



**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

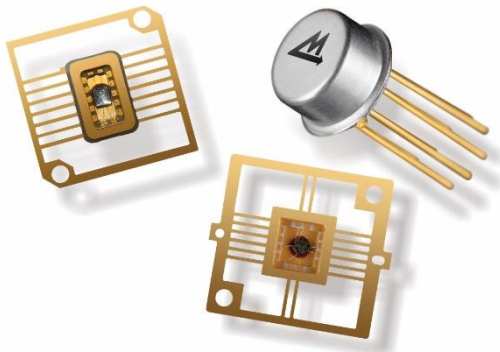
Development & production of electronic engineering products

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

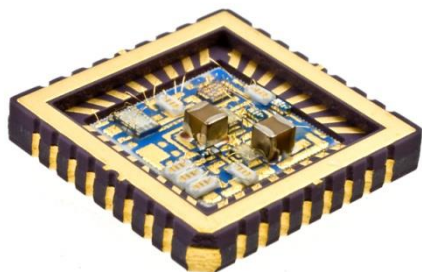
**Replacements to Analog Devices, Burr Brown, Calogic,  
Elantec, Harris, Intersil, NSC, Philips & TI**

RoHs Compliant parts available

Approvals: DIN EN ISO 9001:2008 certified

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

**Standard Products**



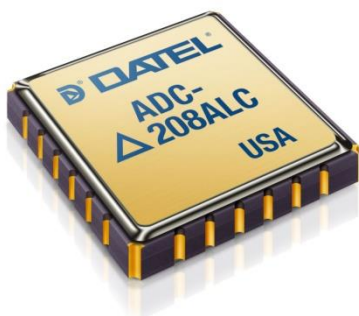
**A to D-Converters:** 7 to 8-bit CMOS Flash up to 20MSPS  
Stand-alone 12-bit with 2 to 20  $\mu$ sec conversion rate

**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:**

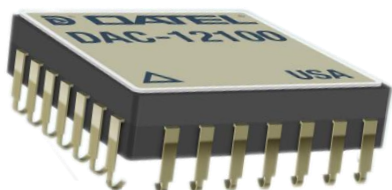
Input Multiplexer, Instrumentation Amplifier, S & H amplifier, A/D-Converter and various interface logic – fully qualified with screening



**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  $\mu$ 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

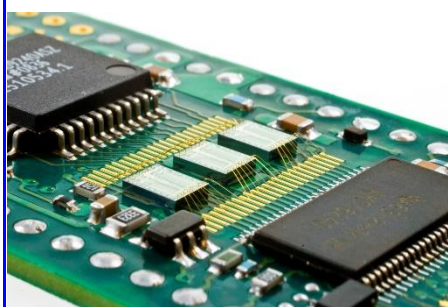
**Amplifiers:** 70 to 200ns from -55 to +125°C

**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





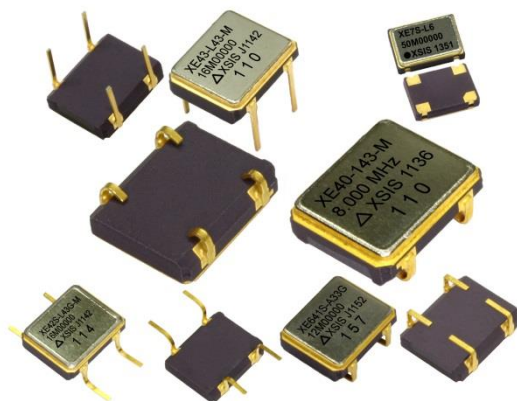
ASIC Adapter CustomSolution

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.



### 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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