



Space Products & Capabilities



SERVING THE SPACE & SATELLITE MARKET FOR OVER 22 YEARS

- **MONOLITHIC & MULTI-CHIP MODULES**
- **DSCC QML CERTIFIED**
- **MIL-PRF-38535 V-LEVEL ASSEMBLY**
- **MIL-PRF-38534 CLASS K CERTIFICATION (IN PROGRESS)**
- **MILITARY & SPACE CUSTOMERS ARE OUR PRIMARY FOCUS**
- **DMS & EOL SUPPORT**
- **MIL-STD-883 METHODS SERVICE PROVIDER FOR SINGLE STEP OR FULL FLOW**
- **BROAD COMPONENT EXPERTISE**
- **HIGHEST LEVEL OF QUALITY & CUSTOMIZED SUPPORT**
- **CUSTOMIZED CUSTOMER SCD'S**

Micross has been supporting the space and satellite market with specialized and standard products for over 22 years. Parts have been designed into hundreds of programs and tens of thousands of devices have shipped to date (see chart on the back page).

Additionally, Micross can readily support new business with minimal to possibly NO NRE charges. In today's competitive satellite market, this can net an overall system cost advantage that may give our customers a contract bid edge. Coupled with exclusive commitment to ONLY the Military and Aerospace customer, Micross provides FOCUSED support to this unique and specialized market place and believes in personalized and dedicated customer service.

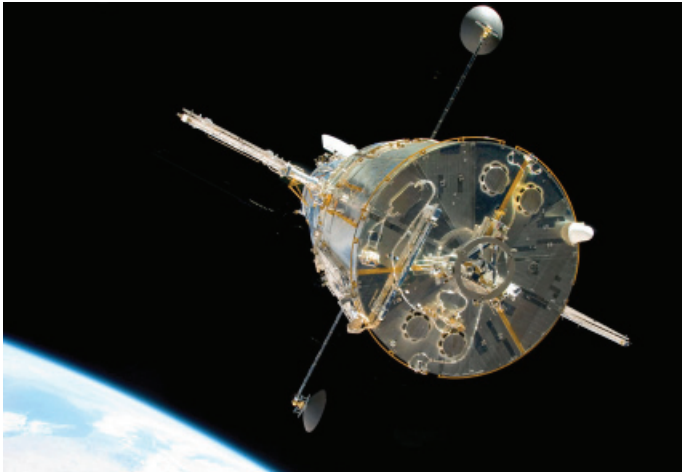
For RAD-HARD or Rad-Tolerant requirements, please contact Micross to discuss specific system requirements for this harsh environment.

QUALIFICATIONS:

- Certified to V-Level Class S for MIL-PRF-38535.
- Pursuing Class 'K' for MIL-PRF-38534 for programs requiring space level processing for hybrids and memory modules.
- NASA NSTS 5300.4 and EEE-INST-002 plastic up-qual.
- Certified to AS9100:2004 and ISO 9001:2008.
- Radiation shielded packaging available. Boosts TID by >6X.
- Regularly audited by DSCC, hundreds of customers and various DOD agencies.
- Micross employee experience levels contribute tremendously to the final product quality and reliability levels. Average employee experience is 15+ years.
- Poised to meet the toughest customer specifications and standards.



512.339.1188 ~ www.micross.com



QUALITY LEVELS AND PROGRAMS

- DSCC QML
 - MIL-PRF-38534, Class H (Class K in process)
 - MIL-PRF-38535, Class Q
 - MIL-PRF-38535, Class V (assembly only)
 - Laboratory Suitability (MIL-STD-883)
- SMD, Q level and M level
- NSTS 5300.4
- EEE-INST-002
- MIL-STD-883, paragraph 1.2.1
- Capabilities for Class S Manufacturing
- AS9100:2004 , ISO 9001:2008 Certified
- Customer specific, Source Control Drawing (SCD)

PRODUCT OFFERING/CAPABILITIES

STANDARD MEMORY PRODUCTS

(Monolithic & Modules)

- SRAM / SSRAM
- DRAM
- SDRAM (SDR, DDR, DDR2)
- nvSRAM
- VRAM
- EEPROM
- FLASH (NOR, NAND, SERIAL)
- FIFO
- Dual-Port RAM
- Solid State Disk (SSD)

CUSTOM PRODUCTS

- Logic SSI to VLSI
 - Gates, Microcontrollers, Bus Controllers, TTL/CMOS/ECL
- Linear / Op Amps
 - Comparators, Voltage Regulators, References, Line Driver/Receivers
- Mixed-Signal
 - DAC's/ADC's, Analog Switches, Multiplexers
- Discretes
 - Diodes/Diode Arrays
 - Transistors/Transistor Arrays
 - MOSFET's /HEXFET's
 - SCR's/Triac's
 - Hall Effect Switches
 - SiC JFETs & Diodes

PACKAGING CAPABILITIES

THROUGH-HOLE

- Metal Can
- Pin Grid Array (PGA)
- Zig-Zag in-line (ZIP)
- Ceramic Dual-In-Line Package (CDIP)

SURFACE MOUNT (SMT)

- Ceramic Leadless Chip Carrier (CLCC)
- Ceramic Flat Pack (FP)
- Ceramic Gull-Wing, Leaded Package
- Ceramic Flatpack (CQFP)
- Plastic, Small-Outline, J-leaded (CSOJ)
- Plastic, Thin Quad Flat Package (TQFP)
- Plastic Ball Grid Array (PBGA)
- Radiation Tolerant Shielded Packages

OTHER PACKAGES PER REQUIREMENT

BUSINESS SERVICES

- Die Banking and Parts Management
- Total Turnkey Manufacturing
- DMS / Obsolescence support
- Flexible, Personalized Customer Support



ENGINEERING & ANALYTICAL SERVICES

- Component, Evaluation and Qualification
- Package and Sub-assembly Design
- Device Characterization
- Infant Mortality Testing
- Sonoscan (CSAM), X-Ray
- Stud Pull, Bond Pull
- Moisture Resistance
- Steam Age/Solderability
- Salt Spray
- Thermal Shock/ Thermal Analysis
- PIND
- Lead Failure
- Temperature Cycling
- Hermetic Testing
- SPC, Technical Support
- SEM Inspection
- Centrifuge
- Mechanical Shock and Vibration

DOMESTIC TEST & MANUFACTURING

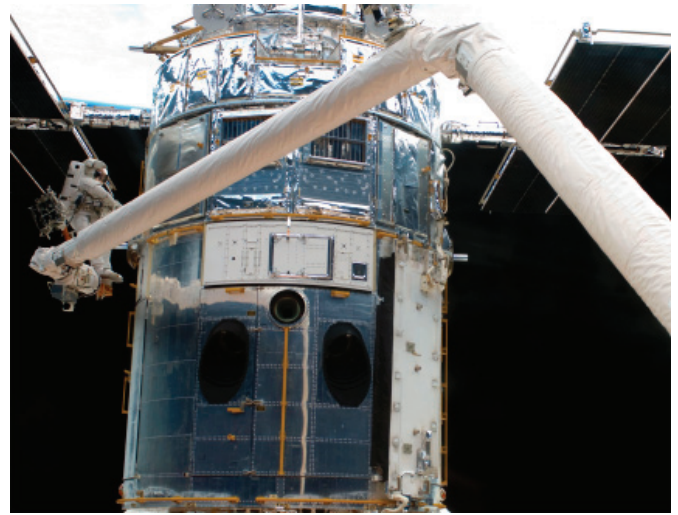
- Full Temperature Up-Screening
- Testing for:
 - Memory, Mixed Signal, LSI / VLSI, Linear, Logic, ASICs, RF, Discretes

TEST EQUIPMENT

- Mixed Signal LTX Credence D10
- Memory Test - Teradyne J937 and J997
- Linear Test Systems LTX TS80
- Semitek Discrete Test System
- Sentry 7 & 21 Digital Test Systems
- ECL Test System
- Delta Flex Pick & Place Handlers
- Symtek Handlers - X1 & X4
- Temptronics Temperature Forcing Systems
 - 65°C to +150°C capability
- Sophisticated Automated Bench Tester

FULL STATIC/DYNAMIC BURN-IN

- Burn-in Boards in Stock
- Convection Ovens
- Static & Dynamic Wakefield Chambers
- AMBYX Memory, Large Capacity Ovens
- AEHR's Ovens



DOMESTIC ASSEMBLY

- Multi-chip Module / Monolithic
- Three Clean Rooms
 - Class 100
 - Class 1000
 - Class 10,000
- Die Material - Silicon, SOS, GaAs, SiC
- Wafer Processing
 - Disco Dicing equipment
 - Cut range up to 8" or 200mm DIA
 - Die sorting – automatic pick and place
 - Wafer maps converted/uploaded to ALPS for binning, sorting to gel pack, waffle pack, or directly packaged
- Automatic Die Attach - JM7000
 - Eutectic
 - Epoxy
 - Solder
- Auto/Manual Wire Bonding
 - K&S and F&K Delvotec automatic wire bonders
 - 0.7 to 3.0 mil Aluminum Ultrasonic
 - 0.7 to 2.0 mil Gold Thermo sonic
- Bond Pull –Destruct / Non Destruct
- Hermetic Seal
 - Gold-tin eutectic solder reflow
 - Parallel Seam Seal
 - Resistance welding – T0 packages
 - Glass frit seal
- Solder Re-flow
- Vacuum Bake
- Lead Trim/Form

PREVIOUS SPACE PRODUCTS BY MICROSS

For over 22 years, Micross has manufactured over 2,500 different custom products, for hundreds of customers, in the Hi-Rel / Military and Aerospace market. These products span a broad range of different types of electronic components and many types of packages.

The devices contained in the table below are representative of the variety, complexity and breath of space products for which Micross has proven manufacturing capability.

Discrete Diode Diode Array Diode Bridge FET Array FET Transistor Hall Effect Switch IGBT Transistor JFET Transistor MOSFET Transistor MOSFET Transistor Array Optocoupler Optocoupler/Transistor Power MOSFET Transistor Transistor Array	Linear Analog Gate Analog Switch Current Amp Current Buffer D/A Converter Four Quadrant Multiplier Instrumentation Amp Log-Amp Modulator/Demodulator Op-Amp Phase Decoder Phase Locked Loop RF/IF Op-Amp RMS Sensor Sample and Hold Amp VCO Voltage Comparator Voltage Converter Voltage Follower Voltage Reference Voltage Regulator	Special Function Data Synchronizer Avionic Receiver-Transmitter Cache Tag RAM Checker/Generator Clock Generator Compactor Data Synchronizer DC-DC Converter Divider Four Phase Clock Driver Freq. To Digital Converter Function Generator HD path controller Log Adder Manchester Encoder/Decoder Motor Driver Nuclear Event Detector Phase-Freq. Detector Power Seq. Program control unit RAM I/O Timer Supply Voltage Supervisor System Timing Controller Temperature sensor Timer Tri-Quint Counter Voltage Supervisor Voltage to Freq. Converter
Interface Analog MUX Analog Switch Clock Driver Decoder/Counter Driver LED Driver Line Driver Line Driver/Receiver Line Receiver Linear Driver Logic Level Driver MOSFET Driver Motor Controller Multiplexer Peripheral Driver Power Driver Power Supply Supervisory Pulse Width Modulator Serial Adapter TAXI chip Timer Special function Interface Driver Multiplexer Transceiver	Memory DRAM Dual-Port Ram ECL RAM EEPROM EPLD FIFO Module Nonvolatile RAM PROM SRAM, SSRAM SDRAM, DDR, DDRII	Logic ASIC BI-Bus Transceiver BICMOS CMOS DTL ECL FPGA PLD Serial Adapter Shift Register TTL (L, LS, AS, S, H, etc.)
Mixed Signal A/D Converter Controller D/A Converter Disk Pulse Detector	VLSI 4 bit Slice Microprocessor DMA Address Generator Dual-Rate Demodulator FFT Processor LAN Controller Peripherals SCSI Controller Vector Signal Processor	



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