



KAMAKA

Electronic

Bauelemente Vertriebs GmbH

Obsolescence Solutions

Strategic Obsolescence Management

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Delivering High-Reliability Semiconductor Solutions Discontinued and End of Life industrial and military parts

QML Class Q and Class V certified manufacturer

Over 3611 QML approved products

New chip redesign to finished IC, Original Form, Fit & Function
Design, Fabrication, Assembly, Test, Burn-In, Full Qualification

Analog & Interface IC's: Amplifiers, TTL-, ECL - Logic IC's
A/D & D/A Converters

Memories: CPLD Dual Port RAM, EPROM, EEPROM, SRAM

Microcontrollers & Microprocessors

Programmable & Discrete Logic IC's

Custom IC solutions for obsolete parts

Wafer & bare die banking

**EOL products: Atmel, Cypress, Fairchild, IDT, Lattice, Maxim
Micron, NSC, Philips, Peregrine, Raytheon, STM, Zilog**

Approvals: AS9100, MIL-STD-883, MIL-1835, MIL-PRF-38535



Manufacturing semiconductors since 1962

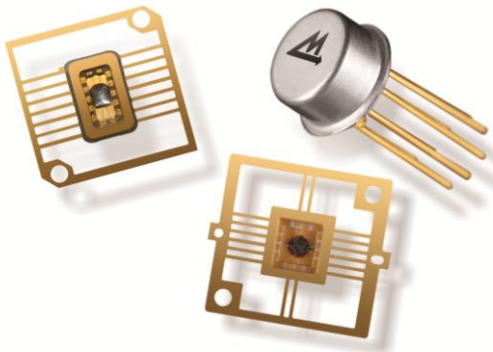
Development & production of electronic engineering products

Expertise in the field of analog, analog to digital technology

ITAR free products are manufactured within the EU in Latvia

In-house Design, Assembly, Electrical Test, Burn-in, Qualification

Process: using Bi-polar, Bi-FET, CMOS & Bi-CMOS



Analog Microcircuits

Analog switches

Amplifiers

Comparators

Multiplexers

Sample and hold circuits

Transistor pairs

Custom IC solutions for obsolescence parts

Packages: LCC package, Metal Can, Flat Pack, Ceramic DIP

Standard Operating Temp from low - 60°C to +125°C

Replacements to Analog Devices, Burr Brown, Calogic,

Elantec, Harris, Intersil, NSC, Philips & TI

RoHs Compliant parts available

Approvals: DIN EN ISO 9001:2008 certified

**Data Acquisition Products since 1970
High-Temperature, Medical, Military, Space**

Standard Products

A to D-Converters: 7 to 8-bit CMOS Flash up to 20MSPS
Stand-alone 12-bit with 2 to 20 μ sec conversion rate

Sampling A to D-Converters: 12 to 24-Bit up to 20 MSPS

D to A-Converters: 8, 10, 12, 16-bit up to 250MHz with input latching

Single-Package Data Acquisition Systems 12-bit:

Input Multiplexer, Instrumentation Amplifier, S & H amplifier, A/D-Converter and various interface logic – fully qualified with screening

CCD Signal Processor / Imaging Converters: 12, 14, 16, 18-Bit ADC with integrated Correlated Double Sampler for easy interface with CCD

Stand alone CCD Image Converters: Functionally complete 12 to 18-bit resolution ADCDS converter family

Sample & Hold Amplifiers: from 0.1% to 0.001% accuracy (10 to 16-bit equivalent resolutions) with acquisition speeds from μ s to low tens of ns

Precision Voltage references:

1.024; 1.25; 2.048; 2.5; 3.0; 3.3; 4.096; 5.0V

LDO Linear Voltage regulators: -15V; +15V ; from -55 to +125°C

4- & 8-CH Multiplexers: from 0.1% to 0.001% accuracy (10 to 16-bit equivalent resolutions) with fast settling time speeds in the low tens of ns

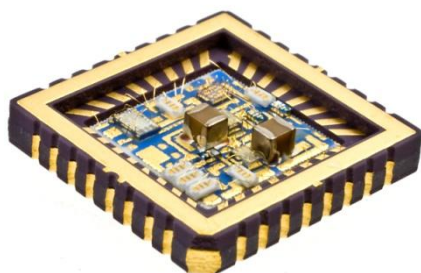
Amplifiers: 70 to 200ns from -55 to +125°C

Standard Microcircuit Drawings: SMD5962-xxxx, DSCC/DLA certified

Custom solutions: Design of modified products for digital imaging, industrial, medical, aerospace, Hi-Rel Defence applications

Obsolescence Solutions

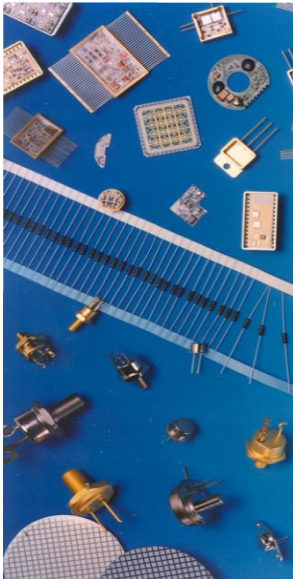
Reverse Engineering
Process Porting & Device Replication
Obsolete component replacement, Device Replication





**DSCC MIL Approved Manufacturer of High Reliability Devices
Commercial, Industrial, Military, Aerospace**

Providing a full compliant of products since 1957
From Wafer Fabrication to final test and IC assembly



Rectifiers, SCR's

Fast Recovery, Schottky, Rotating, Modules, 3 Phase Bridge Assemblies

Diodes

Transient Voltage Suppressors (TVS) Axial, SMD, Cells & Hermetic
Zener 1% & T.C.Z.-Low & High Power

Transistors

Silicon Bipolar Power, NPN-PNP, MOSFETs, IGBTs, Unijunction

Thyristors, Triacs

Inverters – Fast Switching, Phase Control

MOSFET Drivers & Relays

Photovoltaic, Solid State Relays

Voltage Regulators

Positive, Negative, Fixed, Adjustable, Low Drop

Custom Hybrids & Semiconductor Packaging

Analog, Digital, Power, Standard Semiconductors

Approvals: MIL-PRF-19500, MIL-R-28750C, MIL-STD-883



Power Semiconductor Products

High Current Diodes up to 8000A

Fast Recovery Diodes up to 1500A

Thyristors up to 1900A

Electrically Isolated Base Modules up to 1000A

Assemblies: Heat Sinks, Clamp Sets available

Applications: New Energy, Inverters, High Power Switching
Units

High Power Rectifiers, Motor drives

Approvals: ISO9001:2008, AQAP 2110:2009.





ASIC Adapter CustomSolution

Adapters allow the user to interconnect an available semiconductor package to an existing pre-designed footprint, providing a form, fit and function replacement which allows the user to continue using the existing PCB design without need for redesign and expensive re-qualification costs.

High reliability industry sectors, Civil Aerospace, Defence, Rail, Deep Sea, Automotive, Medical with both Custom and COTS parts.

Mainstream commercial users also benefit from these solutions as cost savings over last time buys and grey market supply issues.

- Adapters to Mitigate Component Obsolescence.
- In-House design & manufacture includes DO254 for Civil Aerospace
- Adapters for Function Upgrades, Prototyping & Test
- Recreation of functionality from complex ASIC, FPGA devices
- Firmware and retargeting of analogue and digital ASICs into FPGA.
- Chip Carriers for Die Attach
- Custom Sockets to 0.3 mm Pitch and other interconnect products.
- Reverse Engineering: Obsolete Connectors and Hardware.
- Tooling, Jigs, Fixtures & Injection Moulding.



Electromechanical Relays

The relays are available in a variety range of 1A to 100A
DPDT, SPDT, SPST-NO, Latching SPDT/DPDT, 3PDT, 4PDT
All relays sealed for wave soldering & washing

Latching Relays – 3 varieties

HAT 901-L is a heavy duty SPDT, single-coil latching relay 40A
KLT-L is a highly reliable, low cost single-coil latching relay 15A
PLT-L is a SPDT relays up to 25A, surge voltage up to 6kV
SPR-L is a SPDT/DPDT, small sized 1 or 2 coil latching relay 16A / 8A
These energy saving relays require no current to maintain contact closure once the relay has been switched

Automotive Relays up to 80A

OKI Reed Relays, Reed Switches - long life and high reliability

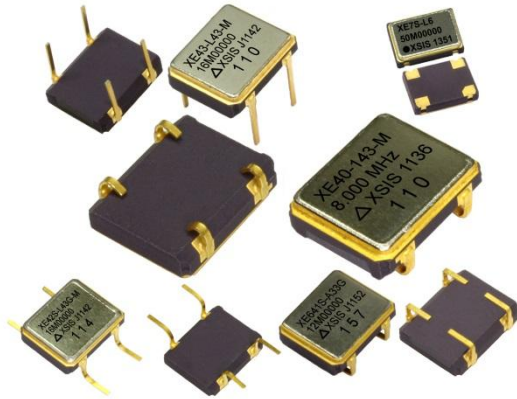
Contact Rating: 5W to 50W Switching Voltage: 250VDC
Switching Current 0.25A to 1.5A

Custom Speciality Relays

We are able to discuss tailoring our parts to your exact requirements

Approvals: ISO 9001:2008, UL, TÜV





High Rel Hybrid Microcircuit Crystal Oscillators

Industrial, Military, Space Qualified Oscillators

- TTL- LVTL- CMOS- AC/HCMOS- LVHCMOS- ECL
- Tristate Output
- Very High-Temperature Down-Hole
- Ultra High Shock & Vibration
- Multiple Frequency Outputs
- Wide Frequency Ranges
- Multiple Temperature Ranges
- Dual In-Line & TO-5 Package
- Surface Mount: Leadless, J- Lead, Gull Wing Lead
- New:** Low Voltage 3.3V in 5x7 mm SMD

Approvals: AS9100, MIL-PRF-55310, MIL-PRF-3098

KAMAKA Service

Obsolescence Management

Serving the semiconductor industry since 1992

Services

- Long-lifetime Program up to 15 years
- Long Term Storage of obsolescence products
- Worldwide access to allocation and obsolete products

Packaging Solutions

- Custom packaging of bare die, Multi Chip Module
- Components Upscreening Program

Quality Agreements

- Anti-counterfeiting program - Traceability is guaranteed
- Avoiding Counterfeiting parts - only original parts
- You will get a manufacturer CoC

Member of



Quality Management System

- DIN EN 9120:2009 technically equivalent to AS9120A and SJAC9120
- DIN EN ISO 9001:2008
- DIN EN 61340-5-1 ESD compliant storage & handling process

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www.kamaka.de