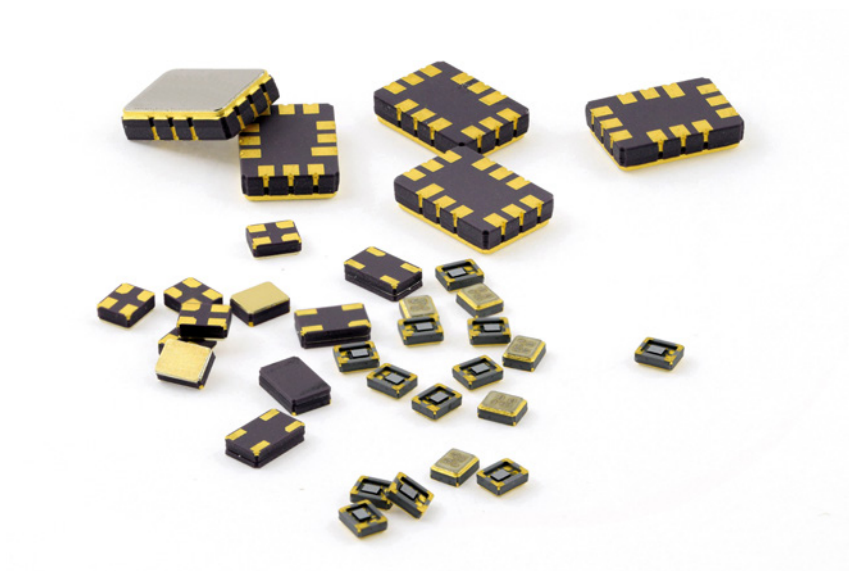


FUTURE PROOF PRODUCTS
FOR YOUR NEW DESIGNS

Let's get innovating...

Antenna | Crystals
Crystal filters
Dielectric filters | Oscillators
OCXOs | RTC modules
TCXOs | VCTCXOs
SAW duplexers | SAW filters
SAW resonators | VCXOs



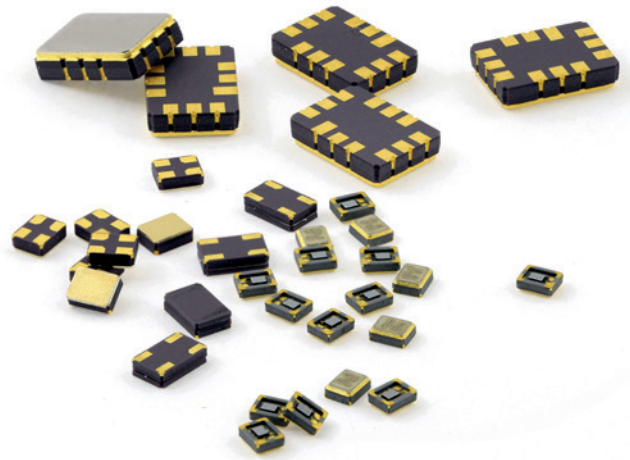
ESTD 1990

2023/24

Welcome to Golledge...

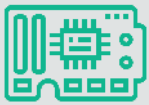
By combining our strengths and aligning with our group strategy, we can provide an end-to-end supply chain and electronics manufacturing service to a global technology marketplace.

Our full range of products is specified on our website, golledge.com, and is the definitive source for up-to-date information including data sheets, product announcements, white papers and much more.



Golledge

...our value added services



LEADING SUPPLIER OF
FREQUENCY CONTROL
PRODUCTS



UK LOGISTICS CENTRE



FAE SUPPORT



SPECIALIST PRODUCT
DESIGN SUPPORT



IN-HOUSE RF ENGINEERING
AND CONSULTANCY



GoGreen Scheme



Persistent Organic
Pollutants Declaration



Certificate of Conformance
Red Phosphorous



Halogen Free
Declaration

65

California 65
Declaration



Ozone Depleting
Declaration



Asbestos Non-use
Declaration



TSCA PBT Substances
Declaration

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This is **WHAT**... ...we **PROMISE**

We believe that when choosing an electronics support solutions partner, you're not only selecting a supplier, but rather a business partner that can work with you as your business changes and grows.

Our customer liaison team work closely with all departments to ensure that all customers experience the very best levels of service.

We also have stringent Quality Control processes which manages and records any issues that may arise during the manufacturing process and helps with any enquiries or technical support issues you may have about the services you have commissioned.



WE WERE BORN IN THE INDUSTRY.



5

WE LISTEN. WE DESIGN. WE MANUFACTURE. WE SUPPLY.



GLOBAL
DISTRIBUTION
SEE PAGE 69
FOR DETAILS'

Imagine a team of professional designers and engineers with a passion for conceiving, designing, developing and supplying leading edge electronic components. And add in to that the fact that a staggering 90% of our staff have been working for us for 10+ years – that perhaps makes us the most trusted and experienced team in the industry. **Welcome to Golledge.**

our passion

Since our incorporation in 1990 Golledge Electronics has enjoyed unprecedented success. After many years of continual growth, we are now the UK's leading supplier of Frequency Control Products.

And now, as part of the TechPoint Group, Golledge sits alongside Bela Electronics, Interconics and Vanilla Electronics. Our 'Centres of Excellence', as we truly believe they are, are all experts in their individual fields.



CONTACT US

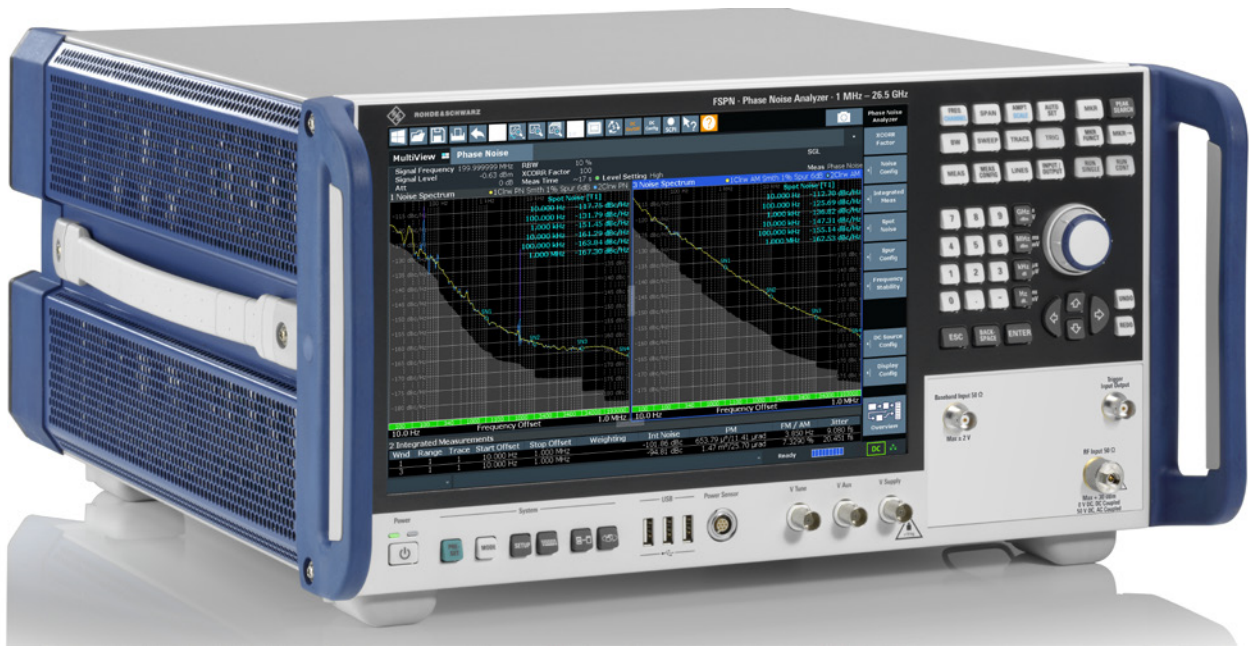
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TESTING CAPABILITIES



- All frequency and time measurements referenced to our own rubidium standard
- Surface mount rework facility
- Spectrum analyser
- Tektronix 1GHz oscilloscope
- Access to X-ray inspection via partners in the TechPoint group

Surface mount and leaded crystals using S and A 250B network analyser

Parameters

- Series Resonance
- Parallel Resonance
- Resonance for a specified load capacitance
- Equivalent series resistance
- C_0
- C_1
- ESR and series resonance variation with drive level
- Spurious response ratio

Surface mount and leaded crystals using S and A 4220R test chamber

Parameters over temperature

- Series Resonance
- Equivalent series resistance
- C_0
- C_1
- Resonance at specified load capacitance
- ESR variation with drive
- Spurious response ratio

Leaded using S and A 250B network analyser and LA techniques LA19-13-03

Parameters

- Insertion loss
- Bandwidth
- Spurious responses
- S-Parameters from our 450Ω test fixture
- Testing of surface mount parts possible

Leaded and surface mount

- Phase noise using NoiseXT PN 9000

Leaded and surface mount oscillator automated temperature testing using Agilent counter, DMM, and S and A 4220R test chamber with LabView test software

- Centre frequency
- Current consumption
- Tuning range
- Tune linearity
- Pushing
- Perturbations
- Up to 50 parts in each test run
- Output to Excel spreadsheet with automated formatting

Leaded and surface mount oscillators using Pendulum CNT-91 Timer | Counter | Analyser and TimeView software

Parameters

- Allan variance
- Startup time
- Frequency settling time
- Tune frequency response
- Output amplitude using Tektronix 1GHz digital storage oscilloscope

- Full S-parameter measurement of SAW filters soldered to test PCBs. S-parameter measurement of 3.0 x 3.0mm and 3.8 x 3.8mm SAW packaged parts in a custom calibrated test fixture

Real Time Clock Modules

- Functionality checks using DiMax SUB-20-B to generate SPI and I²C and control from LabView for RTC modules

Oscillators

Leaded and Surface Mount testing using R and S 26GHz FSPN

- Phase noise
- Jitter
- Frequency transient response
- VCO testing
- Allan deviation

Crystals

Batch testing over temperature using an upgrade to our S&A 4220R test chamber and S&A 250B Network Analyzer



COMPANY

WE NOW DO SO MUCH MORE THAN ANYONE ELSE.

INTERCONICS

interconics.co.uk

- PCB assembly
- PCB design
- Technical and consultation services
- Automated 3D inspection (optical + X-ray)
- Medium batch production


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- PCB design and assembly
- DFM support
- Fast track prototyping
- Small batch production
- Second stage conventional fit


golledge.com

- Frequency control products
- Technical testing
- Alternative part solutions
- In house FAE support

vanilla

vanillaelectronics.com

- Critical sourcing components
- Supplier consolidation
- Bespoke kitting
- Alternative parts solutions
- Box build

Together...we do more

TECHPOINT

As we're now part of the TechPoint Group, we can now offer value added services. A sort of a 'one stop shop'.

Our aim is to offer a truly comprehensive solutions proposition, offering complete solutions to your business, whatever its shape, or its size.

Being part of the TechPoint Group, alongside Bela Electronics, Vanilla Electronics and Interconics enables us to offer an impressive array of technical expertise alongside the most up-to-date manufacturing facilities.

Our 'Centres of Excellence', as we truly believe they are, are all experts in their individual fields.

By combining our strengths and aligning with our Group strategy, we can provide an end to end supply chain and electronics service to a global technology marketplace.

techpoint.co.uk

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If your company has a business portal, we're used to offering a direct ordering service via this method. This often saves time with 'red tape' paperwork and can even speed up your ordering process.

Do speak with us to find out how we can help more.



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We know that when you place an order, you want the goods as soon as possible. We are committed to providing you with the very best customer experience possible.

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Please be aware that we use external courier companies for our delivery service. Therefore certain elements remain outside our control that may affect delivery times, such as mis-sorting, accidents, traffic and weather conditions.

Golledge Electronics Ltd cannot accept liability should this occur.



SUPPORTING YOUR BUSINESS

If you find you need some help then do contact us. We have a team of experts on hand and are ready to help, no matter what your query. You can also get help from our 'knowledge hub' pages on our website. You can even call our Technical Helpline direct on +44 (0) 1460 256100



TECHNICAL HELP

To help you get your product into production fast, we also offer CAD model libraries of our most popular parts to help with your design stage.



CAD MODEL LIBRARIES

If you need design expertise, or just need advice on the best pairing solution, we can help. Our expert UK in-house engineering team, led by our analogue specialists, means we can help with all RF technologies for both component and board level evaluation.



DESIGN EXPERTISE

Sometimes you just need to be sure that what you have seen advertised is exactly what you need. So we offer a FREE sample service to help you choose before you buy.



REQUEST A FREE SAMPLE

We're always looking for interesting stories to tell when you've been using Golledge products. We've had some amazing stories published in the press and on our website. And that's great for your business and ours too. So do contact us and we'll do the rest.



PUBLICITY
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In our online products page, you'll find that every product has a knowledge hub. You'll find everything from soldering profiles, drawings and compliance to tape and reel specifications and much more.



KNOWLEDGE HUB

Take a look at golledge.com/products

SURFACE MOUNT QUARTZ CRYSTALS AND OSCILLATORS

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KEY



BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING



AUTOMOTIVE
SOLUTIONS



COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS



HARSH ENVIRONMENT
SOLUTIONS



HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



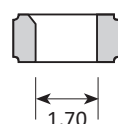
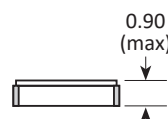
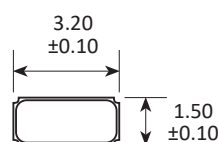
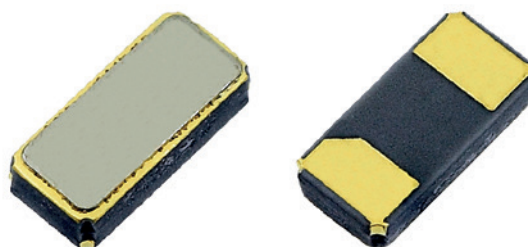
TIGHT STABILITY
SOLUTIONS



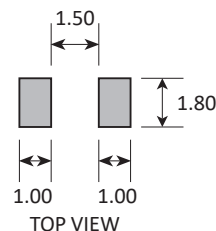
HIGHLY ACCURATE
RF FILTERING

SM 32.768kHz watch crystal

GSX-317 |



SOLDER PAD LAYOUT

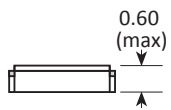
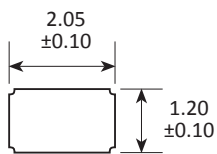


The GSX-317 crystal offers highly competitive pricing and low power consumption in a miniature vacuum sealed ceramic package.

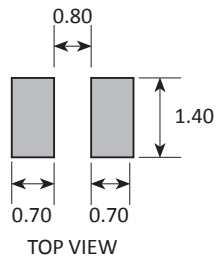
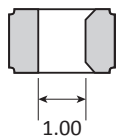
- Compatible with CM315/FC135
- Industry standard 3.2 x 1.5mm footprint
- Board area = 4.8mm²
- Highly competitive
- Core stock
- Available with 6pF, 7pF, 9pF, and 12.5pF load capacitance options

Miniature SM 32.768kHz watch crystal

GWX-2012 |



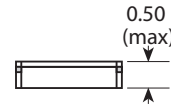
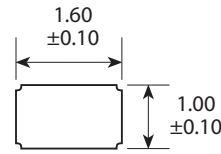
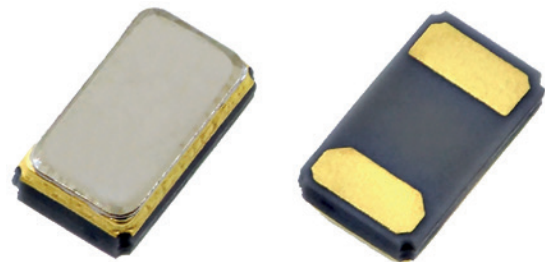
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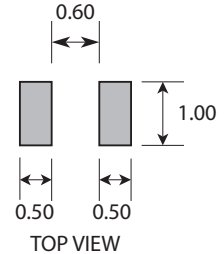
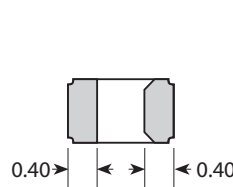
- Suitable for high volume applications
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Ultra-low profile, just 0.6mm high

Ultra-miniature SM 32.768kHz watch crystal

GWX-1610 |



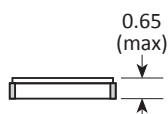
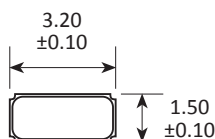
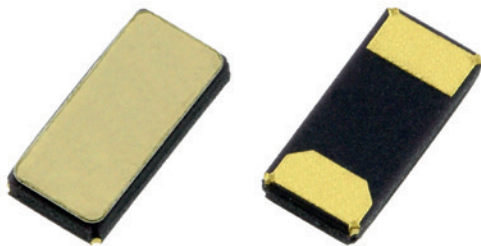
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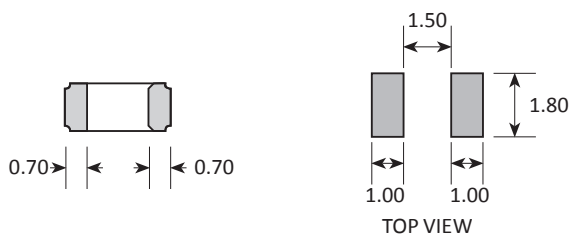
- Competitive pricing for volume applications
- Ultra-low profile, just 0.5mm high
- Light weight miniature package with tiny 1.6 x 1.0mm footprint
- Vacuum sealed for high stability

Miniature SM 32.768kHz crystal with AEC-Q200

CM7V-T1A |



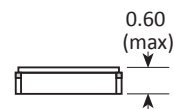
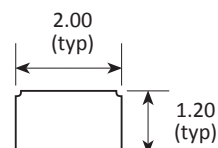
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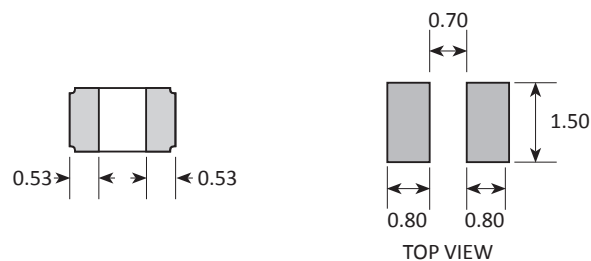
- High shock and vibration resistance
- 3.2 x 1.5mm footprint
- Board area = 4.8mm²
- Extended temperature range option

Miniature 2012 SM AEC-Q200 crystal

CM8V-T1A |



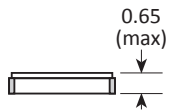
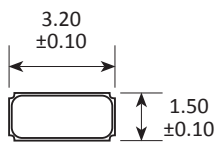
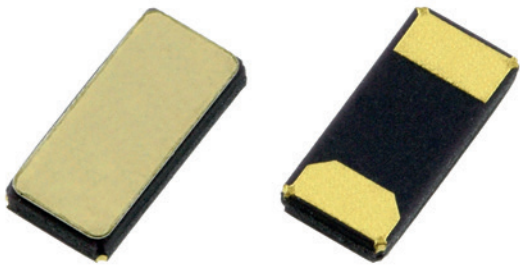
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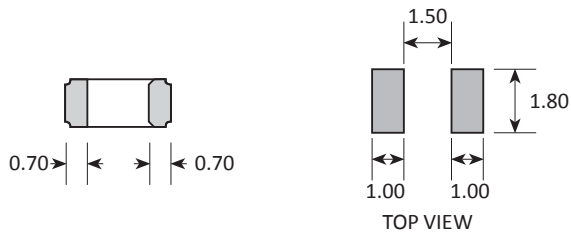
- Ultra-low profile of 0.6mm
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Extended temperature range option

SM 32.768kHz crystal

CM7V-T1A/M |



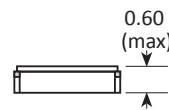
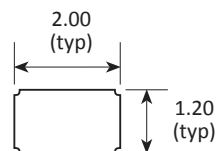
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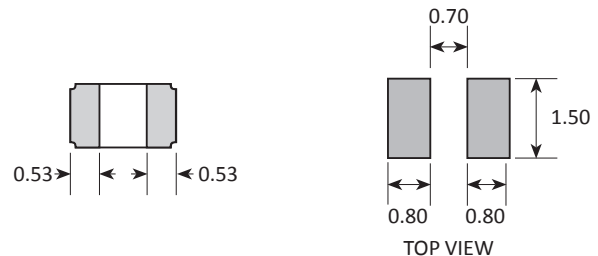
- High shock and vibration resistance
- Extended temperature range of -55 to +125°C available
- 3.2 x 1.5mm footprint
- Low power consumption

Miniature SM 32.768kHz crystal

CM8V-T1A/M |



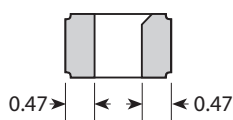
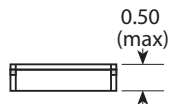
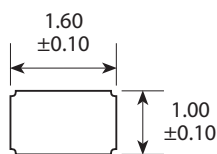
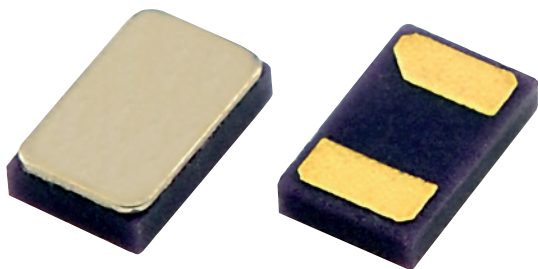
SOLDER PAD LAYOUT



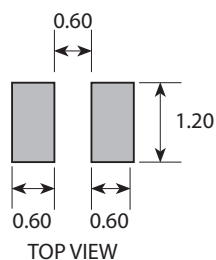
- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Extended temperature range of -55 to +125°C available

Ultra-miniature 1610 package SM 32.768kHz crystal

CM9V-T1A/M |



SOLDER PAD LAYOUT



- Ultra-low profile of 0.5mm
- Extended temperature range of -55 to +125°C available
- High shock and vibration resistance
- Board area of just 1.6mm²

How we can support your business



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KNOWLEDGE HUB
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KEY



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FUTURE PROOF | PREFERRED SIZING**



**AUTOMOTIVE
SOLUTIONS**



**COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS**



**HARSH ENVIRONMENT
SOLUTIONS**



**HIGH FREQUENCY
APPLICATIONS**



**MATERIAL SENSITIVE
APPLICATION SOLUTIONS**



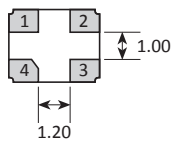
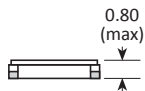
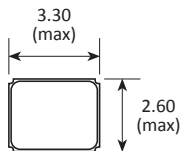
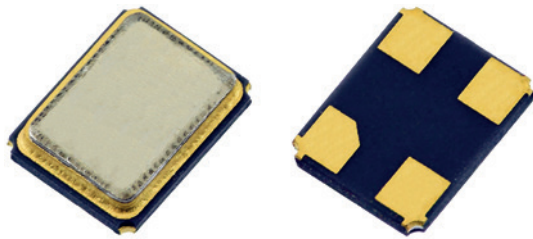
**TIGHT STABILITY
SOLUTIONS**



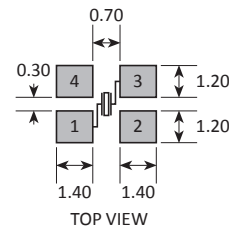
**HIGHLY ACCURATE
RF FILTERING**

High frequency SM 3.2 x 2.5mm crystal with tight specifications

GSX-333 |



SOLDER PAD LAYOUT



TOP VIEW

NOTE: Chamfer normally on pad 4, but may alternatively be supplied on pad 1.

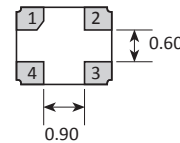
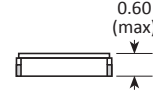
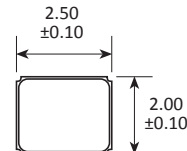
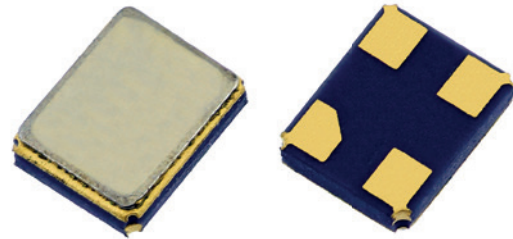
| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

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

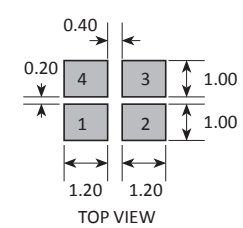
- Metal lid can be grounded to minimise EMI
- Seam sealed for excellent long term stability
- Ultra miniature for maximum space saving
- Ideal for Bluetooth/Wireless applications

Miniature SM 12.0 ~ 66.0MHz crystal

GSX-323 |



SOLDER PAD LAYOUT



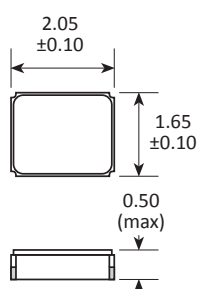
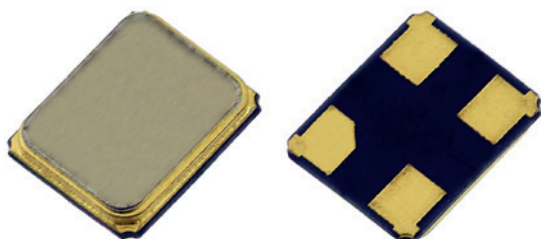
TOP VIEW

| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

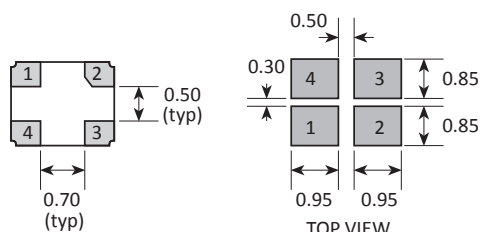
- Ideal for Bluetooth/Wireless applications
- 2.5 x 2.0mm footprint
- Board area = 5.0mm²
- Seam sealed for excellent stability

Ultra-miniature SM 16.0 ~ 96.0MHz crystal

GSX-223 |



SOLDER PAD LAYOUT

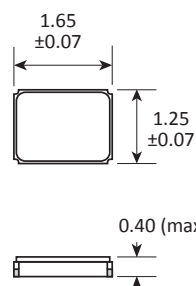
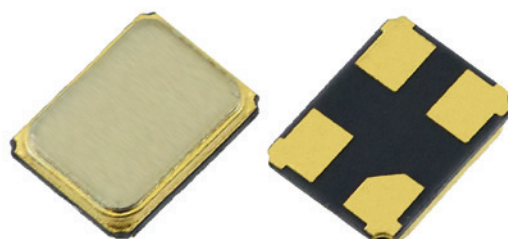


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

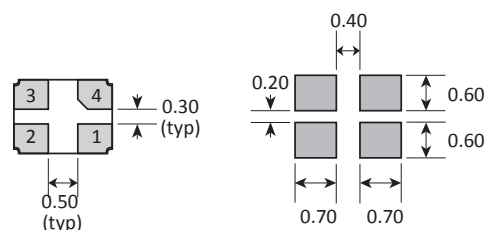
- Ultra-miniature for maximum space saving
- 2.0 x 1.65mm footprint
- Board area = 3.3mm²
- Seam sealed for long term stability

Ultra-miniature SM crystal for NFC, smartcard etc.

GSX-213 |



SOLDER PAD LAYOUT

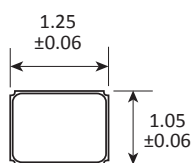
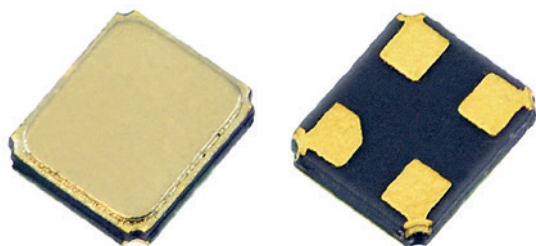


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground/NC |

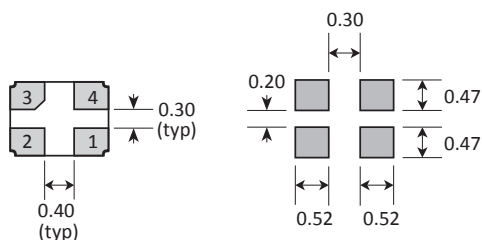
- Available from 24.0 ~ 76.8MHz
- 2.06mm² board area
- Ideal for NFC applications
- Excellent ageing characteristics

Super-miniature SM crystal with low ESR

GSX-113 |



SOLDER PAD LAYOUT



| PAD | CONNECTION |
|-----|---------------|
| 1 | Crystal |
| 2 | Not connected |
| 3 | Crystal |
| 4 | Ground & lid |

- 1.25 x 1.05mm footprint
- Fundamental mode up to 80MHz
- Available from 32.0 ~ 80.0MHz
- Board area = 1.31mm²

Essential info



ORDERING

See page 10 for details



DELIVERY

See page 10 for details



PRODUCTS

See page 10 for details

KEY



BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING



AUTOMOTIVE
SOLUTIONS



COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS



HARSH ENVIRONMENT
SOLUTIONS



HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



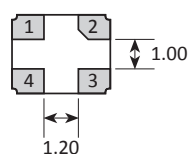
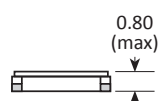
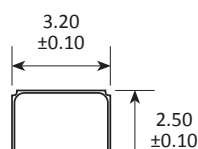
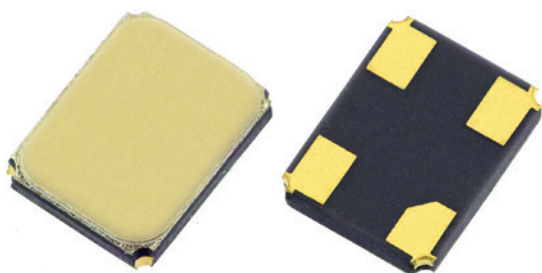
TIGHT STABILITY
SOLUTIONS



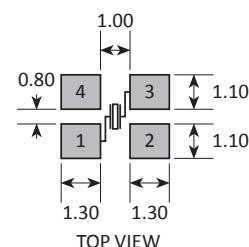
HIGHLY ACCURATE
RF FILTERING

Automotive qualified SM crystal 12.00 ~ 40.00MHz

GRX-330 |



SOLDER PAD LAYOUT

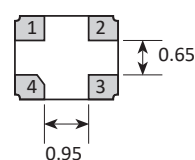
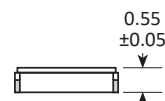
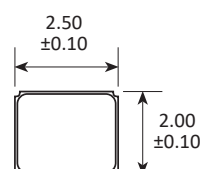
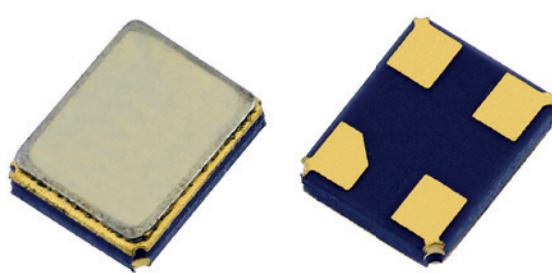


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

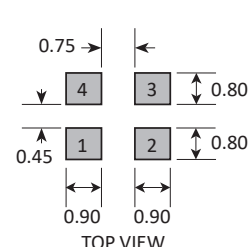
- AEC-Q200 qualified with PPAP available
- 3.2 x 2.5mm footprint
- Board area = 8.0mm²
- Extended temperature range of -40 to +125°C

Automotive qualified miniature SM crystal 12.00 ~ 40.00MHz

GRX-320 |



SOLDER PAD LAYOUT

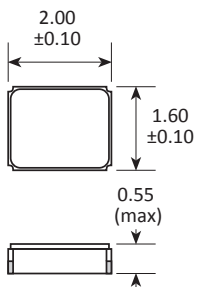
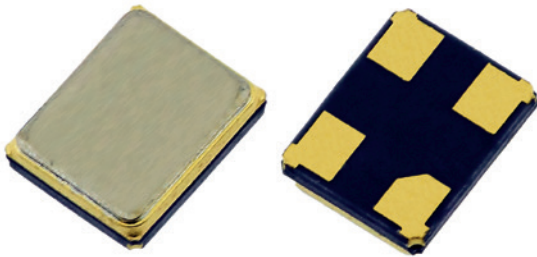


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

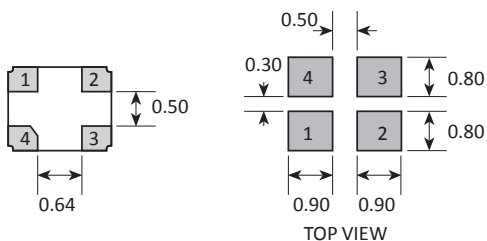
- AEC-Q200 qualified with PPAP available
- 2.5 x 2.0mm footprint
- Board area = 5.0mm²
- Extended temperature range of -40 to +125°C

Automotive qualified SM crystal 16.0 ~ 52.0MHz

GRX-220 | 



SOLDER PAD LAYOUT

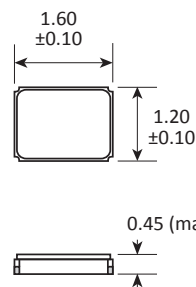
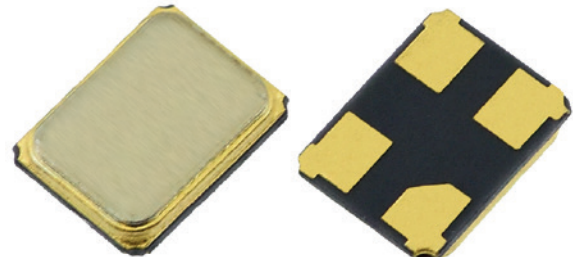


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

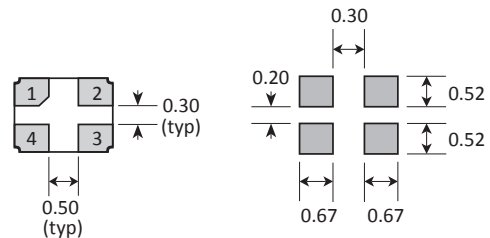
- AEC-Q200 qualified with PPAP available
- 2.0 x 1.6mm footprint
- Board area = 3.2mm²
- Temperature range of -40 to +125°C

Automotive qualified ultra-miniature SM crystal 24.0 ~ 40.0MHz

GRX-210 | 



SOLDER PAD LAYOUT

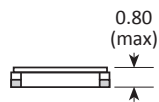
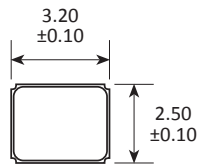
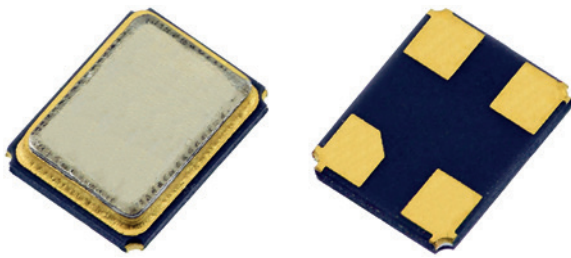


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground/NC |

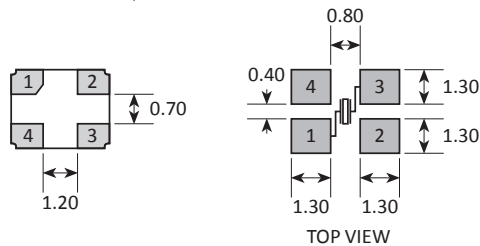
- AEC-Q200 qualified with PPAP available
- 1.6 x 1.2mm footprint
- Board area = 1.92mm²
- Extended temperature range of -40 to +125°C

SM 10.0 ~ 315MHz crystal

GSX-338 |



SOLDER PAD LAYOUT

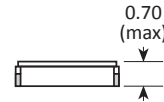
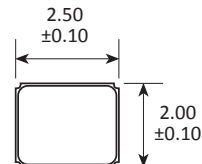
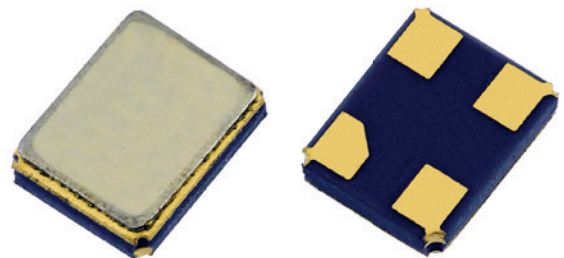


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

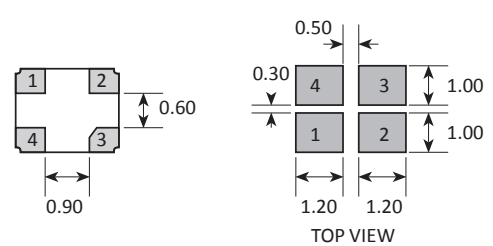
- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 3.2 x 2.5mm footprint
- Small and medium quantities also available

SM 12.0 ~ 315MHz crystal

GSX-328 |



SOLDER PAD LAYOUT

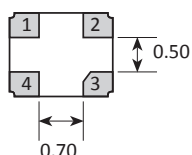
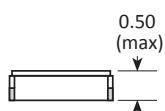
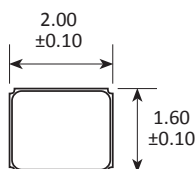
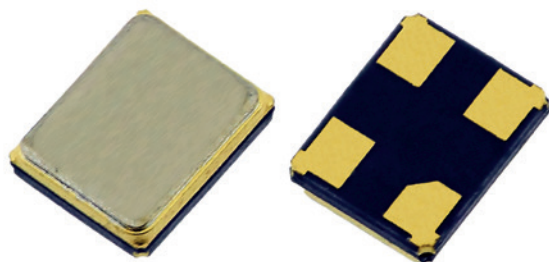


| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

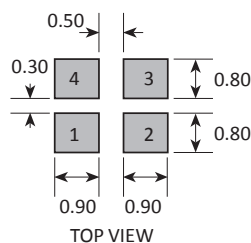
- Fundamental mode up to 315MHz
- Plasma etched inverted mesa process
- Wide pulling range (fundamental mode)
- 2.5 x 2.0mm footprint
- Small and medium quantities also available

Ultra-miniature SM 20.0 ~ 315MHz crystal

GSX-228 |



SOLDER PAD LAYOUT



| PAD | CONNECTION |
|-----|--------------|
| 1 | Crystal |
| 2 | Ground & lid |
| 3 | Crystal |
| 4 | Ground & lid |

- 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

Value added services



FAE SUPPORT
See page 2 for details



**SPECIALIST PRODUCT
DESIGN SUPPORT**
See page 2 for details



**IN-HOUSE RF ENGINEERING
AND CONSULTANCY**
See page 2 for details

KEY



**BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING**



**AUTOMOTIVE
SOLUTIONS**



**COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS**



**HARSH ENVIRONMENT
SOLUTIONS**



**HIGH FREQUENCY
APPLICATIONS**



**MATERIAL SENSITIVE
APPLICATION SOLUTIONS**



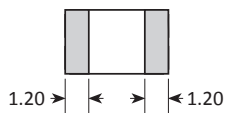
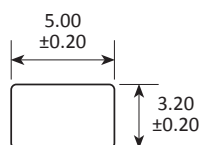
**TIGHT STABILITY
SOLUTIONS**



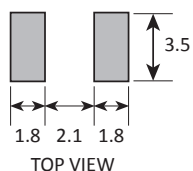
**HIGHLY ACCURATE
RF FILTERING**

SM crystal

CC2A |



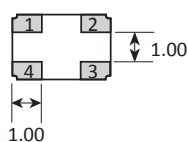
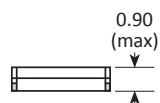
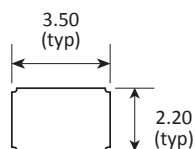
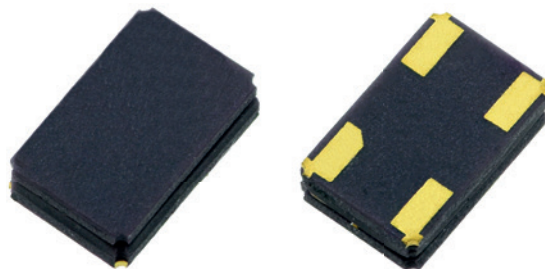
SOLDER PAD LAYOUT



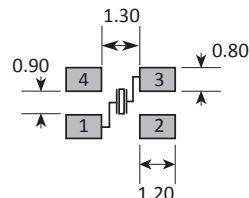
- Available from 12.0 ~ 70.0MHz
- High shock and vibration resistance
- 5.0 x 3.2mm footprint
- Wide range of frequencies available
- Extreme temperature ranges available, including as wide as -55 to +200°C

Miniature SM crystal

CC6A |



SOLDER PAD LAYOUT



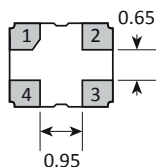
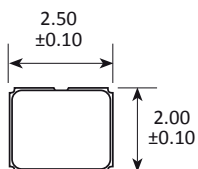
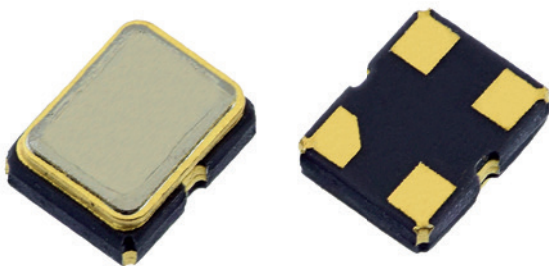
TOP VIEW

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

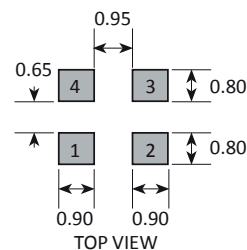
- Available from 16.0 ~ 70.0MHz
- High shock and vibration resistance
- 3.5 x 2.2mm footprint
- Wide range of frequencies available
- Extreme temperature ranges available, including as wide as -55 to +200°C

Ultra-miniature SM 32.768kHz oscillator

GAO-3201 | 



SOLDER PAD LAYOUT

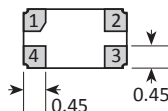
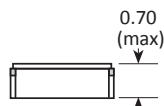
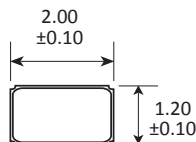
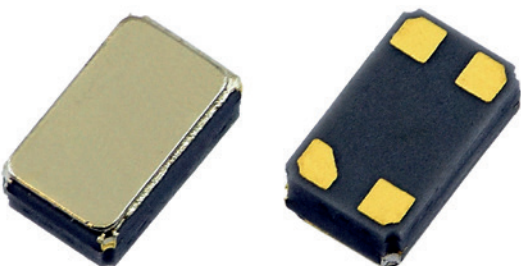


| PAD | CONNECTION |
|-----|----------------|
| 1 | Enable/Disable |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

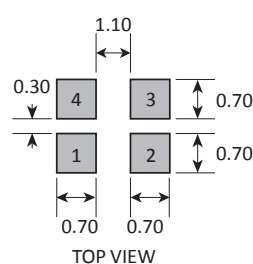
- Suitable for high volume applications
- 2.5 x 2.0mm footprint
- Low current consumption
- AT cut resonator and dividing circuit
- Board area = 5.0mm²
- Ultra-low profile, just 0.9mm high
- Excellent temperature stability over wide temperature range

Ultra-miniature SM 32.768 kHz oscillator

OM7605C8 | 



SOLDER PAD LAYOUT



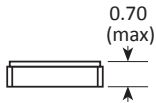
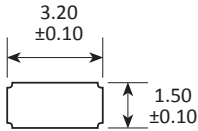
| PAD | CONNECTION |
|-----|------------------|
| 1 | Output |
| 2 | Ground |
| 3 | Enable / disable |
| 4 | Supply |

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

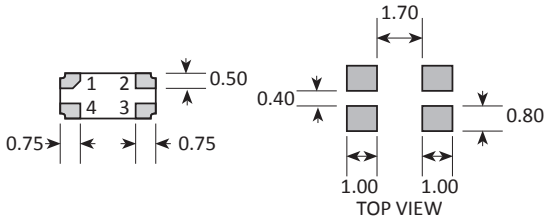
Technical and data sheets are available to download or by request [golledge.com](mailto:sales@golledge.com) | sales@golledge.com

SM Oscillator 32.768kHz

OM7604C7 |



SOLDER PAD LAYOUT

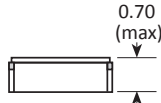
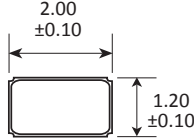
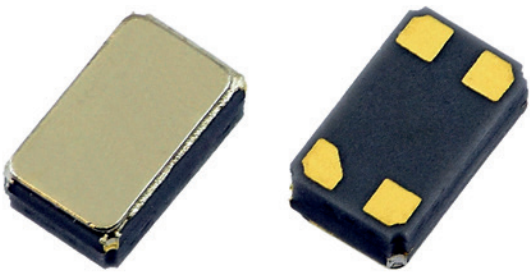


| PAD | CONNECTION |
|-----|----------------|
| 1 | Output |
| 2 | Ground |
| 3 | Enable/Disable |
| 4 | Supply |

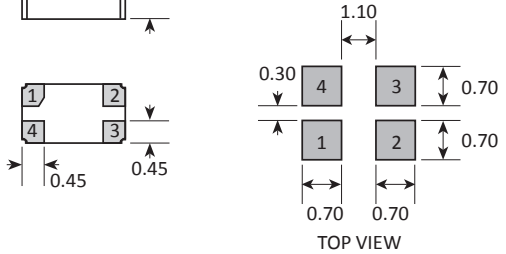
- Ultra-low power consumption
- High shock and vibration resistance
- Tight frequency tolerance
- 3.2 x 1.5mm footprint

SM Oscillator 32.768kHz

OM7605C8 |



SOLDER PAD LAYOUT

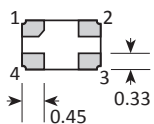
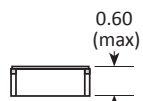
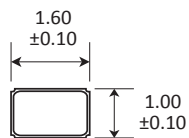
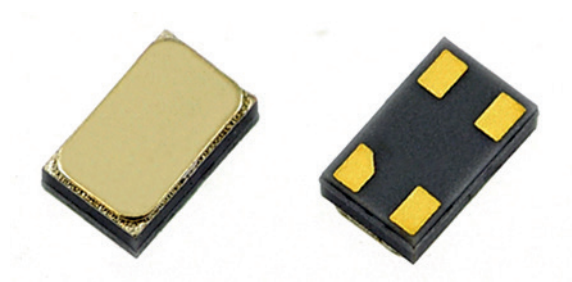


| PAD | CONNECTION |
|-----|------------------|
| 1 | Output |
| 2 | Ground |
| 3 | Enable / disable |
| 4 | Supply |

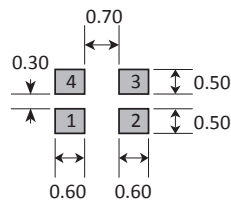
- Ultra-low power consumption
- Tight frequency tolerance
- 2.0 x 1.2mm footprint
- High shock and vibration resistance

Ultra-miniature 32.768kHz SM oscillator

OM7605C9 |



SOLDER PAD LAYOUT



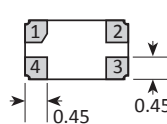
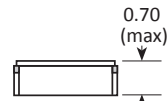
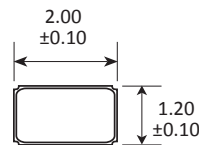
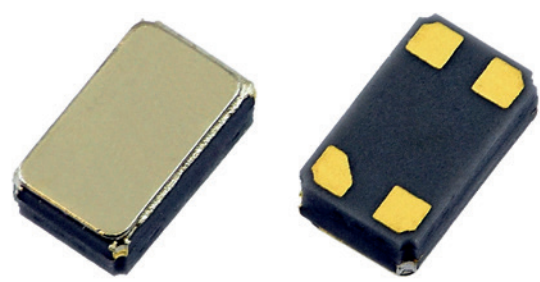
TOP VIEW

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

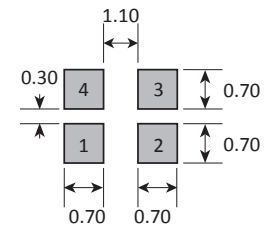
- Tight frequency tolerance
- Ultra-low power consumption
- 1.6 x 1.0mm footprint
- High shock and vibration resistance

Ultra-miniature 100kHz SM oscillator

OM0100C8 |



SOLDER PAD LAYOUT



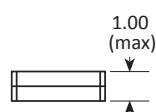
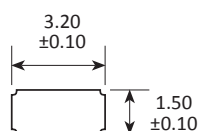
TOP VIEW

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

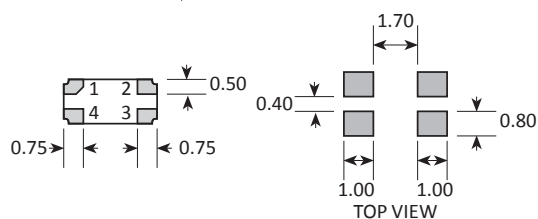
- 2.0 x 1.2mm footprint
- Ultra-low power consumption
- Optional AEC-Q200 qualification
- High shock and vibration resistance

Fully ceramic 32.768kHz SM oscillator

OV7604C7 |



SOLDER PAD LAYOUT

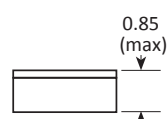
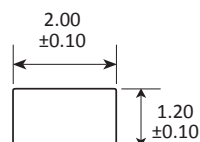


| PAD | CONNECTION |
|-----|----------------|
| 1 | Output |
| 2 | Ground |
| 3 | Enable/Disable |
| 4 | Supply |

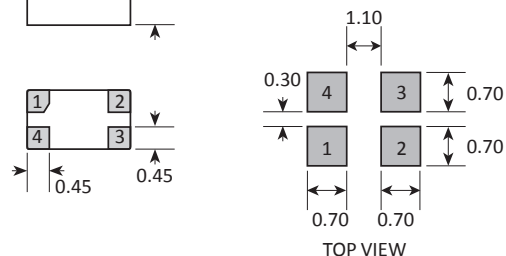
- Ultra-low power consumption
- Fully ceramic package
- Optional AEC-Q200 qualification
- Tight frequency tolerance
- Industrial and extended temperature ranges
- High shock and vibration resistance

Fully ceramic 32.768kHz SM oscillator

OV7605C8 |



SOLDER PAD LAYOUT

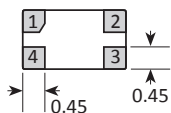
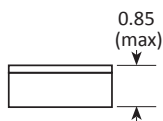
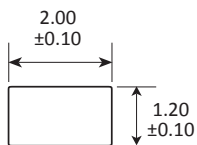


| PAD | CONNECTION |
|-----|------------------|
| 1 | Output |
| 2 | Ground |
| 3 | Enable / disable |
| 4 | Supply |

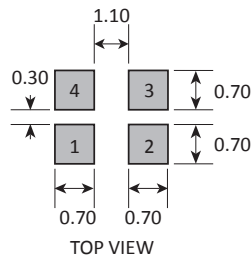
- Ultra-low power consumption
- Tight frequency tolerance
- Fully ceramic package
- Optional AEC-Q200 qualification
- High shock and vibration resistance

Fully ceramic 100kHz SM oscillator

OV0100C8 |



SOLDER PAD LAYOUT



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

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

How we can support your business



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DESIGN EXPERTISE
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KNOWLEDGE HUB
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KEY



BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING



AUTOMOTIVE SOLUTIONS



COMMERCIAL AND INDUSTRIAL APPLICATION SOLUTIONS



HARSH ENVIRONMENT SOLUTIONS



HIGH FREQUENCY APPLICATIONS



MATERIAL SENSITIVE APPLICATION SOLUTIONS



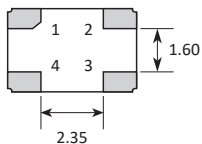
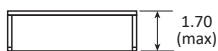
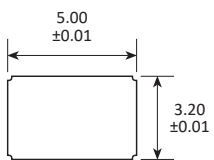
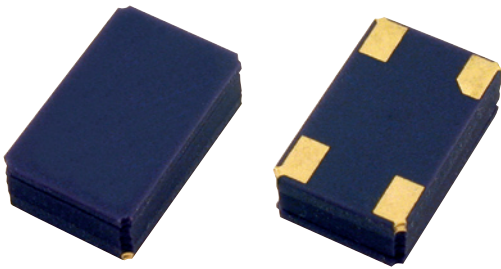
TIGHT STABILITY SOLUTIONS



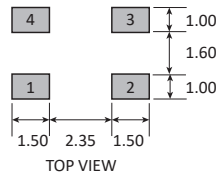
HIGHLY ACCURATE RF FILTERING

Miniature fully ceramic SM oscillator

MCSO2xxx |



SOLDER PAD LAYOUT



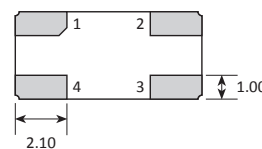
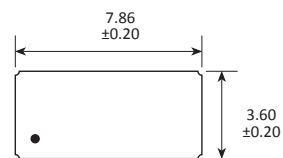
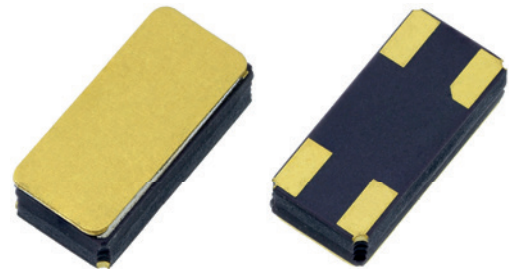
| PAD | CONNECTION |
|-----|---------------|
| 1 | Not connected |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

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

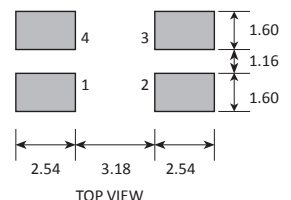
- Available from 10.0kHz to 225MHz
- Suitable for Avionics, Down-hole, Geothermal etc.
- Extreme temperature ranges up to 210°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

Miniature low frequency SM oscillator

MCSO1xxx |



| PAD | CONNECTION |
|-----|---------------|
| 1 | Not Connected |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

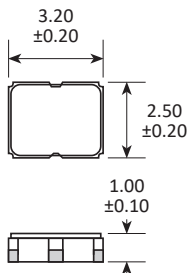
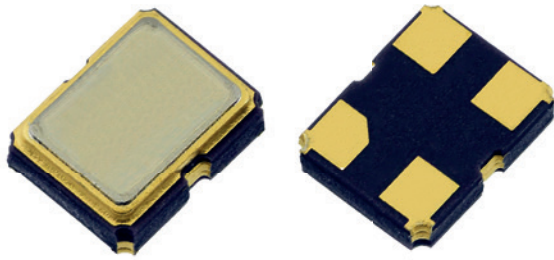


A 47nF ceramic capacitor must be connected between GND and VDD

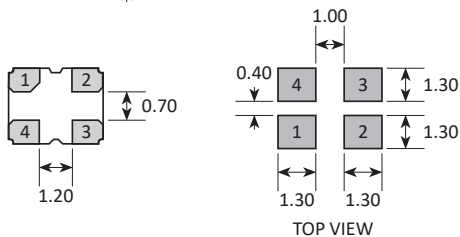
- Available from 10.0kHz to 225MHz
- Suitable for Avionics, Down-hole, Geothermal etc.
- Extreme temperature ranges up to 200°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

CMOS SM oscillator

GXO-U119 |



SOLDER PAD LAYOUT



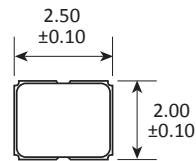
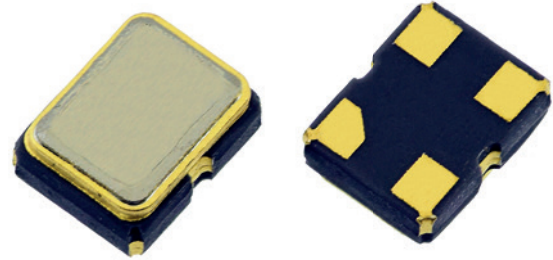
| PAD | CONNECTION |
|-----|------------------|
| 1 | Enable / disable |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

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.

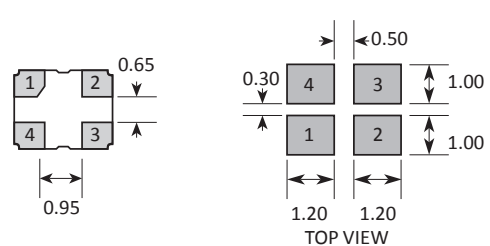
- High stability
- Low current consumption
- 3225 miniature ceramic package with metal lid
- Enable/disable tristate function
- Competitive pricing
- Available from 1.8MHz ~ 170MHz

Miniature CMOS oscillator with low jitter

GXO-U120 |



SOLDER PAD LAYOUT

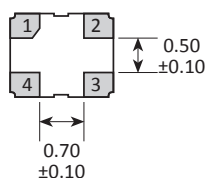
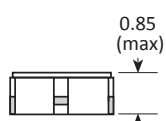
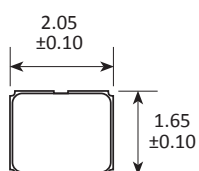
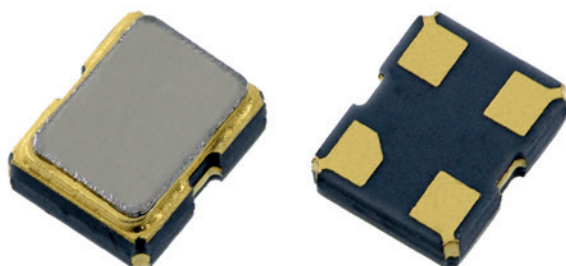


| PAD | CONNECTION |
|-----|----------------|
| 1 | Enable/Disable |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

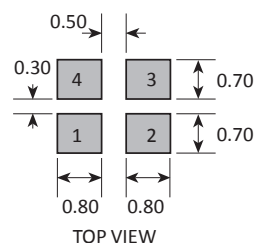
- Available from 1.8MHz ~ 170MHz
- Low current consumption
- Enable/disable tristate function
- Miniature 2.5 x 2.0mm ceramic package with metal lid
- Competitive pricing

Ultra-miniature CMOS SM oscillator with low jitter

GXO-U121 |



SOLDER PAD LAYOUT



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

- Available from 1.8 ~ 170MHz
- Competitive pricing for high volumes
- Miniature 2.0 x 1.6mm ceramic package with metal lid
- Enable/disable tristate function
- 1.8V, 2.5V and 3.3V supply options

Essential info



ORDERING

See page 10 for details



DELIVERY

See page 10 for details



PRODUCTS

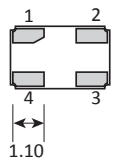
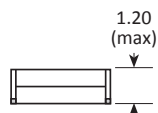
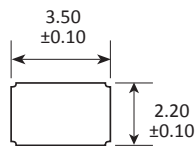
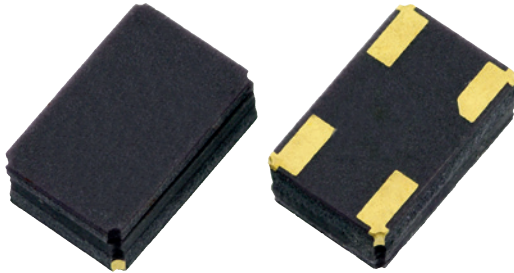
See page 10 for details

KEY

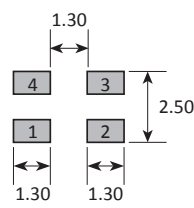
BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZINGAUTOMOTIVE
SOLUTIONSCOMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONSHARSH ENVIRONMENT
SOLUTIONSHIGH FREQUENCY
APPLICATIONSMATERIAL SENSITIVE
APPLICATION SOLUTIONSTIGHT STABILITY
SOLUTIONSHIGHLY ACCURATE
RF FILTERING

Miniature low jitter oscillators

MCSO6xxx |



SOLDER PAD LAYOUT



TOP VIEW

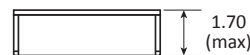
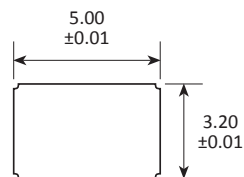
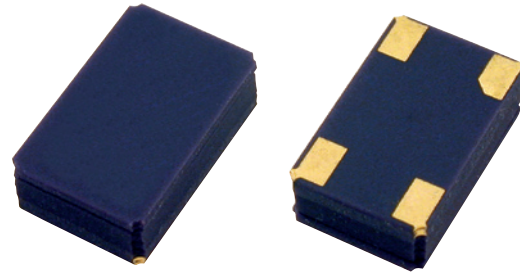
| PAD | CONNECTION |
|-----|---------------------------------|
| 1 | Not connected or Enable/Disable |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

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

- 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 and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

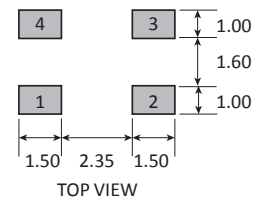
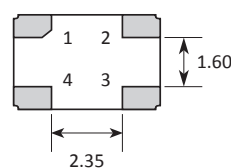
Low jitter oscillators

MCSO2Fxxx |



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

SOLDER PAD LAYOUT



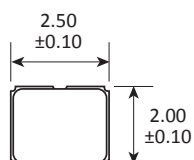
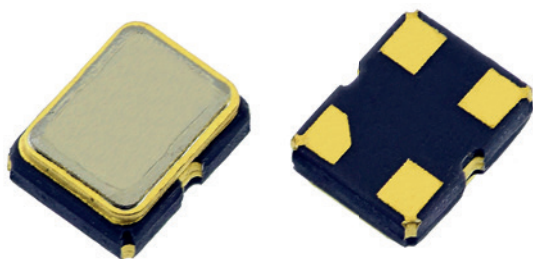
TOP VIEW

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

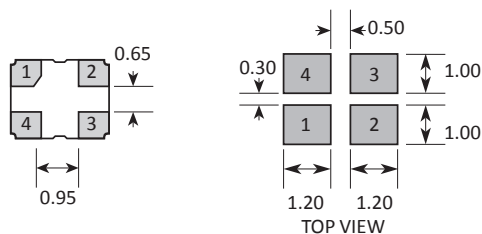
- Available from 10.0kHz ~ 225MHz
- Suitable for Avionics, Down-hole, Geothermal and more
- Extreme temperature ranges available up to 210°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

High frequency, tight stability oscillator

GXO-3200 |



SOLDER PAD LAYOUT

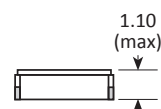
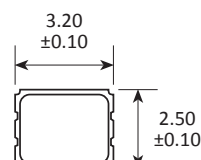


| PAD | CONNECTION |
|-----|----------------|
| 1 | Enable/Disable |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

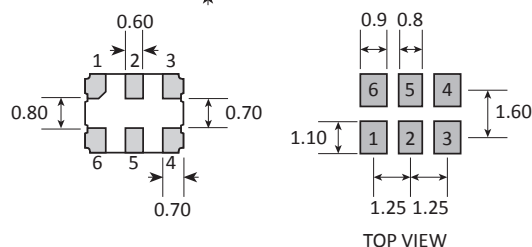
- Available from 10.0 ~ 160MHz
- High precision with tight stability options
- Wide operating temperature ranges
- High frequency fundamental - no multiplier
- Low and medium volumes also available
- Enable/disable tristate function

LVDS oscillator for high speed data transfer

GXO-L31 |



SOLDER PAD LAYOUT

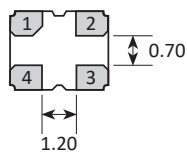
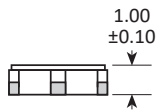
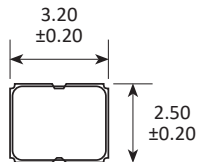
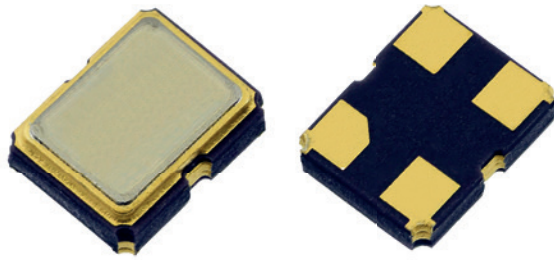


| PAD | CONNECTION |
|-----|------------------------|
| 1 | Enable / disable |
| 2 | Not connected |
| 3 | Ground |
| 4 | Output 1 (Q) |
| 5 | Output 2 (\bar{Q}) |
| 6 | Supply |

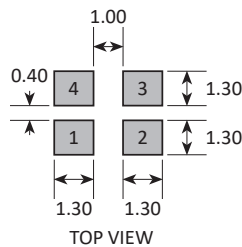
- Available from 40.0 ~ 250MHz
- Differential outputs
- RMS phase jitter 0.3ps
- Low current consumption (20mA max.)
- Multiplier-free design
- Enable/disable tristate function

3225 Package ultra-low jitter oscillator

GXO-3306 |



SOLDER PAD LAYOUT



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

- Available from 16.0 ~ 50.0MHz
- Excellent phase noise floor of -175dBc/Hz @ 1MHz
- Superb phase jitter characteristics of 0.04ps typical
- Enable/disable tristate function

Value added services



FAE SUPPORT
See page 2 for details



SPECIALIST PRODUCT DESIGN SUPPORT
See page 2 for details



IN-HOUSE RF ENGINEERING AND CONSULTANCY
See page 2 for details

KEY



BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING



AUTOMOTIVE
SOLUTIONS



COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS



HARSH ENVIRONMENT
SOLUTIONS



HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

TEMPERATURE COMPENSATED
OSCILLATORS | TCXO

TEMPERATURE COMPENSATED OSCILLATORS | TCXO

ULTRA-TIGHT STABILITY 1.8V ~ 3.6V TCXO 40

ULTRA-MINIATURE 2.0 X 1.6MM FOOTPRINT TCXO 40

SM TCXO WITH EXCELLENT PHASE
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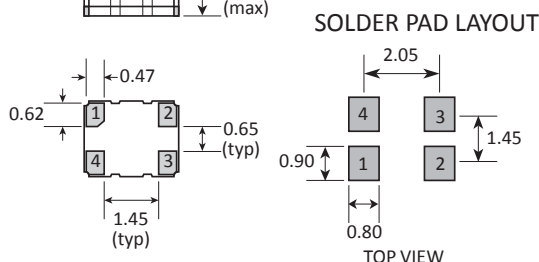
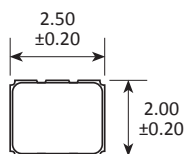
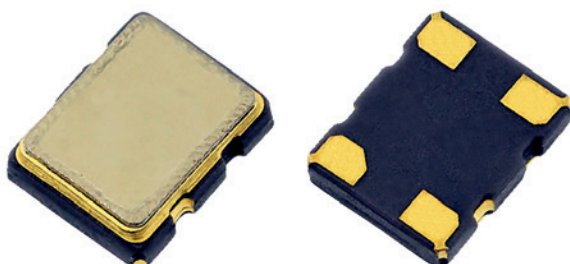
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Ultra-tight stability 1.8V~3.6V (VC) TCXO

GTXO-253 |



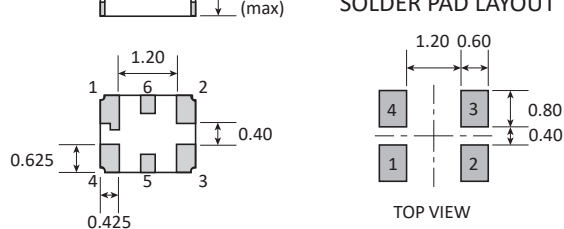
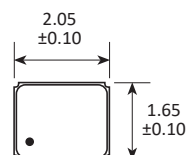
| PAD | CONNECTION |
|-----|-----------------|
| 1 | Freq adjustment |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

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

- Optional AEC-Q200 qualification
- ± 0.5 ppm frequency stability option
- Supply voltage from 1.8V ~ 3.6V
- Low power consumption
- Miniature SM package with board area of only 5.0mm²
- Available from 10.0 ~ 52.0MHz
- Clipped sine output

Ultra-miniature 2.0 x 1.6mm footprint (VC) TCXO

GTXO-203 |

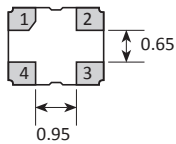
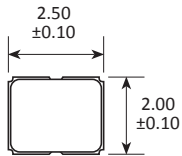
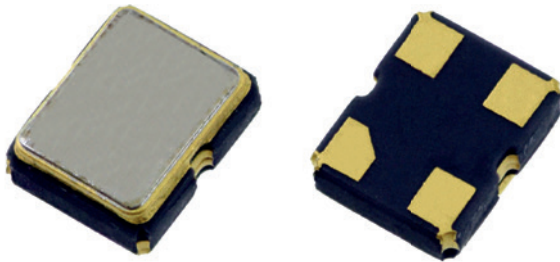


| PAD | CONNECTION |
|-----|-----------------|
| 1 | Freq adjustment |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |
| 5 | Not connected |
| 6 | Not connected |

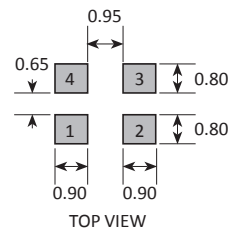
- Optional AEC-Q200 qualification
- Supply voltages from 1.8V ~ 3.6V
- Low power consumption
- Clipped sine output
- Excellent frequency stability
- Available from 10.0 ~ 70.0MHz

SM TCXO with CMOS output

GTXO-C25 |



SOLDER PAD LAYOUT



TOP VIEW

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

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

How we can support your business



REQUEST A FREE SAMPLE
See page 11 for details



DESIGN EXPERTISE
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CAD MODEL LIBRARIES
See page 11 for details



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KEY



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AUTOMOTIVE SOLUTIONS



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HARSH ENVIRONMENT SOLUTIONS



HIGH FREQUENCY APPLICATIONS



MATERIAL SENSITIVE APPLICATION SOLUTIONS



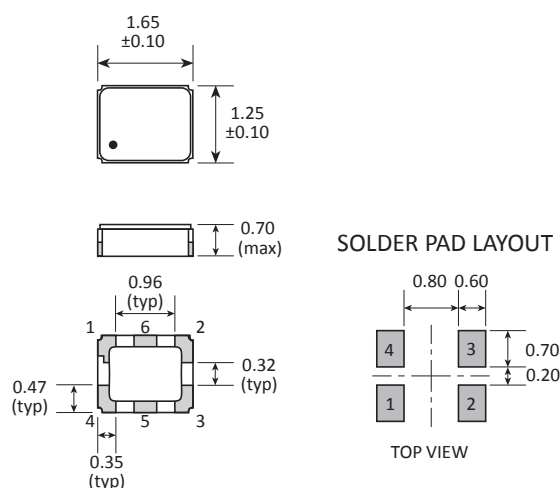
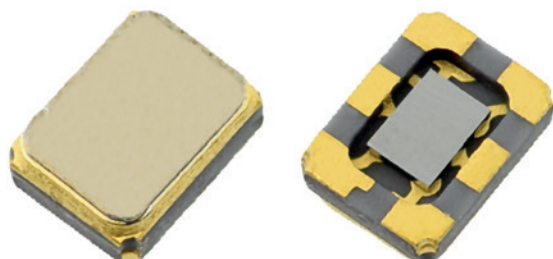
TIGHT STABILITY SOLUTIONS



HIGHLY ACCURATE RF FILTERING

Ultra-miniature 1.6 x 1.2mm footprint (VC) TCXO

GTXO-163 |



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

Essential info



ORDERING
See page 10 for details



DELIVERY
See page 10 for details



PRODUCTS
See page 10 for details

KEY



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APPLICATION SOLUTIONS



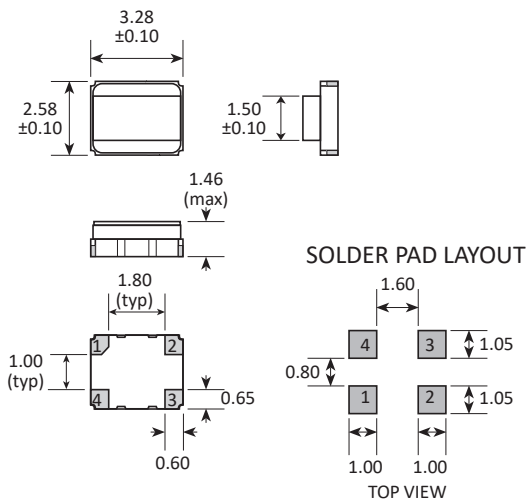
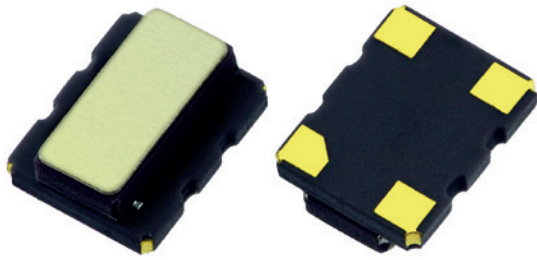
TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

32.768kHz CMOS TCXO

GTXO-94 |

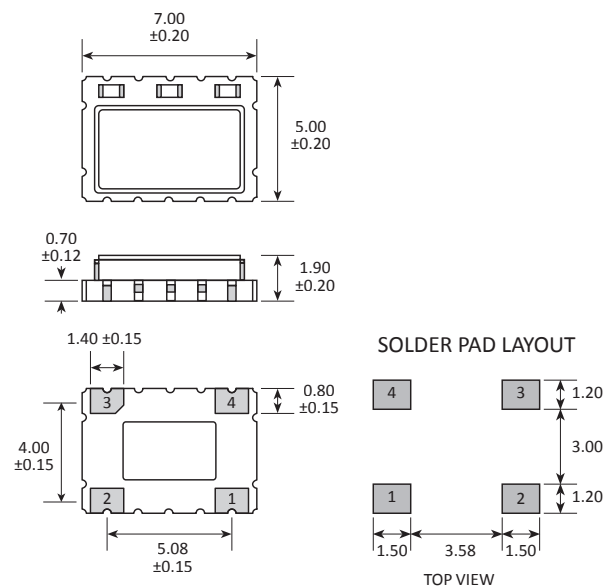
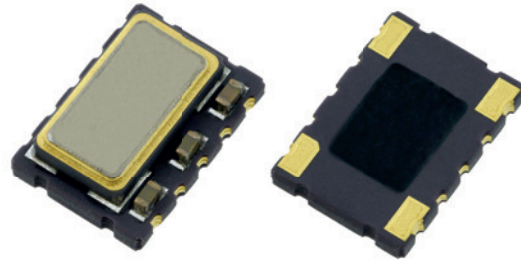


| PAD | CONNECTION |
|-----|------------------|
| 1 | Enable / disable |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

- 32.768kHz
- Extremely low current consumption 1.37 μ A
- 3225 miniature SM package
- ± 5 ppm frequency stability -40 to +85°C
- 1.8V, 2.5V, 3.0V and 3.3V supply options

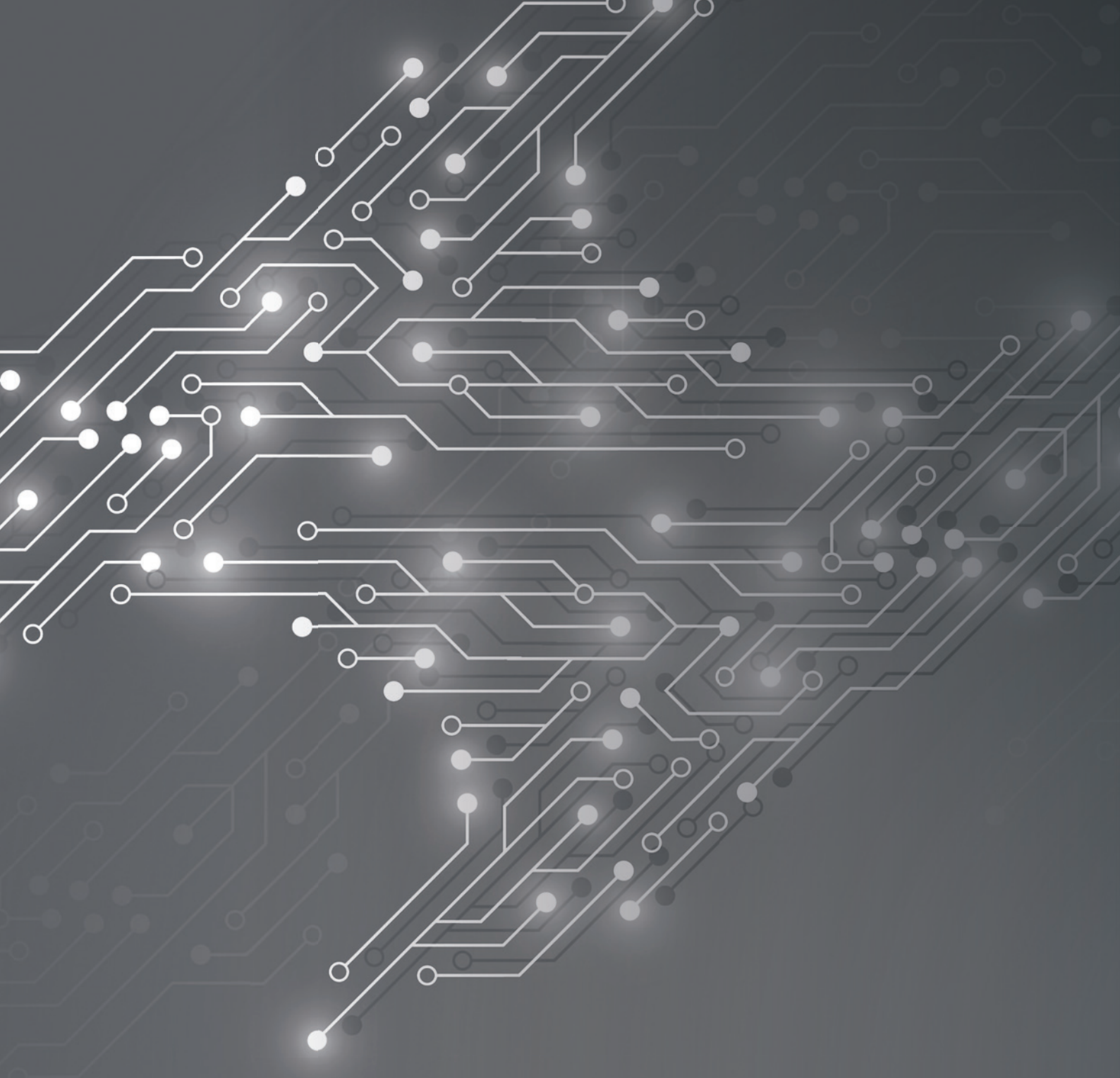
Stratum 3 TCXO with CMOS or clipped sine output

GTXO-73 |



| PAD | CONNECTION |
|-----|-----------------|
| 1 | Freq adjustment |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

- Stratum 3 compliant and available at frequencies from 5.0 ~ 52.0MHz
- 3.3V or 5.0V supply voltage
- ± 4.6 ppm stability over 20 years
- ± 0.28 ppm -40 to +85°C



VOLTAGE CONTROLLED
OSCILLATORS | VCXO

VOLTAGE CONTROLLED OSCILLATORS | VCXO

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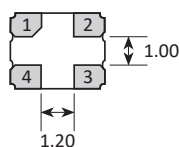
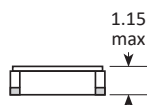
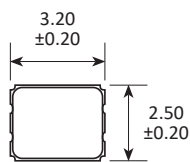
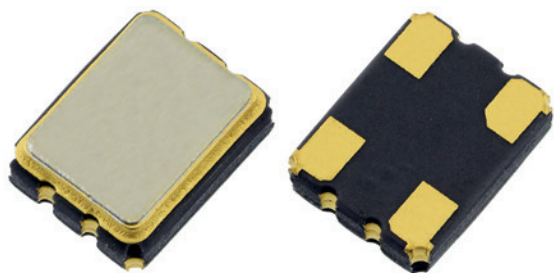
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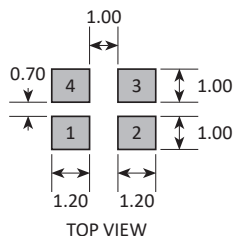
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Surface mount VCXO

GVXO-338 |



SOLDER PAD LAYOUT



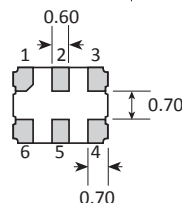
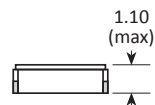
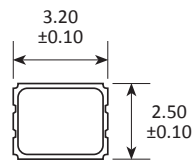
| PAD | CONNECTION |
|-----|-----------------|
| 1 | Control voltage |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

GVXO-338 voltage controlled oscillators are available over a frequency range of 1.25 to 125MHz and offer the engineer wide frequency pullability and operating supply voltage options of 1.8V, 2.8V, 3.3V, and 5.0V.

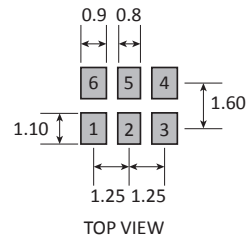
- Low current consumption
- CMOS output
- Four supply voltage options
- Miniature SM package
- Competitive pricing

Low phase jitter VCXO - up to 250MHz

GVXO-L33L (E33L) |



SOLDER PAD LAYOUT

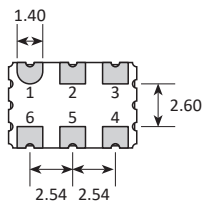
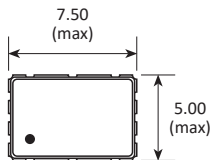
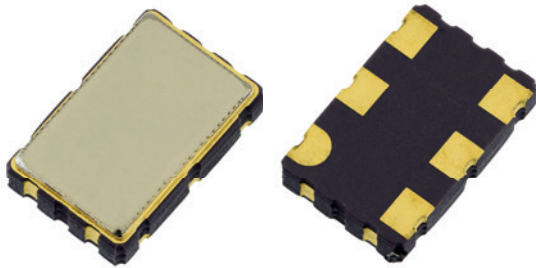


| PAD | CONNECTION |
|-----|------------------------|
| 1 | Control voltage |
| 2 | Enable / disable |
| 3 | Ground |
| 4 | Output 1 (Q) |
| 5 | Output 2 (\bar{Q}) |
| 6 | Supply |

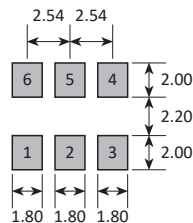
- Complementary LVDS or LV-PECL outputs
- Multiplier-free design
- Exceptionally good phase jitter performance of 1ps typ. (12kHz ~ 20MHz)
- Enable/disable tristate function
- Designed for high speed data transfer

Ultra high frequency VCXO - up to 1GHz

GVXO-E76L (L76L) |



SOLDER PAD LAYOUT



TOP VIEW

| PAD | CONNECTION |
|-----|------------------------|
| 1 | Control voltage |
| 2 | Enable / disable |
| 3 | Ground |
| 4 | Output 1 (Q) |
| 5 | Output 2 (\bar{Q}) |
| 6 | Supply |

- Frequencies available from 10MHz 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

Value added services



FAE SUPPORT
See page 2 for details



**SPECIALIST PRODUCT
DESIGN SUPPORT**
See page 2 for details



**IN-HOUSE RF ENGINEERING
AND CONSULTANCY**
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KEY



**BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING**



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SOLUTIONS**



**COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS**



**HARSH ENVIRONMENT
SOLUTIONS**



**HIGH FREQUENCY
APPLICATIONS**



**MATERIAL SENSITIVE
APPLICATION SOLUTIONS**



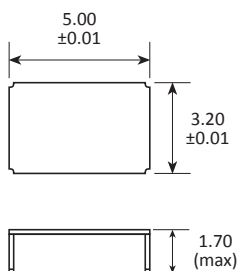
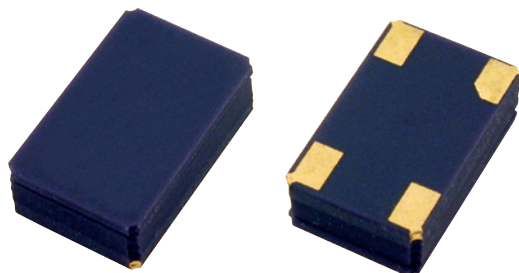
**TIGHT STABILITY
SOLUTIONS**



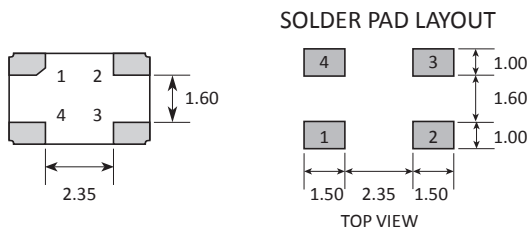
**HIGHLY ACCURATE
RF FILTERING**

High temperature CMOS VCXO

VCXO2EV |



| PAD | CONNECTION |
|-----|-----------------|
| 1 | Control voltage |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |

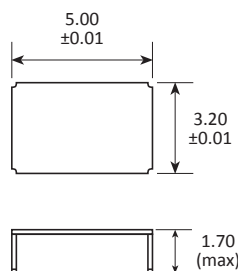
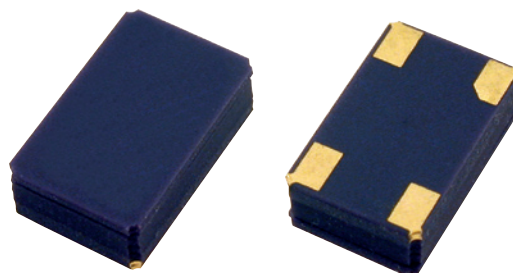


A 47nF ceramic capacitor must be connected
between GND and V_{DD}

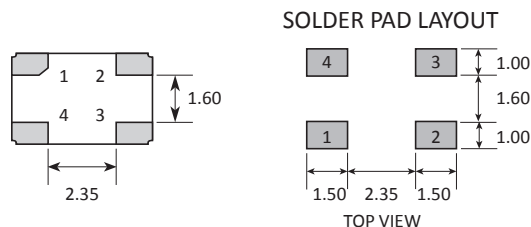
- Suitable for Avionics, Down-hole, Geothermal etc
- Extreme temperature ranges up to 210°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Low current consumption
- Available from 5.0 ~ 40.0MHz

High frequency VCXO with military temperature range

VCXO2HV |



| PAD | CONNECTION |
|-----|-----------------|
| 1 | Control voltage |
| 2 | Ground |
| 3 | Output |
| 4 | Supply |



A 47nF ceramic capacitor must be connected
between GND and V_{DD}

- Military temperature range -55 to +125°C
- Fundamental crystal for low noise
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)
- Available from 5.0 ~ 170MHz



REQUEST A FREE SAMPLE

Sometimes you just need to be sure that what you have seen advertised is exactly what you need. So we offer a **FREE** sample service to help you choose before you buy.

Our samples box contains 14 working components, the most popular used products from our watch crystal, high frequency crystal and oscillator ranges.

Each of the high frequency components included within the box are also available at a wide range of frequencies and stability options, in addition to the specific examples included.



sample service | sales@golledge.com

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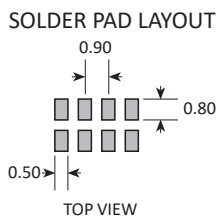
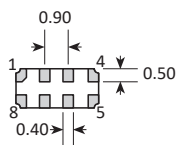
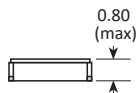
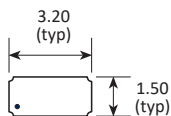
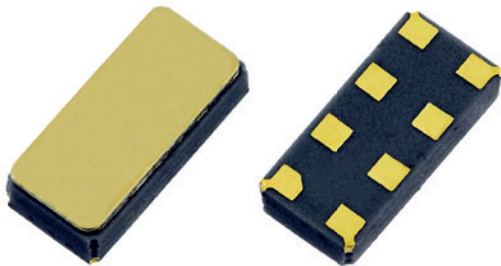
REAL TIME
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|--|----|

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|---|----|
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|---|----|

RTC I²C bus high accuracy and low power

RV-3032-C7 |    



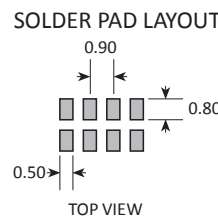
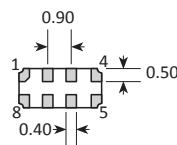
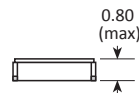
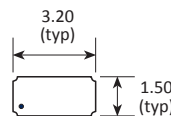
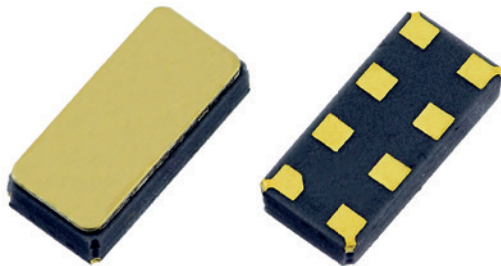
| PAD | CONNECTION | PAD | CONNECTION |
|-----|------------------------|-----|---------------------------|
| 1 | Backup supply (VBKP) | 5 | Ground (VSS) |
| 2 | Serial data (SDA) | 6 | Supply voltage (VDD) |
| 3 | Interrupt output (INT) | 7 | Frequency output (CLKOUT) |
| 4 | Event Input (EVI) | 8 |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

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.

- Ultra-low power consumption 160nA @ 3V
- Excellent time accuracy 2.5ppm -40 to +85°C
- Wide operating voltage range 1.2V to 5.5V
- Time stamping at high and low temperature
- Trickle charger with charge pump

Ultra-low power I²C RTC module

RV-3028-C7 |    



| 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) |

The RV-3028-C7 boasts ultra-low current consumption of only 45nA, ideal for many applications requiring low power components, including IoT, wearables, portable devices, healthcare, metering, industrial and automotive.

- Ultra-Low power consumption of 45nA
- Built-in crystal
- Wide operating voltage of 1.1 ~ 5.5V
- Battery switchover
- AEC-Q200 compliant option

The background is a solid orange color. It features several white, parallel, zigzag lines that create a sense of depth and movement. Scattered throughout the entire background are numerous small white dots, some of which are slightly larger than others, giving it a starry or particle-like appearance.

MONOLITHIC
CRYSTAL FILTERS

MONOLITHIC CRYSTAL FILTERS

4-POLE SM CRYSTAL FILTER IN ONE
MINIATURE SM PACKAGE

54

CRYSTAL FILTERS WITH CENTRE
FREQUENCY 45MHz

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CRYSTAL FILTERS WITH CENTRE
FREQUENCY 21.4MHz

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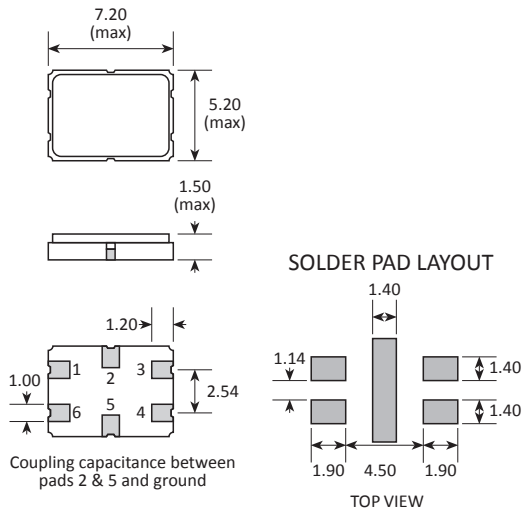
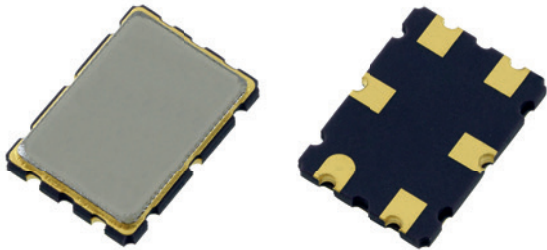
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4-Pole SM crystal filter in one miniature SM package

GSF-75 |



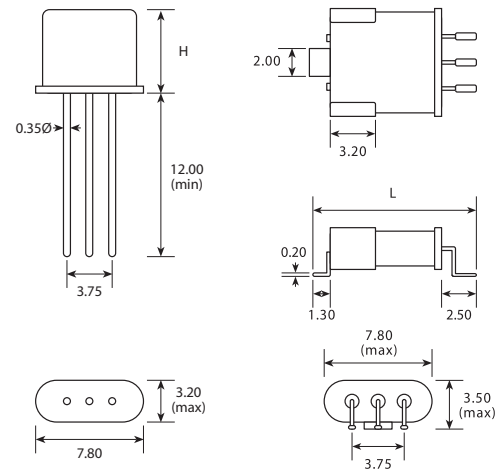
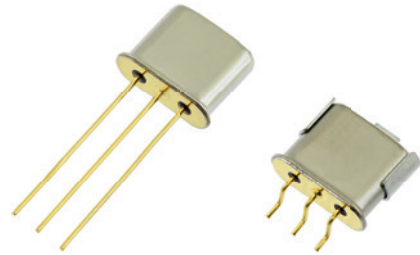
| PAD | CONNECTION |
|-----|-------------------------|
| 1 | Ground |
| 2 | Connect with pad 5 & Cc |
| 3 | In / Out |
| 4 | Ground |
| 5 | Connect with pad 2 & Cc |
| 6 | Out / In |

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.

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

Crystal filters with centre frequency 45MHz

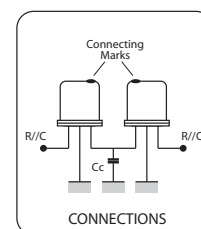
GMCF-45 |



| Package | Height H |
|---------|----------|
| UM-1/3L | 8.00 max |
| UM-5/3L | 6.00 max |

| Package | Length L |
|-----------|-----------|
| UM-1JN/3L | 12.50 max |
| UM-5JN/3L | 10.50 max |

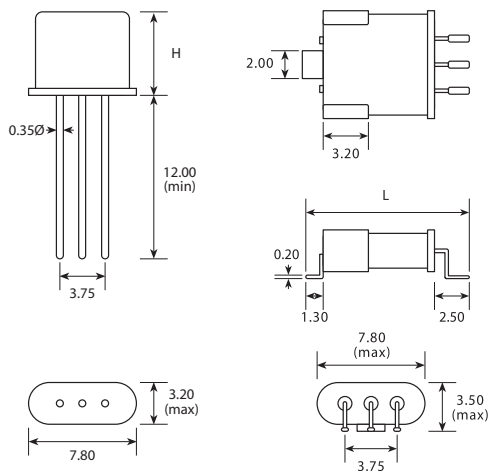
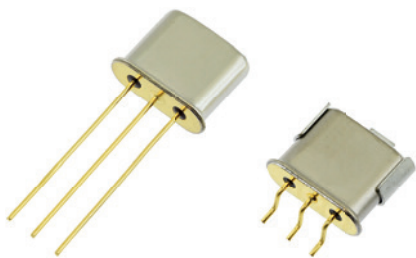
Dimensions in mm



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

Crystal filters with centre frequency 21.4MHz

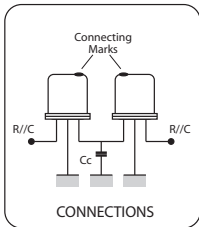
GMCF-21 | 



| Package | Height H |
|---------|----------|
| UM-1/3L | 8.00 max |
| UM-5/3L | 6.00 max |

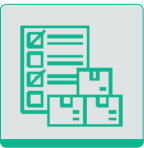
| Package | Length L |
|-----------|-----------|
| UM-1JN/3L | 12.50 max |
| UM-5JN/3L | 10.50 max |

Dimensions in mm



- 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

Essential info



ORDERING
See page 10 for details



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See page 10 for details



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KEY



BEST AVAILABILITY | BEST PRICING
FUTURE PROOF | PREFERRED SIZING



AUTOMOTIVE
SOLUTIONS



COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS



HARSH ENVIRONMENT
SOLUTIONS



HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING



OVEN CONTROLLED
OSCILLATORS | OCXOS

OVEN CONTROLLED OSCILLATORS | OCXOS

ULTRA-TIGHT STABILITY
1.8V ~ 3.6V TCXO

58

3.3V SURFACE MOUNT OCXO
FROM 10.0 ~ 80.0MHz

58

SINE OUTPUT OCXO WITH
EXCELLENT STABILITY

59

HIGH PERFORMANCE OCXO
WITH SINE OUTPUT

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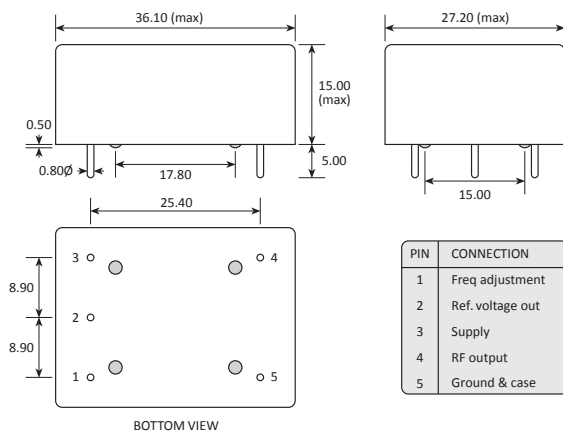
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High frequency OCXO with ultra-low phase noise

HCD380 and HCD381 |

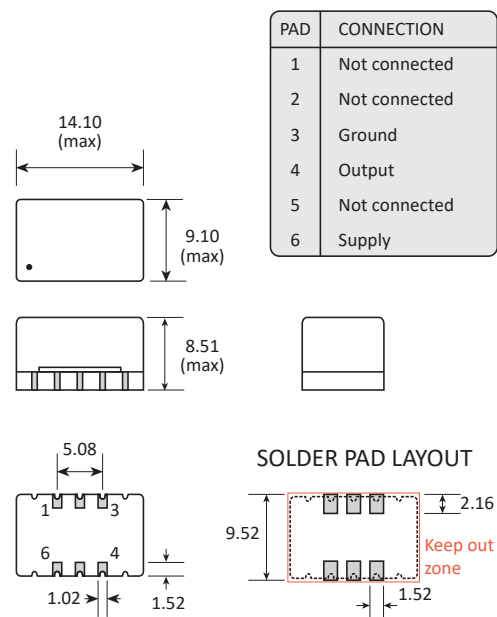
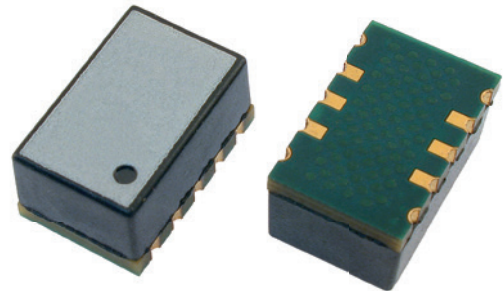


The HCD380 oven controlled oscillator with sine wave output and HCD381 with CMOS output are available up to frequencies as high as 100MHz with low phase noise.

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

3.3V Surface mount OCXO from 10.0 ~ 80.0MHz

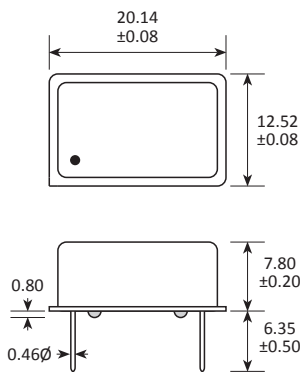
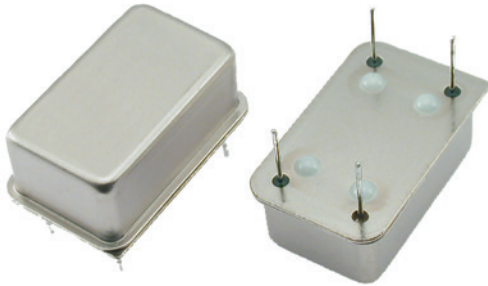
GOXO-149 |



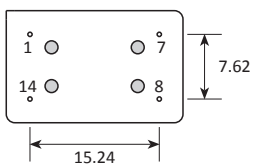
- Miniature SM package, 50% smaller footprint than DIL-14
- Ideally suited for base stations, VSAT etc.
- Outstanding phase noise characteristics
- 3.3V supply
- LVCMOS output

Sine output OCXO with excellent stability

SCOCXOHS | 



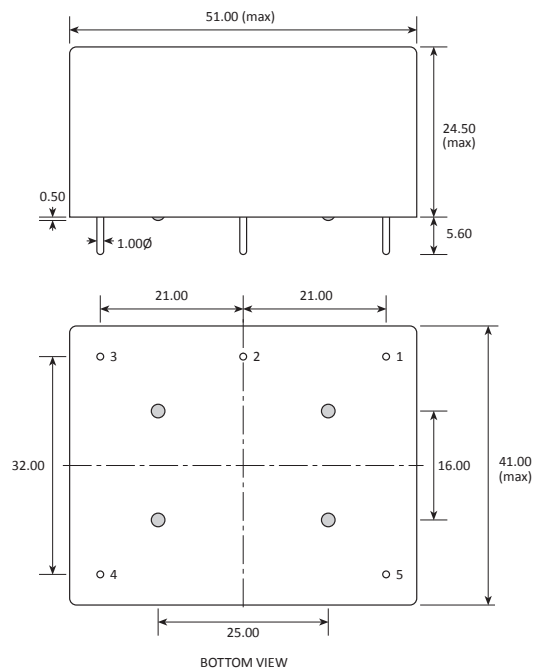
| PIN | CONNECTION |
|-----|-----------------|
| 1 | Freq adjustment |
| 7 | Ground |
| 8 | Output |
| 14 | Supply |



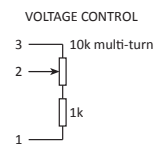
- -160dBc noise floor @ 10.0MHz
- Fundamental mode frequencies up to 120MHz
- Compact 14-pin DIL or SM package
- High shock and vibration resistance
- Available from 10.0 ~ 120MHz

High performance OCXO with sine output

HCD660 | 



| PIN | CONNECTION |
|-----|-----------------|
| 1 | Ground |
| 2 | Freq adjustment |
| 3 | Ref voltage out |
| 4 | Supply |
| 5 | RF output |



- Temperature stability down to ±1ppb
- Single 12V supply (12V ~ 30V optional)
- Standard European pin-out
- Custom options available



SURFACE ACOUSTIC WAVE
DEVICES | SAWS

SURFACE ACOUSTIC WAVE DEVICES | SAWS

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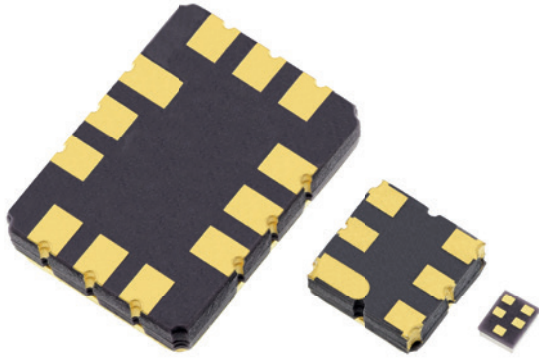
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SAW Filters

GSRF and GSIF |



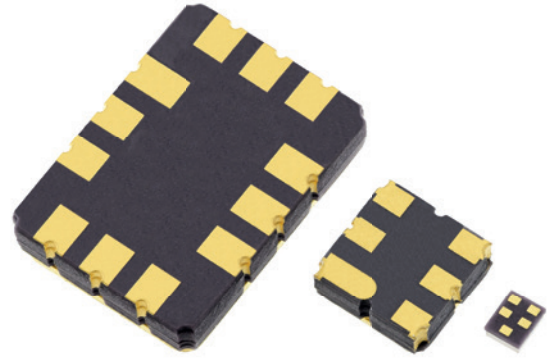
Filters available for each major application covering most LTE bands

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.

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

SAW Duplexers

GSDX |



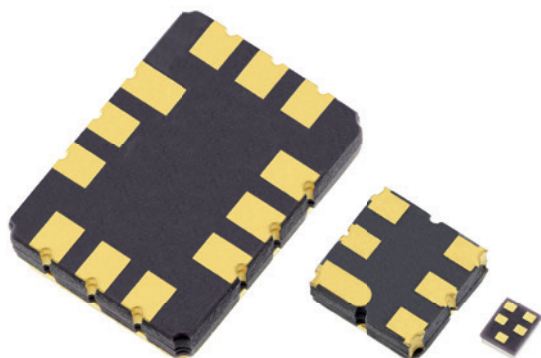
Cutting Edge SAW Duplexers in Ultra-Miniature Packages

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.

- 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

SAW Resonators

GSRS |



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.

- 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

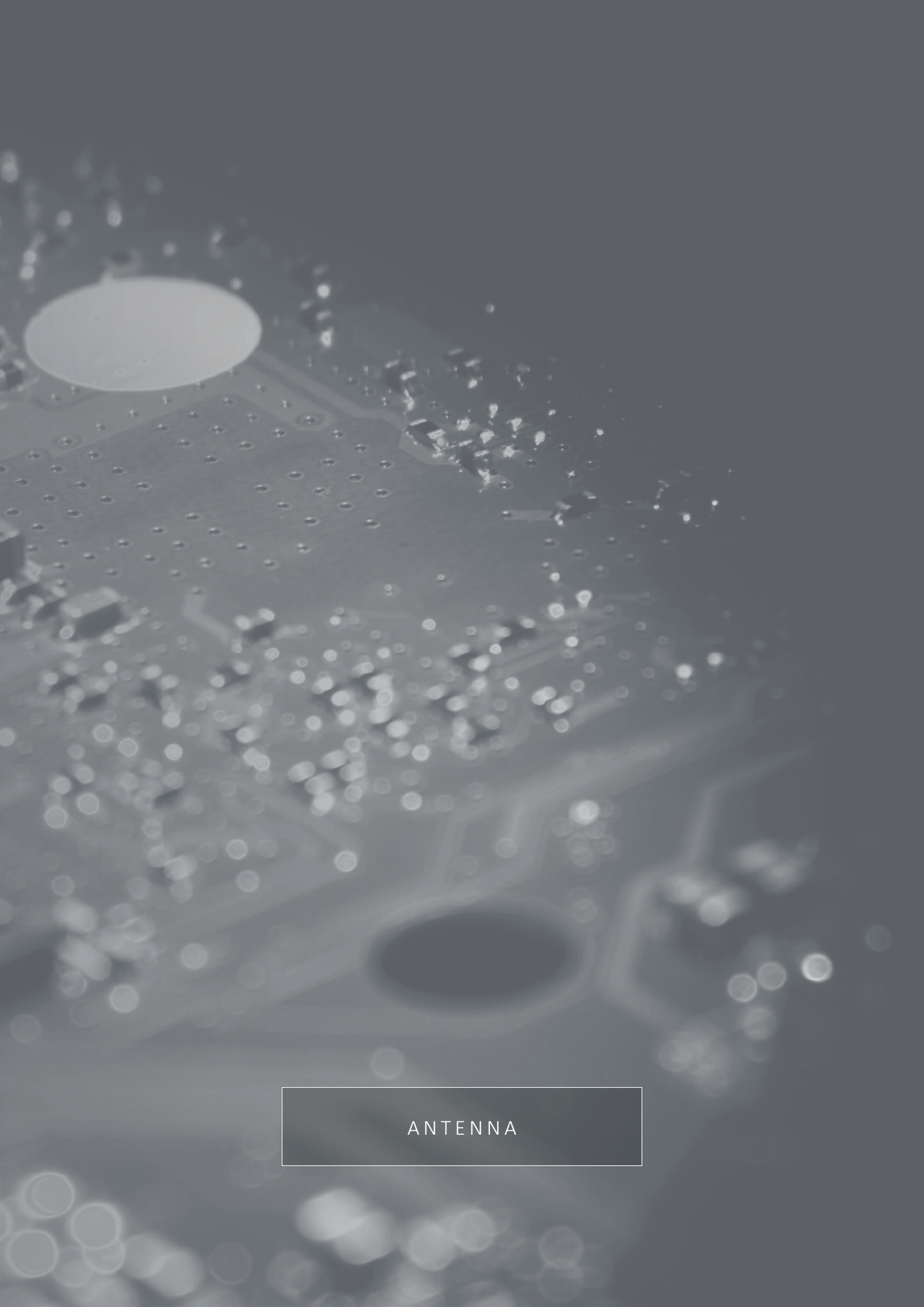
GDRF | Dielectric filters



Powerful filtering from 400MHz ~ 10GHz

Golledge dielectric resonator filters feature high out-of-band rejection, low insertion loss, high power input and excellent temperature coefficients. Application areas include WiFi 5GHz, WiFi 2.4GHz, LTE small cell, DSRC and GPS. The use of ceramic and high K value materials allows the production of ultra-miniature DR filters, ensuring board space is maximised.

- Ultra-miniature components
- High out-of-band rejection
- Low insertion loss
- Filtering available for a wide range of application-standard frequencies



ANTENNA

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PATCH ANTENNAS FROM CIROCOMM
TECHNOLOGY CORP

66

CHIP ANTENNAS FROM CIROCOMM
TECHNOLOGY CORP

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Patch Antennas from Cirocomm Technology Corp

GPA | Patch Antenna



Cirocomm's antenna design team has many years of industry experience and thousands of cumulative efforts in materials science, RF engineering, fabrication processing, and manufacturing, paired with advanced state-of-the-art antenna measuring and production equipment. Their extensive range of design capabilities and large variety of technologies allows their engineers greater freedom to pursue the optimal antenna design.

- Well-developed antenna design procedure
- Experienced field engineers for evaluation of application needs
- Expert design team for antenna development
- Thorough performance testing including on-site Satiro anechoic chamber

Chip Antennas from Cirocomm Technology Corp

GCA | Chip Antenna



Cirocomm's antenna design team has many years of industry experience and thousands of cumulative efforts in materials science, RF engineering, fabrication processing, and manufacturing, paired with advanced state-of-the-art antenna measuring and production equipment. Their extensive range of design capabilities and large variety of technologies allows their engineers greater freedom to pursue the optimal antenna design.

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- Thorough performance testing including on-site Satiro anechoic chamber

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