

Precision timing makes the difference

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

Frequency Products For New Designs in 2022



CRYSTALS



OSCILLATORS



TCXOs & VCXOs



VCXOs



SAW FILTERS



OCXOs



RTC MODULES



CRYSTAL FILTERS



SAW DUPLEXERS



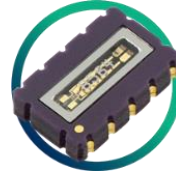
SAW RESONATORS

Contents

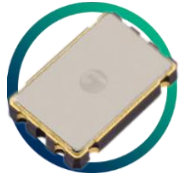


Crystals | p3-11

Low Frequency Crystals | p3-6
 High Frequency Crystals | p7-8
 Crystals for special applications | p9-11



Real Time Clock Modules | p27-28



Oscillators | p12-19

Low Frequency Oscillators | p12-15
 High Frequency Oscillators | p16-17
 Oscillators for special applications | p18-19



Crystal Filters | p29-30



TCXOs | p20-23

TCXOs for special applications | p22-23



OCXOs | p31-32



VCXOs | p24-26

VCXOs for special applications | p26



SAW Devices | p33-35

SAW Filters | p33
 SAW Duplexers | p34
 SAW Resonators | p35

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

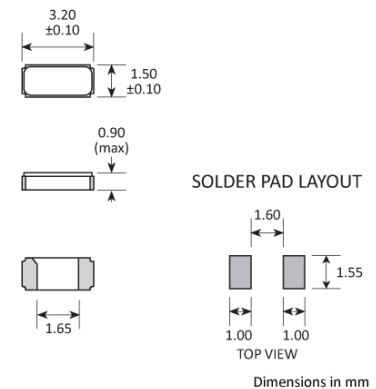
GSX-317

Miniature SM 32.768kHz Watch Crystal

The GSX-317 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 = 4.8mm²
- Highly competitive
- Core stock
- Available with 6pF, 7pF, 9pF and 12.5pF load capacitance options



[Configure your GSX-317 here](#)

Surface Mount Quartz Crystals – 32.768kHz

Ultra-Miniature watch crystals for commercial and industrial applications

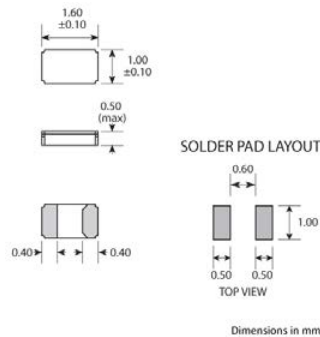
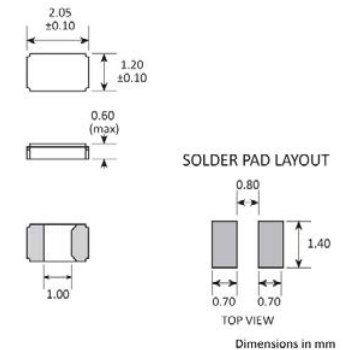
Available in a range of packages and pad configurations, Golledge watch crystals always offer the most competitive solution

GWX-2012

Ultra- Miniature SM 32.768kHz Crystal

- Suitable for high volume applications
- 2.05 x 1.2mm footprint
- Board area = 2.4mm²
- Ultra-low profile, just 0.6mm high
- Vacuum sealed for high stability

[Access the GWX-2012 datasheet here](#)



GWX-1610

Miniature SM 32.768kHz Crystal

- 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

[Access the GWX-1610 datasheet here](#)

GSX-201

- Highly suitable as drop in replacement for existing designs
- Specifically introduced to provide longevity for existing designs
- Not recommended for new designs

[Access the GSX-201 datasheet here](#)



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

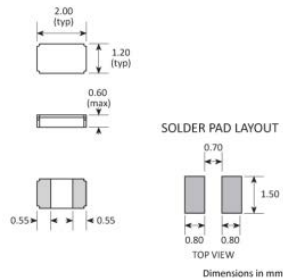
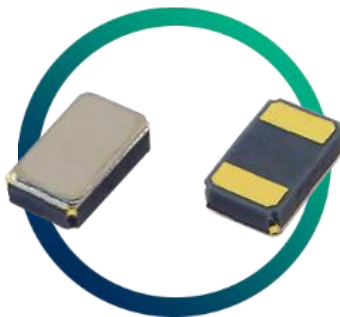
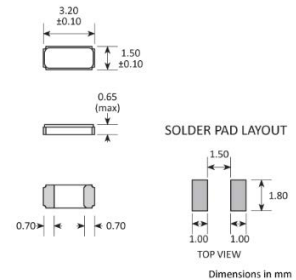
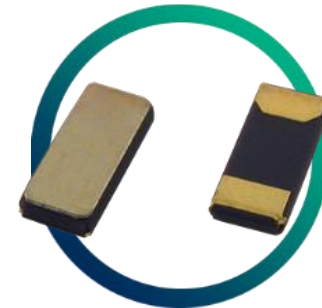


CM7V-T1A

Miniature SM 32.768kHz Crystal with AEC-Q200

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

- High shock and vibration resistance
- 3.2 x 1.5mm footprint
- Board area = 4.8mm²
- Extended temperature range option
- Full PPAP documentation available on request



CM8V-T1A

Ultra-Miniature 32.768kHz SM AEC-Q200 Crystal

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

- Ultra-low profile of 0.6mm
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Extended temperature range option
- Full PPAP documentation available on request

Surface Mount Quartz Crystals – 32.768kHz

Solutions for Harsh Environments

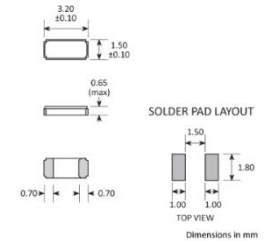
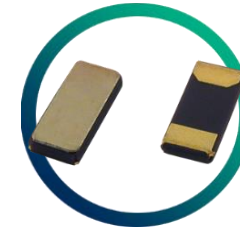
Available in a range of packages and pad configurations, Golledge watch crystals always offer the most competitive solution



CM7V-T1A/M

Ultra-Miniature SM 32.768kHz Crystal

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

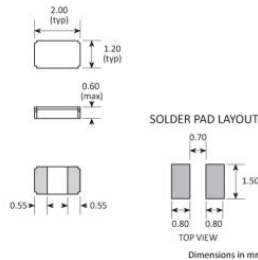
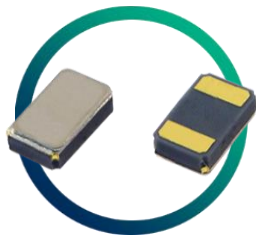


- High shock and vibration resistance
- 3.2 x 1.5mm footprint
- Extended temperature range of -55 to +125°C available
- Low power consumption

CM8V-T1A/M

Ultra-Miniature SM 32.768kHz Crystal

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

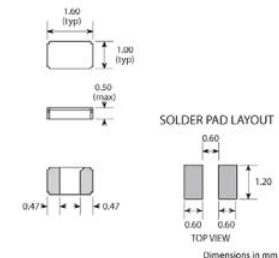


- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Extended temperature range of -55 to +125°C available

CM9V-T1A/M

Ultra-Miniature 1610 Package SM 32.768kHz Crystal

[Access the CM9V-T1A/M 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 1.6mm²

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

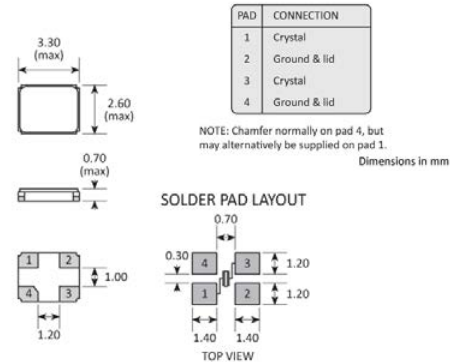
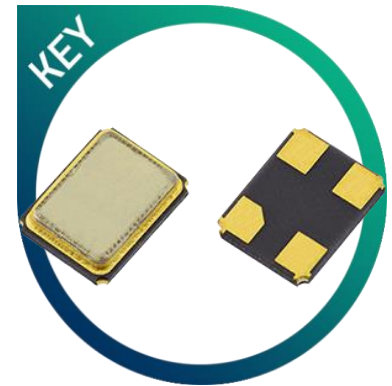
GSX-333

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

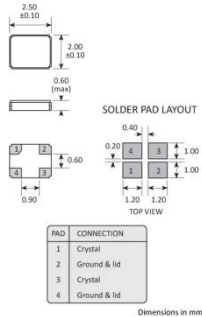
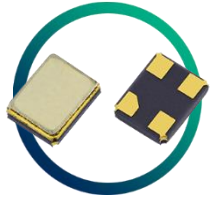


[Configure your GSX-333 here](#)

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

- Ideal for Bluetooth/Wireless applications
- Board area = 5.0mm²
- 2.5 x 2.0mm footprint
- Seam sealed for excellent stability

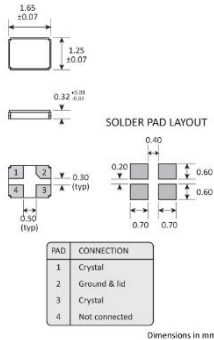
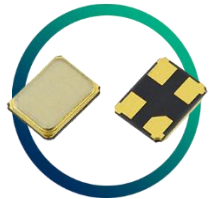
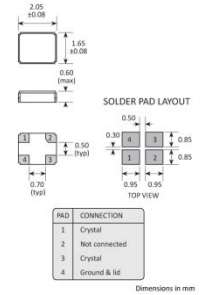
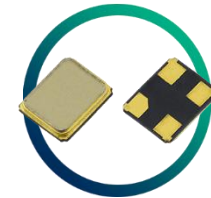
[Access the GSX-323 datasheet here](#)

GSX-223

16.0 ~ 54.0MHz Ultra-Miniature SM Crystal

- Ultra-miniature for maximum space saving
- Board area = 2.4mm²
- 2.0 x 1.2mm footprint
- Seam sealed for long term stability

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



GSX-213

Ultra-Miniature SM Crystal for NFC, Smartcard etc.

- Available from 24.0 ~ 60.0MHz
- 1.92mm² board area
- 1.6 x 1.2mm footprint
- Ideal for NFC applications
- Excellent ageing characteristics

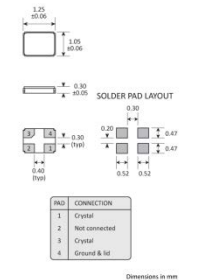
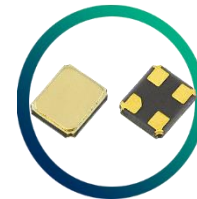
[Access the GSX-213 datasheet here](#)

GSX-113

Super-Miniature SM Crystal with Low ESR

- 1.2 x 1.0mm footprint
- Available from 32.0 ~ 80.0MHz
- Fundamental mode up to 80MHz
- Board area = 1.2mm²

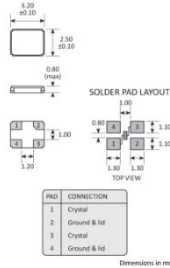
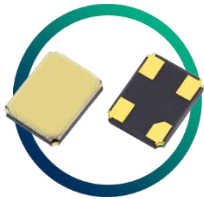
[Assess the GSX-113 datasheet here](#)



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 8.0 ~ 150MHz Crystal

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

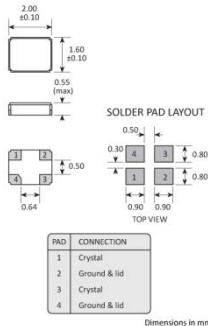
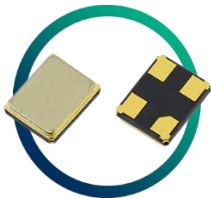
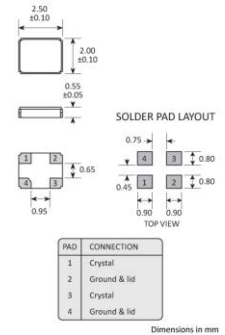
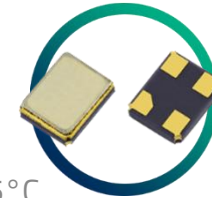
- AEC-Q200 qualified with PPAP available
- Board area = 8.0mm²
- 3.2 x 2.5mm footprint
- Extended temperature range of -40 to +125 °C

GRX-320

Ultra-Miniature SM 12.0 ~ 80.0MHz Crystal

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

- AEC-Q200 qualified with PPAP available
- Board area = 5.0mm²
- 2.5 x 2.0mm footprint
- Extended temperature range of -40 to +125 °C



GRX-220

16.0 ~ 72.0MHz Ultra- Miniature SM Crystal

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

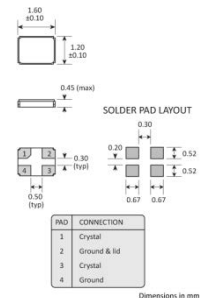
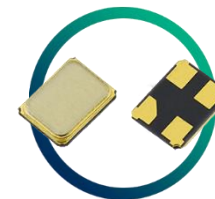
- AEC-Q200 qualified with PPAP available
- Board area = 3.2mm²
- 2.0 x 1.6mm footprint
- Temperature range of -40 to +125 °C available

GRX-210

Ultra- Miniature SM Crystal For Automotive

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

- Available from 24.0 ~ 60.0MHz
- 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

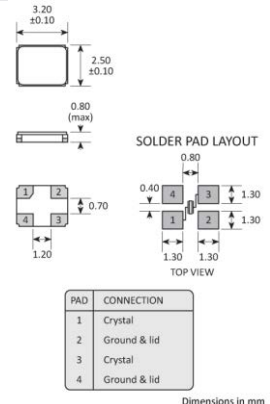
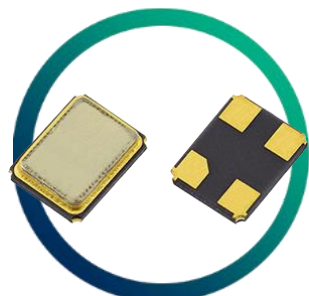
Crystals for high frequency applications

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

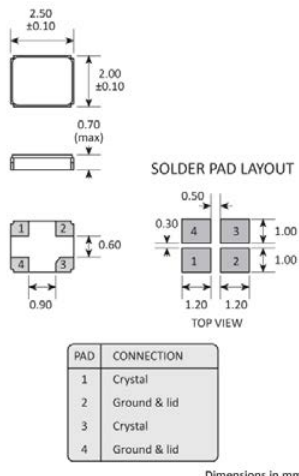
GSX-338

Ultra-Miniature High Frequency SM Crystal

Access the GSX-338 datasheet here



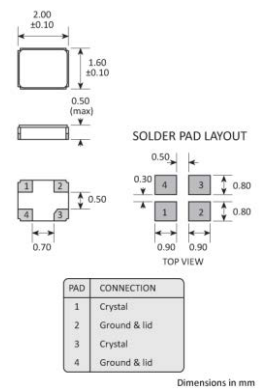
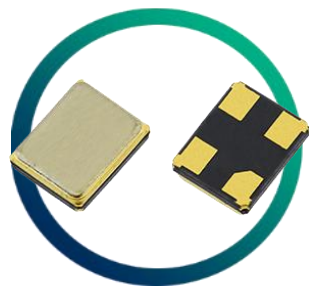
- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 3.2 x 2.5mm footprint
- Small and medium quantities also available



GSX-328

12.0 ~ 315MHz Miniature SM Crystal

Access the GSX-328 datasheet here

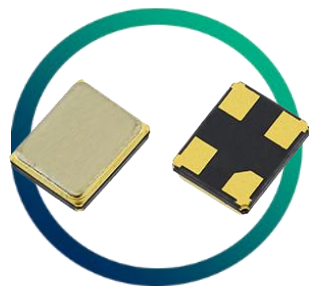


- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 2.5 x 2.0mm footprint
- Small and medium quantities also available

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

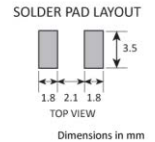
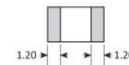
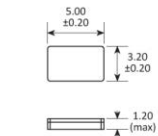
High frequency crystals for harsh environments
 Extreme stability and high shock and vibration resistance



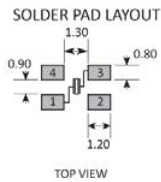
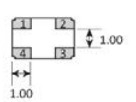
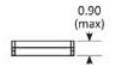
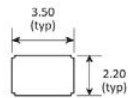
CC2A

SM Crystal Suitable For Harsh Environments

[Access the CC2A range here](#)

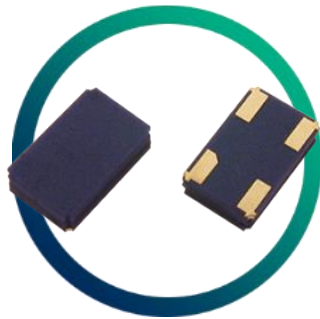


- Available from 12.0 ~ 70.0MHz
- High shock and vibration resistance
- 5.0 x 3.2mm footprint
- Wide range of frequencies available
- Extreme temperature ranges available, including as wide as -55 to +200°C



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

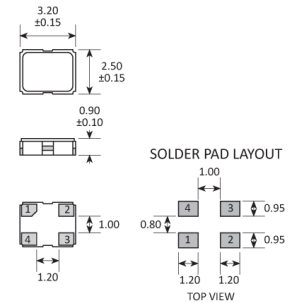
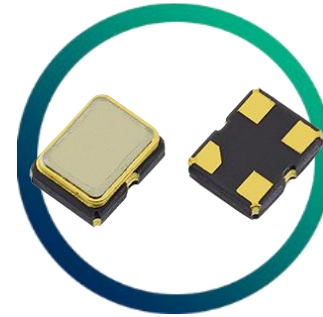
Low frequency oscillators for commercial and industrial applications
Wide supply voltage and operating temperature ranges available

GAO-3301

Ultra-miniature SM Oscillator

- Suitable for high volume applications
- 3.2 x 2.5mm footprint
- Board area = 8.0mm²
- Ultra-low profile, just 1.0mm high
- Low current consumption
- AT cut resonator and dividing circuit
- Excellent temperature stability

[Access the GAO-3301 datasheet here](#)



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

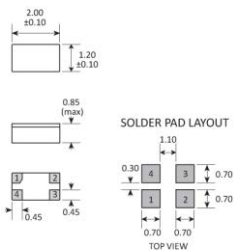
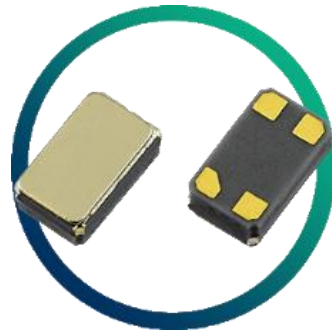
Dimensions in mm

OM7605C8

Ultra-miniature SM Oscillator

- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Extended temperature range of -40 to +85 °C available
- Optional AEC-Q200 automotive qualification
- Ultra-low power consumption

[Access the OM7605C8 datasheet here](#)

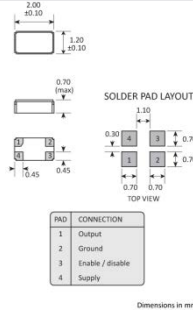


PAD	CONNECTION
1	Output
2	Ground
3	Enable / disable
4	Supply

Dimensions in mm

Low Frequency Oscillators– Automotive

32.768kHz & 100kHz oscillators for automotive applications
Wide supply voltage and operating temperature ranges available



OM7604C7

Ultra-miniature 32.768kHz Oscillator for Automotive

[Access the OM7604C7 datasheet here](#)

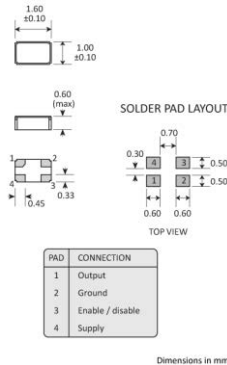
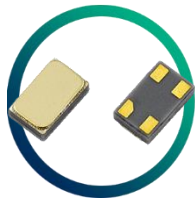
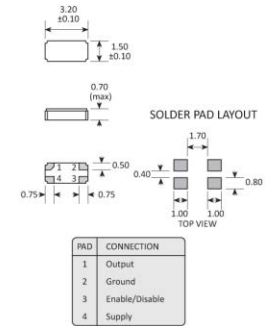
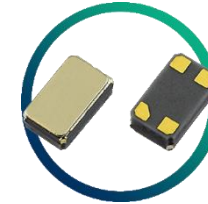
- Ultra-low power consumption
- Tight frequency tolerance
- 3.2 x 1.5mm footprint
- High shock and vibration resistance
- Industrial and extended temperature ranges

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



OM7605C9

Ultra-miniature 32.768kHz Oscillator for Automotive

[Access the OM7605C9 datasheet here](#)

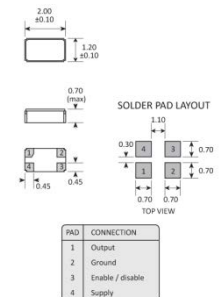
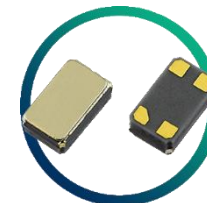
- Ultra-low power consumption
- Tight frequency tolerance
- 1.6 x 1.0mm footprint
- High shock and vibration resistance
- Industrial and extended temperature ranges

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



Surface Mount Oscillators– 32.768kHz & 100kHz

Low Frequency Oscillators for Material Sensitive Applications

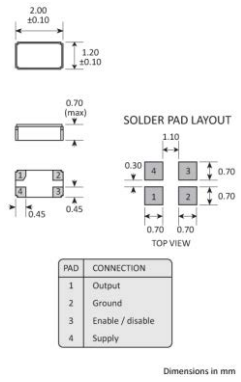
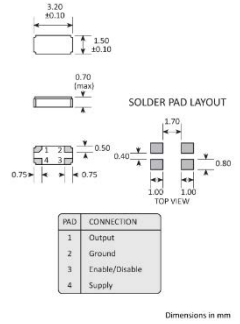
Wide supply voltage and operating temperature ranges available

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

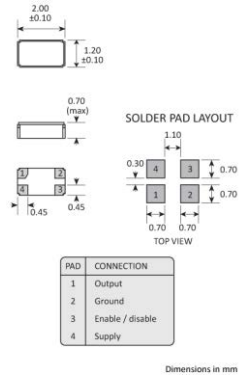
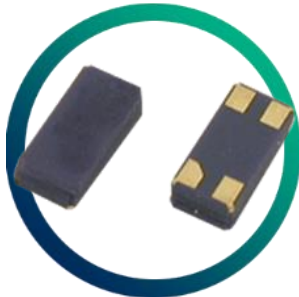


OV7605C8

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

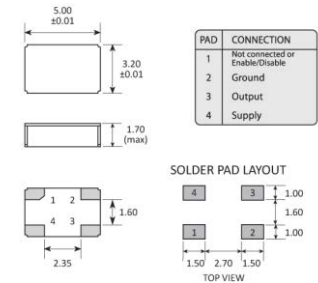
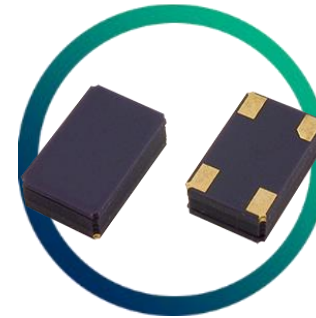


MCSO2_{xxx}

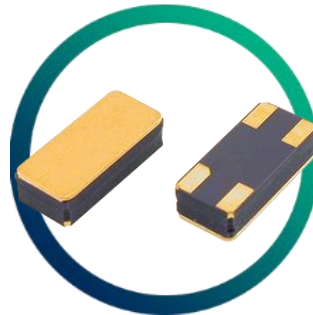
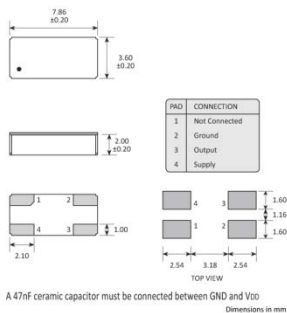
Miniature Fully Ceramic SM Oscillator

- 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)

Access the MCSO2_{xxx} range here



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



MCSO1_{xxx}

Miniature Low Frequency SM Oscillator

- 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)

Access the MCSO1_{xxx} range here

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

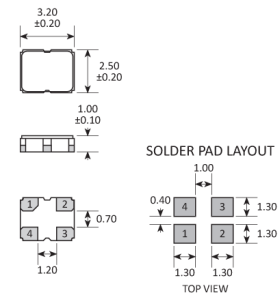
GXO-U119

High Stability SM Oscillator

The GXO-U119 oscillator features tight frequency stability and low current consumption as standard and is available with supply voltage options from 1.8V ~ 3.3V.

Key Points

- High stability
- Low current consumption
- 3225 Miniature ceramic package with metal lid
- Enable / disable tristate function
- Competitive pricing
- Available from 1.8MHz ~ 170MHz



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

Dimensions in mm

[Configure your GXO-U119 here](#)

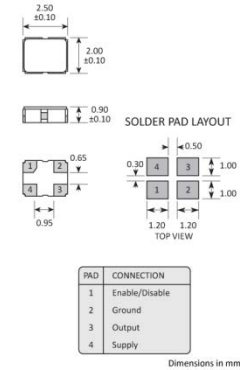
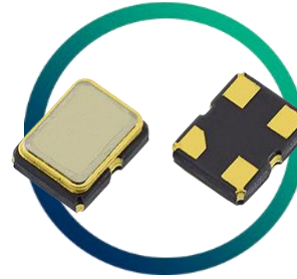
Surface Mount Oscillators – Commercial/Industrial

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

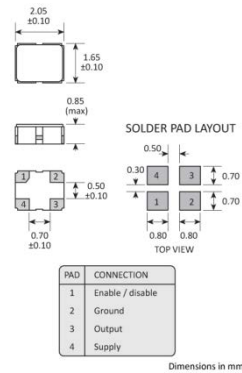
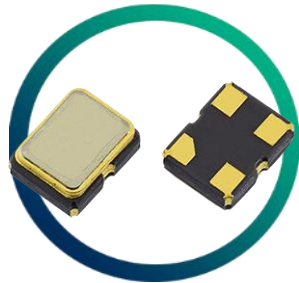
GXO-U120

Miniature CMOS Oscillator with Low Jitter

Access the GXO-U120 family here



- Low current consumption
- Enable / disable tristate function
- Miniature 2.5 x 2.0mm ceramic package with metal lid
- Competitive pricing
- Available from 1.8MHz ~ 170MHz



GXO-U121

Miniature CMOS Oscillator with Low Jitter

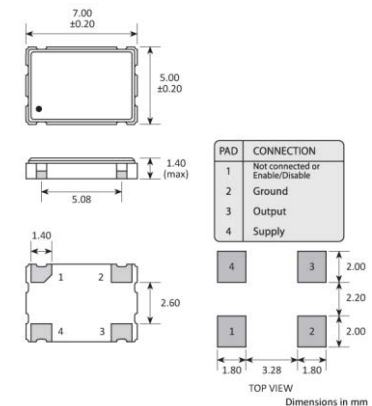
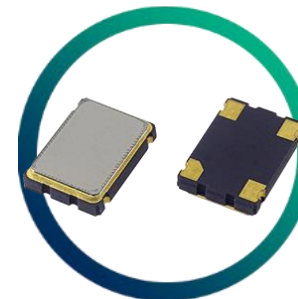
Access the GXO-U121 family here

- 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 1.8 ~ 170MHz

GXO-U108

Versatile Oscillator with Many Available Frequencies

Access the GXO-U108



- Very wide range of available frequencies from 12.0kHz ~ 170MHz
- 7.5 x 5.0mm footprint
- High drive capabilities up to 50pF
- Power saving variants available

Surface Mount Oscillators – Harsh Environments

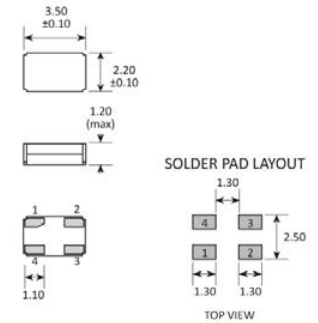
High frequency components and those suitable for harsh environment
 Extended temperature ranges and high shock and vibration resistance



MCS06xxx

Miniature Low Jitter Oscillators For Harsh Environments

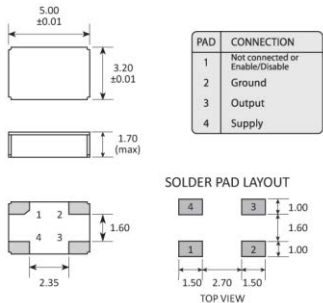
Access the MCS06xxx range here



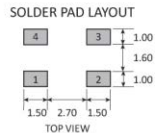
PAD	CONNECTION
1	Not connected or Enable/Disable
2	Ground
3	Output
4	Supply

Dimensions in mm

- 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)



PAD	CONNECTION
1	Not connected or Enable/Disable
2	Ground
3	Output
4	Supply



Dimensions in mm

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

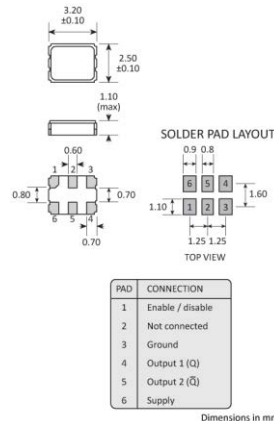
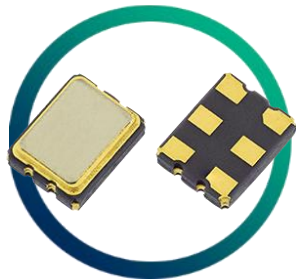
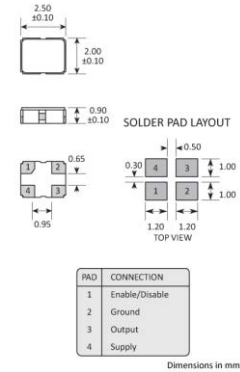
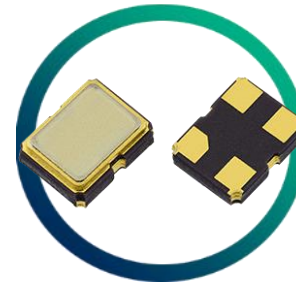
Packages as small as 1.6 x 1.0mm with exceptionally low jitter characteristics

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

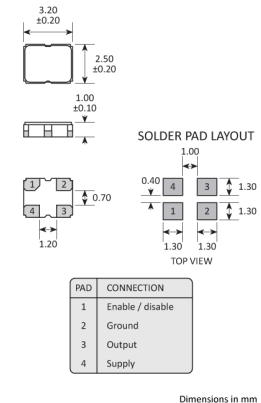
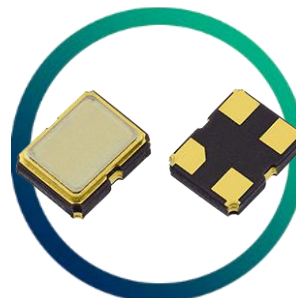


GXO-L31

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 $\pm 0.5\text{ppm}$

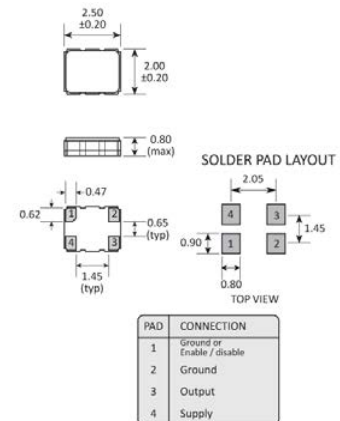
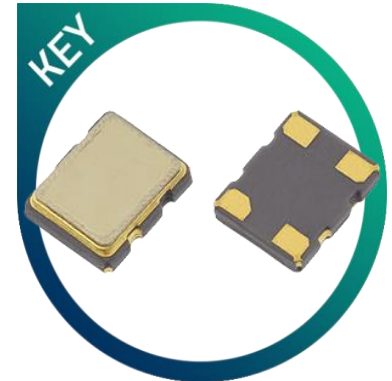
GTXO-253

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



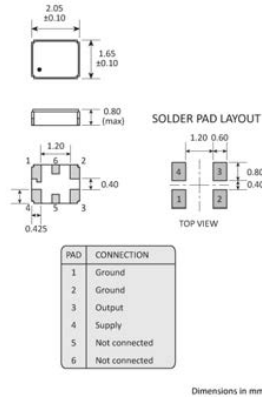
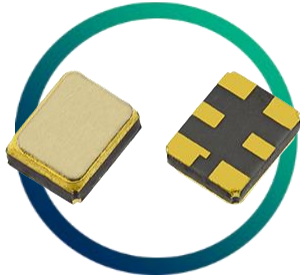
Dimensions in mm

[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

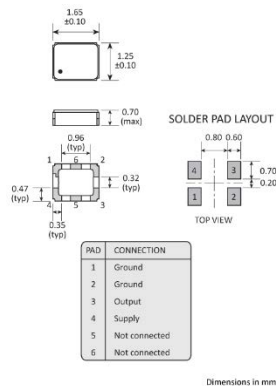
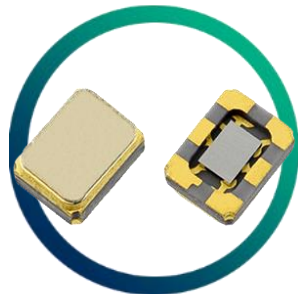
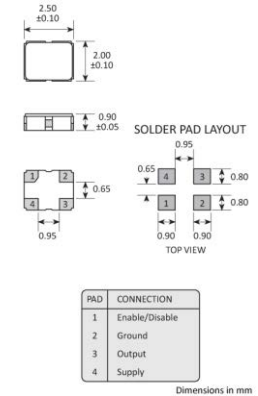
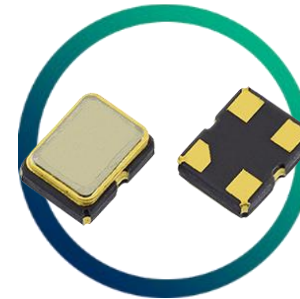
- Ideally suited for wearable applications
- Supply voltages from 1.8V ~ 3.6V
- Low power consumption
- Clipped sine output
- Excellent frequency stability
- Available from 10.0 ~ 70.0MHz

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

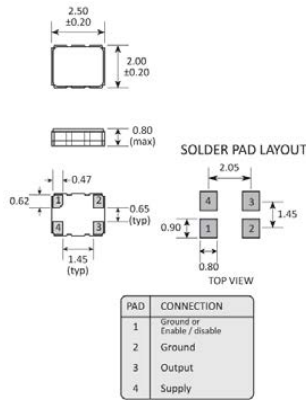
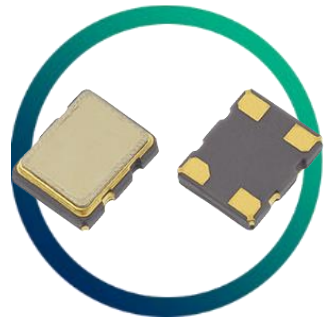
Access the GTXO-163 family here

- 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

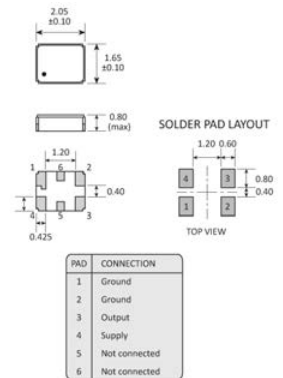
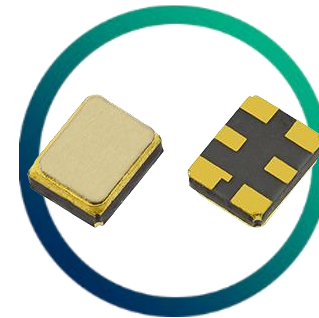
Access the GTXO-253 family here

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



Dimensions in mm

TCXOs – Special Applications

High frequency and tight stability oscillators

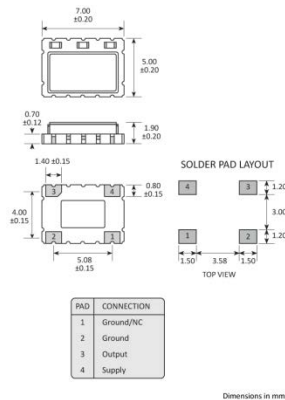
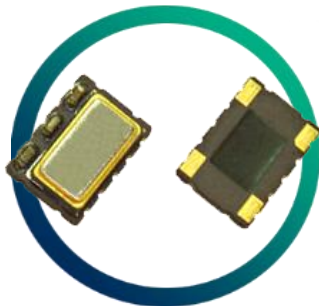
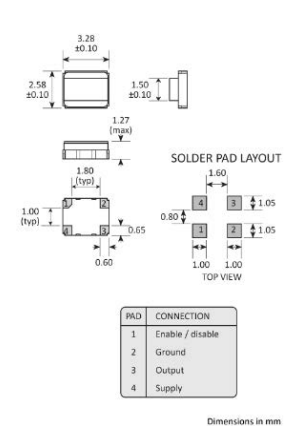
Miniature SM packages with exceptional stability and pullability options

GTXO-94

32.768kHz CMOS TCXO

- 32.768kHz
- Extremely low current consumption
- ± 5 ppm frequency stability
- 1.8V, 2.5V, 3.0V and 3.3V supply options
- 3225 miniature SM package

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
- ± 4.6 ppm stability over 20 years
- Miniature 7050 SM package
- 3.3V & 5V supply voltage options

Access the
GTXO-73
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

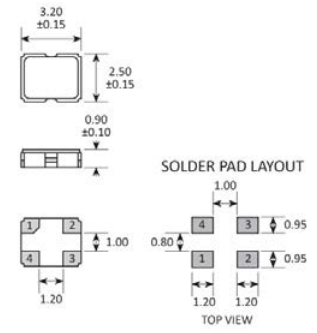
GVXO-338

Surface Mount VCXO

GVXO-331 voltage controlled oscillators are available over a frequency range of 1.50 to 125MHz 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-338 range here](#)

Voltage Controlled Oscillators – VCXOs

Gain control with our wide range of VCXOs – Key Products

Wide frequency pullability and a range of operating supply voltages

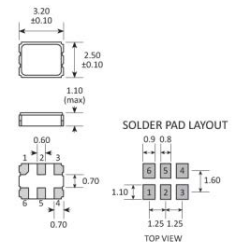
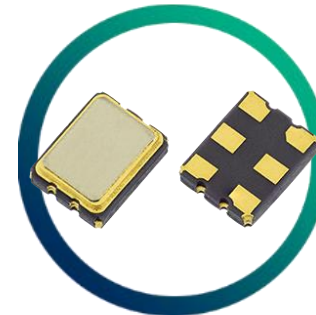
GVXO-E33L (L33L)

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)

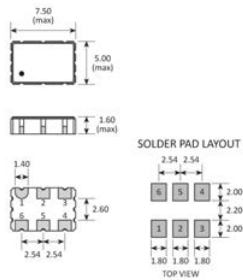
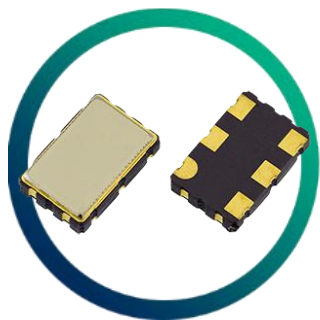
Access the
GVXO-E33L

Access the
GVXO-L33L



PAD	CONNECTION
1	Control voltage
2	Enable / disable
3	Ground
4	Output 1 (Q)
5	Output 2 (Q)
6	Supply

Dimensions in mm



PAD	CONNECTION
1	Control voltage
2	Enable / disable
3	Ground
4	Output 1 (Q)
5	Output 2 (Q)
6	Supply

Dimensions in mm

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 ± 130 ppm

Access the
GVXO-E76L

Access the
GVXO-L76L

VCXOs – Harsh Environments

Gain control with our wide range of VCXOs

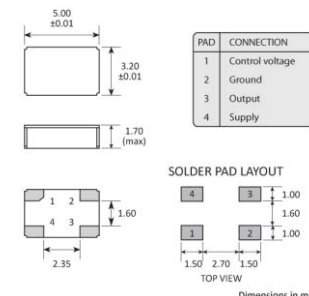
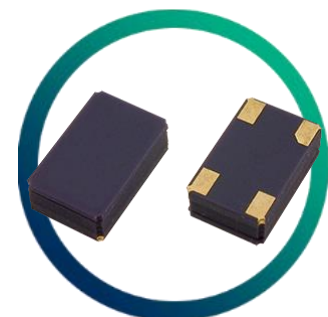
High shock and vibration resistance and extreme operating temperature ranges



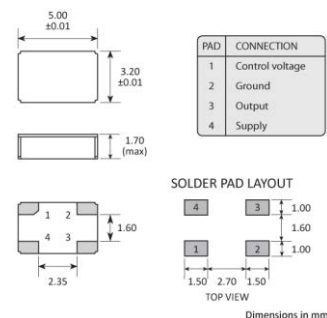
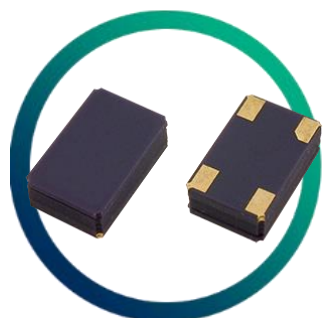
VCX02EV

CMOS VCXO for Harsh Environments

Access the VCX02EV here



- 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



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

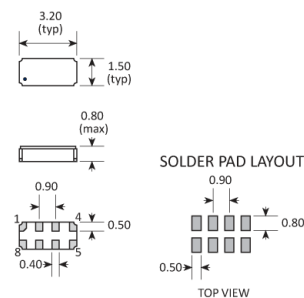
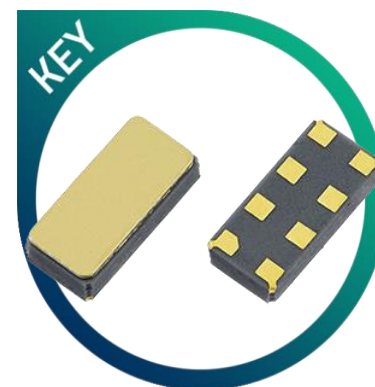
RV-3032-C7

RTC I²C 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

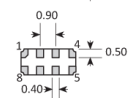
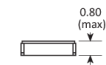
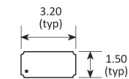
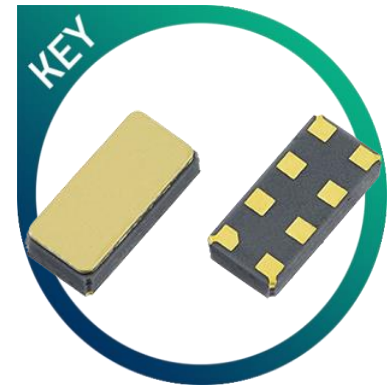
RV-3028-C7

Ultra-low Power I²C RTC Module

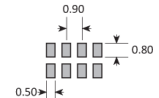
The RV-3028-C7 boasts ultra-low current consumption of only 40nA, ideal for many applications requiring low power components, including IoT, wearables, portable devices, healthcare, metering, industrial and automotive.

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

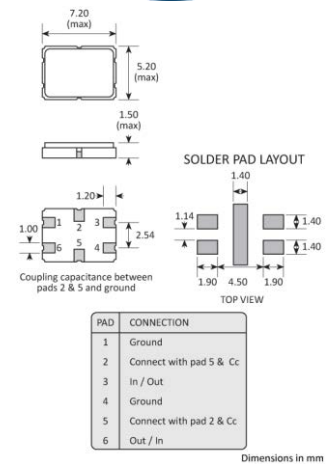
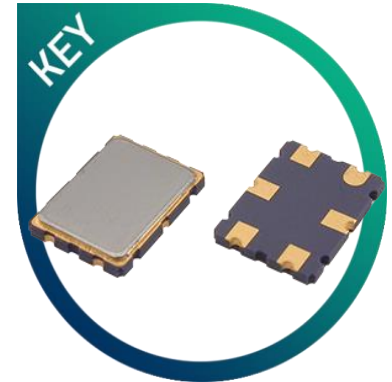
GSF-75

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

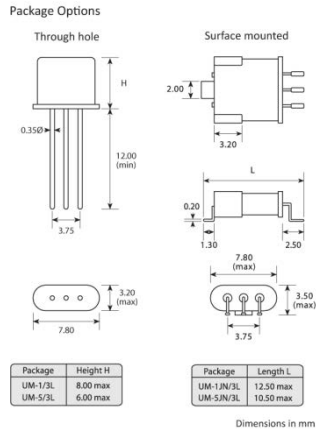
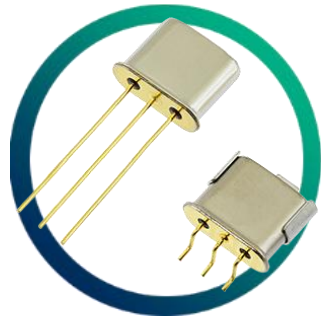
- 4-pole filter in one package
- Frequencies from 19.655 ~ 75.0MHz available
- Custom specifications available
- Miniature SM package



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

Access the GMCF-45 range here

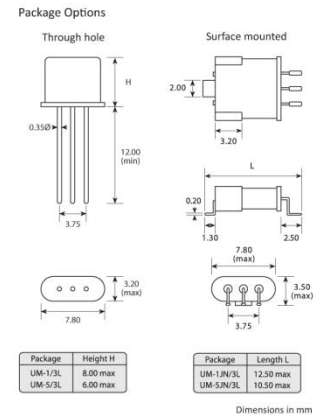
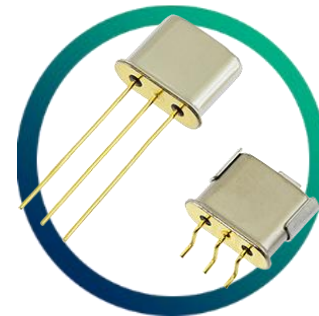
- Multiple package options including through-hole and formed-lead packages
- 2, 4, 6 and 8-pole options available
- Wide range of bandwidths
- Low insertion loss

GMCF-21

Crystal Filters with Centre Frequency 21.4MHz

Access the GMCF-21 range here

- 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



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

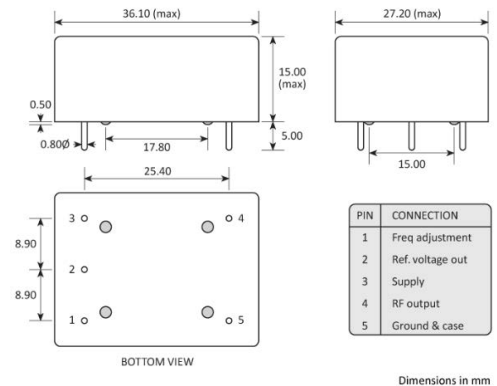
High Frequency OCXO with Ultra-low Phase Noise

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

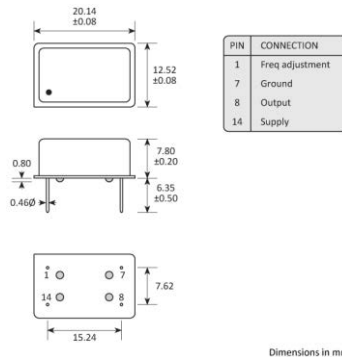
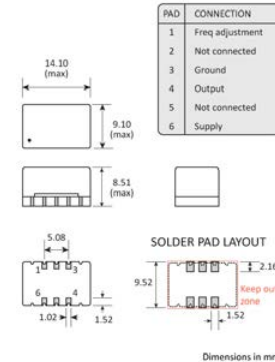
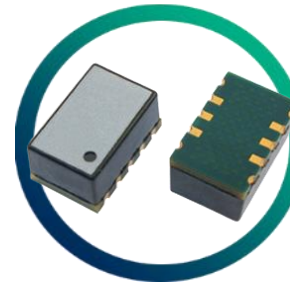
Check out our range of OCXOs when you need the very best

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

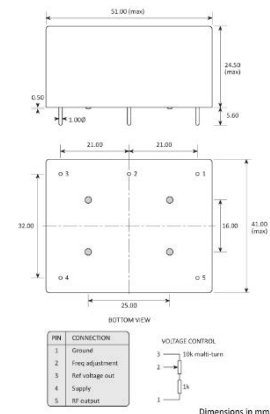


SCOCXOHS

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

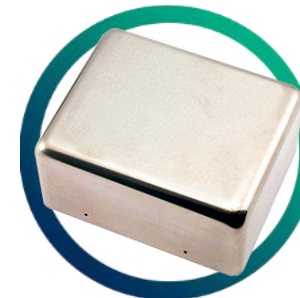


HCD660

High Performance OCXO with Sine Output

Access the
HCD660
datasheet
here

- Temperature stability down to ± 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

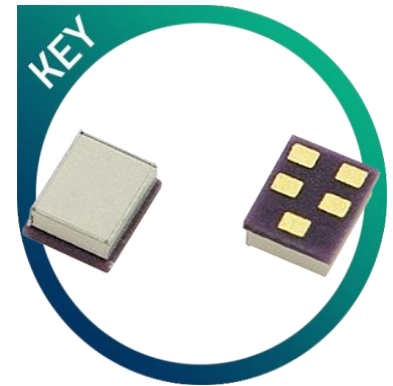
We have one of the widest available ranges of SAW products

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

- 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

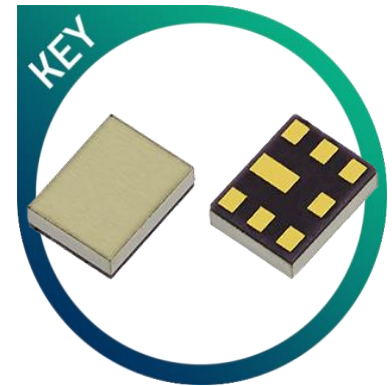
We have one of the widest available ranges of SAW products

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](#)

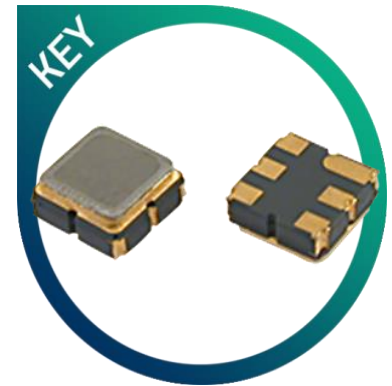
Surface Acoustic Wave Devices – SAWs

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

- 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](#)

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

Thank You



Precision timing makes
the difference

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