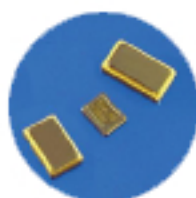
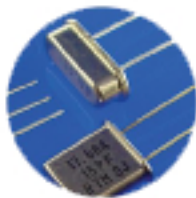


RAITRON

FREQUENCY MANAGEMENT COMPONENTS



PRODUCT SELECTION GUIDE

● Crystals

● Tuning Fork Crystals

● Clock Oscillators

● VCXO, VCSO

● TCXO, OCXO

● GPS Synchronization

● VCO, PLL

● SAW Devices

● Ceramic Resonators

● Microwave Filters



RALTRON MIAMI - R&D and Manufacturing High End Frequency Management Products

- Research and Development
- Manufacturing and NPI
- Automated Calibration and Test
- Environmental Test Lab
- Failure Analysis Lab
- Isolated Aging Room
- Sales & Marketing

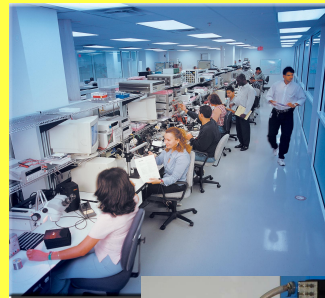


Headquarters - Miami, Florida

RAMI TECHNOLOGY SUZHOU - Mass Manufacturing of Crystals, Oscillators, and High End Frequency Management Products



- ISO9001:2000 Manufacturing and Design
- High Volume Manufacturing
- Clock Oscillators
- Metal Can and Ceramic package Crystals
- Precision Oscillator Design and Manufacturing
- Class 10k Clean Rooms
- Automated Production Lines



World Class Engineering Support

- Knowledgeable Personnel and Resources
- Circuit Design and Modification at any Stage
- Product Analysis and Custom Development
- Quick-Turn Prototypes Available
- Technical Papers and Application Notes
- Software for Oscillator Circuit Design and Analysis
- Technical Seminars
- Web based Engineering and Design Tools



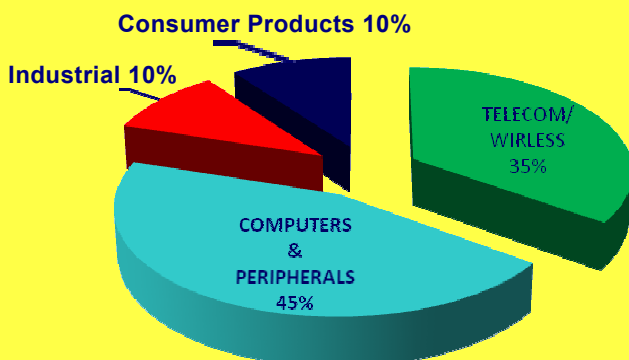
✓ Broadest Line of Frequency Management Products

- Ceramic Resonators
- Microprocessor Crystals
- High Accuracy Crystals
- Crystal Filters
- Clock Oscillators
- Voltage Controlled Crystal Oscillators - VCXO
- Temperature Compensated Crystal Oscillators - TCXO
- Stratum 3 - TCXO
- Oven Controlled Crystal Oscillators - OCXO
- Voltage Controlled Oscillators - VCO
- Phase-Locked Loop - PLL Synthesizers
- Voltage Controlled SAW Oscillators - VCXSO
- SAW Devices
- GPS Clock Synchronization Modules
- Microwave Filters

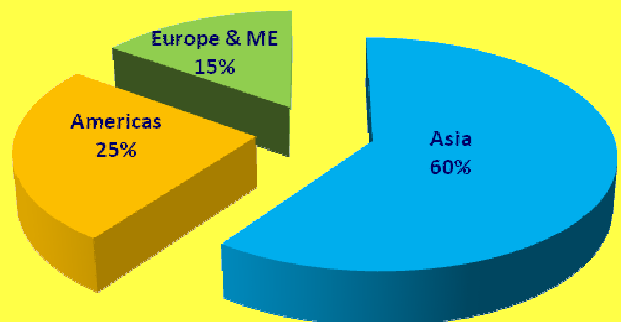
✓ Markets Served

- Consumer - Entertainment
- Computer & Storage
- Bluetooth, Zigbee
- WLAN, WiMax
- Cellular Handsets
- Microwave Radio/Base Stations
- Gigabit/10 Gigabit Ethernet
- SONET
- VoIP
- Fiber Channel
- Telecom
- Instrumentation

- ✓ Worldwide Distribution Network
- ✓ Global Subcontracting Support
- ✓ Worldwide Market Recognition
- ✓ Dedicated Supply Management Team
- ✓ Shipping hubs in HK and Miami, Fl.

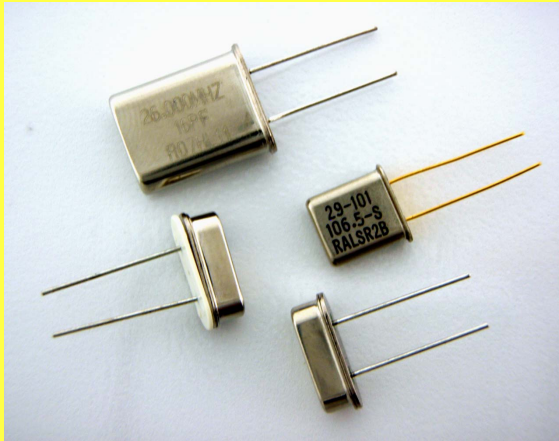


Sales by Market Sector

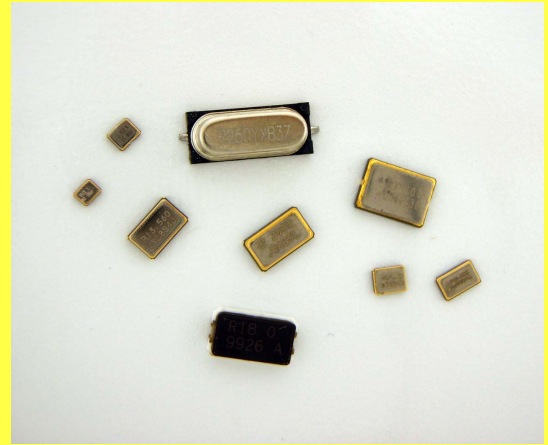


Worldwide Presence

Crystals



Frequency Range: 1.8432 MHz to 300.00 MHz
Frequency Tolerance: ± 5 PPM to ± 30 PPM
Frequency Stability: ± 5 PPM to ± 50 PPM
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Available Packages:
HC-49/U, HC-49/S, UM-1, UM-4, and UM-5
Cylindrical: 10 x 3 and 9 x 3 mm



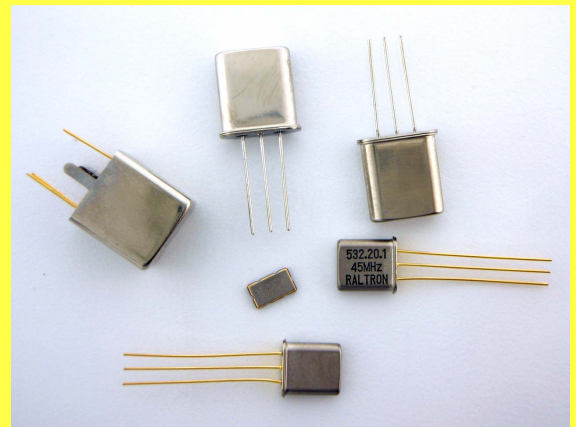
Frequency Range: 3.579545 MHz to 300.00 MHz
Frequency Tolerance: ± 5 PPM to ± 30 PPM
Frequency Stability: ± 5 PPM to ± 50 PPM
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Available Packages:
HC-49/U-SMD, HC-49/S-SMD, UM-1, UM-4, and
UM-5 with SMD jacket.
Ceramic: 11.8 x 5.5 to 2.0 x 1.6 mm

Tuning Forks



Frequency Range: 32.768KHz and 24KHz to 615KHz
Frequency Tolerance: ± 5 PPM to ± 20 PPM
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Available Packages:
8.0 X 3.8, 7.3 x 4.3, 7.0 x 1.4, 4.1 x 1.5,
3.2 x 1.5 mm
Cylindrical: 8.2 x 3.1, 6.2 x 2.1, 5.1 x 1.5 mm

Crystal Filters

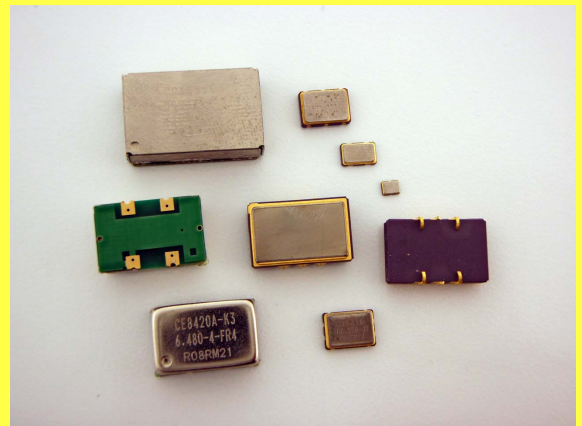


Frequency Range: 10.7 MHz to 150.00 MHz
Pass Bandwidth: ± 3.5 KHz to ± 15 KHz
Excellent Thermal Stability
Poles: 2 to 10
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Available Packages:
Metal Can: HC-49/U, UM-1, UM-4, and UM-5,
12 x 15 mm Multipole
Ceramic: 7 x 5 and 6 x 3.5 mm

Oscillators



Frequency Range: 1.00 MHz to 700.00 MHz
 Frequency Stability: ± 10 PPM to ± 100 PPM
 Operating Temperature Range:
 Standard: -20°C to $+70^{\circ}\text{C}$
 Extended: -40°C to $+85^{\circ}\text{C}$
 Voltage: +1.8, +2.5, +3.3 and +5.0 VDC
 Output: TTL, HCMOS, ECL and PECL
 Available Packages:
 8 pin or 14 pin DIP
 8 pin or 14 pin DIP Gullwing (Formed Leads)



Frequency Range: 1.00 MHz to 1200.00 MHz
 Frequency Stability: ± 5 PPM to ± 100 PPM
 Operating Temperature Range:
 Standard: -20°C to $+70^{\circ}\text{C}$
 Extended: -40°C to $+85^{\circ}\text{C}$
 Voltage: +1.8, +2.5, +2.85, +3.3 and +5.0 VDC
 Output: TTL, HCMOS, LVDS, PECL, & LVPECL
 Available Packages:
 Ceramic: 7x5, 5x3.2, 3.2x2.5, 2.5x2 mm
 Low jitter, Inverted Mesa, Multiplier and PLL designs

VCXO/VCSSO



Frequency Range: 1.00 MHz to 700.00 MHz
 Frequency Tolerance: ± 5 PPM to ± 30 PPM
 Frequency Stability: ± 5 PPM to ± 50 PPM
 Operating Temperature Range:
 Standard: -20°C to $+70^{\circ}\text{C}$
 Extended: -40°C to $+85^{\circ}\text{C}$
 Absolute Pulling Range (APR): ± 30 to ± 500 PPM
 Available Packages: 8 and 14 Pin DIP-Metal Can
 Ceramic: 14 x 9, 5 x 7 and 5 x 3.2mm
 FR4/5: 14 x 9 and 5 x 7 mm

GPS Clock Synchronization



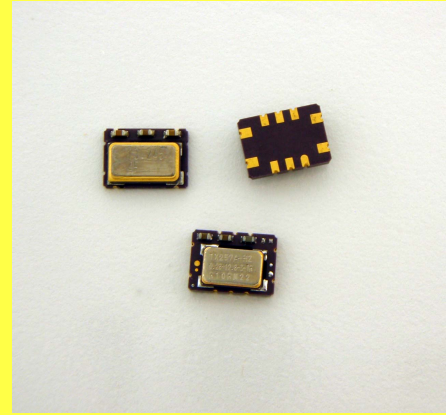
Frequency: 10MHz and other frequencies
 Accurate GPS referenced time with coherent 1PPS signal
 Output optimized for low phase noise
 Very flexible hardware implemented in FPGA
 Application areas include: WiMAX, LTE, DVB-T, UMTS, Satellite communications equipment and cellular infrastructure timing needs

TCXO



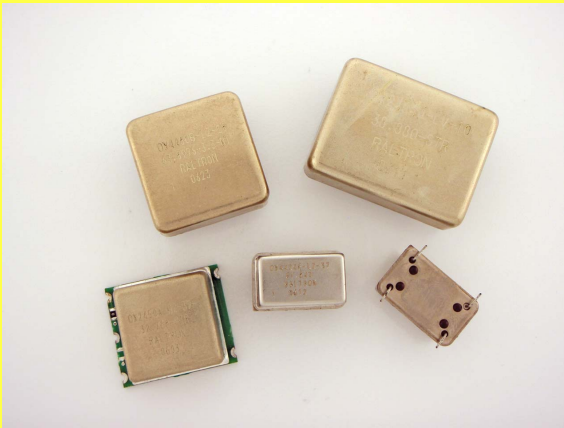
Frequency Range: 1.00 MHz to 800.00 MHz
Frequency Stability: ± 0.28 PPM to ± 5 PPM
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Voltage: +1.8, +2.5, +3.3, and +5.0 VDC
Output: TTL, HCMOS, LVDS, PECL, & LVPECL
Available Packages:
Metal Can: 38 x 38 to 11 x 9 mm
Ceramic: 5.0 x 7.0 to 3.2 x 2.5 mm

Stratum 3 TCXO



Frequency Range: 10.00 MHz to 52.00 MHz
Overall Frequency Stability: ± 4.6 PPM (Stratum 3)
Temperature Stability: ± 28 PPM
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Voltage: +3.3 and +5.0 VDC
Output: HCMOS, (LV)HCMOS & Clipped Sine
Available Package:
Ceramic: 5.0 x 7.0 SMD

OCXO



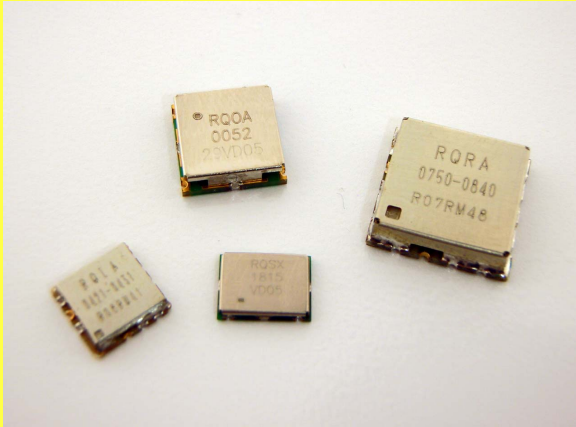
Frequency Range: 1.00 MHz to 200.00 MHz
Frequency Stability: ± 1 PPB to ± 1.0 PPM
Operating Temperature Range:
Standard: -20° C to $+70^{\circ}$ C
Extended: -40° C to $+85^{\circ}$ C
Voltage: +3.3, +5.0, +12.0 and +15 VDC
Output: TTL, HCMOS, Clipped Sine, Sine
Available Packages:
Metal Can: 38 x 38 mm to 14 Pin DIP
Metal Can SMD: 22 x 25.4 mm

Microwave Filters



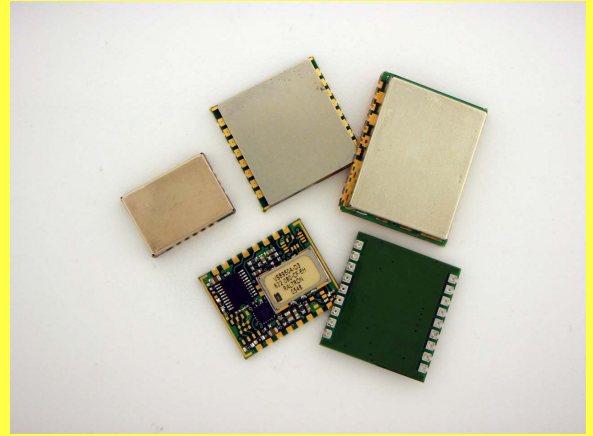
Frequency Range: 100.00 MHz to 3900.00 MHz
Low insertion loss
High attenuation
Temperature Compensated
Applications: Cellular Base Station
Cordless and DECT Phone
Repeaters
Transceivers

VCO



Frequency Range: up to 5.00 GHz
Resonator Technology: Microstrip, Ceramic, SAW, and High Q Inductor
Operating Temperature Range: -40° C to +85° C
Voltage: +2.2 to +12.0 VDC
Power Efficient
Exceptionally Low Phase Noise
Ultra Wide Tuning Range
Available Packages:
20 x 20 to 6 x 8 mm footprints

PLL Synthesizers



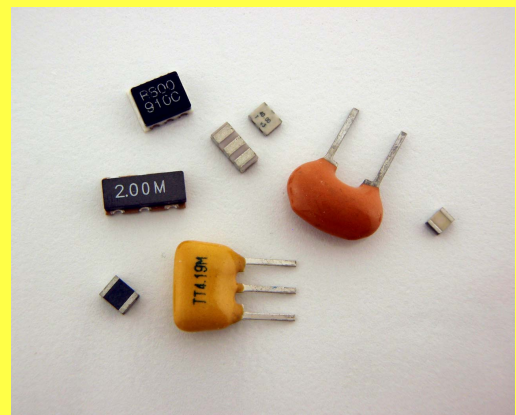
Frequency Range to 3 GHz
Low Phase Noise
Fast Settling Time
Excellent Return Loss
Voltage: +3.3 to +12.0 VDC
All-In-One Integrated Solution
Industry Standard Programming Interface
Point-to-Point and Point-to-Multipoint Wireless Communications
Suitable for WCDMA, GSM, and UMTS
WiMAX Basestations

SAW Devices



Frequency Range: 300 MHz to 920 MHz
Excellent Thermal Stability
Operating Temperature Range:
Standard: -20° C to +70° C
Extended: -40° C to +85° C
Voltage: Up to +12.0 VDC
One and Two Port Designs
Available Packages:
Metal Can: TO39 and various sizes
Ceramic: 5 x 5, 3.8 x 3.8, and 3 x 3 mm footprints

Ceramic Resonators



Frequency Range: 2.00 MHz to 50.00 MHz
Frequency Tolerance: $\pm 0.3\%$ to $\pm 0.5\%$
Frequency Stability: $\pm 0.3\%$ to $\pm 0.5\%$
Operating Temperature Range: -20° C to +80° C
Aging per Year: $\pm 0.3\%$ to $\pm 0.5\%$
Drive Level: 0.1 mW to 1.0 mW
Capacitance: 8 pF to 30 pF
Available Packages:
Plastic-Epoxy: 10 x 10 to 7 x 9 mm
Ceramic: 7.2 x 3.7, 3.7 x 3.1, 2.5 x 2, 1.6 x 1.0mm

RAMI TECHNOLOGY GROUP

RALTRON ELECTRONICS is a member of the RAMI TECHNOLOGY GROUP

With worldwide operations and controlled from its two main business centers in Miami, Florida and Hong Kong, RAMI TECHNOLOGY GROUP is one of the fastest growing manufacturers of frequency components.

The company offers one of the broadest lines of quartz crystals and crystal-based products from simple resonators to precision oscillators, such as VCXO, TCXO and OCXO.

RAMI TECHNOLOGY is interacting with its customers worldwide through its sales offices, reps and distributors.

Most sales personnel are veterans of the frequency component market, who share their experience with the customers.

The company is offering full technical support with two application engineering teams and failure analysis labs based in Miami and Suzhou (China).

RAMI TECHNOLOGY GROUP is committed to excellence in its complete interaction with its customers, suppliers, employees and the communities where it is operating.

Worldwide Facilities

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