Reliability Capabilities

Our design engineering teams work closely with you on complex applications to meet your requirements.

Through its OPTEK brand, TT Electronics offers a wide range of expertise in the design and manufacture of optoelectronic and magnetic sensor components and assemblies and solid state lighting solutions serving the high technology electronics industry. We specialise in providing leading edge solutions for medical, military, avionics, test & measurement, industrial and specialty commercial applications. With our on-site engineering and R&D department located in the United States and our world-class manufacturing facility in Mexico, we are able to meet the increased technology demands for a higher level of quality, reliability, and performance.

We offer screened high reliability products in classifications of “TX”, TXV”, “B”, “S”, and “ESA” levels, and for various COTS custom requirements tailored to suit customer needs. Our quality system is centered on our ISO/TS 16949:2002 and BS EN ISO 9001:2000 certifications. TT Electronics operates to TSAT, MIL-PRF-19500, MIL-PRF-38535, MILSTD-750/883 performance requirements, and we are ITAR registered. By performing 100% test and inspection, we assure quality products every time.



High Reliability Assemblies

TT Electronics' high reliability assemblies are custom devices designed to meet military and aerospace applications. They offer superior reliability and hermetic components.

Product Highlights

- Hermetic chip & wire microelectronic assemblies
- Encapsulated chip & wire microelectronic assemblies
- Optoelectronic assemblies

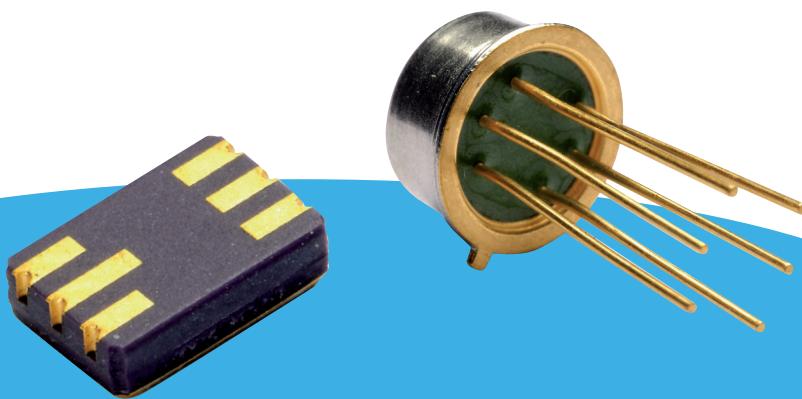
Technical Capabilities

- Conductive systems include Au, Ag, and PdAg
- Clean rooms to 10,000 ppm
- Die attach (conductive/non-conductive epoxy, eutectic, solder)
- Hermetic and local encapsulation
- Multi-site manufacturing
- Lead-free and 63/37 solder capability
- Extended temperature operation (-55°C to +150°C)



Qualifications/Certifications

- MIL-PRF-19500
- MIL-PRF-38534/38535
- MIL-STD-883/750
- TX, TXV, B, S, and ESA level
- ISO/TS16949
- ISO9001



High Reliability Capabilities

Advanced Sensor Technology

TT Electronics provides a wide range of sensor technologies uniquely suited to the rigorous requirements of military and aerospace applications, including optoelectronic S-level Hall effect sensors.

With the assistance of TT Electronics' design engineering teams, these technologies have the capability to be engineered to the high-reliability performance standards demanded by customer specifications while surviving the harshest environmental, temperature, and mechanical stresses.

Product Highlights

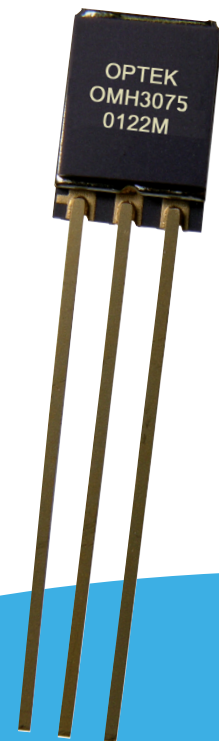
- Infrared LED and VCSEL optosensors and assemblies
- Surface mount optocouplers / optoisolators
- Hall-effect sensors and assemblies – through hole
- LED and sensor “pill packs”

Technical Capabilities

- Infrared LED and VCSEL, 850nm to 940nm wavelengths
- Silicon and III-V design capability
- Reflective and interruptor optical sensor designs
- Hall-effect magnetic sensing (bipolar, unipolar, ratiometric)
- Comprehensive in-house group testing
- 100% parametric test capabilities

Qualifications/Certifications

- 100% in-house screening and QCI testing (Group A, B, C, D) per MIL-PRF-19500 method of MIL-STD-750 and per MIL-PRF-38535 of MIL-STD-883, method 5005
- TX, TXV, B, S, and ESA-level process capabilities
- ISO9001
- ISO/TS16949
- TSAT



Precision Potentiometers

TT Electronics has been a leading industry innovator in developing standard and custom precision potentiometers and trimmers for specific applications within many major weapons systems, aerospace vehicles and military platforms around the world. In many cases, our engineers have taken an existing high reliability product design and adapted it to meet the demanding requirements of military and aerospace applications.

Product Highlights

- Conductive plastic potentiometers
- Wirewound potentiometers
- Hybrid potentiometers
- Single and multi-turn potentiometers
- Spring return linear potentiometers
- Surface mount and through hole cermet trimmers
- Single and multi-turn trimmers
- Miniature SPDT switches

Technical Capabilities

- Extensive range of models and pin configurations
- Rotational life up to 100 million revolutions
- Linearity to $\pm 0.02\%$
- Operating temperature range: -65°C to $+150^{\circ}\text{C}$
- Miniature sizes down to 3mm case size

Qualifications/Certifications

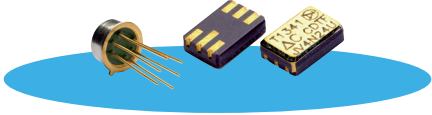
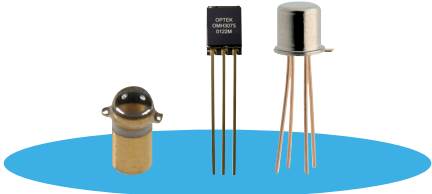
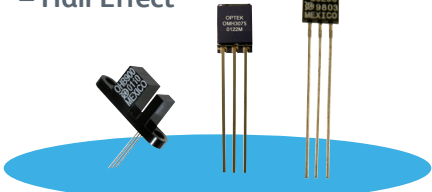

- Built to meet or exceed MIL-PRF-39023



High Reliability Capabilities

Product Applications

From concept to manufacture, our engineering teams aim to build strong partnerships with customers to provide enhanced solutions for performance critical technologies

Products:	Applications	Key Features and Benefits:
High Reliability JAN Isolators 	<ul style="list-style-type: none"> • Military equipment • Aerospace • Space • Other harsh environments 	<ul style="list-style-type: none"> • Choice of hermetically sealed TO-78 package or surface mountable SMD/LCC package • High current transfer ratio • 1 kV electrical isolation • Processed to MIL-PRF-19500
High Reliability COTS – Optoelectronics 	<ul style="list-style-type: none"> • Military equipment • Aerospace • Space • Medical • Other harsh environments 	<ul style="list-style-type: none"> • Product offering of GaAlAs/GaAs LEDs, phototransistors, photodiodes, Photologic® detectors (integrated detector), VCSELs • Available in hermetic metal packages and plastic packages • Available in custom designs at OEM volumes • Shorter lead times than other off-the-shelf solutions
High Reliability COTS – Hall Effect 	<ul style="list-style-type: none"> • Military • Space • Harsh environments 	<ul style="list-style-type: none"> • Reliable performance up to S level • Extended service life • Plastic and ceramic packages available • Bipolar, unipolar, and ratiometric outputs • Excellent temperature stability • MIL-STD-883 • 100% processing and QCI
High-Reliability POTS and Trimmers 	<ul style="list-style-type: none"> • Major weapons systems • Aerospace vehicles • Military platforms • Military aircraft 	<ul style="list-style-type: none"> • Long rotational life up to 100 million revolutions • Miniature sizes down to 3mm case size • Light weight • Superior sealing capabilities



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General Note TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.