The Complete Package

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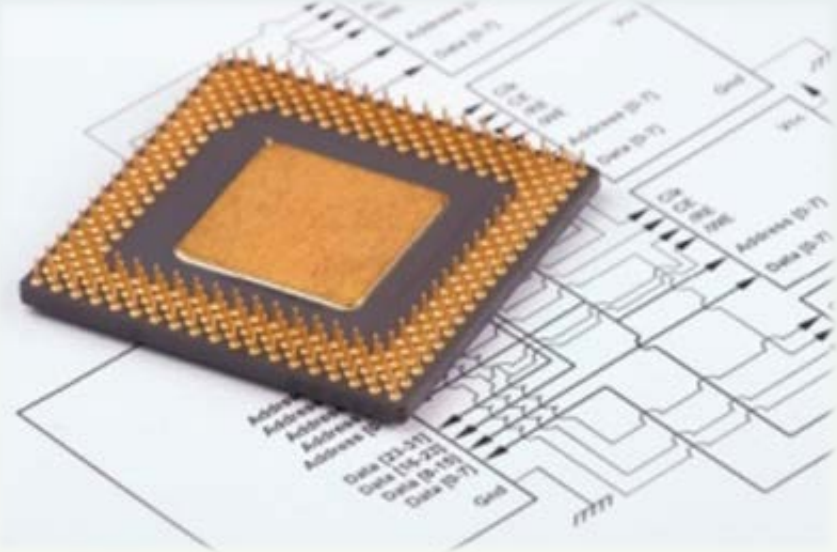
NEPP

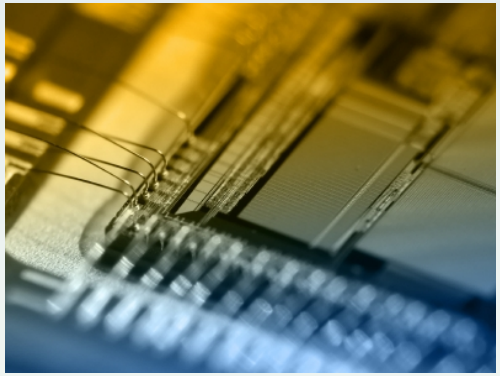
Company Profile

- EICO Inc. established in 1984
  - Burn-in, board design and manufacturing
  - Qualification Test Services
- Golden Altos Corporation established in 1991
  - Hermetic IC Assembly
- Consolidation of Operations in 1997
- Onshore Assembly and Lab Testing
  - Located in Silicon Valley — Milpitas, California
  - Class 1000 Cleanroom
  - Class 100 under LF Hoods



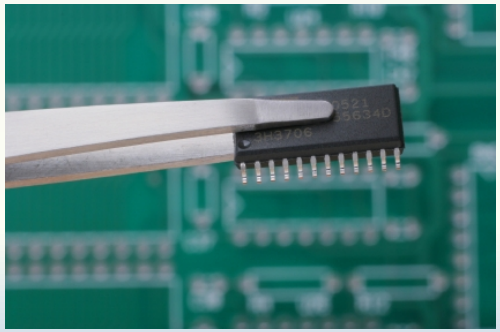
Services

- **Hermetic Assembly**
  - High reliability - Onshore - Monolithic - Hybrid
  - Quick turn prototype or engineering lots and volume production
  - Commercial, Military or Space level builds



- **Burn-in Services**
  - Board Design and Manufacturing
  - Complete Burn-in with all standard environmental conditions
  - Low volume qualification and high volume production

- **Laboratory Qualification Services**
  - MIL-STD-883
  - JEDEC-STD-22
  - MIL-PRF-19500
  - MIL-STD-750
  - MIL-STD-202



Certifications

www.goldenaltos.com

- DLA Laboratory Suitability
- MIL-PRF-38535 (Class V & Q)
- ISO 9001 Certified
- ITAR Registered
- DoD (DMEA) Trusted Certification (Pending)

Military and Industry Standards

- **Quality System and Documentation**
  - Compliant to all applicable ISO-9001 and MIL-PRF-38535 quality requirements. AS9100 Certification in process.
- **Process/Operations/Manufacturing Lines**
  - All operators are certified to all applicable test methods for their operation to the requirements of MIL-STD-883 and MIL-PRF-38535
- **In-house testing meets all applicable technical requirements of industry accepted standards such as:**
  - JEDEC-22, MIL-STD-750, MIL-STD-202, MIL-STD-19500
- **Test, Inspection & Measuring Equipment**
  - Compliant to ANSI/NCSL Z540-3
  - All standards traceable to NIST

Golden Altos CORPORATION

Industry/Academic Customers

www.goldenaltos.com

NASA

LANSDALE Semiconductor Inc.

LOCKHEED MARTIN

BOEING

Berkeley UNIVERSITY OF CALIFORNIA

CYPRESS Embedded in Tomorrow™

L3

Raytheon

ITT EXELIS

ThalesAlenia Space

HARRIS

esa

SPACE SYSTEMS LORAL

NORTHROP GRUMMAN

HOLT INC. INTEGRATED CIRCUITS

MICROCHIP

EATON

STANFORD

Rochester Electronics

Orbital Innovation You Can Count On®

KEYSIGHT TECHNOLOGIES

TELEDYNE TECHNOLOGIES INCORPORATED

APEX MICROTECHNOLOGY PRECISION • POWER • ANALOG

Peregrine Semiconductor

SPACE MICRO

GENERAL DYNAMICS Advanced Information Systems

DRAPER LABORATORY

TEXAS INSTRUMENTS

NAVSEA WARFARE CENTERS CRANE

Hybrids / Multi-Chip Modules — Multiple Die

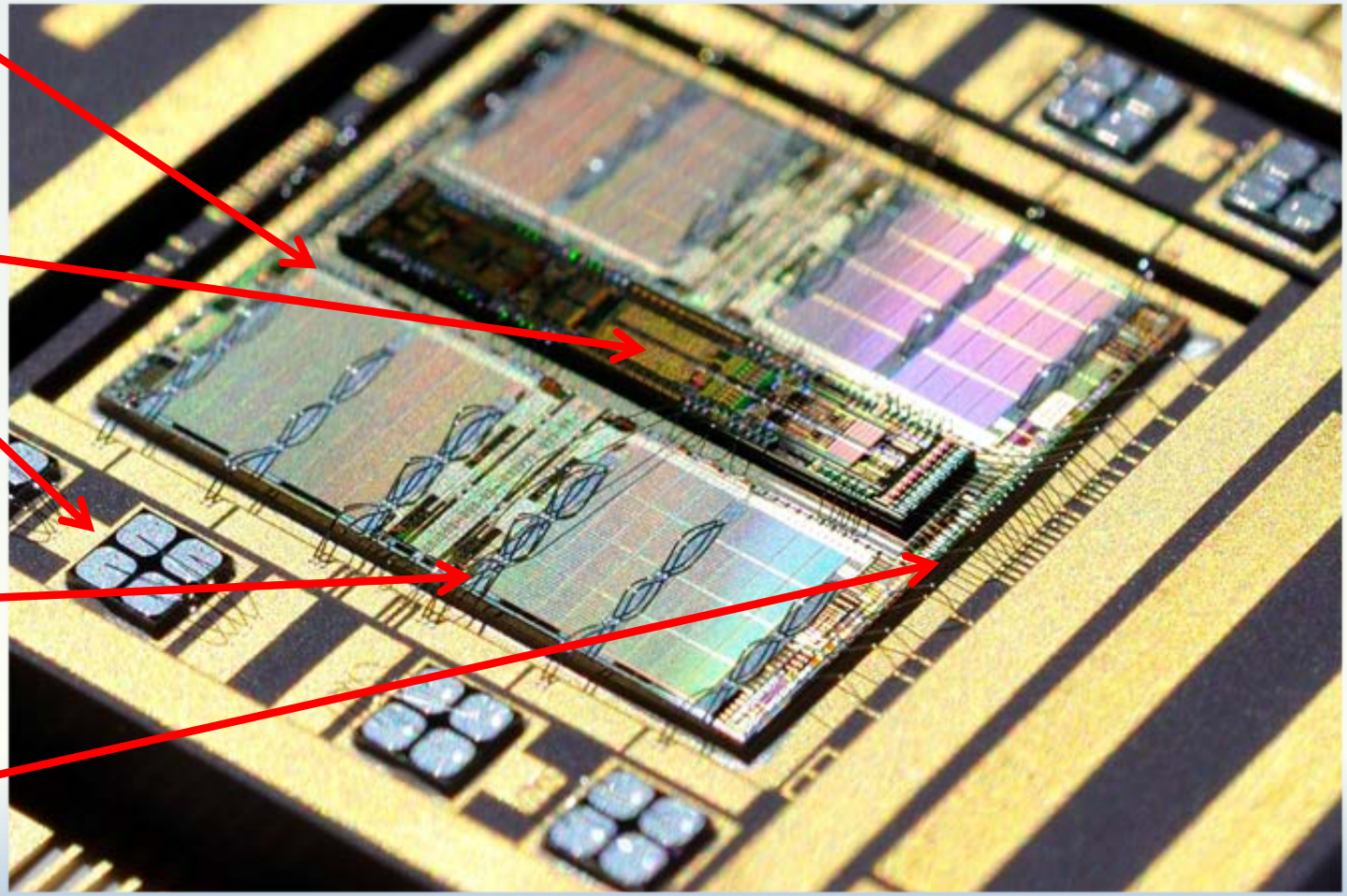
Large square die attached to package cavity

Long narrow die attached to lower die

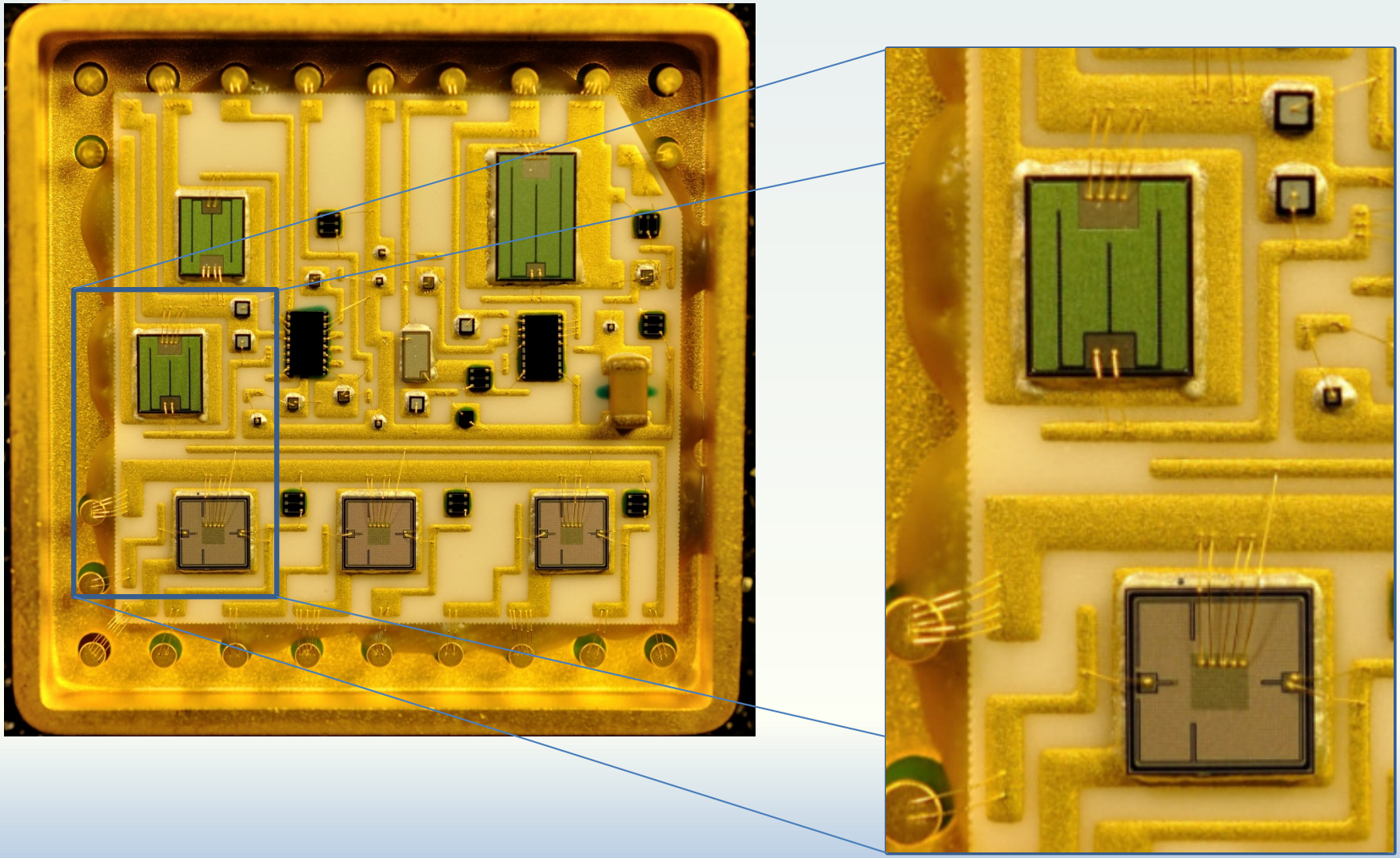
Diodes attached inside cavity

Triple stitch 2.0 mil Al wire bonding

1.25 mil Al wire bonding

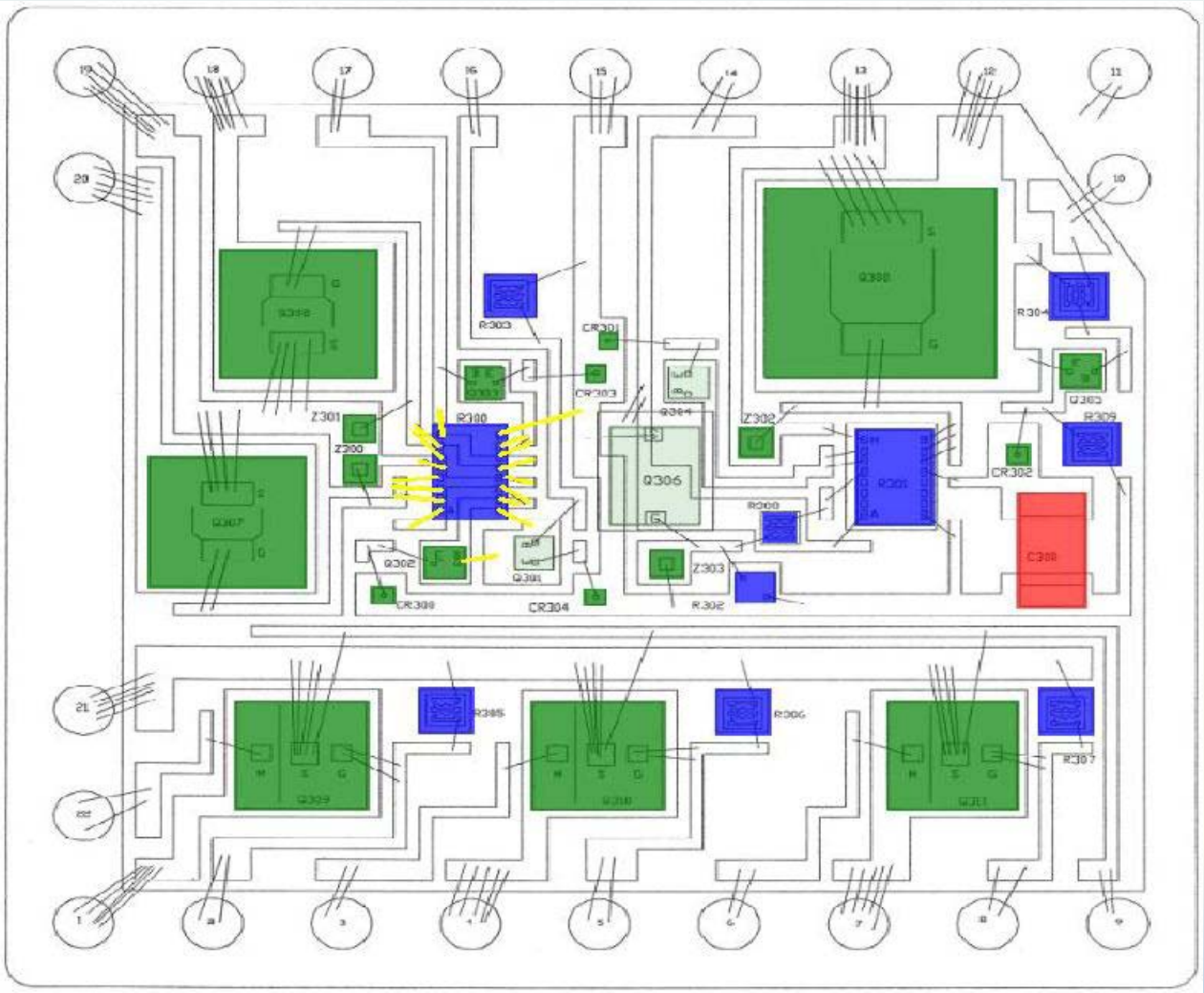


Hybrids / Multi-Chip Modules



Assembly Capabilities

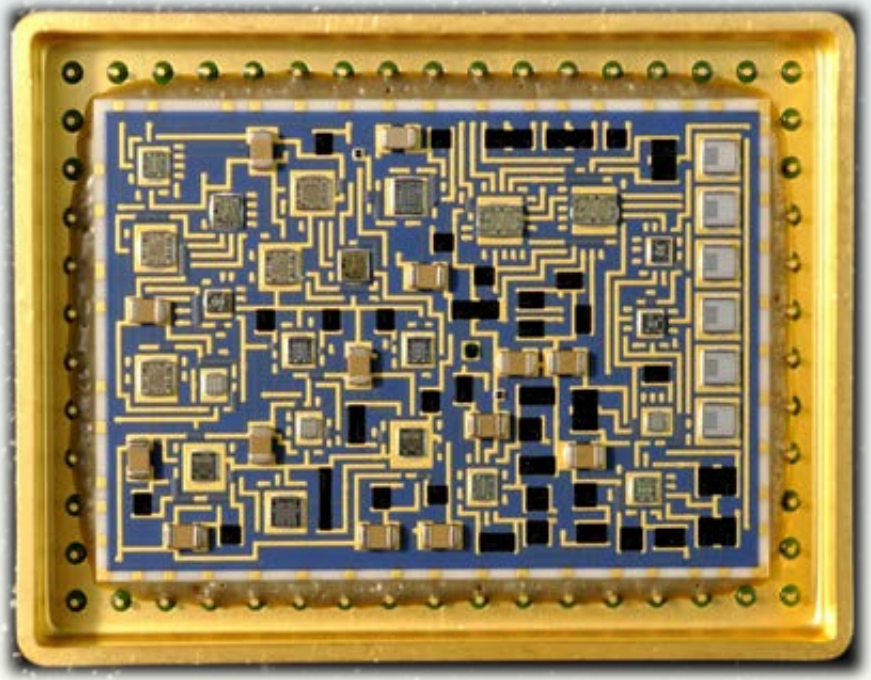
Hybrids / Multi-Chip Modules



- 1ST Conductive
- 2ND Conductive
- 1ST Non-Conductive
- Combination

Hybrids / Multi-Chip Modules – Substrate Support

- Multi-Layer Low Temperature Co-fired Ceramics (LTCC)
- Aluminum Nitride (ALN)
  - High thermal conductivity
  - High electrical resistivity
- Alumina
  - Cost-effective performance
  - Excellent mechanical and electrical properties

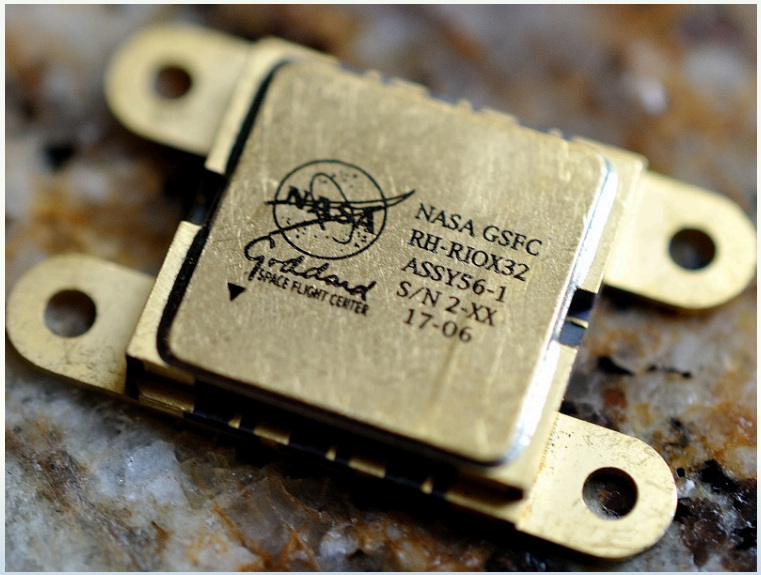


Assembly Testing

- Die Shear Strength
- Bond Strength
- Constant Acceleration
- Particle Impact Noise Detection
- External Visual
- Substrate Attach Strength
- Temperature Cycling
- Solderability
- Non-Destructive Bond Pull
- Lid Torque
- Resistance to Solvents
- Seal
  - Fine Leak
  - Gross Leak

Other Services Offered

- Saw & Plate
  - Wafer sizes up to 12 inches
  - Sticky film frame
  - Waffle packs
- 2ND Optical Visual Inspection
  - Military / Commercial
- Non-Destructive Analysis
  - Radiography (X-ray)
  - Acoustic (CSAM)
- Mark, Remark & Add Mark
  - Add on marking
  - Serialization
- Internal Gas Analysis (IGA)



Burn-In Board Designs

- Standard Burn-In
  - Kineticon
  - REL Inc.
  - Aehr Test
  - Microtest
  - Custom
- HAST (Highly Accelerated Stress Test)
  - Single Wide
  - Double Wide
  - Custom
- 85/85 (High Moisture Environment)
- Specialty Applications
- Specialized Board Types
  - Interface Boards
  - Program Cards
  - Probe Cards
  - Test Boards
  - Load Boards
  - Demo Boards
  - Custom
- Board Material
  - Polyimide
  - Risholite
  - FR4
  - G-TEK200
  - BT Material

MIL-STD-883 Qualification Testing - Hermetic Packaging

- Environmental Tests
  - Moisture Resistance (Method 1004)
  - Steady State Life (Method 1005)
  - Salt Atmosphere Corrosion (Method 1009)
  - Temperature Cycling (Method 1010)
  - Thermal Shock (Method 1011)
  - Seal, Fine and Gross Leak Test (Method 1014)
  - Burn-In Test (Method 1015)
  - Internal Water Vapor Content (Method 1018)
- Mechanical Tests
  - Constant Acceleration (Method 2001)
  - Mechanical Shock (Method 2002)
  - Solderability (Method 2003)
  - Lead Integrity (Method 2004)
  - Vibration Variable Frequency (Method 2007)
  - Bond Strength Destructive Bond Pull Test (Method 2011)
  - Resistance to Solvents (Method 2015)
  - Physical Dimensions (Method 2016)
  - Die Shear Strength (Method 2019)
  - Particle Impact Noise Detection Test (Method 2020)
  - Lid Torque for Glass-Frit-Sealed Packages (Method 2024)
  - Adhesion of Lead Finish (Method 2025)
  - Random Vibration (Method 2026)

JEDEC Std. 22 Qualification Testing - Plastic Packaging

- Environmental Tests
  - Steady State Temperature Humidity Bias Life (Method A101)
  - Accelerated Moisture Resistance - Unbiased Autoclave (Method A102)
  - Temperature Cycling (Method A104)
  - Thermal Shock (Method A106)
  - Salt Atmosphere (Method A107)
  - Bias Life (Method A108)
  - Highly Accelerated Temperature and Humidity Stress Test - HAST (Method A110)
  - Moisture Induced Stress Sensitivity for Plastic Surface Mount Devices (Method A112)
  - Preconditioning of Plastic Surface Mount Devices Prior to Reliability Testing (Method A113)
- Mechanical Tests
  - Physical Dimensions (Method B100)
  - Solderability (Method B102)
  - Vibration, Variable Frequency (Method B103)
  - Mechanical Shock (Method B104)
  - Lead Integrity (Method B105)
  - Resistance to Soldering Heat (Method B106—Conditions A and B)
  - Resistance to Solvents (Method B107)

COTS Qualification / DPA

NASA Qualification

- EEE-INST-001 (Electrical, Electronic, and Electromechanical parts)
- PEM-INST-002 (Plastic Encapsulated Microcircuits)

SAE PEMs Qualification – New Industry Standards

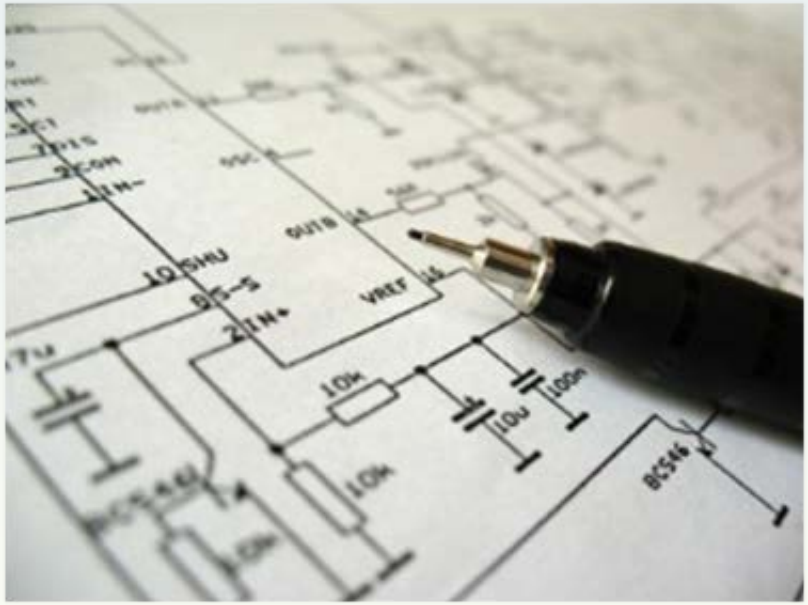
- SAE AS6294/1 (PEMs Space)
- SAE AS6294/2 (PEMs Military)

DPA Per MIL-STD-1580

- External Visual
- Hermeticity Testing
- Radiographic Examination (X-ray)
- PIND Testing
- Internal Gas Analysis (IGA)
- Internal Visual Examination
- Bond Pull Testing
- SEM Examination
- Die Shear Testing

Project Management

- **Initial Product Assembly and Qualification**
  - Wafer / Die Procurement
  - Package / Lid Procurement
  - Environmental Testing
  - ESD and Latch-up Testing



- **Upscreening / PEM Testing**
- **On-going Production**
- **Electrical Test**
- **End-Of-Life and Discontinued Products**
  - Long term die banking
  - Obsolete die management

Summary

- Golden Altos Corporation can handle your：
  - Material Procurement
    - Wafers, Dice, Packages, Lids, Pre-assembled Parts
  - Wafer Preparation
    - Backgrinding, Inspection, Saw, Plating
  - Monolithic and Hybrid Hermetic Assemble
    - Engineering Samples
    - Space Flight Units
  - Qualification Testing
    - Groups A , B, C & D
  - Electrical Testing
  - Upscreening
  - Construction Analysis

Request for Quote and Contact Information:

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- Fax Number: 1-408-956-1212
- Email us at: sales@goldenaltos.com
- Our website: www.goldenaltos.com