



READY FOR THE FUTURE OF ELECTRONICS?



Hi-Rel Business | Power Management
Obsolescence Solutions | E-Mobility

OUR SERVICES AT A GLANCE

Hi-Rel Business

Aerospace, Avionics, Defense, High-Temperature Devices, Hybrid Capacitors, Motion Control, Rad-Hard Space Products

E-Mobility

Capacitor Modules, EV-Charger Modules, Hybrid Vehicle Solutions, Vehicle Batteries

Power Management

AC/DC-, DC/DC-Converters, Battery Management Systems, Battery Supercapacitors, Energy Harvesting Products

Obsolescence Solutions

Adapter Solutions, Anti-Counterfeiting Program, BGA Reballing, Long Lifetime Program, MCM, Memories, Requirement Engineering, Re-Tinning

PARTS MANAGEMENT PROGRAM

- ▶ Long Lifetime Program
- ▶ Up-Screening
- ▶ Quality Inspection



HI-REL BUSINESS

Manufacturers	Products	Applications
 <p>CORFIN INDUSTRIES EQUIPMENT IMPROVEMENT SOLUTIONS Preventing Catastrophic Failures in Mission Critical Systems</p>	<p>Robotic Hot Solder Dip - compliance with RoHS directive, Elimination of Tin-Whiskers through tin-lead-alloy, Lead Attach Coplanarity and Compression Bond, lead-free Solder Alloy, Gold Mitigation, Forming and Cutting of Pins, BGA Reballing for the Conversion of tin-lead</p>	<p>Aerospace, Defense, Marine</p>
 <p>DATEL INNOVATION and EXCELLENCE</p>	<p>Multi-Channel Analog to Digital Converters, Sampling A/D-Converters, LDOs, Voltage References, Multi-Channel Complete Data Acquisition, Amplifiers, COTS Isolated and Non-Isolated DC/DC-Converters, operating temperature up to +200°C</p>	<p>Hi-Rel, Military, Airborne, Aerospace, High Temperature</p>

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HI-REL BUSINESS

Manufacturers	Products	Applications
	<p>Development and production of custom and mobile Portable Power Systems Aerospace & UAV: Rechargeable Batteries: High energy density (up to 270Wh/Kg) Medical & Industrial products: Standard & Custom Li-Ion Rechargeable Batteries Micro-Grid Energy Storage Systems</p>	<p>Battery Power Systems, UAV's, Tanks, Military</p>
	<p>Highest Energy and Power Density Capacitors with MTBF>5.000.000 hours, product range 68 to 240.000µF (10 to 125V) +85°C, +125°C and +200°C, very low ESR, very high current handling capability, highest levels of quality</p>	<p>Power Hold-up Avionics, Laser Pulse Power, Phased Array Radar Pulse Power, Replacement of Batteries, Oil & Gas Exploration</p>
	<p>ESCC 5000 and 5010 qualified Hi-Rel components, Rad-Hard Power MOSFETs, Microwave Transistors, Microwave Diodes, Bare Dies No export license required!</p>	<p>Space, Satellite, Microwave RF Applications</p>
	<p>Rad-Hard & Hermetic MOSFETs, Schottky & Ultra-Fast Rectifiers, IGBTs Integrated Circuits, LDOs - MIL-PRF-19500 & MIL-PRF-38534 qualified parts, DC/DC-Converters, EMI Filters, Rad-Hard Solid State Relays, Hybrids & Modules</p>	<p>Hi-Rel, Defense, Space, Aircraft</p>
	<p>Rad-Hard Space qualified Optocouplers, High Gain-, High Speed-, High Voltage Optocouplers, manufacturing, screening & testing of Hi-Rel optoelectronic components, European manufacturer, ITAR free products</p>	<p>Hi-Rel, Space, Military, Avionics</p>
	<p>The world's first reflowable, slim profile, low ESR Ultracapacitor +85°C, 500mF Hermetic Ultra-Capacitor Technology D & AA size cells, 33 to 370F capacitance, extreme temperature operation -40 to +300°C, custom modules, high cycle life, high shock 500G peak & vibration 20G rms, lithium free - no risk of explosions, high cycle life, 20+ year shelf life, weldable terminals for parallel or series connect</p>	<p>Hi-Rel Avionics, High Temperature Products for Oil & Gas Exploration</p>
	<p>Smart SSD Circuit Breakers, High Performance Miniature Motor Controller Drivers, Wide range of Defense oriented Motion Control Drivers, Electronic Circuit Breakers, BOSS-Multi Axis Motor Controllers, High Performance EV Dual-Motor Controller Drivers, High Performance and High Power Motor Controller Drivers, Multichannel Power Riders, Heavy Duty Motor Fan Drivers, High Performance Motor Controller Drivers, High Performance Stabilization Systems</p>	<p>Mobile Robots, Missiles, Tank Applications, Drone Motor Motion Control, Ship Motor Drivers, Circuit Breakers, Landing Gear and Aviation</p>
	<p>Rad-Hard PQL Converters, Custom Power Bus Products, Quad LVDS Line Receiver with Extended Common Mode, Quad LVDS Line Driver, screening & testing of SPACE IC products to the ESCC 9000 requirements</p>	<p>Space Missions, Satellite Business</p>
	<p>MIL-PRF-55342, MIL-PRF-914, MIL-PRF-32159 Mission critical Thin & Thick Film Chip Resistors, High Frequency Products, Silicon Resistors, Chip Attenuators, Current Sense Resistors, High Power Chip Resistors, Zero Ohm Chip Resistors</p>	<p>Space, Defense, High Quality, Medical Industry, Hybrids</p>
	<p>Discontinued and End of Life industrial and military parts QML Class Q and Class V certified manufacturer, MIL-PRF-38535, MIL-STD-883, Analog & Interface ICs: Amplifiers, A/D- & D/A-Converters, Memories: EPROMs, EEPROMs, SRAMs, CPLD Dual Port RAMs, Programmable & Discrete Logic ICs, FIFOs, Wafer & Bare Die Banking, Components Up-Screening Program</p>	<p>High End Industry, Aerospace, Defense, Transportation</p>
	<p>High Reliability & High Temperature Hybrid Microcircuit Crystal Oscillators, MIL-PRF-55310, MIL-PRF-38534, MIL-883B, TTL-LVTTL-CMOS-HC/ACMOS-ECL, lowest voltage is 1.8V, SMD-Packages 5x7mm, High Shock & Vibration Designs, operating temperature up to +230°C</p>	<p>Hi-Rel, Defense, Space, Aircraft, High Temperature</p>

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POWER MANAGEMENT

Manufacturers	Products	Applications
	<p>Isolated Single, Dual and Triple Output DC/DC Converters up to 2100W, High Performance DC/DC-Bricks, high efficiency operation up to 97%, Module & Open Frame Converters, SMT&THT, Brick Assembly Modules (CBAM™), Commercial-off-the-shelf (COTS) Converters, Bi-directional 3000W, High Power Custom DC/DC Solutions, operating temperature range -40 to +105°C, up to 5-year warranty</p>	<p>Industrial, Transportation, Medical Industry, Avionics, Defense, Marine</p>
	<p>Single and Dual Output DC/DC Converters from 1 to 75W, Industry Standard Footprints SIP, DIP, SMT, 1x1 and 1x2 Thru Hole Patterns, Switch mode AC/DC Supplies, encapsulated PCB mount from 4 to 60W 2-year warranty</p>	<p>Commercial, Industrial, Medical Industry, Railway</p>
	<p>DC/DC-Converters Isolated and Non-Isolated, Point-of Load DC/DC-Converters 15 to 100W, 24-Pin DIP DC/DC-Converters up to 15W, 1"x1" DC/DC-Converters up to 40W, DOSA-Compatible Brick DC/DC-Converters 14 to 600W</p>	<p>Industrial, Medical, Scientific, Hi-Rel Military, Airborne, Aerospace, Railway</p>
	<p>Highly Efficient Dual Regulated Output Ambient Energy Manager, Harvesting from Photovoltaic Cells and Thermo-Electric Generators, Ultra-Low-Power-Start-up, Ultra-Low-Power Boost Regulator, integrated LDO Regulator at low voltage 1.8V and high voltage 4.2V, Flexible Energy Storage Management, input voltage 60mV, input power 3µW, smallest footprint, package QFN-28-pin, smallest external BOM</p> <p>New Products: Photovoltaic-, Thermal-, Vibration-, RF- Energy Harvesting PMICs</p>	<p>Wireless sensors, Industry 4.0, Home Automation, Security, Retail, Smart Metering, Smart Agriculture, Wearables, E-Health, Mobility</p>
	<p>Highest Energy and Power Density Capacitors with MTBF>5,000,000 hours, product range 68 to 240,000µF (10 to 125V) +85°C and +125°C, very low ESR, very high current handling capability, highest levels of quality, operating temperature up to +200°C</p>	<p>Power Hold-up Avionics, Laser Pulse Power, Phased Array Radar Pulse Power, Replacement of Standard Capacitors & Batteries, Oil & Gas Exploration</p>
	<p>The world's first reflowable, slim profile, low ESR Ultracapacitor +85°C, 500mF Hermetic Ultra-Capacitor Technology D & AA size cells, 33 to 370F capacitance, extreme temperature operation -40 to +300°C, custom modules, vibration & 500g shock resistance, lithium free - no risk of explosions, high cycle life, 20+ year shelf life, weldable terminals for parallel or series connect</p>	<p>Hi-Rel Avionics, High Temperature Products for Oil & Gas Exploration</p>
	<p>Isolated DC/DC- Brick Converters 15 to 800W, efficiency up to 95%, over-voltage, over-current, short-circuit and over-temperature protection Rugged COTS DC/DC Converters up to 800W, input voltage range 8:1, 4:1, 2:1 Railway DC/DC-Converters: Input voltage 34 to 160VDC, 60 to 300W High Voltage DC/DC-Converters: 180 to 500VDC, 300 to 800W Hybrid EV on-board DC/DC-Converters with CAN 2.0 up to 6.6kW peak power</p>	<p>Railway, Industrial, Electric Vehicles, Rugged COTS</p>
	<p>Single and Dual Output DC/DC Converters from 1 to 40W, Industry Standard Footprints SIP, DIP, SMT, 1x1 and 1x2 Thru Hole Patterns, Switch mode AC/DC Supplies; encapsulated PCB mount from 4 to 60W, AC/DC power supply 25 to 1200W Enclosed/Open frame type, 15 to 480W AC/DC DIN RAIL Power Supply 2-year warranty</p>	<p>Commercial, Industrial, Medical Industry, Railway</p>

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E-MOBILITY

Manufacturers	Products	Applications
	<p>1000 Watt Full-Bricks with wide input range at 9 to 36VDC and efficiency at 95%. The 3,000 Watt 12V/48V Bi-directional Non-Isolated DC/DC-Converters with an efficiency up to 97% and CAN 2.0b interface including remote ON/OFF, DC/DC Converter with input voltage from 240 to 450VDC, output voltage from 9 to 16VDC and 3kW output power with an efficiency > 96% (peak efficiency), good shock and vibration dampening, operating temperature range -40 to +105°C, up to 5-year warranty</p>	<p>EV-Chargers, EV, Autonomous Vehicles, Mild-Hybrid-Vehicles</p>
	<p>SAE and IEC AC Electric Vehicle Charging Plugs voltage-endurance 2500V, insulation resistance >10mΩ, grounding resistance <0.05Ω in compliance with SAE J1772-2017 and IEC 62196.1 -2014. Circular Connectors, Charging Connector Plugs, Interface Products, Terminal Blocks, Heavy Duty Connectors, Electronics Module Enclosure, Industrial Wire Harness, Customized Products, DIN-Rail Terminal Blocks, EV Charging Plugs</p> <p>New Products: Orbital Fuse Terminals, Wire Connectors, Track Double Layer Terminal Blocks</p>	<p>Rail Transportation, EV, Electric Machinery, Solar Photovoltaic Industry, Charging Stations</p>
	<p>Development and production of custom and mobile Portable Power Systems UAV: Rechargeable Batteries: High energy density (up to 270Wh/Kg) Medical & Industrial products: Standard & custom Li-Ion Rechargeable Batteries Micro-Grid Energy Storage Systems</p>	<p>Battery Power Systems</p>
	<p>EV Input DC-DC Converters from 60V up to 800V with 1 to 4.2KW, output voltages with 13.8 to 55V. customized CAN communication, programmable CV/CC Output, IP67 Enclosure, liquid or forced air cooling, higher power through parallel multiple converters or custom-designs, EV On-Board Chargers with 85 to 265VAC input voltage and single 6.6KW OBC or 2-in-1 integrated 6.6KW OBC and 2KW DC/DC, liquid or forced air cooling, IP67 Enclosure, CAN Communication, compliance with SAE J1772/IEC 61851</p>	<p>Electric Vehicles</p>
	<p>500W fully isolated and fully potted DC/DC Converter EVD-Series from 30 to 126VDC input, 13.5 to 27.5VDC output. High efficiency at 93% with parallel connection (up to 10X units), Enable/Remote On/Off with IP66 Enclosure and available with standard Molex or Flying Lead connectors, EV On-Board Chargers with 90 to 264VAC input voltage, 70 to 420VDC output voltage and output power with 3.3 to 11kW, IP67 Enclosure, CAN Communication, compatible with liquid cooling, forced air cooling and natural cooling with Baseplate Up to 7-year warranty</p>	<p>Electric Vehicles, E-Bikes</p>
	<p>BOSS-Multi Axis Motor Controllers, High Performance Miniature Motor Controller Drivers, High Performance DC Motor Controller Drivers, High Performance EV Dual-motor Controller Drivers, High Performance and High Power Motor Controller Drivers, Heavy Duty Motor Fan Drivers, High Performance Stabilization Systems, Electronic Circuit Breakers, Multichannel Power Riders</p>	<p>Automotive, Hybrid Vehicles, Very Small Robots</p>
	<p>Green-Cap Modules with rated voltage of 15 to 129.6V and capacitance with 66.6 to 500F, operating temperature -40°C to +85°C and up to 10 years lifetime. other Green-Cap Modules are made on custom-made basis, balancing and overvoltage protection of individual cell. Supercapacitors up to 3V, wide temperature range -40 to +65°C, -25 to +70°C Green Caps (EDLC): 3 to 3000F, 2.5 to 2.7V, very low ESR, environmental Hybrid Capacitors: 250 to 7500F, 2.8V, low ESR, no explosion, long cycle life Battery-Caps: 1000 to 70000F, 2.7V High Power and High Energy types</p>	<p>Hybrid Vehicles, Golfcars, Electric Scooters</p>



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OBSOLESCENCE SOLUTIONS

Manufacturers	Products	Applications
 <p>CORFIN INDUSTRIES COMPONENT PRESERVATION SOLUTIONS Preventing Catastrophic Failures in Mission Critical Systems</p>	<p>Robotic Hot Solder Dip – Compliance with RoHS directive Component Obsolescence Challenges, Non-availability of tin-lead components, Life-time buy opportunity (Long Term Packaging), BGA Reballing for the Conversion of tin-lead, Component Harvesting, Lead Reconditioning, Lead Attach, Forming and Cutting of Pins, Elimination of Tin-Whiskers through tin-lead-alloy, grid failure <1%</p> <p>New Certification: Nadcap AC7120/11</p>	<p>Aerospace, Defense, Implantable Medical Industry, Transportation</p>
 <p>DATEL INNOVATION and EXCELLENCE</p>	<p>DATEL products are guaranteed to be available for long-term programs, Form-Fit-Function guaranteed for obsolete products, System in a Package (SIP) Technology is a Multi-Chip Module to improve performance and/or reliability while reducing size, Legacy 24 Bit Sampling A/D-Converters, 16 Bit D/A-Converters, Amplifiers, Multi-Channel Converters – Hybrid Data Acquisition Systems, Obsolete component replacement, Reverse Engineering, Process Porting & Device Replication, Custom solutions, low-volume & high-volume applications. RoHS and Non-RoHS versions available</p>	<p>Medical Industry, Industrial, Scientific, Military, Airborne, Aerospace</p>
 <p>NETSOL</p>	<p>High Speed - Low Latency - Low Power Consumption Memory Technology, SLC NAND Flash, SPI NAND Flash, Asynchronous Low Power SRAM, Asynchronous Fast SRAM, Synchronous SRAM, Quadruple SRAM, DDR SRAM, QDR SRAM, small footprint, long-term Support</p>	<p>Tele-Communication, IoT, Industrial Equipment, Mobile Applications, Low Power Consumption, Medical Equipment, Smart Home, Factory Automation</p>
 <p>TELEDYNE e2V Everywhere you look</p>	<p>Discontinued and End of Life industrial and military parts QML Class Q and Class V certified manufacturer, MIL-PRF-38535, MIL-STD-883 Analog & Interface ICs: Amplifiers, A/D- & D/A-Converters Memories: EPROMs, EEPROMs, SRAMs, CPLD Dual Port RAMs, Programmable & Discrete Logic ICs, FIFOs, Wafer & Bare Die Banking, Components Up-Screening Program</p>	<p>High End Industry, Aerospace, Defense, Transportation</p>
 <p>WINSLOW ADAPTICS</p>	<p>Custom solutions for mitigating Device Obsolescence and Board Re-Design Adapter Products, 1:1 Footprint Conversion, ASIC / FPGA Adapters to include code reconstruction and re-targeting, Interconnect Pitch Adapters, Programming Adapter Functionality Upgrade, Production & Test Sockets, Atmel AVR Adapters for µC, Reverse Engineering of Small Plastic & Metal Parts</p>	<p>Adapter Solutions, Device Specific Package Conversion</p>
 <p>Xsis</p>	<p>High Reliability Hybrid Microcircuit Crystal Oscillators & Crystal Units Crystal Oscillators: Standard, Military, High Temperature up to +230°C, QPL M55310 Crystal Units: QPL Crystal Units, Custom Crystal Units Obsolete Through Hole packages, High Shock & Vibration Designs, Custom Solutions, Up-Screening Program</p>	<p>Military, High Reliability Industrial & Telecommu- nications, Defense, Space, Aircraft, High Temperature</p>

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DISPLAY AND CONTROL ELEMENTS

 <p>EverSwitch</p>	<p>Piezo Electric Pushbutton Switches: Ring-, Point- and Non-illuminated from 16mm to 28mm diameters. Piezo Electric Keypads, Access Control Stand Alone, Access Control Keypads with communication protocol, Access Control Keypads Reader, Industrial Solutions and Custom Design, all products are in Aluminium or Stainless Steel with an operation temperature from -40 to +125°C and IP68/69K protection class. Tested for 50,000,000 cycles including vibration and impact tests Piezo Technology Pushbuttons work reliably under a glass thickness of 3 mm</p>	<p>Fuel dispensing e-Car Charging, Underwater, Submarines, Oil and Gas, Parking Systems, Airport, Aviation, Military, Rail Traffic & Public Transport, Emergency Switches</p>
 <p>SUNLIKE DISPLAY TECH. CORP.</p>	<p>Character Displays & Graphic LCD Displays, TN-, STN-, FSTN-, COB-, TAB-, TFT-, LCD-Modules, HDMI/VGA Driver Boards, UART Interface, OLED Character & Graphic Displays, OLED Modules, OLED Switches</p>	<p>Industrial Measuring Instruments, Control Devices</p>

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OUR SERVICES

KAMAKA WAS ESTABLISHED IN 1992

- ▶ Strategic Obsolescence Management
- ▶ Anti-Counterfeiting Program
- ▶ Life Cycle Management
- ▶ Long Lifetime Program up to 25 years
- ▶ Last Time Buy, EOL-, PCN-Service
- ▶ Requirement Engineering
- ▶ Custom Multi Chip Modules
- ▶ Supplier Risk Management
- ▶ Worldwide Access to Allocation & Obsolete Products
- ▶ Qualified Visual & Electrical Test Reports
- ▶ Monitoring of Critical Components
- ▶ Up-Screening
- ▶ Quality Inspection
- ▶ Traceability is guaranteed
- ▶ AQL Spot Checks according to DIN/ISO 2859-1
- ▶ Total Quality Management: DIN EN 9120:2018 (technically equivalent to AS 9120B and SJAC 9120A); DIN EN ISO 9001:2015; DIN EN 61340-5-1: ESD compliant storage & handling process



ZERTIFIKAT

◆ CERTIFICATE

◆ CERTIFICADO

◆ CERTIFIKAT

◆ 認證證書

◆ CERTIFICATE

◆ CERTIFICAT

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

KAMAKA Electronic
Bauelemente Vertriebs GmbH
Ulmer Straße 130
73431 Aalen
Germany

with the certification structure **Single site**
has established and applies
a Quality Management System for

**Sales of applications, electrical units,
components, modules and systems.**

An audit was performed in compliance with EN 9104-001:2013,
Order No. **707009632**.

Proof has been furnished that the requirements according to
EN 9120:2018
technically equivalent to AS 9120B and SJAC 9120A
for Aviation, Space and Defence organizations are fulfilled.
Include the standard ISO 9001:2015 Quality Management System.
Issue date: 2017-03-03
Expiry date: 2020-03-02
Reissuing date: 2019-01-22
Certificate Registration No.: **12 212 47498 TMS.**

Bundesverband der Deutschen
Luft- und Raumfahrtindustrie e.V.

Product Compliance Management
Munich, 2019-01-22

Deutsche
Akademischer
Anerkennungsgesellschaft
D-204 14143-04-00

TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Rüdigerstraße 57 • 80339 München • Germany
www.tuev-sued.de/certificate-validity-check

TÜV®

BJZ

Zertifikat / Certificate

über die Einhaltung der Norm:
DIN EN 61340-5-1

Kamaka Electronic Bauelemente Vertriebs GmbH
Ulmer Straße 130
D-73431 Aalen

Tag der Messung: 12.06.2019
Gültig bis: 11.06.2020

Messobjekt:
EPA – Bereich (Lagerraum 1 / Lagerraum 2)

Messmittel:
Safe-STAT Compact Teraohm-Meter (Ser. Nr.: 1302110, Kalibrierdatum: 18.12.2018)
Walking Test EVO (Ser. Nr.: 292044, Kalibrierdatum: 12/2018)
sowie zwei 2,5 kg Elektroden

Messmethoden:

ESD – Boden:	Ableitwiderstand
ESD – Tischmatten:	Oberflächen- und Ableitwiderstand
ESD – Regalsystem:	Ableitwiderstand
ESD – Stühle:	Systemwiderstand

**Hiermit wird festgestellt, dass die überprüften ESD-Kontrollelemente der Bereiche
Lagerraum 1 & 2 der oben genannten Norm entsprechen.**

Farnbach, 03.07.2019

ppa. Michael Zwicknagl
ESDA-certified program manager
BJZ GmbH & Co. KG

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ABOUT US

SINCE 1992, KAMAKA ELECTRONIC BAUELEMENTE VERTRIEBS GMBH HAS GLOBALLY ACTED AS ESTABLISHED DISTRIBUTOR FOR WELL-KNOWN MANUFACTURERS. CUSTOMER SATISFACTION IS OUR PRIORITY, WE DO NOT ONLY PROVIDE YOU WITH COMPETENT AND QUALIFIED CONSULTATION BUT ALSO WITH A RELIABLE APPLICATION SUPPORT TO ALL OUR PRODUCTS.

HEADQUARTERS

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