SELECTION GUIDE

Quartz crystals, oscillators and sensors

Visit our website **www.statek.com**

THE COMPANY

In 1970, Statek Corporation was the first to use semiconductor technology such as photolithography, chemical etching and micromachining to manufacture quartz resonators in wafer form. Today, Statek remains at the forefront of innovation in the design, development and manufacturing of highly reliable, ultra-miniature quartz-based frequency control products.

Innovative in-house design, production and testing capabilities make possible not only rapid new product development and validation, but also continuous improvement of key product features such as low acceleration sensitivity, high shock, tight calibration tolerance, low aging, radiation resistance, and highly stable frequencies at increasingly higher operating temperatures.

KEY ATTRIBUTES

- Ultra miniature products
- Highest shock & temperature survivability
- High stability and precision
- Proven reliability
- Excellent long-term aging
- Full military testing
- Widest selection of packaging options
- Prompt specialized technical support
- Full lot traceability
- Designed and manufactured in the USA

EXAMPLES OF APPLICATIONS

Medical Electronics

- Cardiac rhythm management
- Neurostimulators
- RF telemetry
- Infusion pumps
- Cochlear implants
- Orthopedic implants
- Retinal implants
- Glaucoma implants
- Patient monitoring equipment

Aerospace and Defense

- Smart munitions
- High shock embedded electronics
- Guidance and navigation
- Communications
- Sensors (IMU)
- Avionics
- Military medical devices
- Space / Satellites
- Unmanned Aerial Vehicles (UAV)

Industrial

- Oil and gas exploration
- Directional drilling
- Ruggedized wireless communications
- Force, temperature, pressure sensors
- Inventory control
- Transport safety
- Public transport electronics
- In-flight entertainment systems
- Aircraft engines

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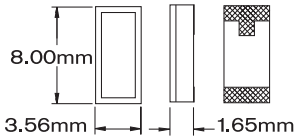
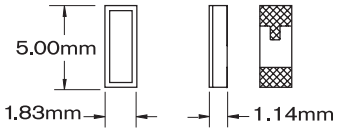
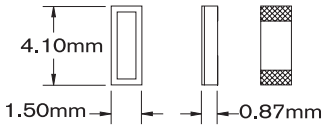
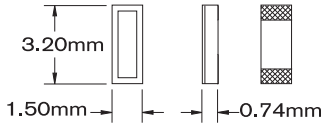
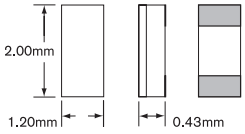
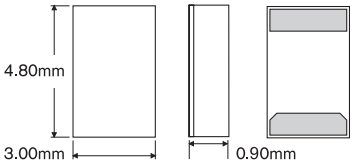
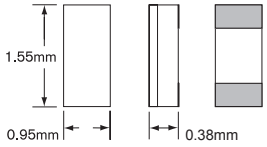
SURFACE MOUNT CRYSTALS

		Frequency Range	Reference Data Sheets
CX1	 	10 kHz to 600 kHz	10121 CX1VSM TF 10183 CX1VHT
		530 kHz to 2.1 MHz	10129 CX1SM EXT 10185 CX1HT EXT
		6 MHz to 250 MHz	10107 CX1SM AT 10108 CX1HGSM AT 10184 CX1HT AT
HG = HIGH SHOCK, HT = HIGH TEMPERATURE			
CX4 HIGHEST SHOCK SURVIVABILITY	 	30 kHz to 250 kHz	10103 CX4VSM TF 10183 CX4VHT TF
		600 kHz to 2.5 MHz	10161 CX4 EXT 10185 CX4HT EXT
		14 MHz to 250 MHz	10150 CX4SM AT 10184 CX4HT AT
		14 MHz to 50 MHz	10165 CX4HGSM AT
HG = HIGH SHOCK, HT = HIGH TEMPERATURE			
CX9HT	 	32 kHz to 160 kHz	10183 CX9VHT TF
		13.5 MHz to 250 MHz	10184 CX9HT AT
HT = HIGH TEMPERATURE			
CX11/CX11L	 	32 kHz to 180 kHz	10174 CX11SM TF
		16 MHz to 250 MHz	10179 CX11SM AT 10188 CX11L Telemetry
		16 MHz to 50 MHz	10193 CX11LHG
L = Low-Profile Package Version, 0.51mm typical height HG = HIGH SHOCK			
CX16	 	24 MHz to 50 MHz	10200 CX16SM AT CX16HG (consult factory)
HG = HIGH SHOCK			
CX17	 	12 MHz to 200 MHz	10206 CX17SM AT
CX18	 	30 MHz to 50 MHz	10207 CX18SM AT CX18HG (consult factory)
HG = HIGH SHOCK			

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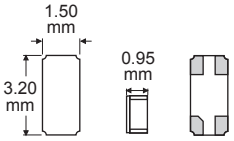
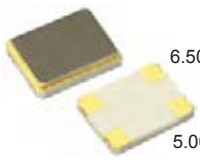
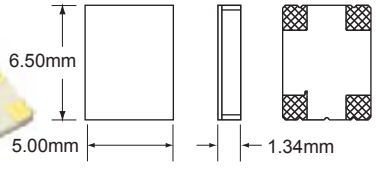
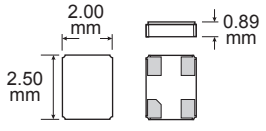
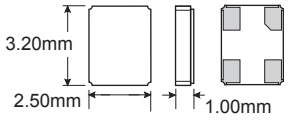
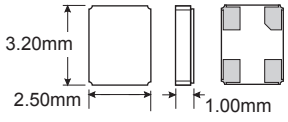
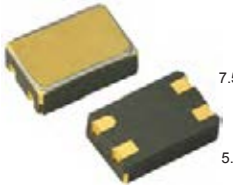
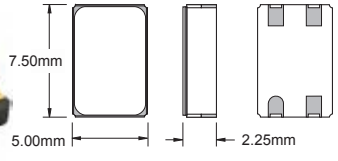
SURFACE MOUNT OSCILLATORS

	Model	Package Configuration	Features	Frequency Range	Reference Data Sheets
CXOL   ULTRA-LOW CURRENT HG = HIGH SHOCK	CXOL Low Current	4-pad Ceramic SMD	1.2V to 5.0V operation CMOS/TTL compatible Enable/Tri-state output	32 kHz to 100 kHz	10205
	CXOLP		1.8V to 3.3V operation CMOS/TTL compatible Enable/Disable output	1 MHz to 8.5 MHz	10225
	CXOLAT CXOLHG			32.768 kHz 32.768 kHz	10217 10228
CXOMK  	CXOMK/ CXOMKHG High Shock	4-pad Ceramic SMD	0.9V to 5V operation CMOS/TTL compatible Enable/Tri-state output	200 kHz to 200 MHz 32.768 kHz	10210 10227
	CXOMKHT High Temp		3.3V or 5V operation CMOS/TTL compatible Enable/Tri-state output	200 kHz to 50 MHz	10180
	CXOMKHT High Temp Fast Start-up		3.3V operation CMOS/TTL compatible Enable/Tri-state output	32.768 kHz	10201
CXOQ  	CXOQ/ CXOQHG High Shock	4-pad Ceramic SMD	1.8V or 3.3V operation CMOS/TTL compatible Enable/Tri-state output	32.768 kHz, 400 kHz to 100 MHz	10190
CXOX  	CXOX/ CXOXHG High Shock	4-pad Ceramic SMD	1.8V to 5V operation CMOS/TTL compatible Enable/Tri-state output	1 MHz to 160 MHz 32.768 kHz	10168 10203 (3.3V)
	CXOXHT High Temp Fast Start Up		3.3V or 5V operation CMOS/TTL compatible Enable output	1 MHz to 50 MHz 32.768 kHz	10180 10201
	CXOXULP CXOXULPHT		Ultra-Low Power High Temperature		10216 10218
	CXOXLPN		Low Phase Noise Low Jitter	10 MHz to 125 MHz	10226
STXO *also available in 2.5x2.0 package, please inquire*   HIGH SHOCK &TIGHTEST STABILITY OPTIONS	STXO	4-pad Ceramic SMD	2.5V, 3.0V and 3.3V operation CMOS/TTL compatible Enable/Tri-state output Low Jitter Tight frequency tolerance: ±5 ppm Low phase noise	10 MHz to 80 MHz	10220
HGXO   HIGHEST SHOCK SURVIVABILITY	HGXO High Shock	4-pad Ceramic SMD	1.8 to 5V operation CMOS/TTL compatible Extreme high shock survivability up to 100,000 g. High accuracy and tight stability	460 kHz to 50 MHz	10156
	HGXOHT High Temp Fast Start Up and High Temp				10208 (3.3V and 5.0V)
				32.768 kHz	10209

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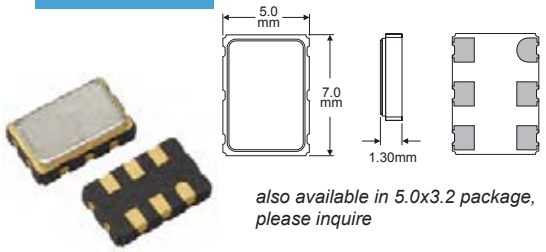
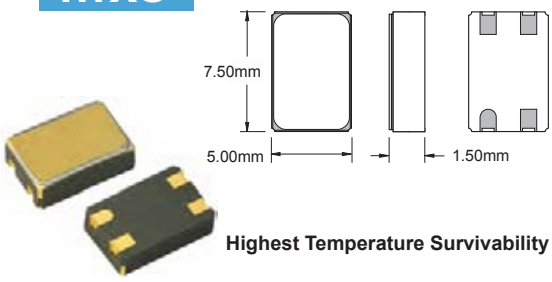
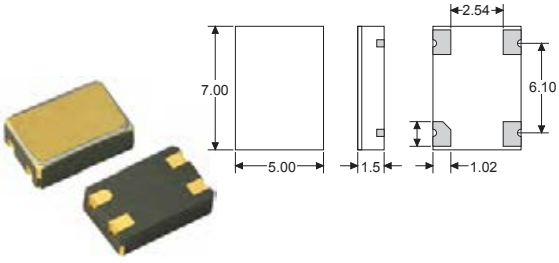
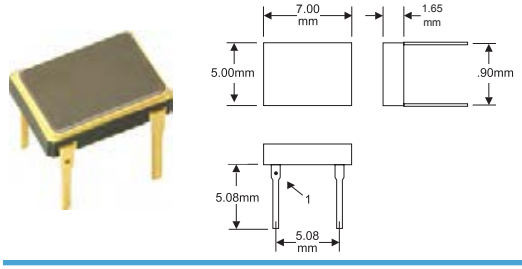
SURFACE MOUNT OSCILLATORS (continued)

	Model	Package Configuration	Features	Frequency Range	Reference Data Sheets
LVDS  *also available in 5.0x3.2 package, please inquire*	LVDS Differential Output Low Jitter	6-pad Ceramic SMD	2.5V to 3.3V operation LVDS output Low phase noise Low phase jitter High frequency	10 MHz to 160 MHz	10231
HTXO  **Highest Temperature Survivability**	HTXO High Temperature	4-pad Ceramic SMD	3.3V and 5V operation CMOS output Extreme high temperature survivability up to 275ºC High stability Tri-state output	32.768 kHz, 1.5 MHz to 50 MHz	10214
HTO57 	HTO57 High Temperature	4-pad Ceramic SMD	3.3V and 5V operation CMOS output Extreme high temperature survivability up to 250ºC High stability Tri-state output	32.768 kHz, 1.5 MHz to 50 MHz	10222

LEADED OSCILLATORS

	Model	Package Configuration	Features	Frequency Range	Reference Data Sheets
LHGAT/LHTAT 	LHGAT High Shock	4-Pin Ceramic *(outward bent leads available)*	3.3V operation CMOS/TTL compatible Enable/Tri-state output	320 kHz to 50 MHz	10211
	LHTAT High Temperature				10204

ORDERING OPTIONS FOR STATEK QUARTZ CRYSTAL OSCILLATORS

e.g. CXOMK 4 S T* SM3 - 32.0M 50 / 50 / - / I

- **CXOMK** — Model
- **4** — Supply Voltage: 1 = 1.8 V, 2 = 2.5 V, 3 = 3.0 V, 4 = 3.3 V, 5 = 5.0 V
- **S** — S = special or custom design, Blank = Std.
- **T*** — E = Enable, T = Tri-State, N = Neither
  - *The T option is not available in all frequencies. See data sheet.
- **SM3** — Terminations: Blank = SM1 Gold Plated (Lead Free); SM3 = Solder (60/40 Sn-Pb); SM5 = Solder (Lead Free)
- **32.0M** — Frequency: K = kHz, M = MHz
- **50** — Calibration Tolerance @ 25ºC (in ppm)
- **50** — Frequency Stability over Temp. Range (in ppm)
- **I** — Temp. Range: C = -10ºC to +70ºC, I = -40ºC to +85ºC, M = -55ºC to +125ºC, S = Specify

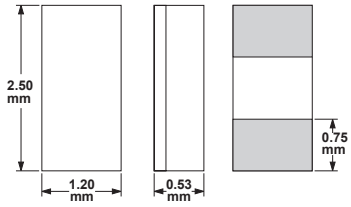
Or

- / - / 100 / I
- **100** — Total Frequency Stability over Temp. Range (in ppm)

NOTE:
For specific ordering requirements, call us at 714-639-7810. Please refer to the model data sheet for detail of all available parameters and options.

SURFACE MOUNT CRYSTALS
(continued)

	Frequency Range	Reference Data Sheets
CX20	16 MHz to 50 MHz	10219 CX20SM AT



ORDERING OPTIONS FOR STATEK QUARTZ CRYSTALS

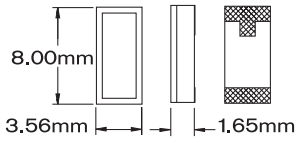
e.g. CX11 | S | C | SM1 - 32.0M, | 50 | / 50 | / - | / I , | 9 pF

- **Model**
- **S** = S=Special or custom design. Blank if std.
  - **Designate "H" for Series, "V" for Pierce: 10 kHz to 600 kHz Tuning Fork design only. Leave blank for standard AT cut designs.**
- **C** = C=Ceramic Lid
- **SM1** = Terminations
  - SM1 = Gold Plated (Lead Free)
  - SM3 = Solder (60/40 Sn-Pb)
  - SM5 = Solder (Lead Free)
- **32.0M,** = Frequency K=kHz M=MHz
- **50** = Calibration Tolerance @ 25ºC (in ppm)
- **/ 50** = Frequency Stability Over Temp. Range (in ppm)
- **/ -** = Temp. Range:
  - C = -10ºC to +70ºC
  - I = -40ºC to +85ºC
  - M = -55ºC to +125ºC
  - S = Specify
- **/ I ,** = Load Capacitance (Customer Specified)
- **9 pF**

NOTE:
For specific ordering requirements, call us at 714-639-7810. Please refer to the model data sheet for detail of all available parameters / options.

SWEPT QUARTZ CRYSTALS

	Frequency Range	Reference Data Sheets
SWCX1	6 MHz to 250 MHz	10199 SWC1SM AT



- **Radiation Tolerance 100 kRad and greater**
- **High Shock and Vibration Resistance**
- **Military and Space Screening available**
- **Other packages available, please consult factory**

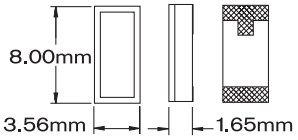
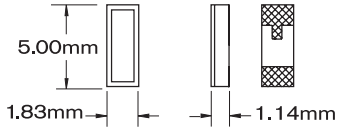
ORDERING OPTIONS FOR STATEK SWEPT QUARTZ CRYSTALS

e.g. SWCX1 | S | S | C | SM1 - 20.0M , 100 / 100 / - / I

- **SWCX1** = Swept Quartz Crystal
- **S** = Screening per option code
  - S = Space
  - M = Military
  - E = Engineering
- **S** = S = Special or Custom Design Blank = standard
- **C** = C = Ceramic Lid
- **SM1** = Surface Mount
  - SM1 = Gold Plated (Lead Free)
  - SM3 = Solder (60/40 Sn-Pb)
- **20.0M** = Frequency M = MHz
- **100** = Calibration Tolerance @ 25ºC (in ppm)
- **/ 100** = Frequency Stability Over Temp. Range (in ppm)
- **/ -** = Temp. Range:
  - C = -10ºC to +70ºC
  - I = -40ºC to +85ºC
  - M = -55ºC to +125ºC
  - S = Specify
- **/ I**

NOTE:
For specific ordering requirements, call us at 714-639-7810. Please refer to the model data sheet for detail of all available parameters / options.

TEMPERATURE SENSORS

	Features	Frequency Range	Reference Data Sheets
TS1  	Frequency based sensing High-shock resistance Low aging	160 kHz to 350 kHz (Tuning Fork)	10162
TS4  			

TCXO/OCXO

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Statek Corporation
Orange, California

Statek Corporation maintains synergistic relationships with sister companies Greenray Industries (www.greenrayindustries.com) and Advanced Technical Ceramics Company (www.adtechceramics.com), each a leader in its industry. Our alliance helps us to best serve our customers with leading-edge innovation and world-class manufacturing, all from a single source.

Greenray Industries
Mechanicsburg, Pennsylvania

Advanced Technical Ceramics Company
Chattanooga, Tennessee