

# Precision timing makes the difference

We've been providing world-leading service for over 30 years

## Frequency Products For New Designs in 2021



CRYSTALS



OSCILLATORS



TCXOs & VCXOs



VCXOs



SAW FILTERS



OCXOs



RTC MODULES



CRYSTAL FILTERS



SAW DUPLEXERS



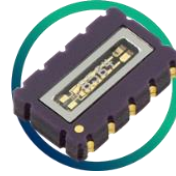
SAW RESONATORS

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# Surface Mount Quartz Crystals – 32.768kHz

Watch crystals for commercial and industrial applications - Key Product

Available in a range of packages and pad configurations, Golledge watch crystals always offer the most competitive solution



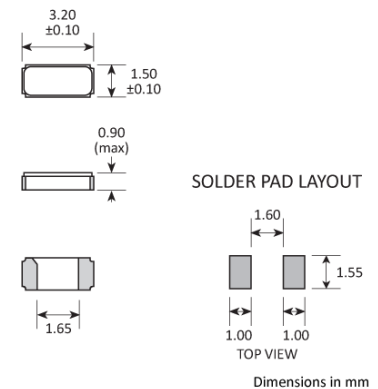
## GSX-315

### Miniature SM 32.768kHz Watch Crystal

Our most popular 32.768kHz solution, the GSX-315 watch crystal offers highly competitive pricing and low power consumption in a miniature vacuum sealed ceramic package.

### Key Points

- Compatible with CM315/FC135
- Industry standard 3.2 x 1.5mm footprint
- Board area = 4.8mm<sup>2</sup>
- Highly competitive
- Core stock



[Configure your GSX-315 here](#)

# Surface Mount Quartz Crystals – 32.768kHz

Ultra-Miniature watch crystals for commercial and industrial applications

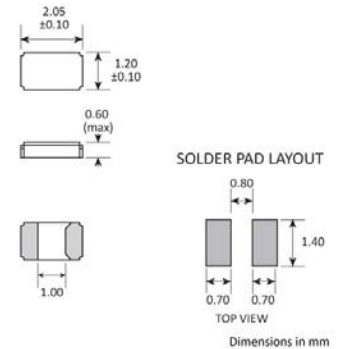
Available in a range of packages and pad configurations, Golledge watch crystals always offer the most competitive solution



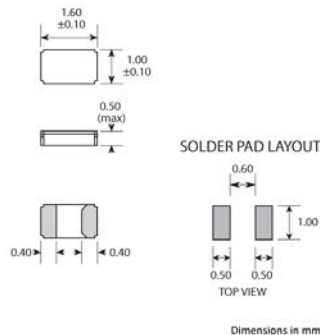
## GWX-2012

Ultra- Miniature SM 32.768kHz Crystal

Access the  
GWX-2012  
datasheet  
here



- Suitable for high volume applications
- 2.05 x 1.2mm footprint
- Board area = 2.4mm<sup>2</sup>
- Ultra-low profile, just 0.6mm high
- Vacuum sealed for high stability



## GWX-1610

Miniature SM 32.768kHz Crystal

Access the  
GWX-1610  
datasheet  
here

- Competitive pricing for volume applications
- Ultra low profile - 0.5mm high
- Light weight miniature package with tiny 1.6 x 1.0mm footprint
- Vacuum sealed for high stability

## GSX-200

Access the GSX-200  
datasheet  
here

- Highly suitable as drop in replacement for existing designs
- Large stocks available
- No longer recommended for new designs



# Surface Mount Quartz Crystals – 32.768kHz

## Automotive Solutions

Available in a range of packages and pad configurations, Golledge watch crystals always offer the most competitive solution

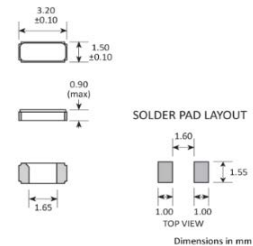
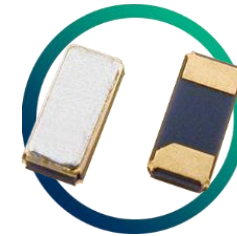


## GRX-315

### Automotive Watch Crystal (AEC-Q200)

- AEC-Q200 qualified with PPAP available
- 3.2 x 1.5mm footprint
- Low cost for volume applications
- Low power consumption

[Access the GRX-315 datasheet here](#)

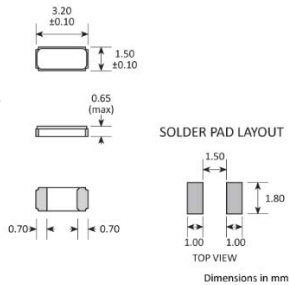
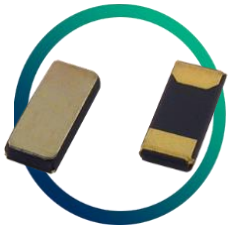


## CM7V-T1A

### Miniature SM 32.768kHz Crystal with AEC-Q200

- High shock and vibration resistance
- 3.2 x 1.5mm footprint
- Board area = 4.8mm<sup>2</sup>
- Extended temperature range option

[Access the CM7V-T1A datasheet here](#)

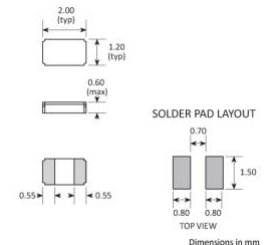
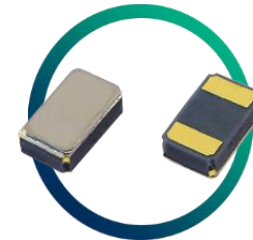


## CM8V-T1A

### Ultra-Miniature 2012 SM AEC-Q200 Crystal

- Ultra-low profile of 0.6mm
- 2.0 x 1.2mm footprint
- Board area = 2.4mm<sup>2</sup>
- Extended temperature range option

[Access the CM8V-T1A datasheet here](#)



# Surface Mount Quartz Crystals – 32.768kHz

## Solutions for Harsh Environments

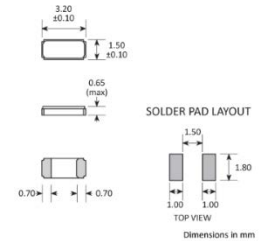
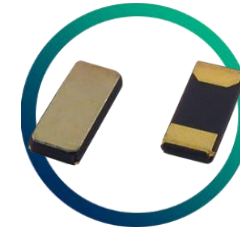
Available in a range of packages and pad configurations, Golledge watch crystals always offer the most competitive solution



## CM7V-T1A/M

### Ultra-Miniature SM 32.768kHz Crystal

[Configure your CM7V-T1A/M here](#)

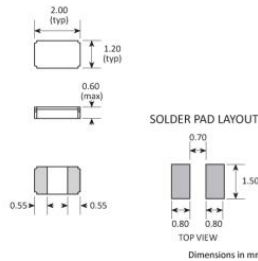
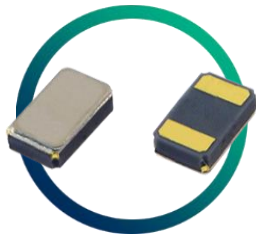


- High shock and vibration resistance
- 3.2 x 1.5mm footprint
- Extended temperature range of -55 to +125°C available
- Low power consumption

## CM8V-T1A/M

### Ultra-Miniature SM 32.768kHz Crystal

[Configure your CM8V-T1A/M here](#)

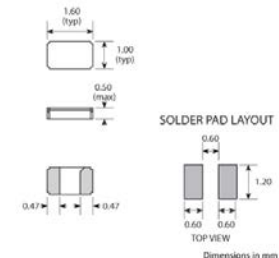
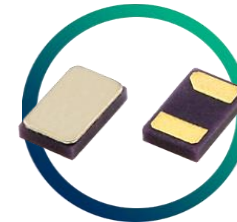


- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Board area = 2.4mm<sup>2</sup>
- Extended temperature range of -55 to +125°C available

## CM9V-T1A/M

### Ultra-Miniature 1610 Package SM 32.768kHz Crystal

[Access the CM9V-T1A datasheet here](#)



- Ultra-low profile of 0.5mm
- High shock and vibration resistance
- Extended temperature range of -55 to +125°C available
- Board area of just 1.6mm<sup>2</sup>

# Surface Mount Quartz Crystals – Commercial/Industrial

High frequency crystals for commercial/industrial applications – Key Product

With exceptionally competitive pricing available and an ultra-miniature package



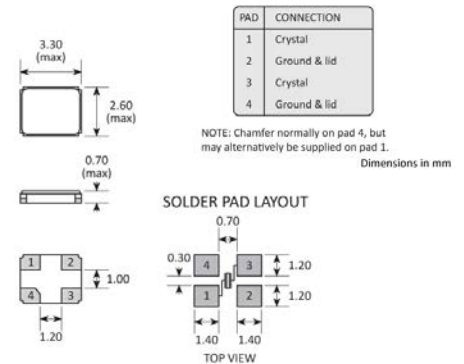
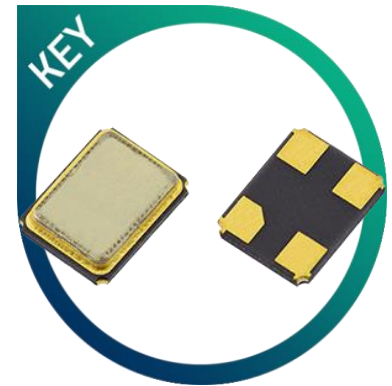
## GSX-333

3.2 x 2.5mm High Frequency SM Crystal with Tight Specifications

The GSX-333 miniature surface mount crystal is available from 8.0 ~ 125.0MHz. Fundamental mode available up to 66.0MHz, and 3rd overtone from 66.0MHz upwards.

### Key Points

- Metal lid can be grounded to minimise EMI
- Seam sealed for excellent long-term stability
- Ultra-miniature for maximum space saving
- Ideal for Bluetooth / Wireless applications

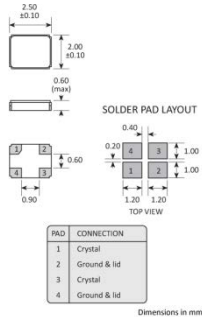
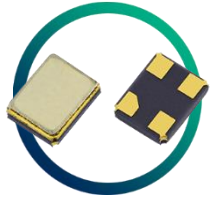


[Configure your GSX-333 here](#)

# Surface Mount Quartz Crystals – Commercial/Industrial

High frequency crystals for commercial / industrial applications

With exceptionally competitive pricing available and packages as small as 1.2 x 1.0mm



## GSX-323

12.0 ~ 66.0MHz Miniature SM Crystal

[Access the GSX-323 datasheet here](#)

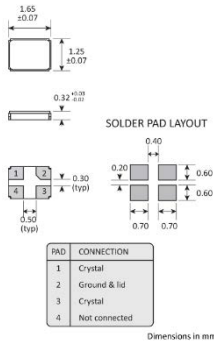
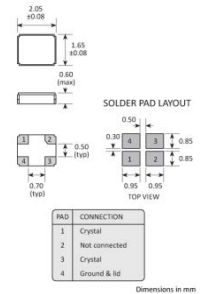
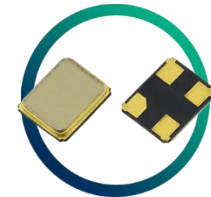
- Ideal for Bluetooth/Wireless applications
- Board area = 5.0mm<sup>2</sup>
- 2.5 x 2.0mm footprint
- Seam sealed for excellent stability

## GSX-223

16.0 ~ 54.0MHz Ultra-Miniature SM Crystal

[Access the GSX-223 datasheet here](#)

- Ultra-miniature for maximum space saving
- Board area = 2.4mm<sup>2</sup>
- 2.0 x 1.2mm footprint
- Seam sealed for long term stability



## GSX-213

Ultra-Miniature SM Crystal for NFC, Smartcard etc.

[Access the GSX-213 datasheet here](#)

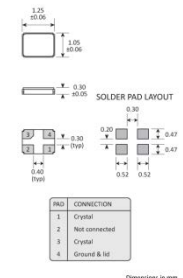
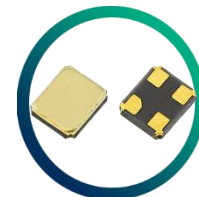
- Available from 24.0 ~ 60.0MHz
- 1.92mm<sup>2</sup> board area
- 1.6 x 1.2mm footprint
- Ideal for NFC applications
- Excellent ageing characteristics

## GSX-113

Super-Miniature SM Crystal with Low ESR

[Assess the GSX-113 datasheet here](#)

- 1.2 x 1.0mm footprint
- Available from 32.0 ~ 80.0MHz
- Fundamental mode up to 80MHz
- Board area = 1.2mm<sup>2</sup>

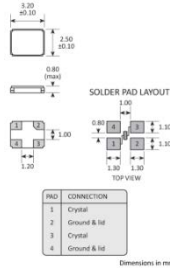
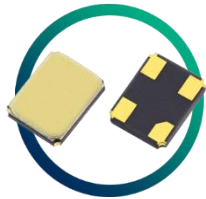




# Surface Mount Quartz Crystals – Automotive

High frequency crystals for Automotive applications

Packages as small as 1.6 x 1.2mm and exceptionally competitive pricing available



## GRX-330

Ultra-Miniature SM 12.0 ~ 48.0MHz Crystal

[Access the GRX-330 datasheet here](#)

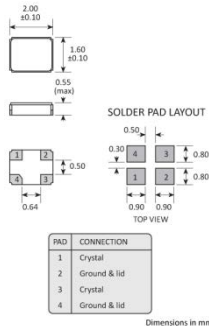
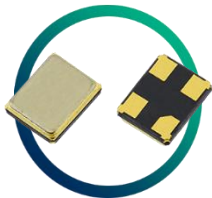
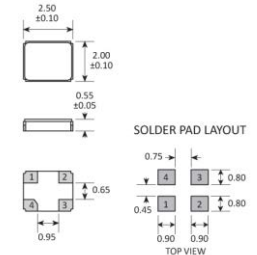
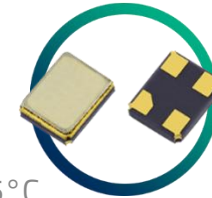
- AEC-Q200 qualified with PPAP available
- Board area = 8.0mm<sup>2</sup>
- 3.2 x 2.5mm footprint
- Extended temperature range of -40 to +125 °C

## GRX-320

Ultra-Miniature SM 12.0 ~ 40.0MHz Crystal

[Access the GRX-320 datasheet here](#)

- AEC-Q200 qualified with PPAP available
- Board area = 5.0mm<sup>2</sup>
- 2.5 x 2.0mm footprint
- Extended temperature range of -40 to +125 °C



## GRX-220

16.0 ~ 40.0MHz Ultra- Miniature SM Crystal

[Access the GRX-220 datasheet here](#)

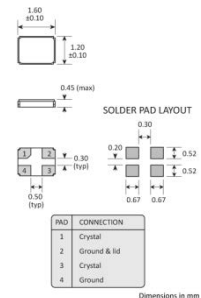
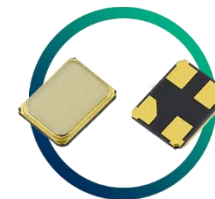
- AEC-Q200 qualified with PPAP available
- Board area = 3.2mm<sup>2</sup>
- 2.0 x 1.6mm footprint
- Temperature range of -40 to +125 °C available

## GRX-210

Ultra- Miniature SM Crystal For Automotive

[Access the GRX-210 datasheet here](#)

- Available from 24.0 ~ 40.0MHz
- AEC-Q200 qualified with PPAP available
- 1.6 x 1.2mm footprint
- Temperature range of -40 to +125 °C available



# Surface Mount Quartz Crystals – High Frequency

Crystals for high frequency applications

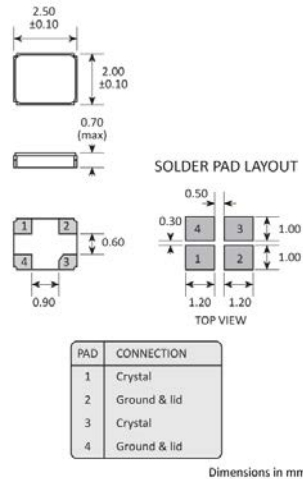
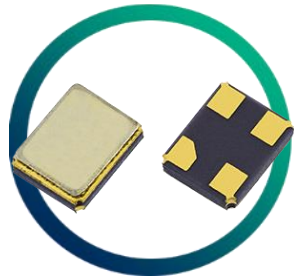
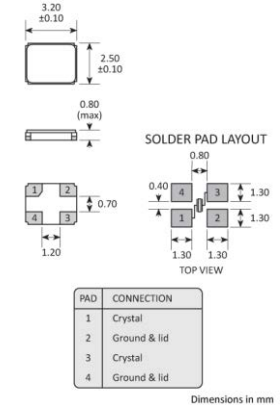
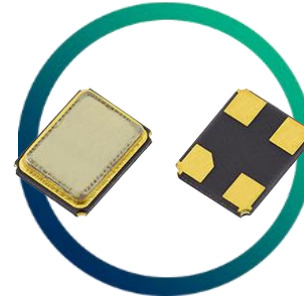
Packages as small as 2.0 x 1.6mm and exceptionally competitive pricing available

## GSX-338

Ultra-Miniature High Frequency SM Crystal

Access the GSX-338 datasheet here

- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 3.2 x 2.5mm footprint
- Small and medium quantities also available

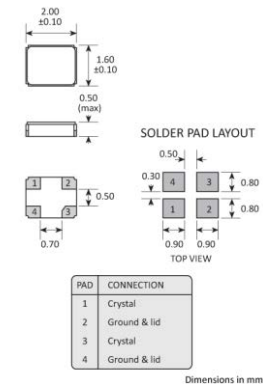


## GSX-328

16.0 ~ 315MHz Miniature SM Crystal

Access the GSX-328 datasheet here

- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 2.5 x 2.0mm footprint
- Small and medium quantities also available



## GSX-228

20.0 ~ 315MHz Miniature SM Crystal

Access the GSX-228 datasheet here

- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 2.0 x 1.6mm footprint
- Small and medium quantities also available

# Surface Mount Quartz Crystals – Harsh Environments

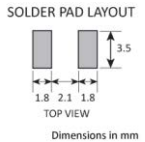
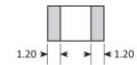
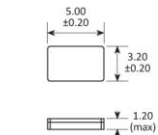
High frequency crystals for harsh environments  
Extreme stability and high shock and vibration resistance



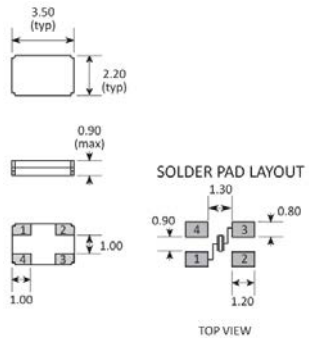
## CC2A

SM Crystal Suitable For Harsh Environments

Access the CC2A range here

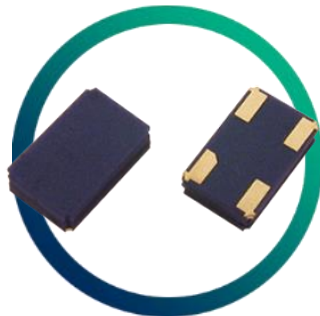


- Available from 12.0 ~ 70.0MHz
- High shock and vibration resistance
- 5.0 x 3.2mm footprint
- Wide range of frequencies available
- Extreme temperature ranges available, including as wide as -55 to +200°C



PAD	CONNECTION
1	Crystal
2	Not connected
3	Crystal
4	Not connected

Dimensions in mm



## CC6A

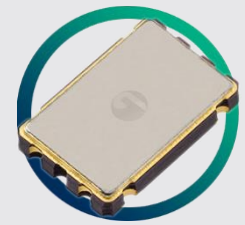
Miniature SM Crystal Suitable For Harsh Environments

Access the CC6A range here

- Available from 16.0 ~ 70.0MHz
- High shock and vibration resistance
- 3.5 x 2.2mm footprint
- Wide range of frequencies available
- Extreme temperature ranges available, including as wide as -55 to +200°C

# Surface Mount Oscillators– 32.768kHz

Low frequency oscillators for commercial and industrial applications  
Wide supply voltage and operating temperature ranges available

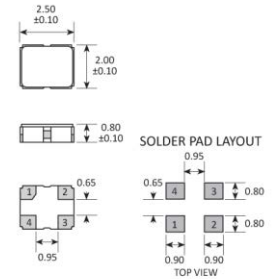
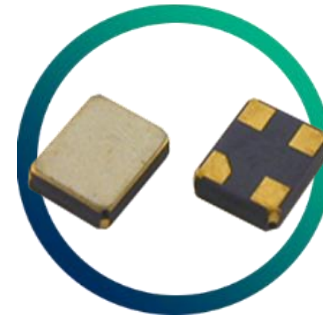


## GAO-3201

### Ultra-miniature SM Oscillator

- Suitable for high volume applications
- 2.5 x 2.0mm footprint
- Board area = 5.0mm<sup>2</sup>
- Ultra-low profile, just 0.8mm high
- Low current consumption
- AT cut resonator and dividing circuit
- Excellent temperature stability

Access the GAO-3201  
datasheet here



PAD	CONNECTION
1	Enable/Disable
2	Ground
3	Output
4	Supply

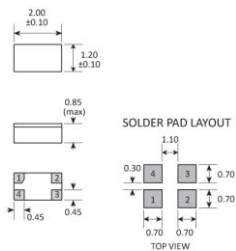
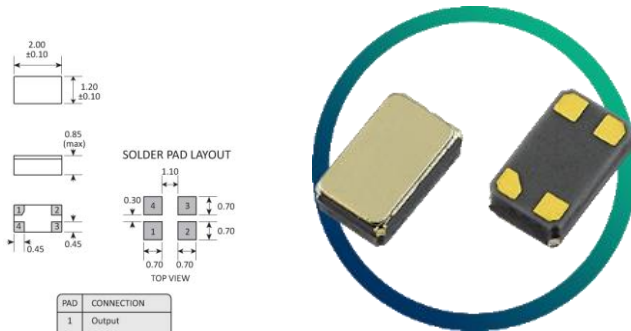
Dimensions in mm

## OM7605C8

### Ultra-miniature SM Oscillator

- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Board area = 2.4mm<sup>2</sup>
- Extended temperature range of -40 to +85 °C available
- Optional AEC-Q200 automotive qualification
- Ultra-low power consumption

Access the OM7605C8  
datasheet here

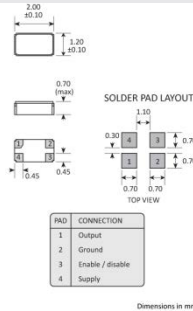


PAD	CONNECTION
1	Output
2	Ground
3	Enable / disable
4	Supply

Dimensions in mm

# Surface Mount Oscillators– 32.768kHz & 100kHz

Low frequency oscillators for automotive applications  
Wide supply voltage and operating temperature ranges available



Dimensions in mm

## OM7604C7

Ultra-miniature 32.768kHz Oscillator for Automotive

[Access the OM7604C7 datasheet here](#)

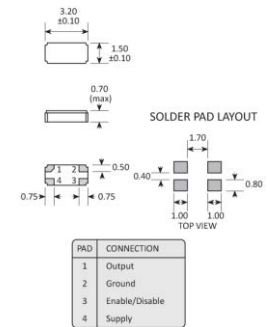
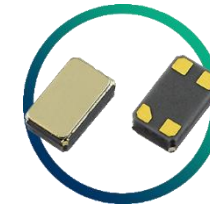
- Ultra-low power consumption
- Tight frequency tolerance
- 3.2 x 1.5mm footprint
- High shock and vibration resistance
- Industrial and extended temperature ranges

## OM7605C8

Ultra-miniature 32.768kHz Oscillator for Automotive

[Access the OM7605C8 datasheet here](#)

- Ultra-low power consumption
- Tight frequency tolerance
- High shock and vibration resistance
- Industrial and extended temperature ranges
- 2.0 x 1.2mm footprint



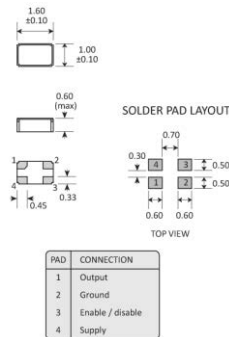
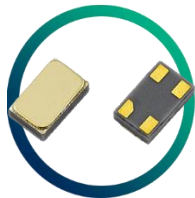
Dimensions in mm

## OM7605C9

Ultra-miniature 32.768kHz Oscillator for Automotive

[Access the OM7605C9 datasheet here](#)

- Ultra-low power consumption
- Tight frequency tolerance
- 1.6 x 1.0mm footprint
- High shock and vibration resistance
- Industrial and extended temperature ranges



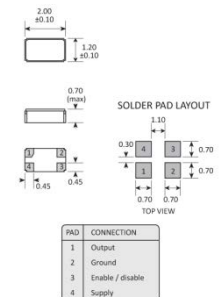
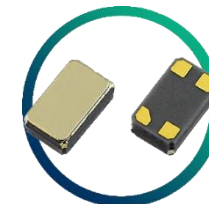
Dimensions in mm

## OM0100C8

Ultra-miniature 100kHz Oscillator for Automotive

[Access the OM0100C8 datasheet here](#)

- Ultra-low power consumption
- Operable from 1.6~5.5V
- High shock and vibration resistance
- 2.0 x 1.2mm footprint



Dimensions in mm

# Surface Mount Oscillators– 32.768kHz & 100kHz

Low Frequency Oscillators for Material Sensitive Applications

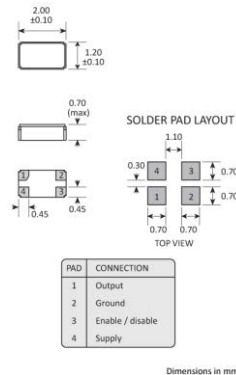
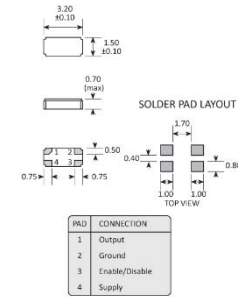
Wide supply voltage and operating temperature ranges available

## OV7604C7

Miniature Fully Ceramic SM Oscillator

- Ultra low power consumption
- Fully ceramic package
- Ultra-miniature 32.768kHz oscillator
- Tight frequency tolerance
- Industrial and extended temperature ranges
- High shock and vibration resistance

Access the  
OV7604C7  
datasheet  
here

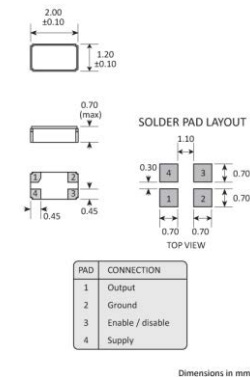


## OV7605C8

Miniature Fully Ceramic SM Oscillator

- Ultra low power consumption
- Ultra-miniature 32.768kHz oscillator
- Tight frequency tolerance
- Optional AEC-Q200 qualification
- High shock and vibration resistance
- Fully ceramic package

Access the  
OV7605C8  
datasheet  
here



## OV0100C8

Miniature Fully Ceramic SM Oscillator

- Ultra low power consumption
- Ultra-miniature 100kHz oscillator
- Optional AEC-Q200 qualification
- High shock and vibration resistance
- Ultra-miniature fully ceramic package

Access the  
OV0100C8  
datasheet  
here

# Surface Mount Oscillators– Low Frequency

Low frequency oscillators for harsh environments

Wide supply voltage and operating temperature ranges available

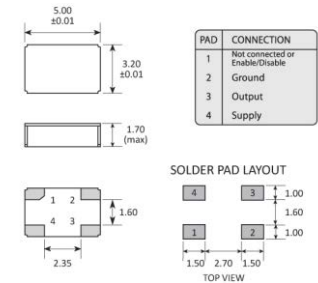
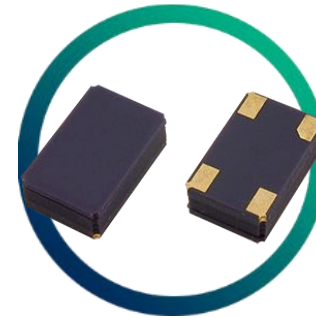


## MCSO2xxx

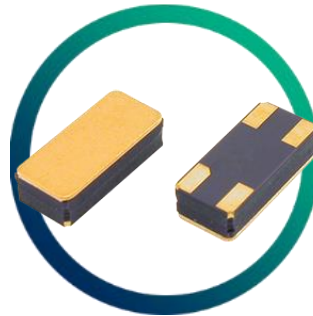
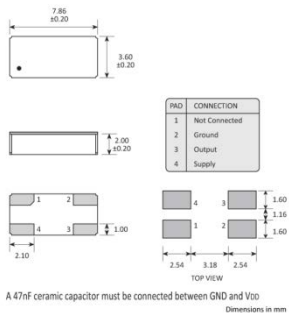
### Miniature Fully Ceramic SM Oscillator

Access the MCSO2xxx range here

- Available from 10.0kHz
- Suitable for Avionics, Down-hole, Geothermal etc.
- Extreme temperature ranges up to 210°C
- High stability & low ageing under extremes
- High shock & vibration resistance
- Optional tinned pads (Ag/Cu/Zn)



A 47nF ceramic capacitor must be connected between GND and VDD  
Dimensions in mm



## MCSO1xxx

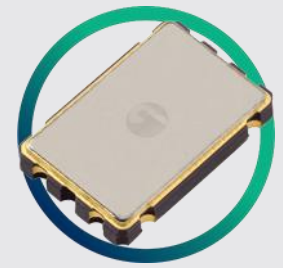
### Miniature Low Frequency SM Oscillator

Access the MCSO1xxx range here

- Available from 10.0kHz
- Suitable for Avionics, Down-hole, Geothermal etc.
- Extreme temperature ranges up to 200°C
- High stability & low ageing under extremes
- High shock & vibration resistance
- Optional tinned pads (Ag/Cu/Zn)

# Surface Mount Oscillators – Commercial/Industrial

Competitively priced oscillators suitable for commercial applications - Key Product  
Highly competitive pricing with tight frequency stability and low current consumption



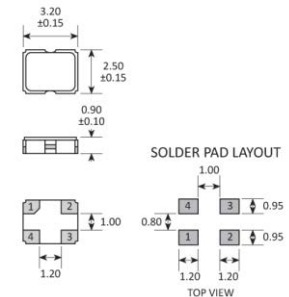
## GXO-3301

### High Stability SM Oscillator

The GXO-3301 oscillator features tight frequency stability and low current consumption as standard and is available with supply voltage options from 0.9V ~ 3.3V.

### Key Points

- High stability for WiMAX, LAN etc.
- Low current consumption
- 3225 Miniature ceramic package with metal lid
- Enable / disable tristate function
- Competitive pricing
- Available from 625kHz ~ 78.0MHz



PAD	CONNECTION
1	Enable/Disable
2	Ground
3	Output
4	Supply

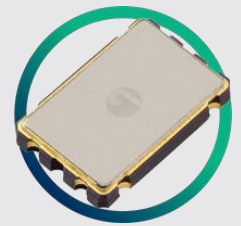
Dimensions in mm

[Configure your GXO-3301 here](#)



# Surface Mount Oscillators – Commercial/Industrial

Competitively priced oscillators suitable for commercial applications  
Frequencies up to 200MHz with highly competitive pricing

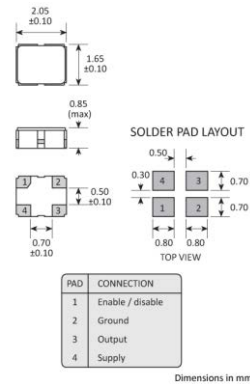
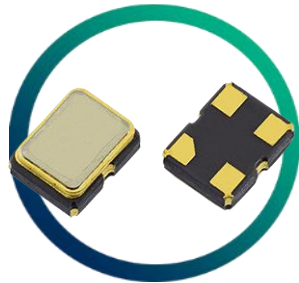
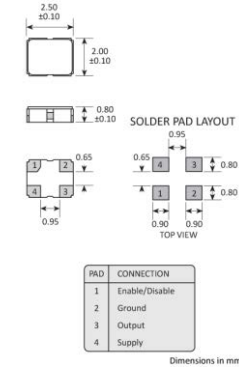
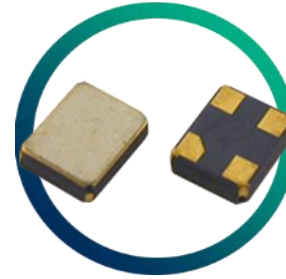


## GXO-3201

Miniature CMOS Oscillator with Low Jitter

- Low current consumption
- Enable / disable tristate function
- Miniature 2.5 x 2.0mm ceramic package with metal lid
- Competitive pricing
- Available from 750kHz ~ 50.0MHz

Access the GXO-3201 family here

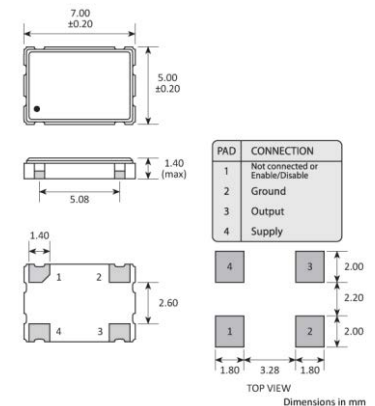
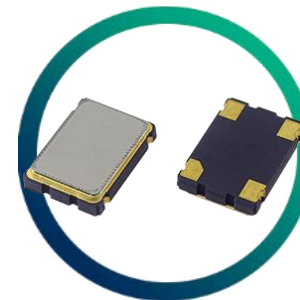


## GXO-2201

Miniature CMOS Oscillator with Low Jitter

- Competitive pricing for high volumes
- Miniature 2.0 x 1.6mm ceramic package with metal lid
- 1.8V, 2.5V and 3.3V voltage supply options
- Enable / disable tristate function
- Available from 1.5 ~ 54.0MHz

Access the GXO-2201 family here



## GXO-7531/U108

Versatile Oscillators with Many Available Frequencies

- Very wide range of available frequencies from 12.0kHz ~ 200MHz
- 7.5 x 5.0mm footprint
- High drive capabilities up to 50pF
- Power saving variants available

Access the GXO-7531

Access the GXO-U108

# Surface Mount Oscillators – Harsh Environments

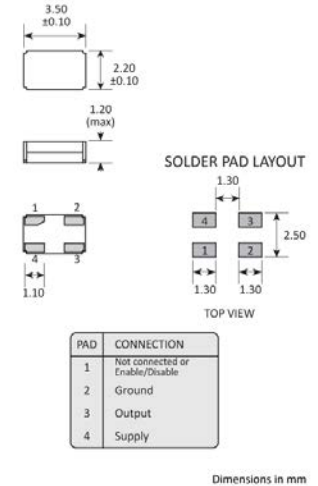
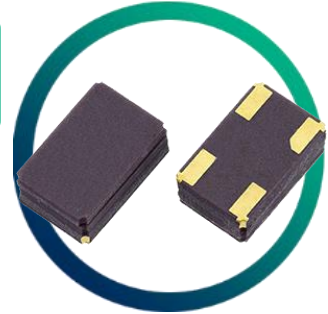
High frequency components and those suitable for harsh environment  
 Extended temperature ranges and high shock and vibration resistance



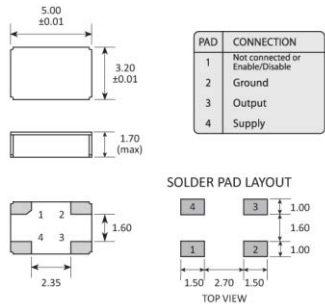
## MCS06xxx

### Miniature Low Jitter Oscillators For Harsh Environments

Access the MCS06xxx range here



- Miniature 3.5 x 2.2mm package
- Available from 10.0kHz ~ 155MHz
- Suitable for Avionics, Down-hole, Geothermal and more
- Extreme temperature ranges available up to 210°C
- High stability & low ageing under extremes
- High shock & vibration resistance
- Optional SAC tinned pads (Sn/Ag/Cu)



A 47nF ceramic capacitor must be connected between GND and VDD



## MCS02xxx

### Low Jitter Oscillators For Harsh Environments

Access the MCS02xxx range here

- Available from 10.0kHz ~ 225MHz
- Suitable for Avionics, Down-hole, Geothermal and more
- Extreme temperature ranges available up to 210°C
- High stability & low ageing under extremes
- High shock & vibration resistance
- Optional SAC tinned pads (Sn/Ag/Cu)

# Surface Mount Oscillators – Special Applications

High frequency and tight stability oscillators

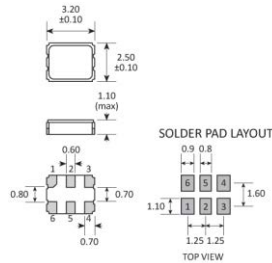
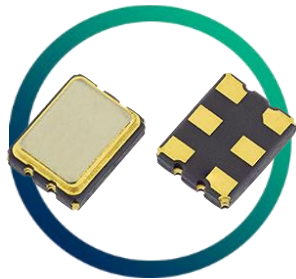
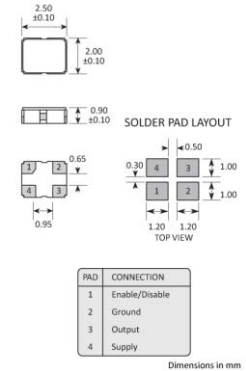
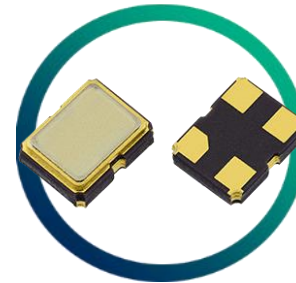
Packages as small as 1.6 x 1.0mm with exceptionally low jitter characteristics

## GXO-3200

High Frequency, Tight Stability Oscillator

- Available from 10.0 ~ 160MHz
- High precision with tight stability options
- Wide operating temperature ranges
- High frequency fundamental - no multiplier
- Low & medium volumes also available
- Enable / disable tristate function

Access the GXO-3200 family here



## GXO-L31

LVDS Oscillator for High Speed Data Transfer

- Available from 40.0 ~ 250MHz
- Differential outputs
- RMS phase jitter 0.3ps
- Low current consumption (20mA max.)
- Multiplier-free design
- Enable / disable tristate function

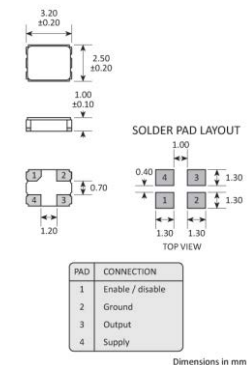
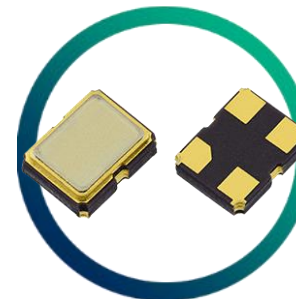
Access the GXO-L31 family here

## GXO-3306

3225 Package Ultra-Low Jitter Oscillator

- Available from 16.0 ~ 50.0MHz
- Excellent phase noise & jitter characteristics of 0.04ps typical
- Enable / disable tristate function
- Small and medium quantities also available

Access the GXO-3306 family here



# Temperature Compensated Oscillators – TCXOs

Tight stability in miniature surface mount packages – Key Product

Ultra-miniature package and stability options as tight as  $\pm 0.5\text{ppm}$



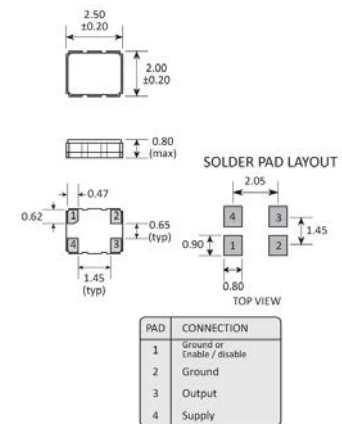
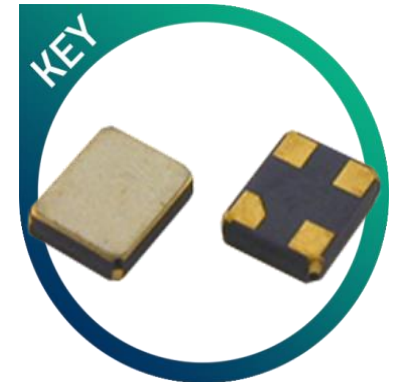
## GTXO-253

### 1.8V ~ 3.6V Ultra-tight Stability TCXO

The GTXO-253T temperature compensated oscillator is ideally suited for many applications, featuring frequency stability as tight as  $\pm 0.5\text{ppm}$ , fast start up time of 3ms maximum, and a miniature 2.5 x 2.0mm package.

### Key Points

- $\pm 0.5\text{ppm}$  frequency stability option
- Supply voltage from 1.8V ~ 3.6V
- Low power consumption
- Miniature SM package
- Clipped sine output
- Available from 10.0 ~ 52.0MHz



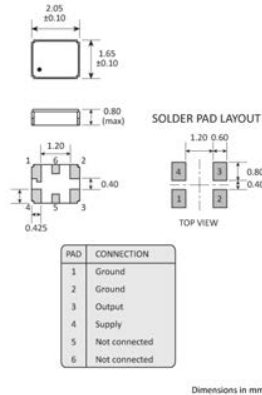
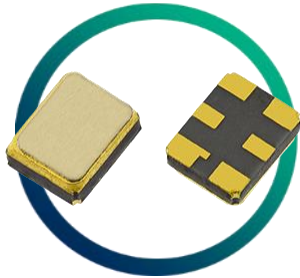
Dimensions in mm

[Explore the GTXO-253 options here](#)

# Temperature Compensated Oscillators – TCXOs

Tight stability in miniature surface mount packages

Frequencies available up to 70MHz with stabilities as tight as  $\pm 0.5\text{ppm}$



## GTXO-203

Ultra-miniature 2.0 x 1.6mm Footprint TCXO

Access the GTXO-203 family here

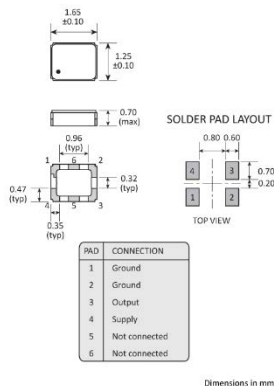
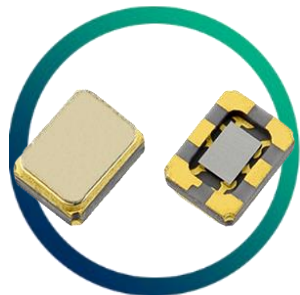
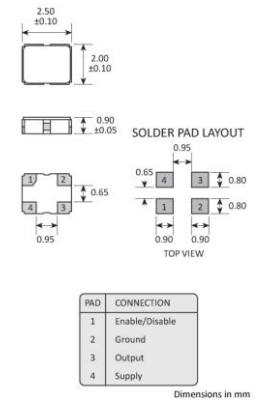
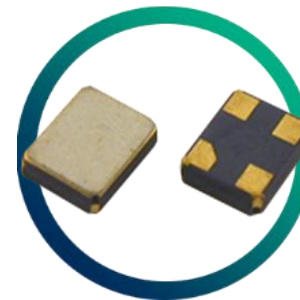
- Ideally suited for wearable applications
- Supply voltages from 1.8V ~ 3.6V
- Low power consumption
- Clipped sine output
- Excellent frequency stability
- Available from 10.0 ~ 70.0MHz

## GTXO-C25

SM TCXO with excellent phase noise characteristics

Access the GTXO-C25 family here

- Low power consumption
- Enable / disable tristate function
- CMOS output
- Excellent frequency stability
- 4.0 ~ 54.0MHz



## GTXO-163

Ultra-miniature 1.6 x 1.2mm Footprint TCXO

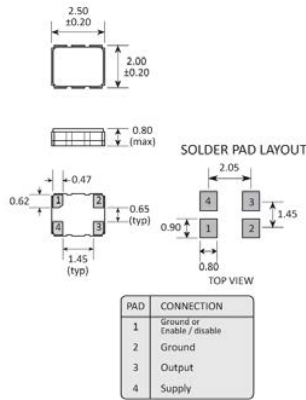
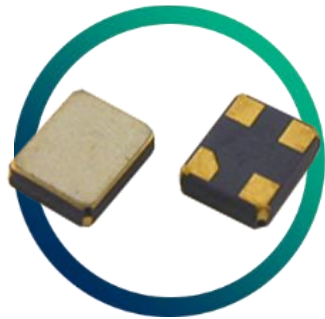
Access the GTXO-163 family here

- Available at frequencies from 16.0 ~ 52.0MHz
- Clipped sine output
- Excellent frequency stability options of  $\pm 0.5\text{ppm}$  available
- Operable from 1.8 ~ 3.6V

# TCXOs - Automotive

## Tight stability in miniature surface mount packages

With stabilities as good as  $\pm 0.5\text{ppm}$  and optional AEC-Q200 qualification



## GTXO-253

### 1.8V ~ 3.6V Ultra-tight Stability TCXO

- $\pm 0.5\text{ppm}$  frequency stability option
- Supply voltage from 1.8V ~ 3.6V
- Low power consumption
- Miniature SM package
- Available from 10.0 ~ 52.0MHz
- Clipped sine output

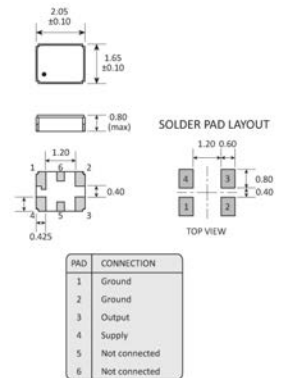
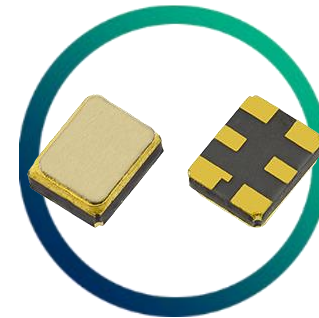
Access the GTXO-253 family here

## GTXO-203

### Ultra-miniature 2.0 x 1.6mm Footprint TCXO

- Ideally suited for wearable applications
- Supply voltages from 1.8V ~ 3.6V
- Low power consumption
- Miniature SM package
- Excellent frequency stability
- Available from 10.0 ~ 70.0MHz
- Clipped sine output

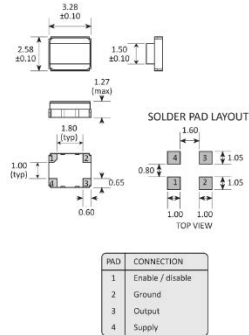
Access the GTXO-203 family here



# TCXOs– Special Applications

## High frequency and tight stability oscillators

Miniature SM packages with exceptional stability and pullability options



## GTXO-94

32.768kHz CMOS TCXO

- 32.768kHz
- Extremely low current consumption
- $\pm 5$ ppm frequency stability
- 1.8V, 2.5V, 3.0V and 3.3V supply options

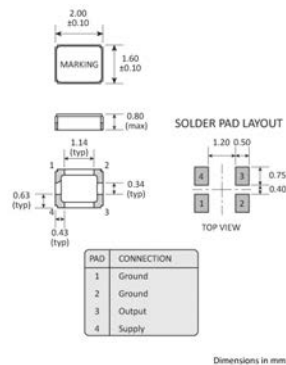
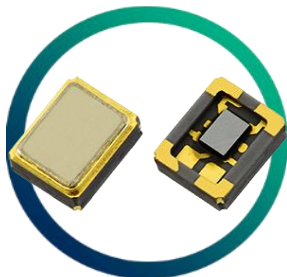
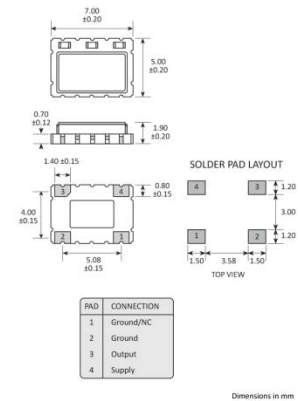
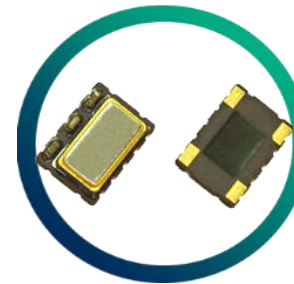
Access the GTXO-94 range here

## GTXO-73

Stratum 3 TCXO with Clipped Sine Output

- Stratum 3 compliant and available at frequencies from 5.0 ~ 52.0MHz
- $\pm 4.6$ ppm stability over 20 years
- Miniature 7050 SM package
- 3.3V & 5V supply voltage options

Access the GTXO-73 range here



## GTXO-205

Tight Stability High Temperature VCTCXO

- Wide operating temperature range of  $-40$  to  $+105^\circ$
- Excellent frequency stability of  $\pm 0.5$ ppm
- Low power consumption
- Low phase noise
- Available from 16.0 ~ 52.0MHz

Access the GTXO-205 range here

# Voltage Controlled Oscillators – VCXOs

Gain control with our wide range of VCXOs – Key Product

Wide frequency pullability and a range of operating supply voltages



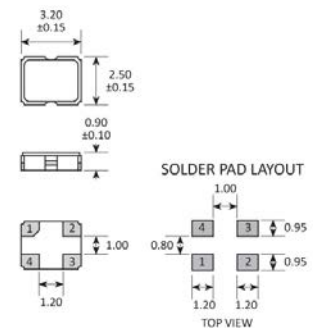
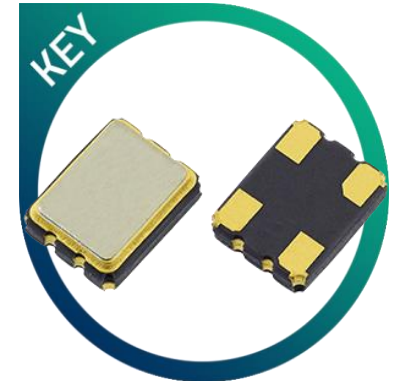
## GVXO-331

### Surface Mount VCXO

GVXO-331 voltage controlled oscillators are available over a frequency range of 1.50 to 64.440MHz and offer the engineer wide frequency pullability and operating supply voltage options of 1.8V, 2.8V and 3.3V.

### Key Points

- Low current consumption
- CMOS output
- Three supply voltage options
- Miniature SM package
- Competitive pricing



PAD	CONNECTION
1	Control voltage
2	Ground
3	Output
4	Supply

Dimensions in mm

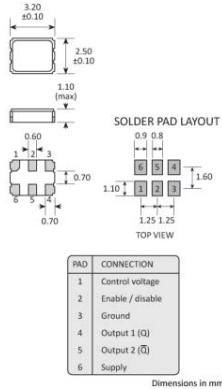
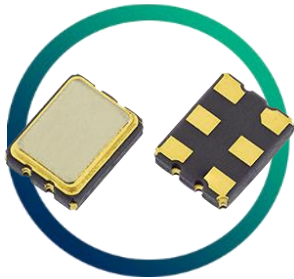
[Explore the GVXO-331 range here](#)



# Voltage Controlled Oscillators – VCXOs

Gain control with our wide range of VCXOs – Key Product

Wide frequency pullability and a range of operating supply voltages



## GVXO-E33L (L33L)

VCXO with Low Phase Jitter up to 250MHz

- Complementary LV-PECL or LVDS outputs
- Multiplier-free design
- Enable / disable tristate function
- Designed for high speed data transfer
- Great phase jitter performance of 1ps typ. (12kHz ~ 20MHz)

[Access the GVXO-E33L](#)

[Access the GVXO-L33L](#)

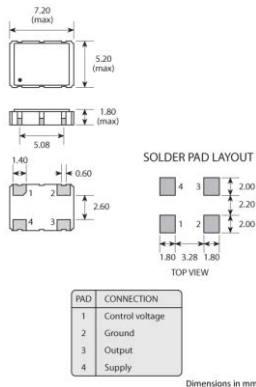
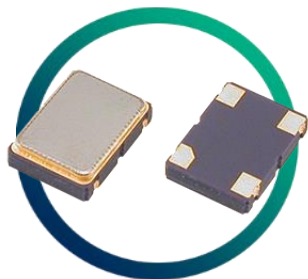
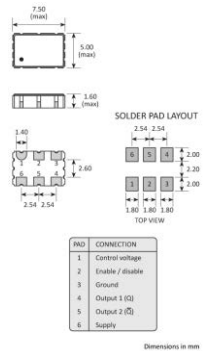
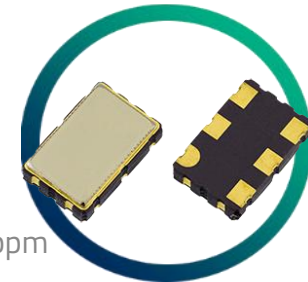
## GVXO-E76L (L76L)

Up to 1GHz Ultra High Frequency VCXO

- Frequencies available from 10MHz up to 1GHz
- Optional industrial -40+85°C temperature range
- Complementary LV-PECL or LVDS outputs
- Fast rise and fall times of 0.5ns or less
- Good frequency stability
- Excellent frequency pullability of  $\pm 130$ ppm

[Access the GVXO-E76L](#)

[Access the GVXO-L76L](#)



## GVXO-753

Cost Effective Voltage Controlled Oscillator

- 7.0 x 5.0mm footprint
- Cost effective for volume applications
- Operating temperature ranges as wide as -40 to +85 °C
- Available from 1.5 ~ 54.0MHz
- 6-pad version also available with enable/disable tristate functionality

[Access the GVXO-753 family here](#)

# VCXOs – Harsh Environments

Gain control with our wide range of VCXOs

High shock and vibration resistance and extreme operating temperature ranges

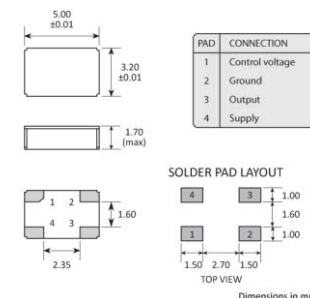
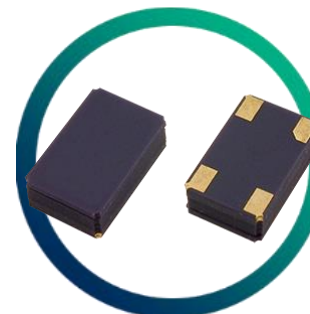


## VCX02EV

CMOS VCXO for Harsh Environments

- Suitable for Avionics, Down-hole, Geothermal etc
- Extreme temperature ranges up to 210°C
- High stability & low ageing under extremes
- High shock & vibration resistance
- Optional tinned pads
- Available from 5.0 ~ 40.0MHz

Access the  
VCX02EV  
here

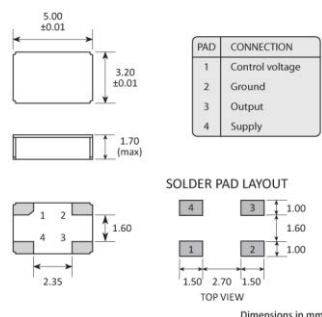
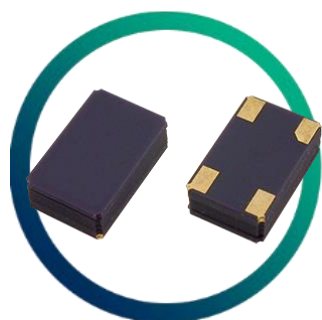


## VCX02HV

High Frequency VCXO with Military Temperature Range

Access the  
VCX02HV  
here

- Military temperature range -55 to +125°C
- Fundamental crystal for low phase noise
- High shock & vibration resistance
- Optional tinned pads
- Available from 5.0 ~ 170MHz



# Real Time Clock Modules - RTCs

Offering Engineers an All-in-one Solution  
Temperature compensated for maximum stability



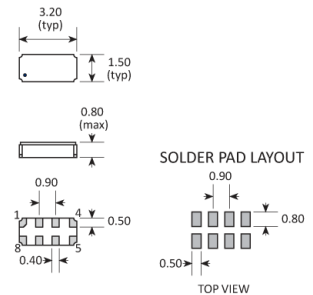
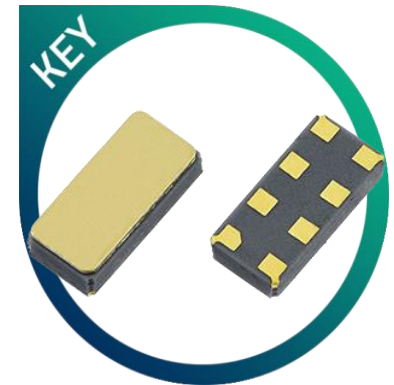
## RV-3032-C7

### RTC I<sup>2</sup>C bus High Accuracy and Low Power

The RV-3032-C7 ultra-miniature real time clock module is available with optional AEC-Q200 qualification and provides the best combination of high accuracy and low power consumption (only 160nA typ. @ 3.0V), within a tiny 3.2 x 1.5mm package. Together with a range of unique features this RTC is perfect for applications that require "always-on" time keeping.

### Key Points

- Ultra low power consumption 160nA @ 3V
- Excellent time accuracy  $\pm 3\text{ppm}$  -40 to +85°C
- Wide operating voltage range 1.2V to 5.5V
- Time stamping at high & low temperature
- Trickle Charger with charge pump



PAD	CONNECTION	PAD	CONNECTION
1	Backup supply (VBKP)	5	Ground (VSS)
2	Serial data (SDA)	6	Supply voltage (VDD)
3	Interrupt output ( $\overline{\text{INT}}$ )	7	Frequency output (CLKOUT)
4	Event Input (EVI)	8	Serial clock input (SCL)

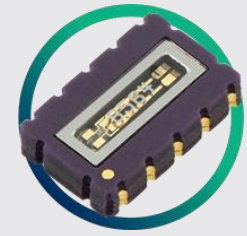
Dimensions in mm

[Configure your RV-3032-C7 Real Time Clock here](#)

# Real Time Clock Modules - RTCs

Offering Engineers an All-in-one Solution

Miniature package with exceptionally low current consumption



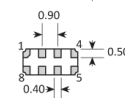
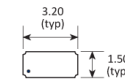
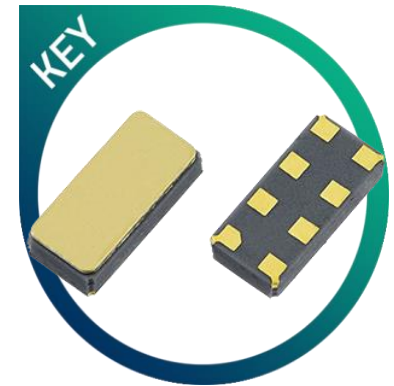
## RV-3028-C7

### Ultra-low Power I<sup>2</sup>C RTC Module

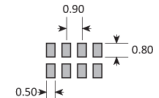
The RV-3028-C7 boasts ultra-low current consumption of only 40nA, ideal for many applications requiring low power components, including IoT, wearables, portable devices, healthcare, metering, industrial and automotive.

### Key Points

- Ultra-Low power consumption of 40nA
- Built-in crystal
- Wide operating voltage of 1.1 ~ 5.5V
- Battery switchover
- AEC-Q200 compliant option



SOLDER PAD LAYOUT



TOP VIEW

PAD	CONNECTION	PAD	CONNECTION
1	Frequency output (CLKOUT)	5	Ground (VSS)
2	Interrupt output (INT)	6	Backup supply voltage (VBK)
3	Serial clock input (SCL)	7	Supply voltage (VDD)
4	Serial data (SDA)	8	Event input (EVI)

Dimensions in mm

Configure your RV-3028-C7 here

# Monolithic Crystal Filters

Highly accurate filtering at low frequencies  
Tiny surface mount space-saving packages available



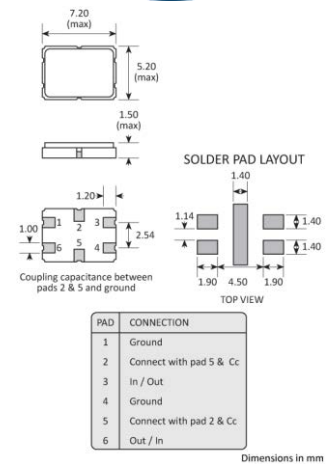
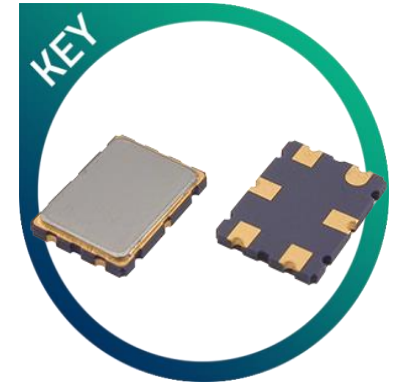
## GSF-75

### 4-Pole SM Crystal Filter in One Miniature SM Package

The GSF-75 range of crystal filters combines 4-pole functionality within one miniature surface mount package. A range of bandwidths and centre frequencies are available with low insertion loss.

### Key Points

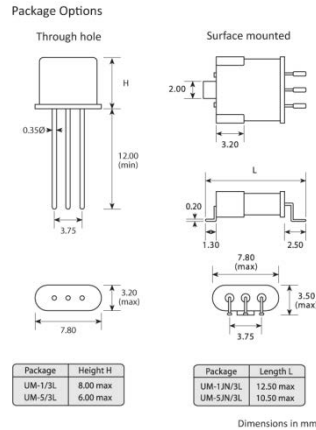
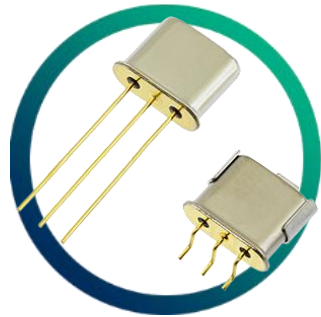
- 4-pole filter in one package
- Frequencies from 19.655 ~ 75.0MHz available
- Custom specifications available
- Miniature SM package



[Access the GSF-75 range of crystal filters here](#)

# Monolithic Crystal Filters

Highly accurate filtering at low frequencies  
 Tiny surface mount space-saving packages available



## GMCF-45

Crystal Filters with Centre Frequency 45MHz

- Multiple package options including through-hole and formed-lead packages
- 2, 4, 6 and 8-pole options available
- Wide range of bandwidths
- Low insertion loss

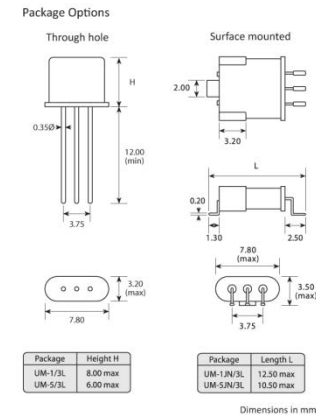
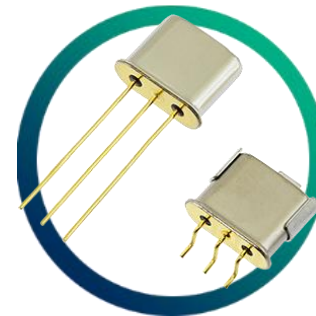
Access the GMCF-45 range here

## GMCF-21

Crystal Filters with Centre Frequency 21.4MHz

- Multiple package options including through-hole and formed-lead packages
- 2, 4, 6 and 8-pole options available
- Wide range of bandwidths
- Low insertion loss

Access the GMCF-21 range here



# Oven Controlled Oscillators - OCXOs

Highly accurate signal fidelity and fantastic aging and stability characteristics

Check out our range of OCXOs when you need the very best



## HCD380 and HCD381

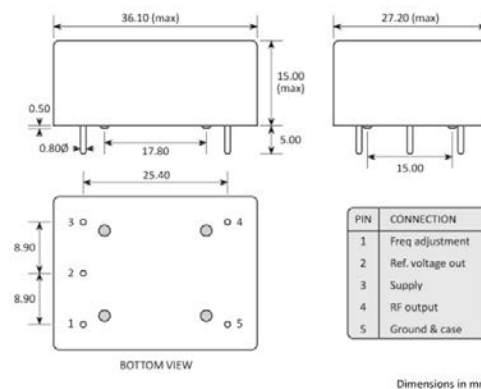
High Frequency OCXO with Ultra-low Phase Noise

The HCD380 oven controlled oscillator with sine wave output and HCD381 with CMOS are available up to very high frequency of 100MHz with low phase noise.



### Key Points

- -160dBc/Hz noise floor @ 10kHz
- Frequencies up to 100MHz
- No multiplier
- Standard European IEC CO-08 pin-out
- Custom options available



[Configure your HCD380 here](#)

[Configure your HCD381 here](#)

# Oven Controlled Oscillators - OCXOs

Highly accurate signal fidelity and fantastic aging and stability characteristics  
Check out our range of OCXOs when you need the very best

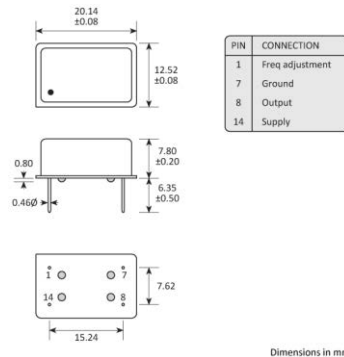
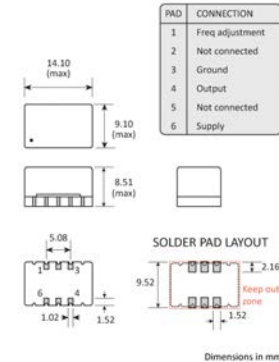
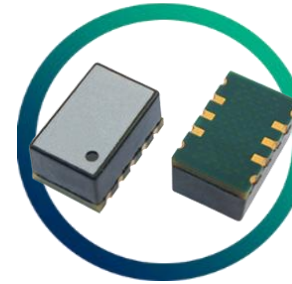


## GOXO-149

3.3V Surface Mount OCXO from 10.0 ~ 80.0MHz

Access the  
GOXO-149  
datasheet  
here

- Miniature SM package - 50% smaller footprint than DIL-14
- Ideally suited for base stations, VSAT etc
- Outstanding phase noise characteristics
- 3.3V supply
- LVCMOS output

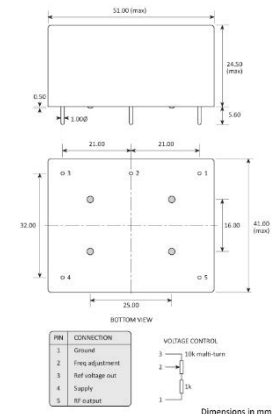


## SCOCXOHS

Sine Output OCXO with Excellent Stability

Access the  
SCOCXOHS  
family here

- Excellent phase noise performance @ 100MHz
- -160dBc noise floor @ 10.0MHz
- Fundamental mode frequencies up to 120MHz
- Compact 14-pin DIL package (SMD optional)
- High shock and vibration resistance
- Available from 10.0 ~ 120MHz

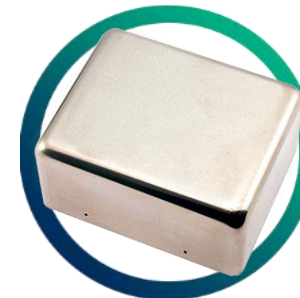


## HCD660

High Performance OCXO with Sine Output

Access the  
HCD660  
datasheet  
here

- Temperature stability down to  $\pm 1$ ppb
- Single 12V supply (12V ~ 30V optional)
- Standard European pin-out
- Available at frequencies from 5.0 ~ 20.0MHz





# Surface Acoustic Wave Devices – SAWs

We have one of the widest available ranges of SAW products

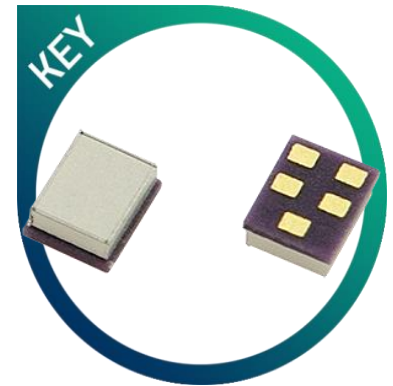
Powerful filtering up to 3.7GHz



## SAW Filters – GSRF & GSIF

Filters available for each major application covering most LTE bands

Our SAW filter range includes over 1300 different components, with frequencies available from 35MHz to 3.7GHz. A wide range of passband widths are available with low insertion losses.



### Key Points

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- Surface mount packages as small as 1.1 x 0.9mm available
- Low insertion loss
- Range of available bandwidths
- Frequencies covering most LTE bands

[Search our SAW Filter range here](#)

# Surface Acoustic Wave Devices – SAWs

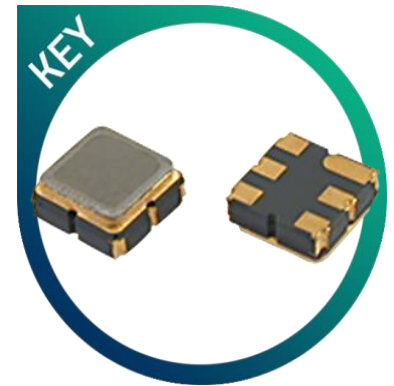
We have one of the widest available ranges of SAW products



## SAW Resonators

### High Value SAW Resonators

With ultra-miniature surface mount packages available in a range of industry-standard footprints, our range of SAW resonators present a high value option for engineers.



### Key Points

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- Industry standard footprints
- Large range of frequencies
- Commonly used frequencies available from stock
- Suitable for airborne communications and ISM band applications among others
- Present a high level of value
- Frequencies available from 245MHz ~ 1.28GHz

[Search our SAW Resonator range here](#)

# Surface Acoustic Wave Devices – SAWs

We have one of the widest available ranges of SAW products

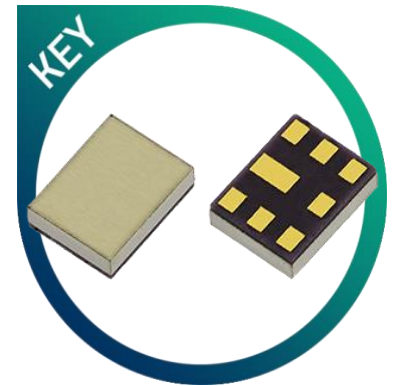
Powerful filtering up to 2.7GHz



## SAW Duplexers

Cutting Edge SAW Duplexers in Ultra-Miniature Packages

The Golledge range of SAW duplexers offer engineers space-saving through component reduction and ultra-miniature packages, as small as 1.8 x 1.4mm.



### Key Points

- Space saving through component reduction
- Industry standard footprints
- Packages from 1.8 x 1.4mm available
- Low insertion attenuation
- Typical insertion loss of <3dB
- Ultra-miniature for maximum space saving
- Suitable for use within the Cellular, CDMA, WCDMA, and LTE bands

[Search our SAW Duplexer range here](#)

If you'd like further information about any of our products or commercial offerings visit [www.golledge.com](http://www.golledge.com) for more details. If you have any enquiries please get in touch with our team at [sales@golledge.com](mailto:sales@golledge.com) or speak to us on +44 1460 256 100.

# Thank You

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The background of the bottom section is a dark, teal-tinted image showing a close-up of electronic components, including a keyboard and various circuit boards, with a person's hands visible working on a board.

Precision timing makes  
the difference

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We've been providing world-leading service for over 30 years