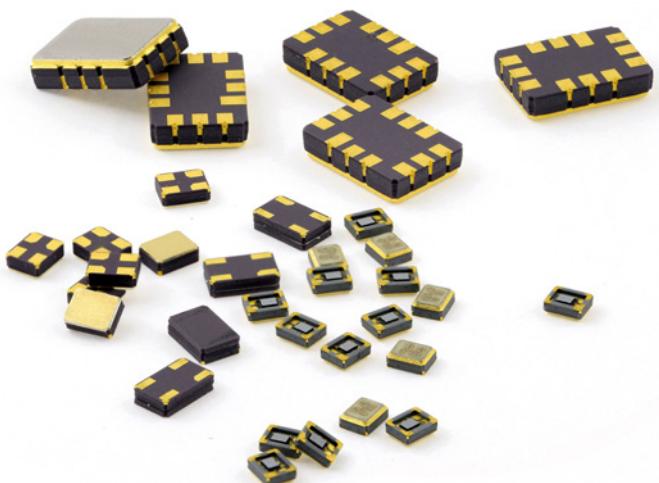


FUTURE PROOF PRODUCTS
FOR YOUR NEW DESIGNS

Let's get
innovating...

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



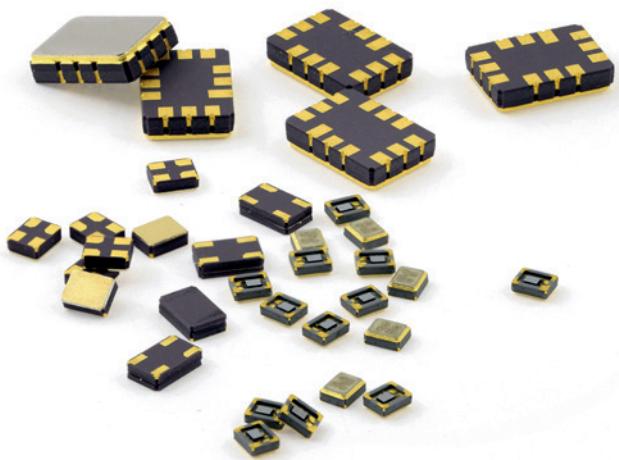
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2023/24

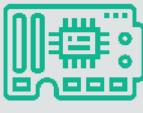
Welcome to Golledge...

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.

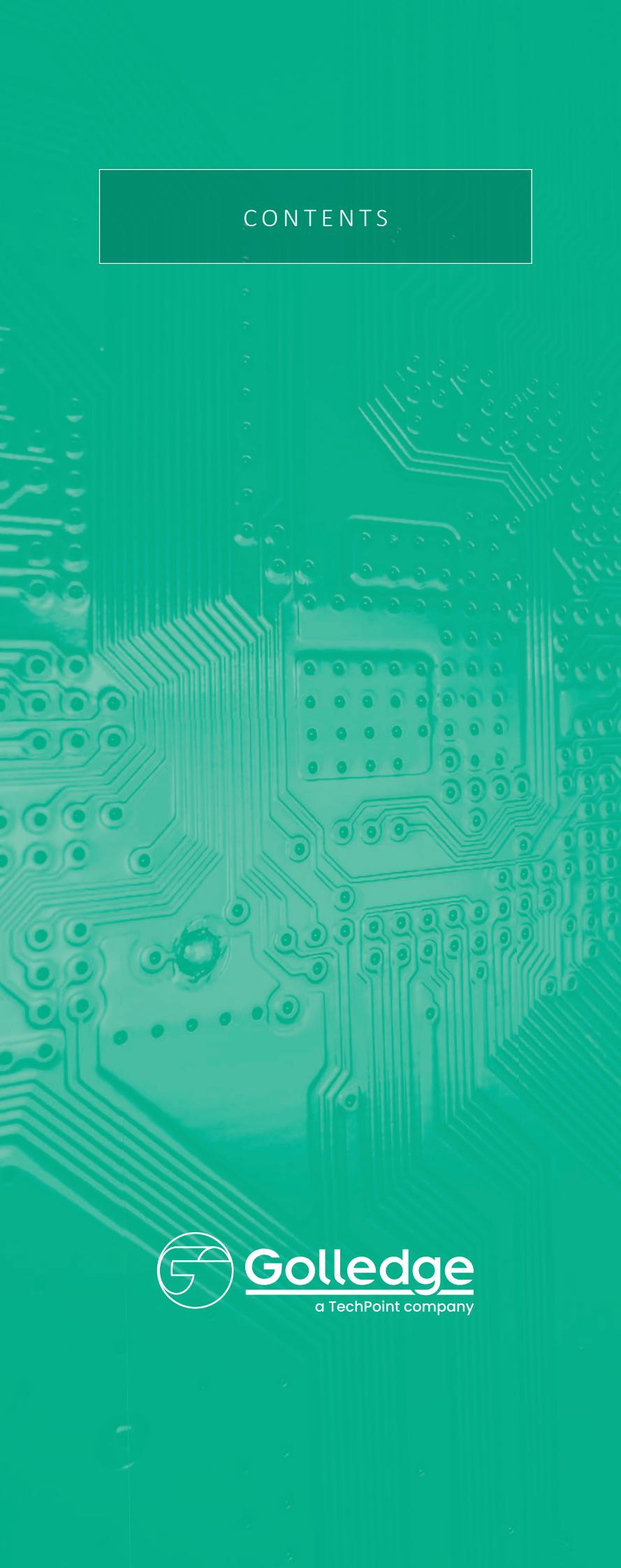
Our full range of products is specified on our website, golledge.com, and is the definitive source for up-to-date information including data sheets, product announcements, white papers and much more.



 **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
			
California 65 Declaration	Ozone Depleting Declaration	Asbestos Non-use Declaration	TSCA PBT Substances Declaration



CONTENTS

SERVICES

TESTING CAPABILITIES	6
----------------------	---

ADMIN AND OTHER SERVICES	9
--------------------------	---

PRODUCTS

SURFACE MOUNT QUARTZ CRYSTALS	12
-------------------------------	----

SURFACE MOUNT OSCILLATORS	27
---------------------------	----

TEMPERATURE COMPENSATED OSCILLATORS	39
-------------------------------------	----

VOLTAGE CONTROLLED OSCILLATORS	45
--------------------------------	----

REAL TIME CLOCK MODULES	50
-------------------------	----

MONOLITHIC CRYSTAL FILTERS	53
----------------------------	----

OVEN CONTROLLED OSCILLATORS	57
-----------------------------	----

SURFACE ACOUSTIC WAVE DEVICES SAWs DIELECTRIC FILTERS	61
---	----

ANTENNA	65
---------	----

INDEX	67
-------	----

PARTNERS AND DISTRIBUTORS	69
---------------------------	----

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

Golledge Electronics Ltd | Eaglewood Park | Ilminster | Somerset | TA19 9DQ
+44 (0) 1460 256100 | sales@golledge.com | golledge.com

Together...we do more

golledge.com

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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 Analyser



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



bela.co.uk

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- DFM support
- Fast track prototyping
- Small batch production
- Second stage conventional fit

Golledge

golledge.com

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

vanilla

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- 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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ORDERING

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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.

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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



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.



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.



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.



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.



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.

Take a look at golledge.com/products



SURFACE MOUNT QUARTZ CRYSTALS AND OSCILLATORS

SM 32.768kHz WATCH CRYSTAL	14	AUTOMOTIVE QUALIFIED MINIATURE SM CRYSTAL 12.00 ~ 40.00MHz	22
MINIATURE SM 32.768kHz WATCH CRYSTAL	15	AUTOMOTIVE QUALIFIED SM CRYSTAL 16.0 ~ 52.0MHz	23
ULTRA-MINIATURE SM 32.768kHz WATCH CRYSTAL	15	AUTOMOTIVE QUALIFIED ULTRA-MINIATURE SM CRYSTAL 24.0 ~ 40.0MHz	23
MINIATURE SM 32.768kHz CRYSTAL WITH AEC-Q200	16	SM 10.0 ~ 315MHz CRYSTAL	24
MINIATURE 2012 SM AEC-Q200 CRYSTAL	16	SM 12.0 ~ 315MHz CRYSTAL	24
SM 32.768kHz CRYSTAL	17	ULTRA-MINIATURE SM 20.0 ~ 315MHz CRYSTAL	25
MINIATURE SM 32.768kHz CRYSTAL	17	SM CRYSTAL	26
ULTRA-MINIATURE 1610 PACKAGE SM 32.768kHz CRYSTAL	18	MINIATURE SM CRYSTAL	26
HIGH FREQUENCY SM CRYSTAL 3.2 X 2.5MM CRYSTAL WITH TIGHT SPECIFICATIONS CRYSTAL	19	ULTRA-MINIATURE SM 32.768kHz OSCILLATOR	27
MINIATURE SM 12.0 ~ 66.0MHz CRYSTAL	19	ULTRA-MINIATURE SM 32.768kHz OSCILLATOR	27
ULTRA-MINIATURE SM 16.0 ~ 96.0MHz CRYSTAL	20	SM OSCILLATOR 32.768kHz	28
ULTRA-MINIATURE SM CRYSTAL FOR NFC, SMARTCARD ETC.	20	SM OSCILLATOR 32.768kHz	28
SUPER-MINIATURE SM CRYSTAL WITH LOW ESR	21	ULTRA-MINIATURE 32.768kHz SM OSCILLATOR	29
AUTOMOTIVE QUALIFIED SM CRYSTAL 12.00 ~ 40.00MHz	22	ULTRA-MINIATURE 100kHz SM OSCILLATOR	29

SURFACE MOUNT QUARTZ CRYSTALS AND OSCILLATORS

FULLY CERAMIC 32.768kHz SM OSCILLATOR	30
FULLY CERAMIC 32.768kHz SM OSCILLATOR	30
FULLY CERAMIC 100kHz SM OSCILLATOR	31
MINIATURE FULLY CERAMIC SM OSCILLATOR	32
MINIATURE LOW FREQUENCY SM OSCILLATOR	32
CMOS SM OSCILLATOR	33
MINIATURE CMOS OSCILLATOR WITH LOW JITTER	33
ULTRA-MINIATURE CMOS SM OSCILLATOR WITH LOW JITTER	34
MINIATURE LOW JITTER OSCILLATORS	35
LOW JITTER OSCILLATORS	35
HIGH FREQUENCY, TIGHT STABILITY OSCILLATOR	36
LVDS OSCILLATOR FOR HIGH SPEED DATA TRANSFER	36

SERVICES

TESTING CAPABILITIES	6
ADMIN AND OTHER SERVICES	9

PRODUCTS

SURFACE MOUNT QUARTZ CRYSTALS	12
SURFACE MOUNT OSCILLATORS	27
TEMPERATURE COMPENSATED OSCILLATORS	39
VOLTAGE CONTROLLED OSCILLATORS	45
REAL TIME CLOCK MODULES	50
MONOLITHIC CRYSTAL FILTERS	53
OVEN CONTROLLED OSCILLATORS	57
SURFACE ACOUSTIC WAVE DEVICES SAWs DIELECTRIC FILTERS	61
ANTENNA	65
INDEX	67
PARTNERS AND DISTRIBUTORS	69

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We have over 20,000 developed product lines and counting, with cross referral support against the industry's other leading manufacturers.

Our part failure rate is smaller than one per million, and we're ISO 9001:2015 certified meaning you can trust us to deliver the product you need with the service you want.



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APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



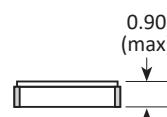
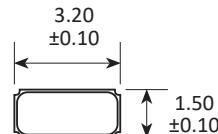
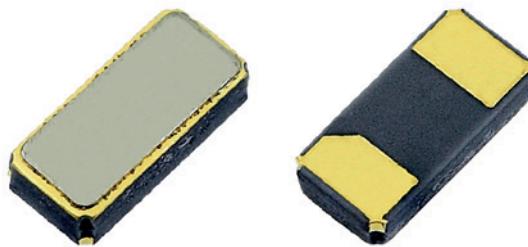
TIGHT STABILITY
SOLUTIONS



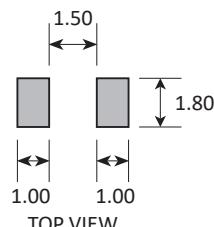
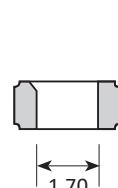
HIGHLY ACCURATE
RF FILTERING

SM 32.768kHz watch crystal

GSX-317 |



SOLDER PAD LAYOUT

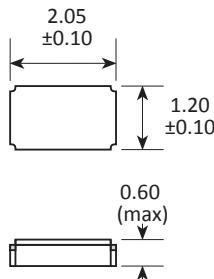


The GSX-317 crystal offers highly competitive pricing and low power consumption in a miniature vacuum sealed ceramic package.

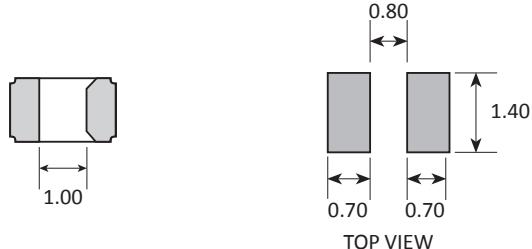
- Compatible with CM315/FC135
- Industry standard 3.2 x 1.5mm footprint
- Board area = 4.8mm²
- Highly competitive
- Core stock
- Available with 6pF, 7pF, 9pF, and 12.5pF load capacitance options

Miniature SM 32.768kHz watch crystal

GWX-2012 | 



SOLDER PAD LAYOUT

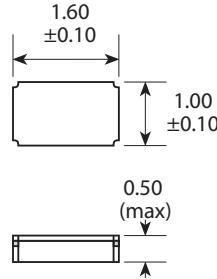


TOP VIEW

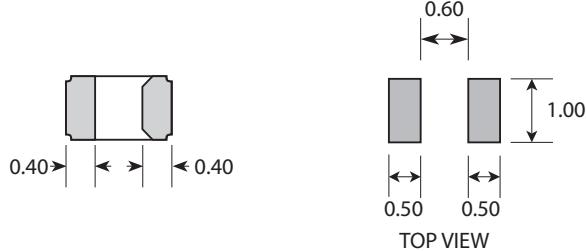
- Suitable for high volume applications
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Ultra-low profile, just 0.6mm high

Ultra-miniature SM 32.768kHz watch crystal

GWX-1610 | 



SOLDER PAD LAYOUT

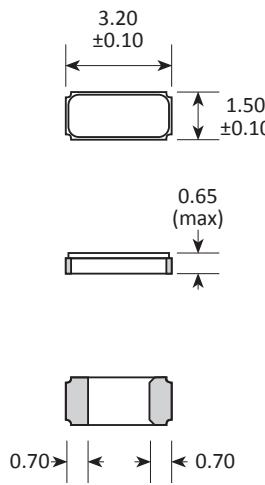


TOP VIEW

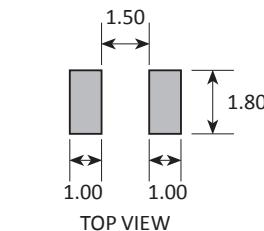
- Competitive pricing for volume applications
- Ultra-low profile, just 0.5mm high
- Light weight miniature package with tiny 1.6 x 1.0mm footprint
- Vacuum sealed for high stability

Miniature SM 32.768kHz crystal with AEC-Q200

CM7V-T1A | 



SOLDER PAD LAYOUT

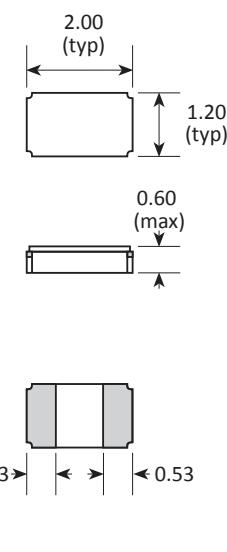


TOP VIEW

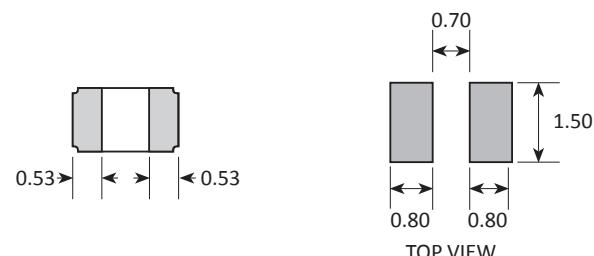
- High shock and vibration resistance
- 3.2 x 1.5mm footprint
- Board area = 4.8mm²
- Extended temperature range option

Miniature 2012 SM AEC-Q200 crystal

CM8V-T1A | 



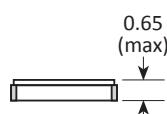
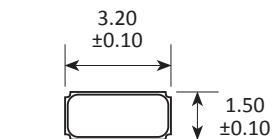
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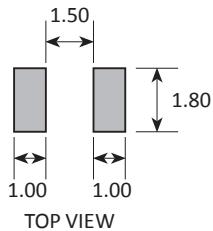
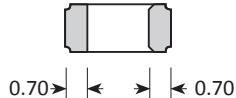
TOP VIEW

- 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 | 

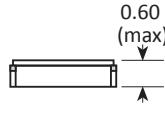
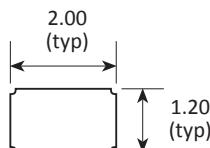
SOLDER PAD LAYOUT



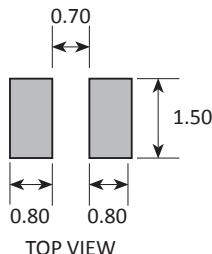
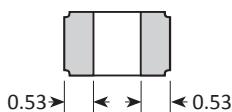
TOP VIEW

- 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

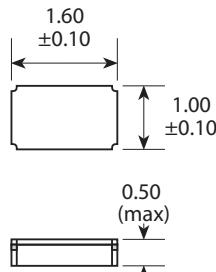


TOP VIEW

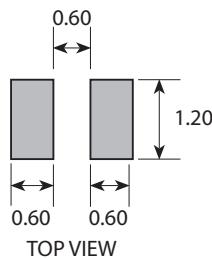
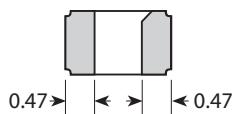
- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Board area = 2.4mm²
- Extended temperature range of -55 to +125°C available

Ultra-miniature 1610 package SM 32.768kHz crystal

CM9V-T1A/M | 



SOLDER PAD LAYOUT



TOP VIEW

- 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



REQUEST A FREE SAMPLE

See page 11 for details



DESIGN EXPERTISE

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KEY



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HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



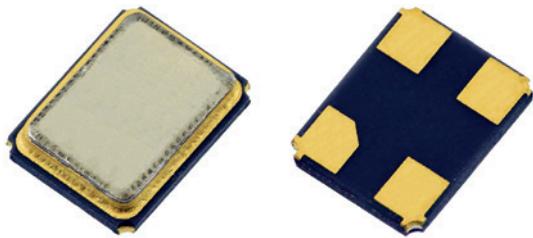
TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

High frequency SM 3.2 x 2.5mm crystal with tight specifications

GSX-333 |  



3.30
(max)

0.80
(max)

SOLDER PAD LAYOUT

1.00
1.20

0.30
0.70
1.20
1.40
1.40

TOP VIEW

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

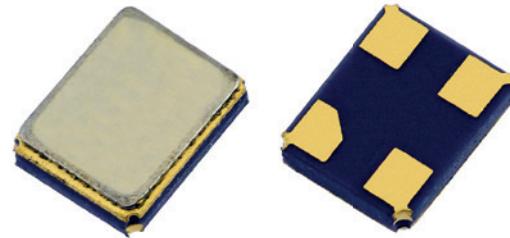
PAD	CONNECTION
1	Crystal
2	Ground & lid
3	Crystal
4	Ground & lid

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 | 



2.50
 ± 0.10

0.60
(max)

SOLDER PAD LAYOUT

0.60
0.90

0.20
0.40
1.00
1.20

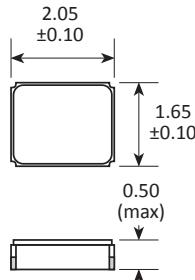
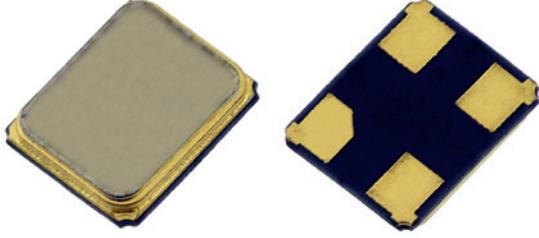
TOP VIEW

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

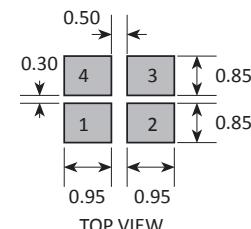
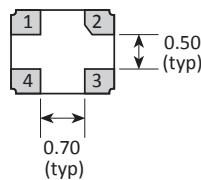
- Ideal for Bluetooth/Wireless applications
- 2.5 x 2.0mm footprint
- Board area = 5.0mm²
- Seam sealed for excellent stability

Ultra-miniature SM 16.0 ~ 96.0MHz crystal

GSX-223 | 



SOLDER PAD LAYOUT



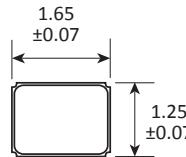
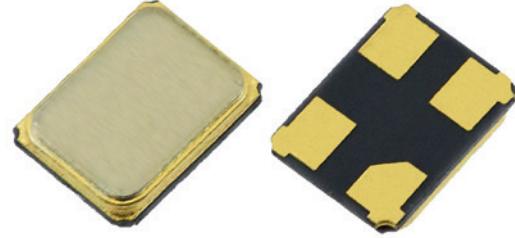
TOP VIEW

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

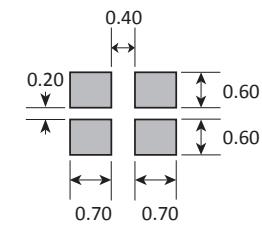
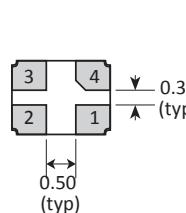
- Ultra-miniature for maximum space saving
- 2.0 x 1.65mm footprint
- Board area = 3.3mm²
- Seam sealed for long term stability

Ultra-miniature SM crystal for NFC, smartcard etc.

GSX-213 | 



SOLDER PAD LAYOUT

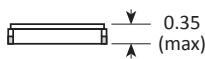
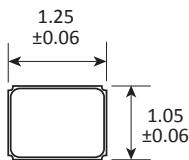


PAD	CONNECTION
1	Crystal
2	Ground & lid
3	Crystal
4	Ground/NC

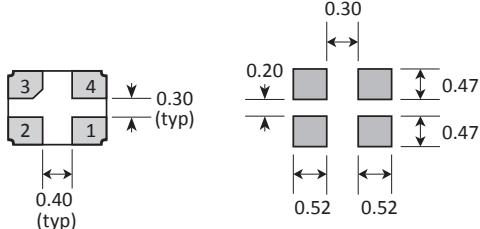
- Available from 24.0 ~ 76.8MHz
- 2.06mm² board area
- Ideal for NFC applications
- Excellent ageing characteristics

Super-miniature SM crystal with low ESR

GSX-113 | 



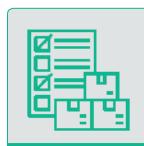
SOLDER PAD LAYOUT



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



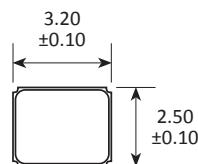
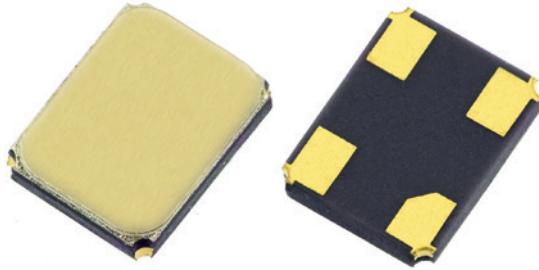
TIGHT STABILITY
SOLUTIONS



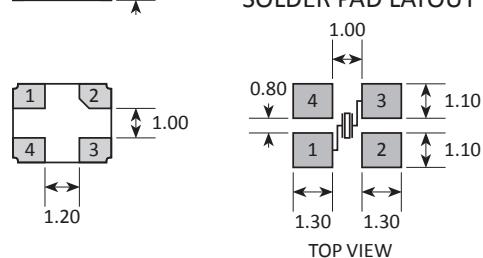
HIGHLY ACCURATE
RF FILTERING

Automotive qualified SM crystal 12.00 ~ 40.00MHz

GRX-330 | 



SOLDER PAD LAYOUT



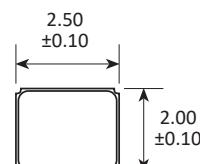
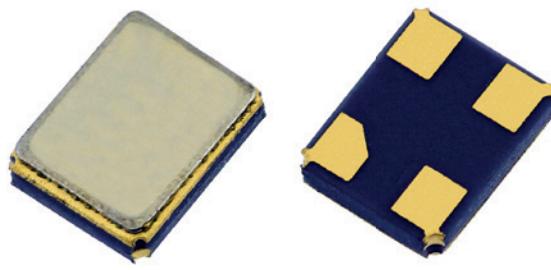
TOP VIEW

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

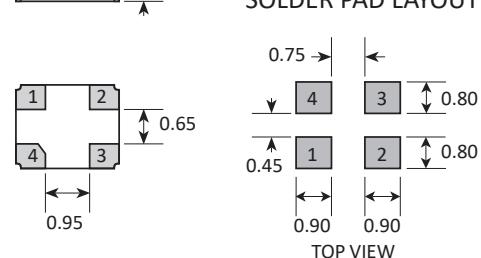
- AEC-Q200 qualified with PPAP available
- 3.2 x 2.5mm footprint
- Board area = 8.0mm²
- Extended temperature range of -40 to +125°C

Automotive qualified miniature SM crystal 12.00 ~ 40.00MHz

GRX-320 | 



SOLDER PAD LAYOUT



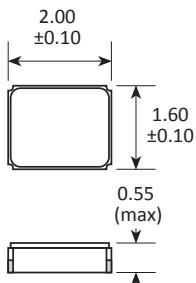
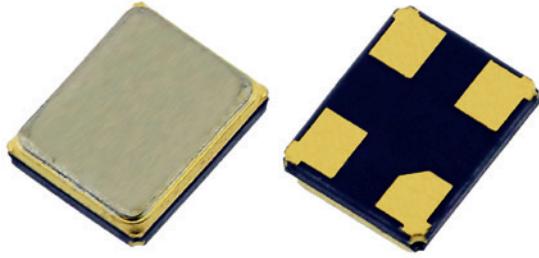
TOP VIEW

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

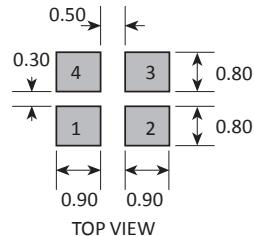
- AEC-Q200 qualified with PPAP available
- 2.5 x 2.0mm footprint
- Board area = 5.0mm²
- Extended temperature range of -40 to +125°C

Automotive qualified SM crystal 16.0 ~ 52.0MHz

GRX-220 | 



SOLDER PAD LAYOUT

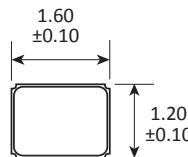
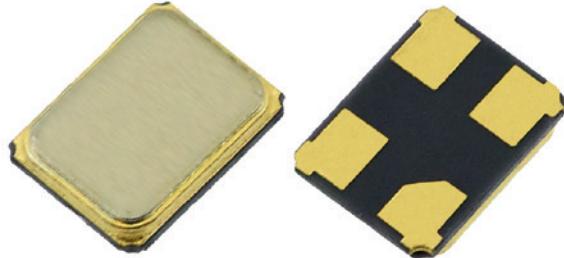


TOP VIEW

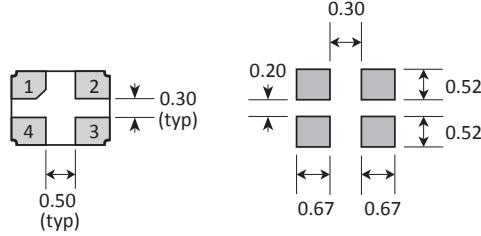
PAD	CONNECTION
1	Crystal
2	Ground & lid
3	Crystal
4	Ground & lid

Automotive qualified ultra-miniature SM crystal 24.0 ~ 40.0MHz

GRX-210 | 



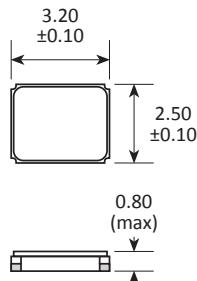
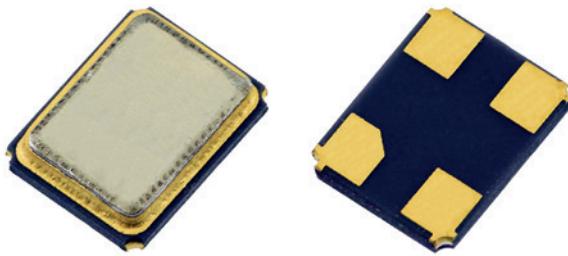
SOLDER PAD LAYOUT



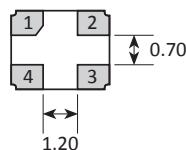
PAD	CONNECTION
1	Crystal
2	Ground & lid
3	Crystal
4	Ground/NC

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

- 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
crystalGSX-338 | 

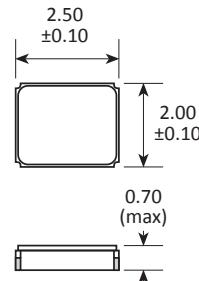
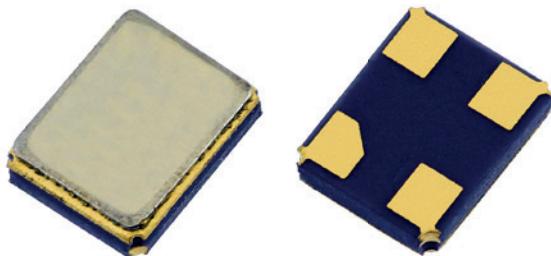
SOLDER PAD LAYOUT



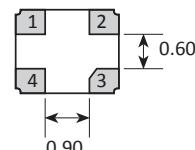
TOP VIEW

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
crystalGSX-328 | 

SOLDER PAD LAYOUT



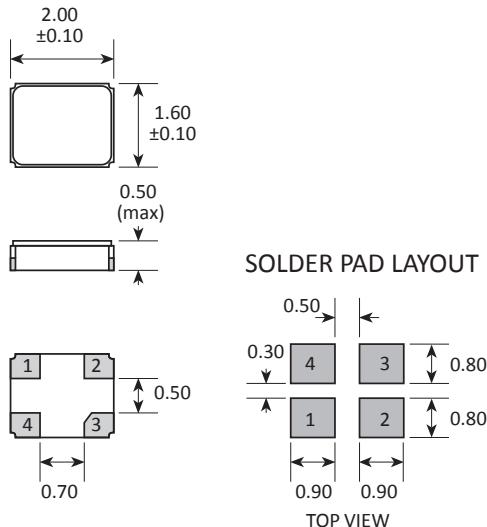
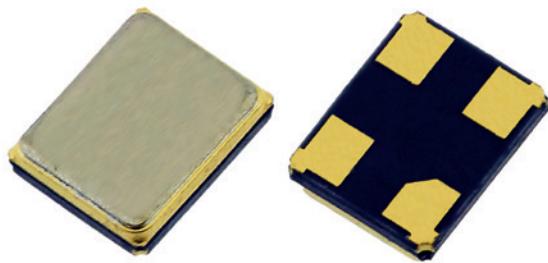
TOP VIEW

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 |



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

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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

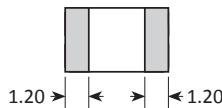
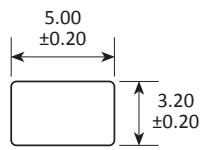


TIGHT STABILITY SOLUTIONS

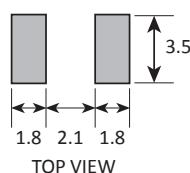


HIGHLY ACCURATE RF FILTERING

SM crystal

CC2A | 

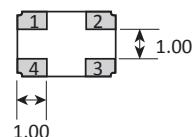
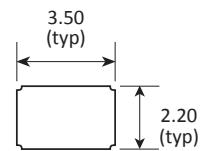
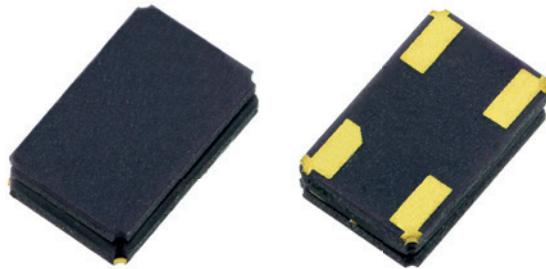
SOLDER PAD LAYOUT



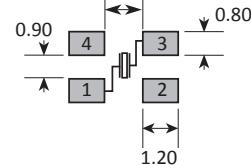
TOP VIEW

- 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



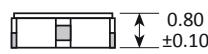
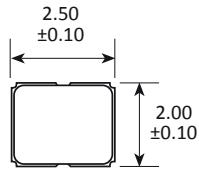
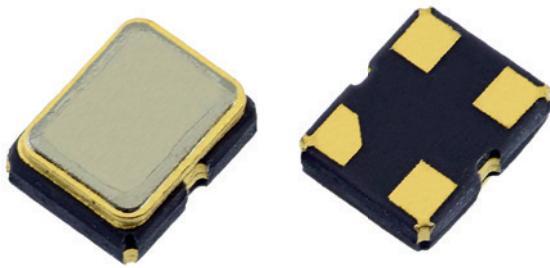
TOP VIEW

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

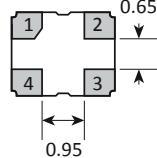
- Available from 16.0 ~ 70.0MHz
- High shock and vibration resistance
- 3.5 x 2.2mm footprint
- Wide range of frequencies available
- Extreme temperature ranges available, including as wide as -55 to +200°C

Ultra-miniature SM 32.768kHz oscillator

GAO-3201 | 



SOLDER PAD LAYOUT



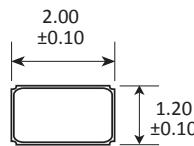
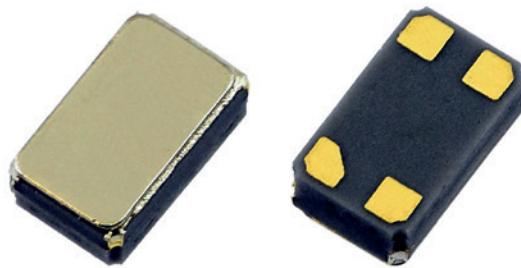
TOP VIEW

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

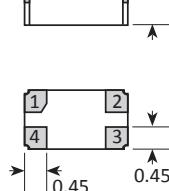
- Suitable for high volume applications
- 2.5 x 2.0mm footprint
- Low current consumption
- AT cut resonator and dividing circuit
- Board area = 5.0mm²
- Ultra-low profile, just 0.9mm high
- Excellent temperature stability over wide temperature range

Ultra-miniature SM 32.768 kHz oscillator

OM7605C8 | 



SOLDER PAD LAYOUT



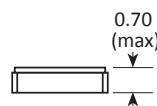
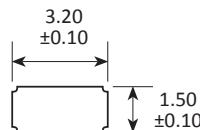
TOP VIEW

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

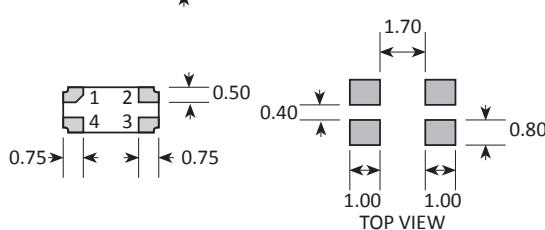
- High shock and vibration resistance
- 2.0 x 1.2mm footprint
- Extended temperature range of -40 to +85°C available
- Board area = 2.4mm²
- Optional AEC-Q200 automotive qualification
- Ultra-low power consumption

SM Oscillator 32.768kHz

OM7604C7 | 



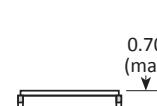
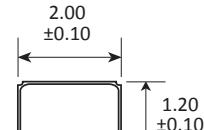
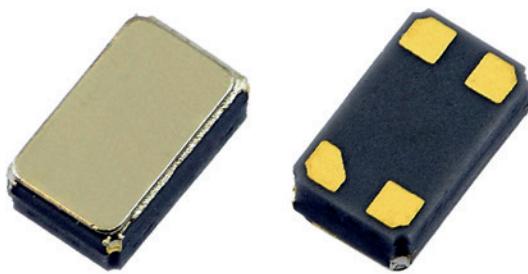
SOLDER PAD LAYOUT



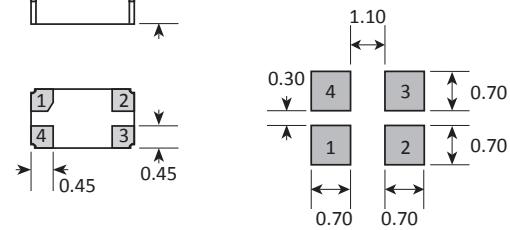
PAD	CONNECTION
1	Output
2	Ground
3	Enable/Disable
4	Supply

SM Oscillator 32.768kHz

OM7605C8 | 



SOLDER PAD LAYOUT



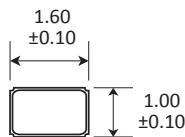
PAD	CONNECTION
1	Output
2	Ground
3	Enable / disable
4	Supply

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

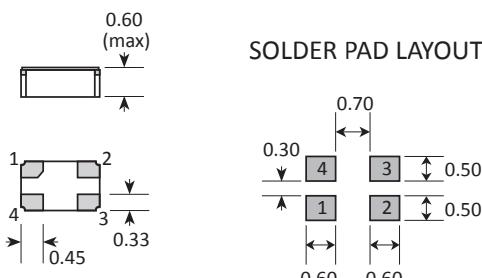
- Ultra-low power consumption
- Tight frequency tolerance
- 2.0 x 1.2mm footprint
- High shock and vibration resistance

Ultra-miniature 32.768kHz SM oscillator

OM7605C9 | 



SOLDER PAD LAYOUT



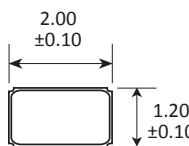
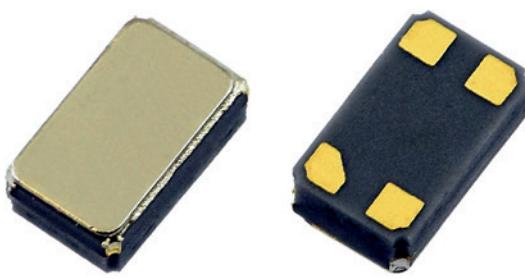
TOP VIEW

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

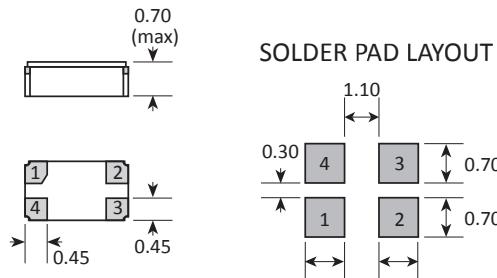
- Tight frequency tolerance
- Ultra-low power consumption
- 1.6 x 1.0mm footprint
- High shock and vibration resistance

Ultra-miniature 100kHz SM oscillator

OM0100C8 | 



SOLDER PAD LAYOUT



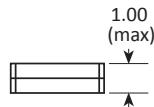
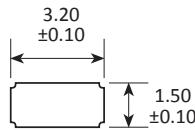
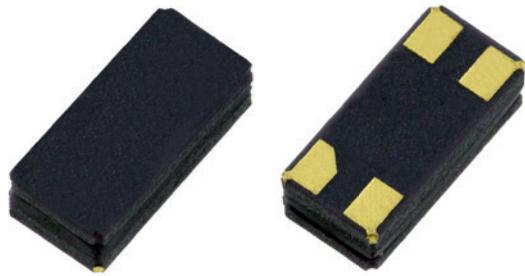
TOP VIEW

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

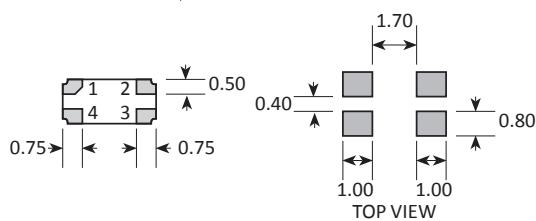
- 2.0 x 1.2mm footprint
- Ultra-low power consumption
- Optional AEC-Q200 qualification
- High shock and vibration resistance

Fully ceramic 32.768kHz SM oscillator

OV7604C7 | 



SOLDER PAD LAYOUT



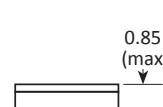
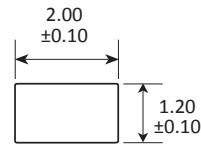
TOP VIEW

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

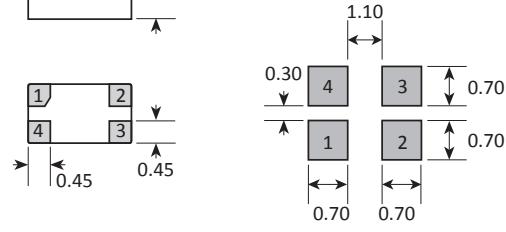
- Ultra-low power consumption
- Fully ceramic package
- Optional AEC-Q200 qualification
- Tight frequency tolerance
- Industrial and extended temperature ranges
- High shock and vibration resistance

Fully ceramic 32.768kHz SM oscillator

OV7605C8 | 



SOLDER PAD LAYOUT



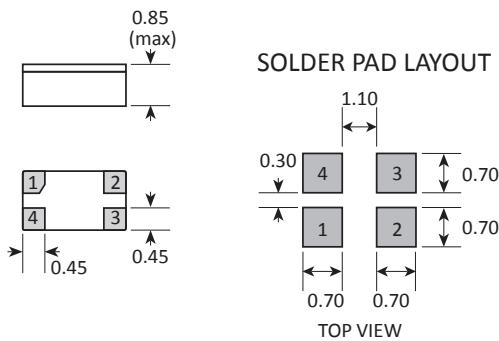
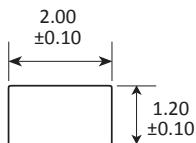
TOP VIEW

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 | 



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



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HARSH ENVIRONMENT
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HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



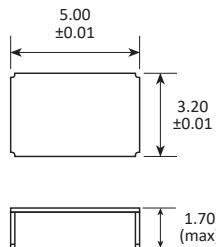
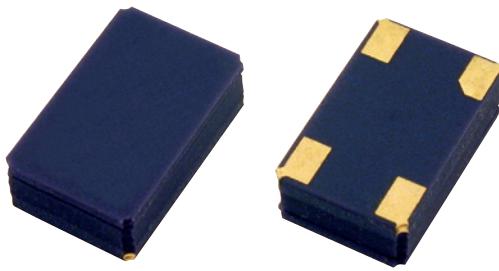
TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

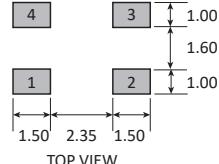
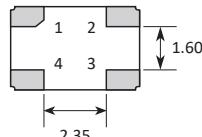
Miniature fully ceramic SM oscillator

MCSO2xxx |



PAD	CONNECTION
1	Not connected
2	Ground
3	Output
4	Supply

SOLDER PAD LAYOUT



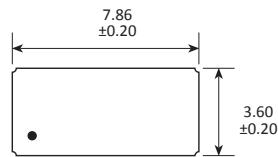
TOP VIEW

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

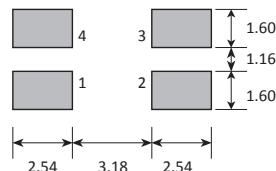
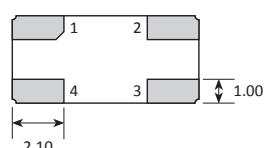
- Available from 10.0kHz to 225MHz
- Suitable for Avionics, Down-hole, Geothermal etc.
- Extreme temperature ranges up to 210°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

Miniature low frequency SM oscillator

MCSO1xxx |



PAD	CONNECTION
1	Not Connected
2	Ground
3	Output
4	Supply



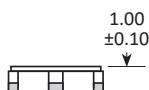
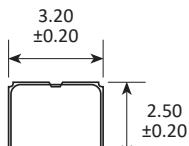
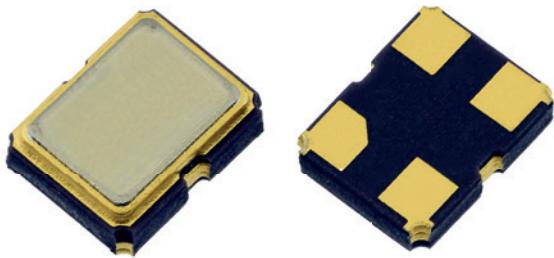
TOP VIEW

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

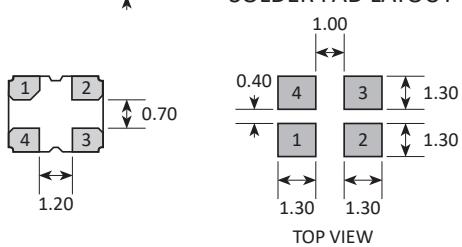
- Available from 10.0kHz to 225MHz
- Suitable for Avionics, Down-hole, Geothermal etc.
- Extreme temperature ranges up to 200°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

CMOS SM oscillator

GXO-U119 |  



SOLDER PAD LAYOUT



TOP VIEW

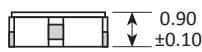
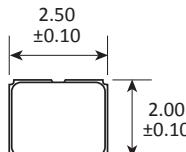
PAD	CONNECTION
1	Enable / disable
2	Ground
3	Output
4	Supply

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.

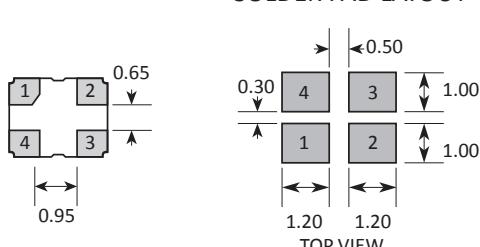
- High stability
- Low current consumption
- 3225 miniature ceramic package with metal lid
- Enable/disable tristate function
- Competitive pricing
- Available from 1.8MHz ~ 170MHz

Miniature CMOS oscillator with low jitter

GXO-U120 | 



SOLDER PAD LAYOUT



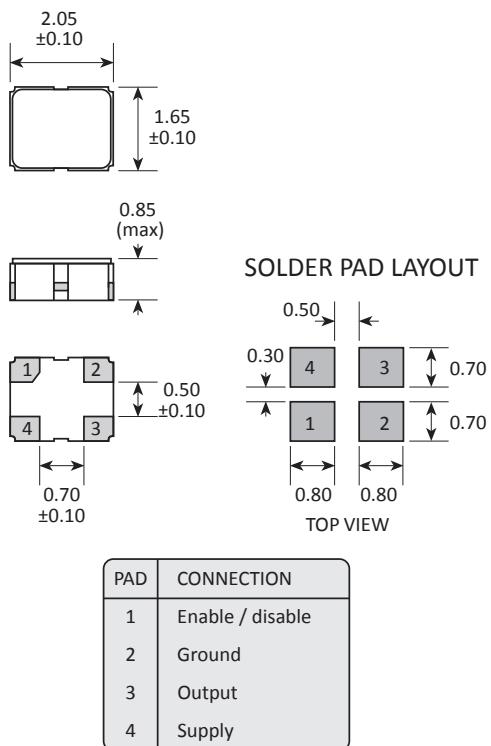
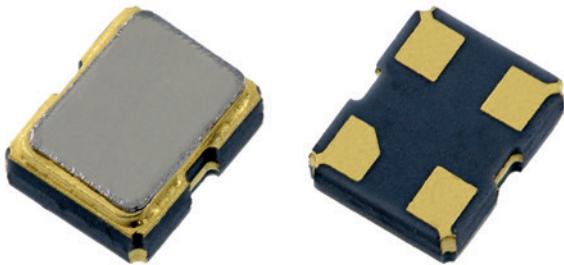
TOP VIEW

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 | 



- 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



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FUTURE PROOF | PREFERRED SIZING



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SOLUTIONS



COMMERCIAL AND INDUSTRIAL
APPLICATION SOLUTIONS



HARSH ENVIRONMENT
SOLUTIONS



HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



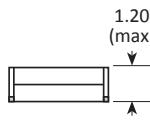
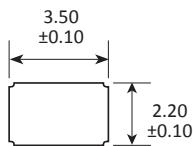
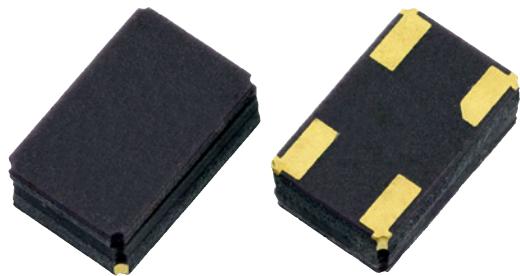
TIGHT STABILITY
SOLUTIONS



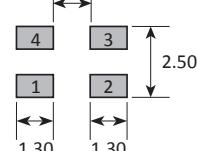
HIGHLY ACCURATE
RF FILTERING

Miniature low jitter oscillators

MCSO6xxx | 



SOLDER PAD LAYOUT



TOP VIEW

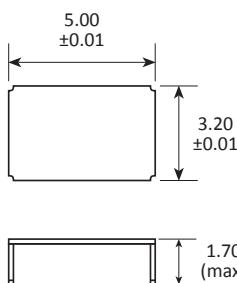
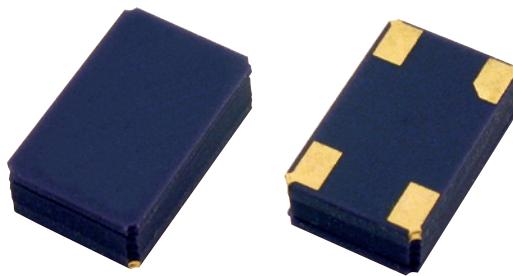
PAD	CONNECTION
1	Not connected or Enable/Disable
2	Ground
3	Output
4	Supply

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)

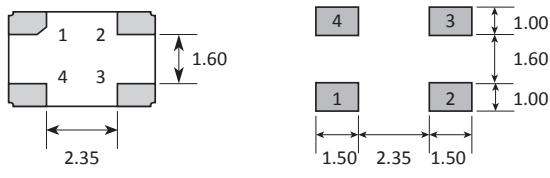
Low jitter oscillators

MCSO2Fxxx | 



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

SOLDER PAD LAYOUT



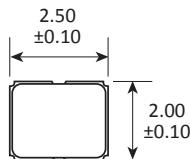
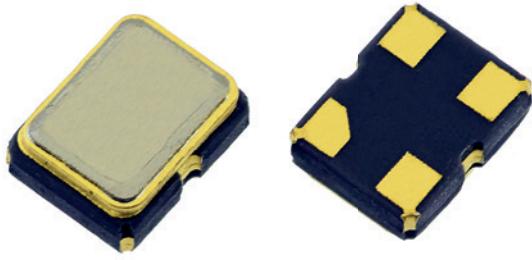
TOP VIEW

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

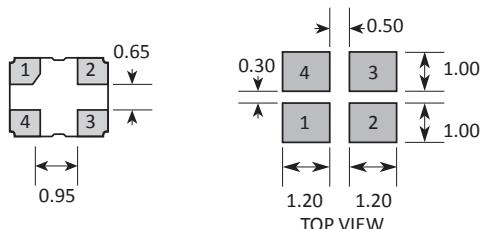
- Available from 10.0kHz ~ 225MHz
- Suitable for Avionics, Down-hole, Geothermal and more
- Extreme temperature ranges available up to 210°C
- High stability and low ageing under extremes
- High shock and vibration resistance
- Optional tinned pads (Sn/Ag/Cu)

High frequency, tight stability oscillator

GXO-3200 |  



SOLDER PAD LAYOUT

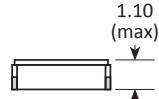
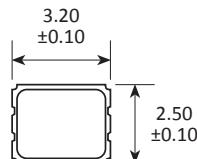


PAD	CONNECTION
1	Enable/Disable
2	Ground
3	Output
4	Supply

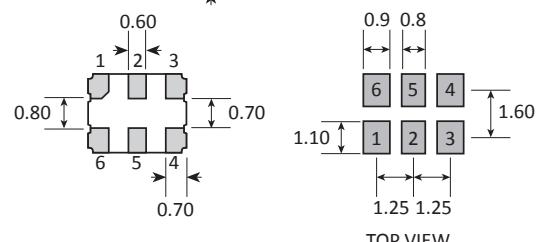
- Available from 10.0 ~ 160MHz
- High precision with tight stability options
- Wide operating temperature ranges
- High frequency fundamental - no multiplier
- Low and medium volumes also available
- Enable/disable tristate function

LVDS oscillator for high speed data transfer

GXO-L31 |  



SOLDER PAD LAYOUT

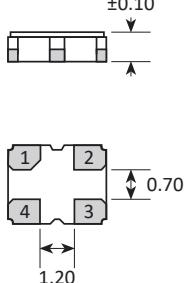
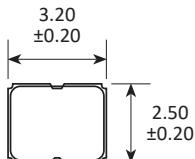
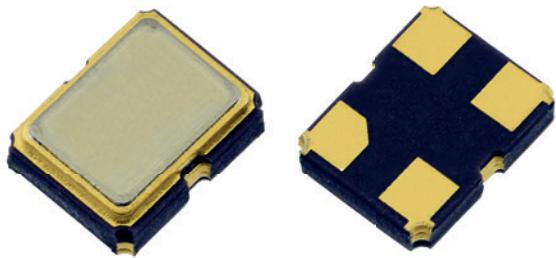


PAD	CONNECTION
1	Enable / disable
2	Not connected
3	Ground
4	Output 1 (Q)
5	Output 2 (\bar{Q})
6	Supply

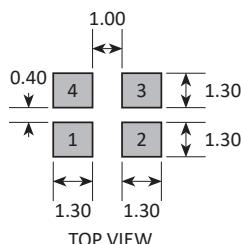
- Available from 40.0 ~ 250MHz
- Differential outputs
- RMS phase jitter 0.3ps
- Low current consumption (20mA max.)
- Multiplier-free design
- Enable/disable tristate function

3225 Package ultra-low jitter oscillator

GXO-3306 |   



SOLDER PAD LAYOUT



TOP VIEW

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



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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 NOISE CHARACTERISTICS 41

ULTRA-MINIATURE 1.6 X 1.2MM FOOTPRINT TCXO 41

32.768kHz CMOS TCXO 43

STRATUM 3 TCXO WITH CLIPPED SINE OUTPUT 43

SERVICES

TESTING CAPABILITIES 6

ADMIN AND OTHER SERVICES 9

PRODUCTS

SURFACE MOUNT QUARTZ CRYSTALS 12

SURFACE MOUNT OSCILLATORS 27

TEMPERATURE COMPENSATED OSCILLATORS 39

VOLTAGE CONTROLLED OSCILLATORS 45

REAL TIME CLOCK MODULES 50

MONOLITHIC CRYSTAL FILTERS 53

OVEN CONTROLLED OSCILLATORS 57

SURFACE ACOUSTIC WAVE DEVICES SAWs | DIELECTRIC FILTERS 61

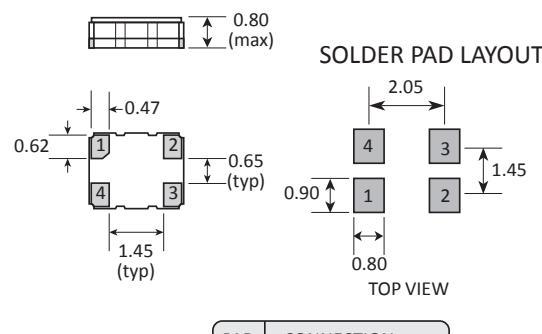
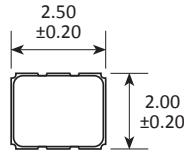
ANTENNA 65

INDEX 67

PARTNERS AND DISTRIBUTORS 69

Ultra-tight stability 1.8V~3.6V (VC) TCXO

GTXO-253 |   

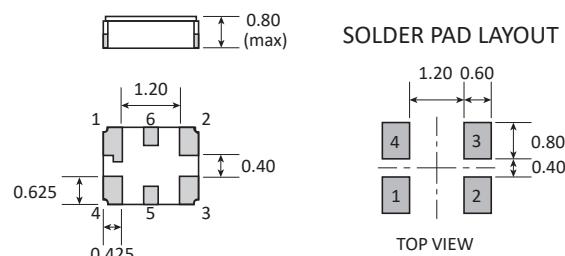
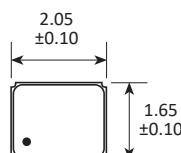


The GTXO-253T temperature compensated oscillator is ideally suited for many applications, featuring frequency stability as tight as ±0.5ppm, fast start up time of 3ms maximum, and a miniature 2.5 x 2.0mm package

- Optional AEC-Q200 qualification
- ±0.5ppm 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 |  

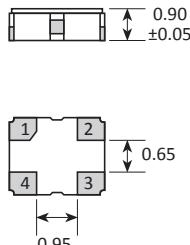
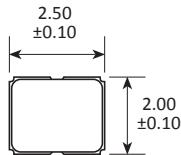
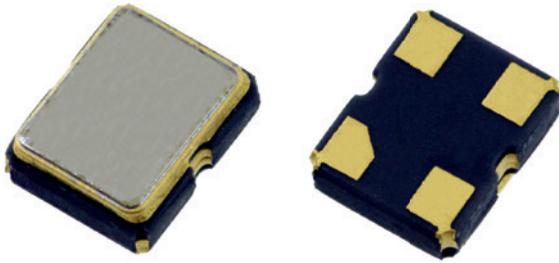


PAD	CONNECTION
1	Freq adjustment
2	Ground
3	Output
4	Supply
5	Not connected
6	Not connected

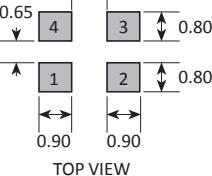
- Optional AEC-Q200 qualification
- Supply voltages from 1.8V ~ 3.6V
- Low power consumption
- Clipped sine output
- Excellent frequency stability
- Available from 10.0 ~ 70.0MHz

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
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DESIGN EXPERTISE
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CAD MODEL LIBRARIES
See page 11 for details



KNOWLEDGE HUB
See page 11 for details

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HIGH FREQUENCY
APPLICATIONS



MATERIAL SENSITIVE
APPLICATION SOLUTIONS



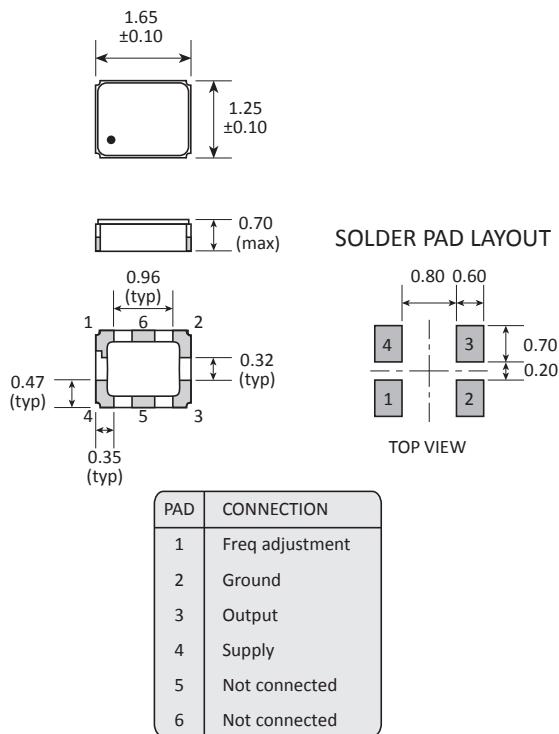
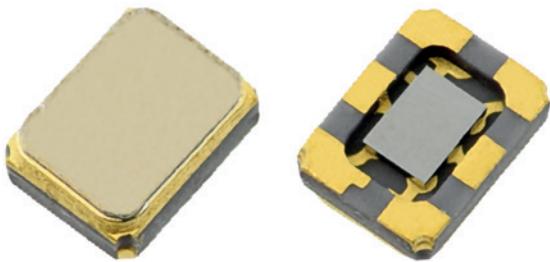
TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

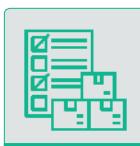
Ultra-miniature 1.6 x 1.2mm footprint (VC) TCXO

GTXO-163 | 



- Operable from 1.8 ~ 3.6V
- Clipped sine output
- Available at frequencies from 16.0 ~ 52.0MHz
- Excellent frequency stability options of ±0.5ppm available

Essential info



ORDERING
See page 10 for details



DELIVERY
See page 10 for details



PRODUCTS
See page 10 for details

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MATERIAL SENSITIVE
APPLICATION SOLUTIONS



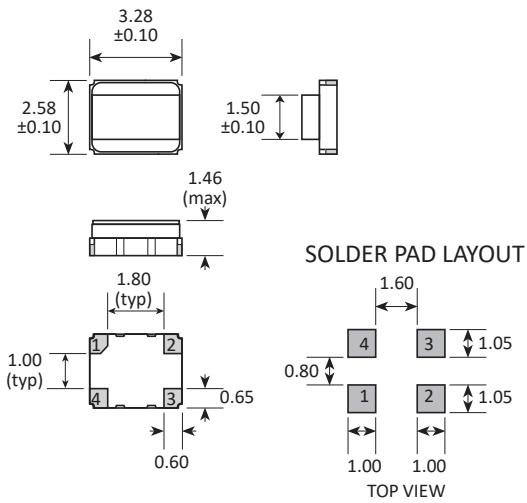
TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

32.768kHz CMOS TCXO

GTXO-94 | 

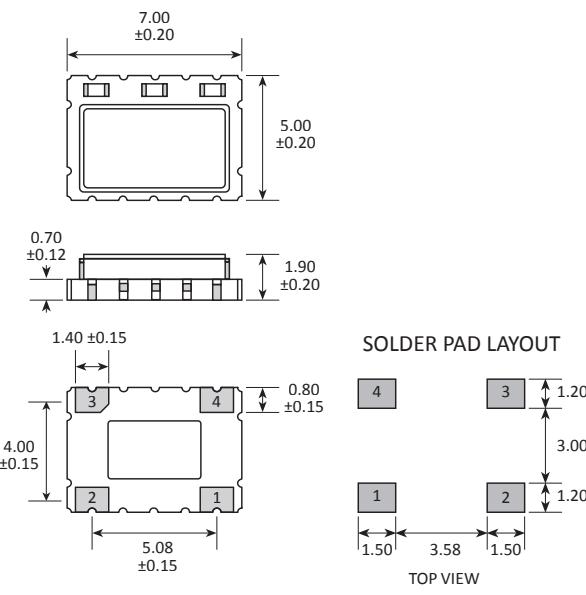
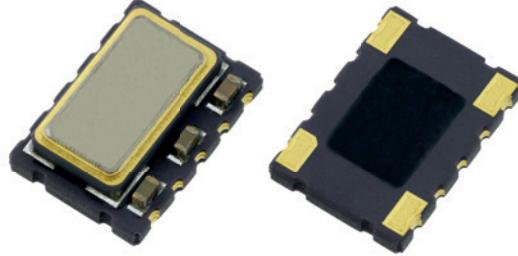


PAD	CONNECTION
1	Enable / disable
2	Ground
3	Output
4	Supply

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

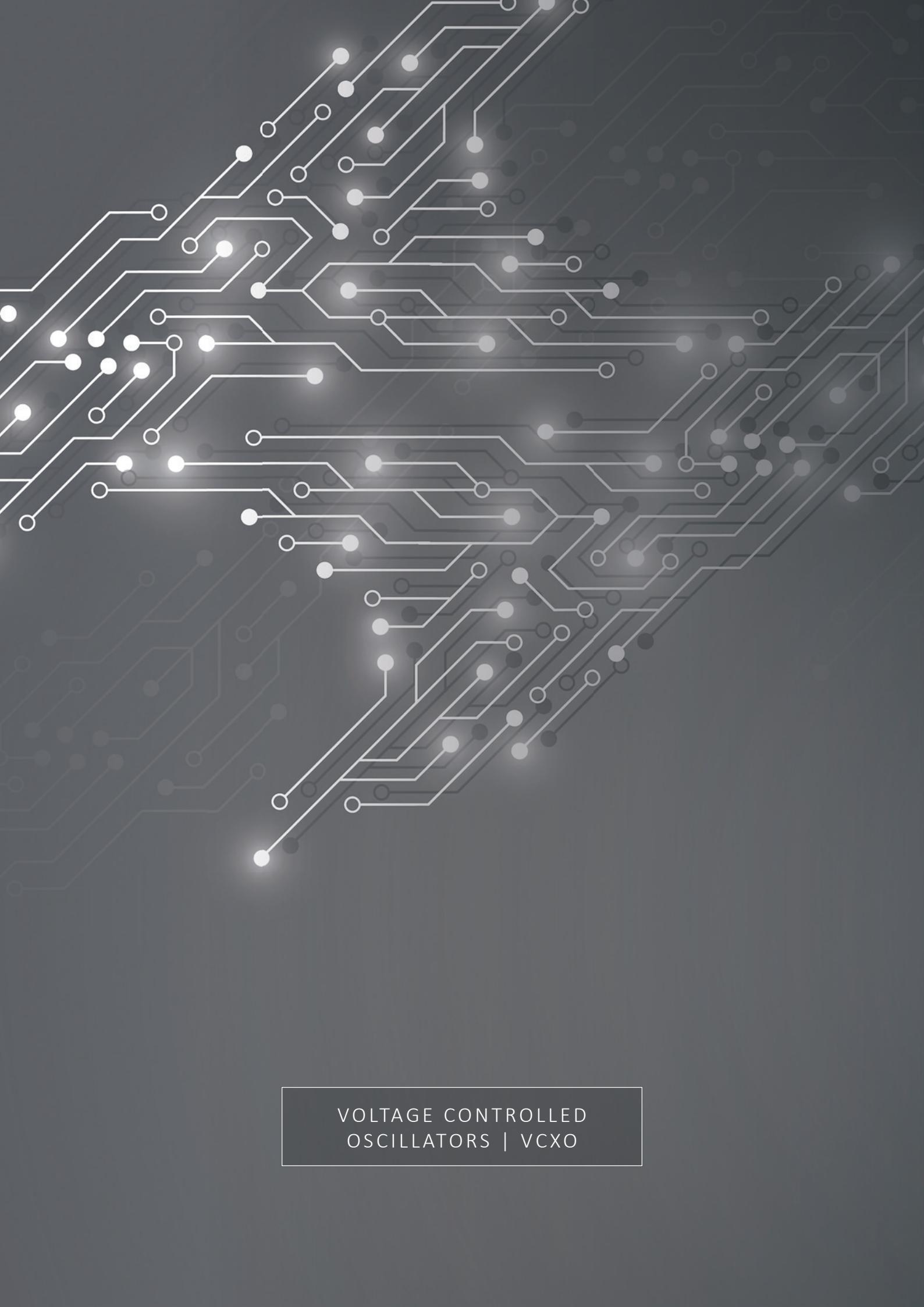
Stratum 3 TCXO with CMOS or clipped sine output

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
- ±4.6ppm stability over 20 years
- ±0.28ppm -40 to +85°C



VOLTAGE CONTROLLED
OSCILLATORS | VCXO

VOLTAGE CONTROLLED OSCILLATORS | VCXO

SURFACE MOUNT VCXO

46

LOW PHASE JITTER VCXO -
UP TO 250MHz

46

ULTRA HIGH FREQUENCY VCXO -
UP TO 1GHz

47

CMOS VCXO

48

HIGH FREQUENCY VCXO WITH MILITARY
TEMPERATURE RANGE

48

SERVICES

TESTING CAPABILITIES

6

ADMIN AND
OTHER SERVICES

9

PRODUCTS

SURFACE MOUNT
QUARTZ CRYSTALS

12

SURFACE MOUNT
OSCILLATORS

27

TEMPERATURE COMPENSATED
OSCILLATORS

39

VOLTAGE CONTROLLED
OSCILLATORS

45

REAL TIME
CLOCK MODULES

50

MONOLITHIC
CRYSTAL FILTERS

53

OVEN CONTROLLED
OSCILLATORS

57

SURFACE ACOUSTIC WAVE DEVICES
SAWs | DIELECTRIC FILTERS

61

ANTENNA

65

INDEX

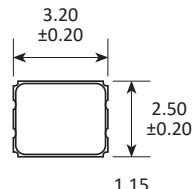
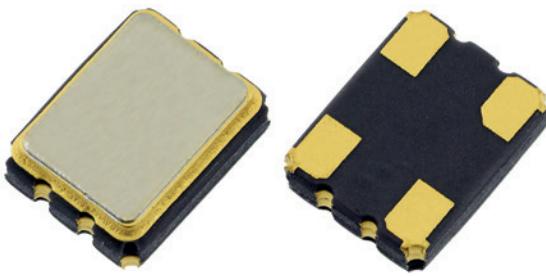
67

PARTNERS AND
DISTRIBUTORS

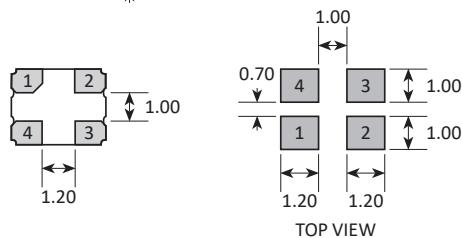
69

Surface mount VCXO

GVXO-338 |  



SOLDER PAD LAYOUT



TOP VIEW

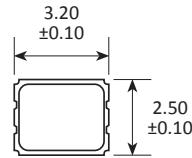
PAD	CONNECTION
1	Control voltage
2	Ground
3	Output
4	Supply

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.

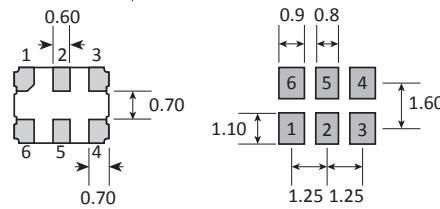
- Low current consumption
- CMOS output
- Four supply voltage options
- Miniature SM package
- Competitive pricing

Low phase jitter VCXO - up to 250MHz

GVXO-L33L (E33L) |  



SOLDER PAD LAYOUT



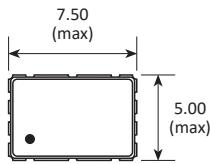
TOP VIEW

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

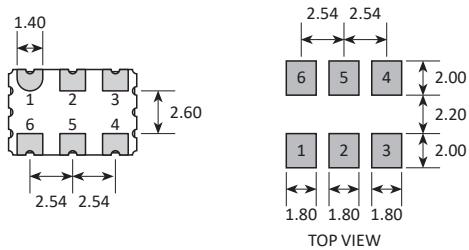
- Complementary LVDS or LV-PECL outputs
- Multiplier-free design
- Exceptionally good phase jitter performance of 1ps typ. (12kHz ~ 20MHz)
- Enable/disable tristate function
- Designed for high speed data transfer

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 (Q-bar)
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 $\pm 130\text{ppm}$

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

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



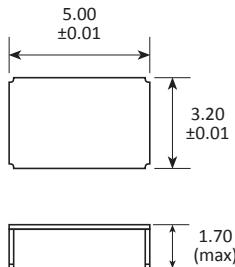
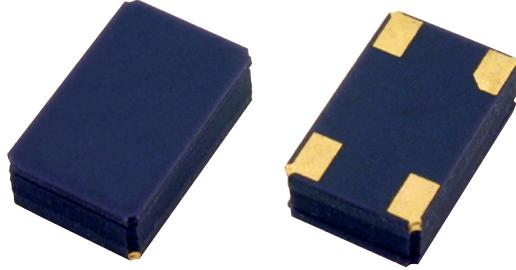
TIGHT STABILITY
SOLUTIONS



HIGHLY ACCURATE
RF FILTERING

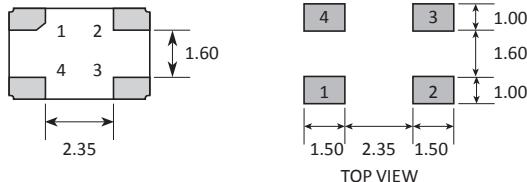
High temperature CMOS VCXO

VCXO2EV | 



PAD	CONNECTION
1	Control voltage
2	Ground
3	Output
4	Supply

SOLDER PAD LAYOUT

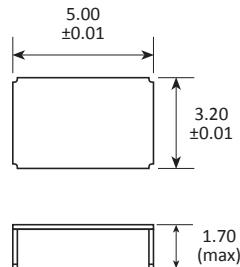
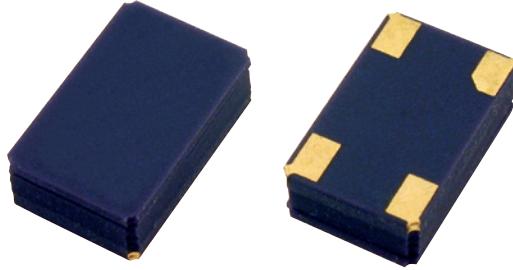


A 47nF ceramic capacitor must be connected between GND and VDD

- 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

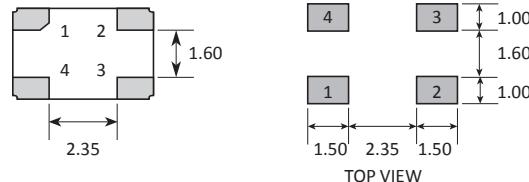
High frequency VCXO with military temperature range

VCXO2HV | 



PAD	CONNECTION
1	Control voltage
2	Ground
3	Output
4	Supply

SOLDER PAD LAYOUT



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

- 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

SERVICES

TESTING CAPABILITIES	6
----------------------	---

ADMIN AND OTHER SERVICES	9
--------------------------	---

PRODUCTS

SURFACE MOUNT QUARTZ CRYSTALS	12
-------------------------------	----

SURFACE MOUNT OSCILLATORS	27
---------------------------	----

TEMPERATURE COMPENSATED OSCILLATORS	39
-------------------------------------	----

VOLTAGE CONTROLLED OSCILLATORS	45
--------------------------------	----

REAL TIME CLOCK MODULES	50
-------------------------	----

MONOLITHIC CRYSTAL FILTERS	53
----------------------------	----

OVEN CONTROLLED OSCILLATORS	57
-----------------------------	----

SURFACE ACOUSTIC WAVE DEVICES SAWs DIELECTRIC FILTERS	61
---	----

ANTENNA	65
---------	----

INDEX	67
-------	----

PARTNERS AND DISTRIBUTORS	69
---------------------------	----

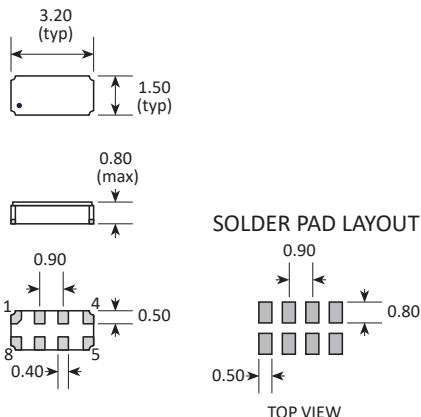
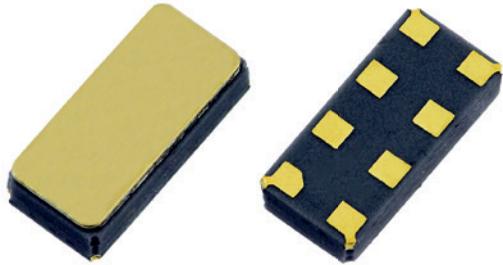
REAL TIME CLOCK MODULES

RTC I ² C BUS HIGH ACCURACY AND LOW POWER	51
--	----

ULTRA-LOW POWER I ² C RTC MODULE	51
---	----

RTC I²C bus high accuracy and low power

RV-3032-C7 | 



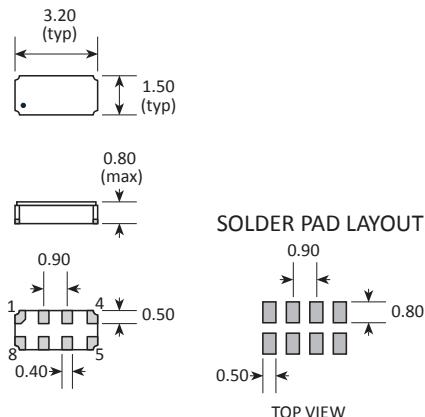
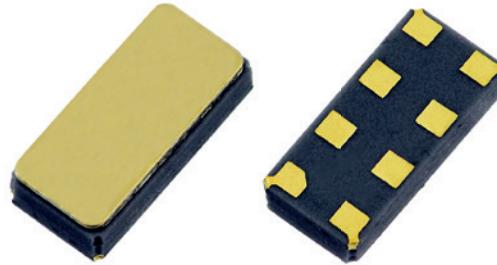
PAD	CONNECTION	PAD	CONNECTION
1	Backup supply (VBKP)	5	Ground (VSS)
2	Serial data (SDA)	6	Supply voltage (VDD)
3	Interrupt output (INT)	7	Frequency output (CLKOUT)
4	Event Input (EVI)	8	Serial clock input (SCL)

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



MONOLITHIC
CRYSTAL FILTERS

MONOLITHIC CRYSTAL FILTERS

4-POLE SM CRYSTAL FILTER IN ONE
MINIATURE SM PACKAGE

54

CRYSTAL FILTERS WITH CENTRE
FREQUENCY 45MHz

54

CRYSTAL FILTERS WITH CENTRE
FREQUENCY 21.4MHz

55

SERVICES

TESTING CAPABILITIES

6

ADMIN AND
OTHER SERVICES

9

PRODUCTS

SURFACE MOUNT
QUARTZ CRYSTALS

12

SURFACE MOUNT
OSCILLATORS

27

TEMPERATURE COMPENSATED
OSCILLATORS

39

VOLTAGE CONTROLLED
OSCILLATORS

45

REAL TIME
CLOCK MODULES

50

MONOLITHIC
CRYSTAL FILTERS

53

OVEN CONTROLLED
OSCILLATORS

57

SURFACE ACOUSTIC WAVE DEVICES
SAWs | DIELECTRIC FILTERS

61

ANTENNA

65

INDEX

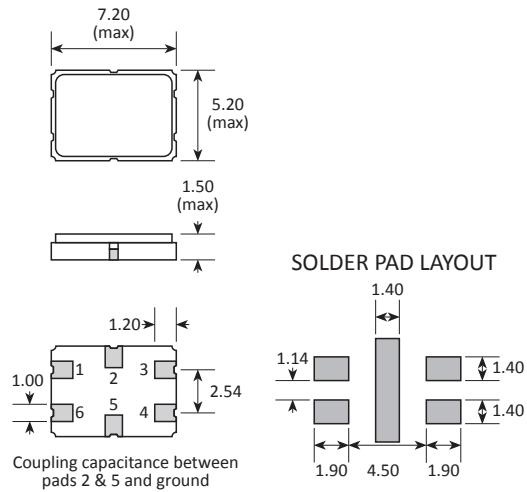
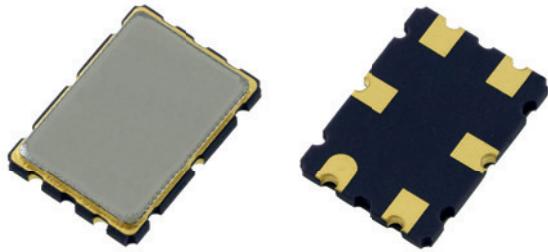
67

PARTNERS AND
DISTRIBUTORS

69

4-Pole SM crystal filter in one miniature SM package

GSF-75 | 



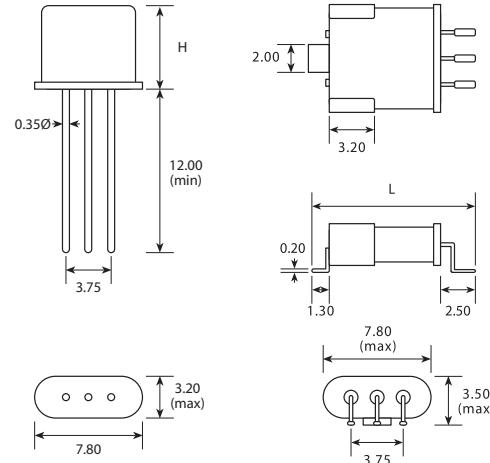
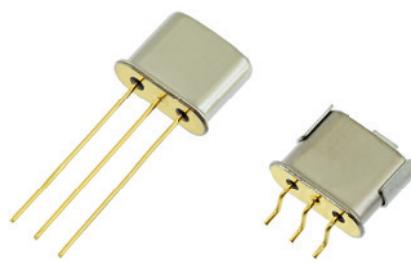
PAD	CONNECTION
1	Ground
2	Connect with pad 5 & Cc
3	In / Out
4	Ground
5	Connect with pad 2 & Cc
6	Out / In

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

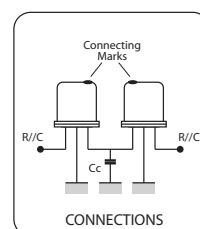
Crystal filters with centre frequency 45MHz

GMCF-45 | 



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

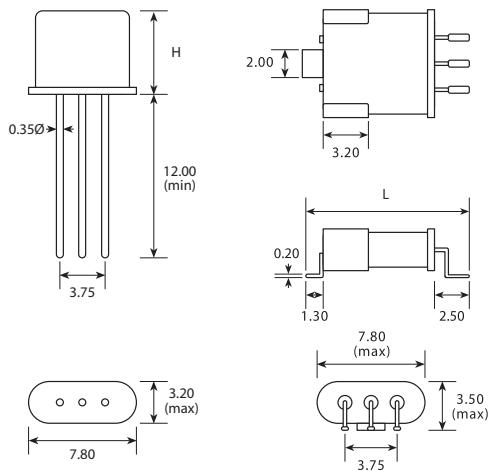
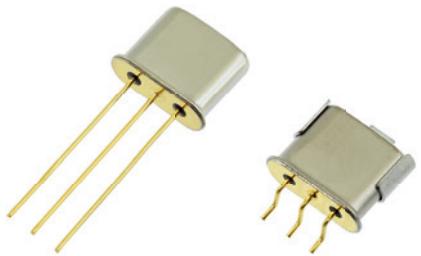
Package	Length L
UM-1JN/3L	12.50 max
UM-5JN/3L	10.50 max



- 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

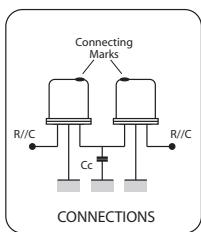
GMCF-21 | 



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

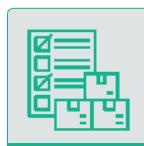
Package	Length L
UM-1JN/3L	12.50 max
UM-5JN/3L	10.50 max

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



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



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

59

SERVICES

TESTING CAPABILITIES 6

ADMIN AND
OTHER SERVICES 9

PRODUCTS

SURFACE MOUNT
QUARTZ CRYSTALS 12

SURFACE MOUNT
OSCILLATORS 27

TEMPERATURE COMPENSATED
OSCILLATORS 39

VOLTAGE CONTROLLED
OSCILLATORS 45

REAL TIME
CLOCK MODULES 50

MONOLITHIC
CRYSTAL FILTERS 53

OVEN CONTROLLED
OSCILLATORS 57

SURFACE ACOUSTIC WAVE DEVICES
SAWs | DIELECTRIC FILTERS 61

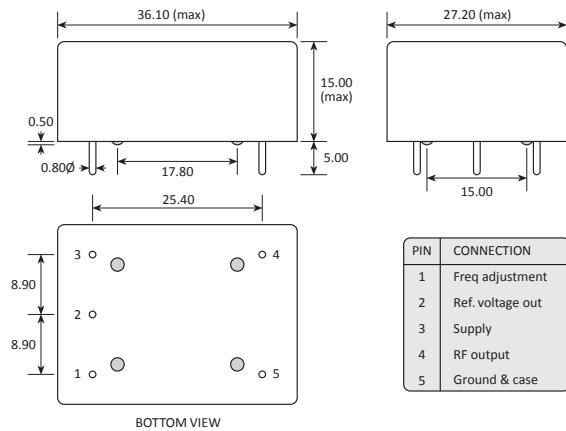
ANTENNA 65

INDEX 67

PARTNERS AND
DISTRIBUTORS 69

High frequency OCXO with ultra-low phase noise

HCD380 and HCD381 |  

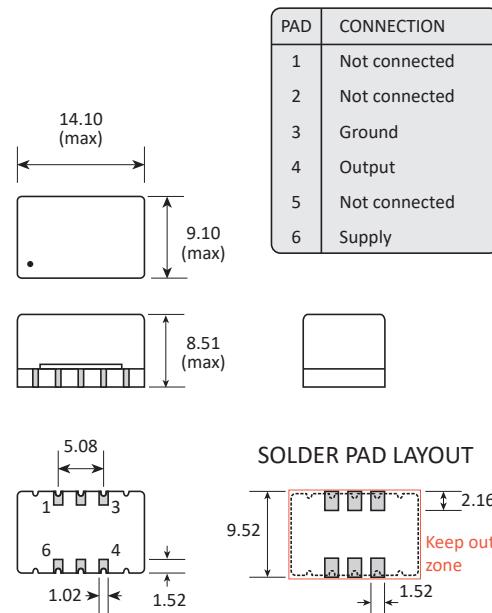
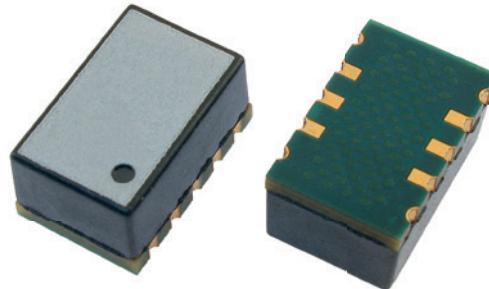


The HCD380 oven controlled oscillator with sine wave output and HCD381 with CMOS output are available up to frequencies as high as 100MHz with low phase noise.

- -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

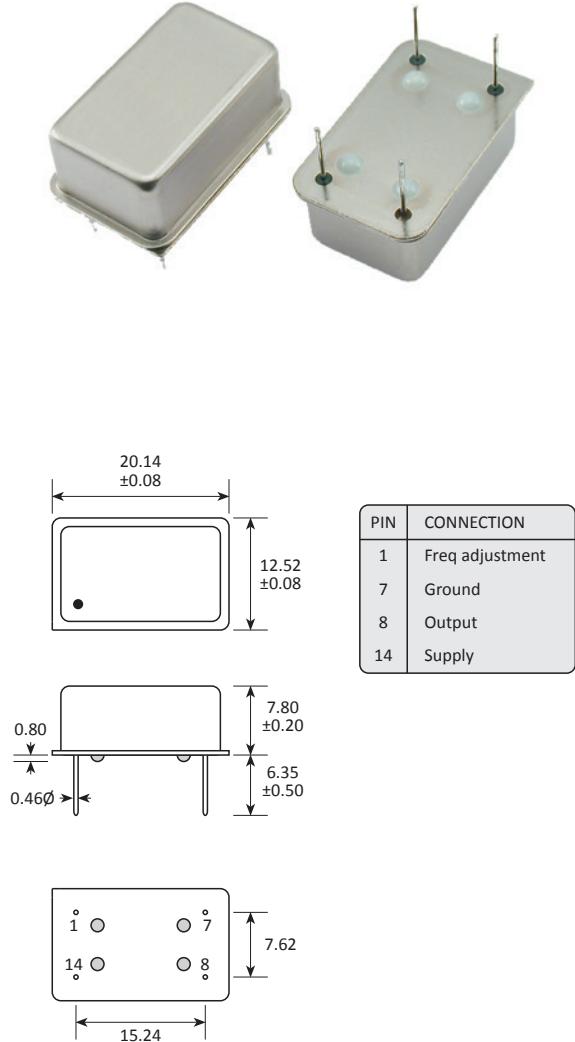
GOXO-149 | 



- 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

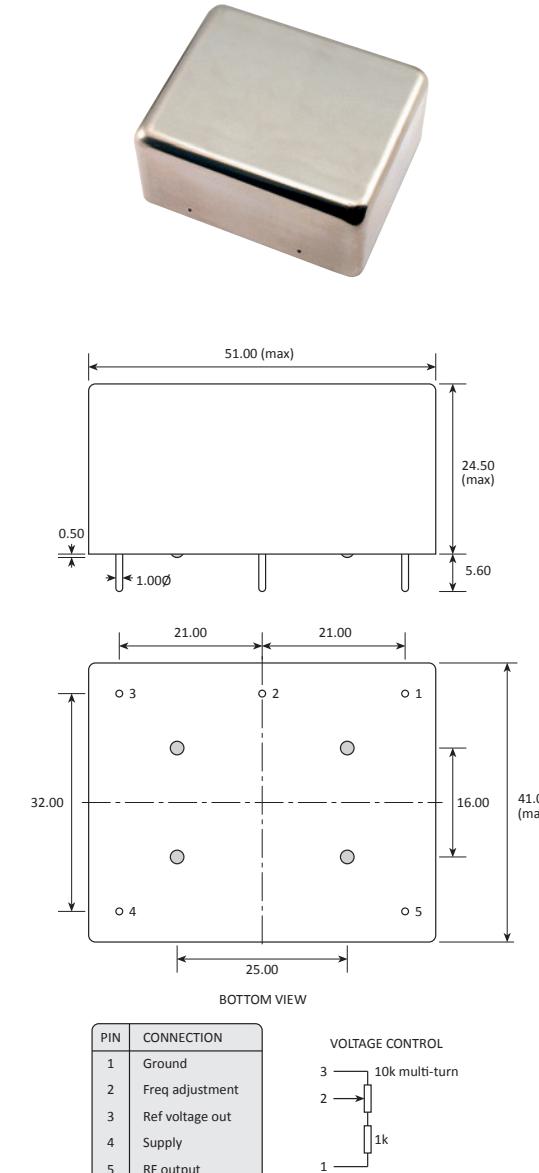
SCOCXOHS | 



- 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 | 



- 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

SAW FILTERS	62
SAW DUPLEXERS	62
SAW RESONATORS	63
GDRF DIELECTRIC FILTERS	63

SERVICES

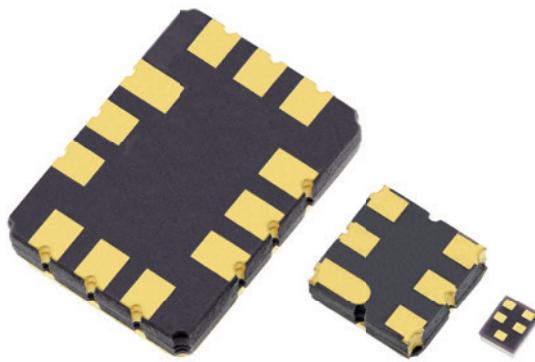
TESTING CAPABILITIES	6
ADMIN AND OTHER SERVICES	9

PRODUCTS

SURFACE MOUNT QUARTZ CRYSTALS	12
SURFACE MOUNT OSCILLATORS	27
TEMPERATURE COMPENSATED OSCILLATORS	39
VOLTAGE CONTROLLED OSCILLATORS	45
REAL TIME CLOCK MODULES	50
MONOLITHIC CRYSTAL FILTERS	53
OVEN CONTROLLED OSCILLATORS	57
SURFACE ACOUSTIC WAVE DEVICES SAWs DIELECTRIC FILTERS	61
ANTENNA	65
INDEX	67
PARTNERS AND DISTRIBUTORS	69

SAW Filters

GSRF and GSIF |



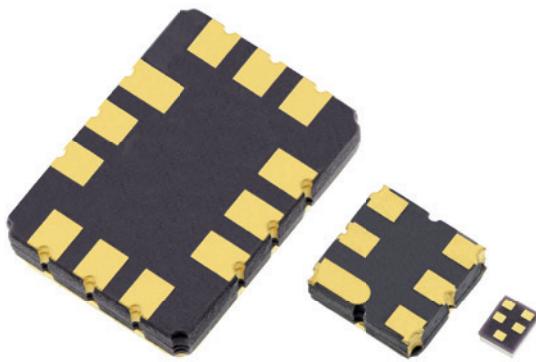
Filters available for each major application covering most LTE bands

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 |



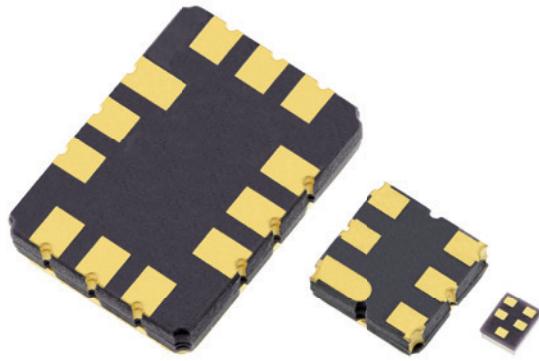
Cutting Edge SAW Duplexers in Ultra-Miniature Packages

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

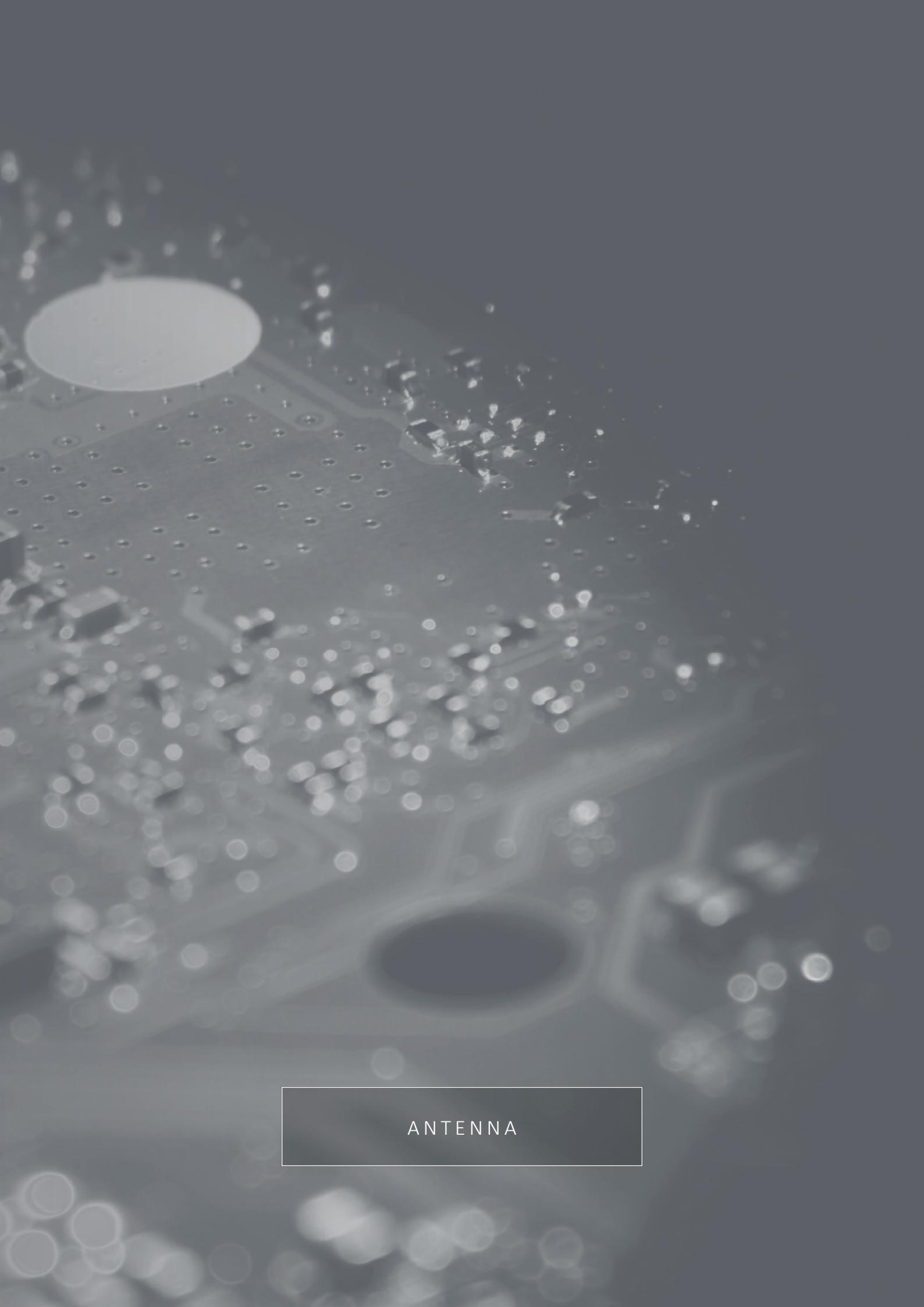
GDRF | Dielectric filters



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

ANTENNA

PATCH ANTENNAS FROM CIROCOMM
TECHNOLOGY CORP

66

CHIP ANTENNAS FROM CIROCOMM
TECHNOLOGY CORP

66

SERVICES

TESTING CAPABILITIES

6

ADMIN AND
OTHER SERVICES

9

PRODUCTS

SURFACE MOUNT
QUARTZ CRYSTALS

12

SURFACE MOUNT
OSCILLATORS

27

TEMPERATURE COMPENSATED
OSCILLATORS

39

VOLTAGE CONTROLLED
OSCILLATORS

45

REAL TIME
CLOCK MODULES

50

MONOLITHIC
CRYSTAL FILTERS

53

OVEN CONTROLLED
OSCILLATORS

57

SURFACE ACOUSTIC WAVE DEVICES
SAWs | DIELECTRIC FILTERS

61

ANTENNA

65

INDEX

67

PARTNERS AND
DISTRIBUTORS

69

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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INDEX

3.3V surface mount OCXO from 10.0 ~ 80.0MHz GOXO-149	58	GSX-223 Ultra-miniature SM 16.0 ~ 96.0MHz crystal	20
4-pole SM crystal filter in one miniature SM package GSF-75	54	GSX-228 Ultra-miniature SM 20.0 ~ 315MHz crystal	25
32.768kHz CMOS TCXO GTXO-94	43	GSX-317 SM 32.768kHz watch crystal	14
3225 package ultra-low jitter oscillator GXO-3306	37	GSX-323 Miniature SM 12.0 ~ 66.0MHz crystal	19
Automotive qualified miniature SM crystal 12.00 ~ 40.00MHz crystal GRX-320	22	GSX-328 SM 12.0 ~ 315MHz crystal	24
Automotive qualified SM crystal 12.00 ~ 40.00MHz crystal GRX-330	22	GSX-333 High frequency SM 3.2 X 2.5mm crystal with tight specifications	19
Automotive qualified SM crystal 16.0 ~ 52.0MHz GRX-220	23	GSX-338 SM 10.0 ~ 315MHz crystal	24
Automotive qualified ultra-miniature SM crystal 24.0 ~ 40.0MHz GRX-210	23	GTXO-73 Stratum 3 TCXO with CMOS or clipped sine output	43
Bela	9	GTXO-94 32.768kHz CMOS TCXO	43
CC2A SM crystal	26	GTXO-163 Ultra-miniature 1.6 x 1.2mm footprint (VC) TCXO	42
CC6A Miniature SM crystal	26	GTXO-203 Ultra-miniature 2.0 x 1.6mm footprint (VC) TCXO	40
Chip antenna GCA Chip antennas from Cirocomm Technology Corp	66	GTXO-253 Ultra-tight stability 1.8V ~ 3.6V (VC) TCXO	40
CM7V-T1A Miniature SM 32.768kHz crystal with AEC-Q200	16	GTXO-C25 SM TCXO with CMOS output	41
CM7V-T1A/M SM 32.768kHz crystal	17	GVXO-338 Surface mount VCXO	46
CM8V-T1A Miniature 2012 SM AEC-Q200 crystal	16	GVXO-E76L (L76L) Ultra high frequency VCXO - up to 1GHz	47
CM8V-T1A/M Miniature SM 32.768kHz crystal	17	GVXO-L33L (E33L) Low phase jitter VCXO - up to 250MHz	46
CM9V-T1A/M Ultra-miniature 1610 package SM 32.768kHz crystal	18	GWX-1610 Ultra-miniature SM 32.768kHz watch crystal	15
CMOS SM oscillator GXO-U119	33	GWX-2012 Miniature SM 32.768kHz watch crystal	15
Crystal filters with centre frequency 21.4MHz GMCF-21	55	GXO-3200 High frequency tight stability oscillator	36
Crystal filters with centre frequency 45MHz GMCF-45	54	GXO-3306 3225 package ultra-low jitter oscillator	37
Delivery	10	GXO-L31 LVDS oscillator for high speed data transfer	36
Dielectric filters GDRF	63	GXO-U119 CMOS SM oscillator	33
Fully ceramic 32.768kHz SM oscillator OV7604C7	30	GXO-U120 Miniature CMOS oscillator with low jitter	33
Fully ceramic 32.768kHz SM oscillator OV7605C8	30	GXO-U121 Ultra-miniature CMOS oscillator with low jitter	34
Fully ceramic 100kHz SM oscillator OV0100C8	31	HCD380 HCD381 High frequency OCXO with ultra-low phase noise	58
GAO-3201 Ultra-miniature SM 32.768kHz oscillator	27	HCD660 High performance OCXO with sine output	59
GCA Chip Antenna Chip antennas from Cirocomm Technology Corp	66	High frequency OCXO with ultra-low phase noise HCD380 HCD381	58
GDRF dielectric filters	63	High frequency SM 3.2 X 2.5mm crystal with tight specifications GSX-333	19
Get an online quote	10	High frequency tight stability oscillator GXO-3200	36
Get us on your company portal	10	High frequency VCXO with military temperature range VCX02HV	48
GMCF-21 Crystal filters with centre frequency 21.4MHz	55	High performance OCXO with sine output HCD660	59
GMCF-45 Crystal filters with centre frequency 45MHz	54	High temperature CMOS VCXO VCX02EV	48
GOXO-149 3.3V surface mount OCXO from 10.0 ~ 80.0MHz	58	Interconics	9
GPA Patch Antenna Patch antennas from Cirocomm Technology Corp	66	Knowledge hub	11
GRX-210 Automotive qualified ultra-miniature SM crystal 24.0 ~ 40.0MHz	23	Low jitter oscillators MCS02Fxx	35
GRX-220 Automotive qualified ultra-miniature SM crystal 16.0 ~ 52.0MHz	23	Low phase jitter VCXO - up to 250MHz GVXO-L33L (E33L)	46
GRX-320 Automotive qualified miniature SM crystal 12.00 ~ 40.00MHz	22	LVDS oscillator for high speed data transfer GXO-L31	36
GRX-330 Automotive qualified SM crystal 12.0 ~ 40MHz	22	MCS01xxx Miniature low frequency SM oscillator	32
GSF-75 4-pole SM crystal filter in one miniature SM package	54	MCS02xxx Miniature fully ceramic SM oscillator	32
GSDX SAW duplexers	62	MCS02Fxxx Low jitter oscillators	35
GSRF GSIF SAW filters	62	MCS06xxx Miniature low jitter oscillators	35
GSRS SAW resonators	63	Miniature 2012 SM AEC-Q200 crystal CM8V-T1A	16
GSX-113 Super-miniature SM crystal with low ESR	21	Miniature CMOS oscillator with low jitter GXO-U120	33
GSX-213 Ultra-miniature SM crystal for NFC, smartcard etc	20	Miniature fully ceramic SM oscillator MCS02xxx	32
		Miniature low frequency SM oscillator MCS01xxx	32
		Miniature low jitter oscillators MCS06xxx	35
		Miniature SM 12.0 ~ 66.0MHz crystal GSX-323	19

Miniature SM 32.768kHz crystal CM8V-T1A/M	17	SM oscillator 32.768kHz OM7604C7	28
Miniature SM 32.768kHz crystal with AEC-Q200 CM7V-T1A	16	SM oscillator 32.768kHz OM7605C8	28
Miniature SM 32.768kHz watch crystal GWX-2012	15	SM TCXO with CMOS output GTXO-C25	41
Miniature SM crystal CC6A	26	Stratum 3 TCXO with CMOS or clipped sine output GTXO-73	43
OM0100C8 Ultra-miniature 100kHz SM oscillator	29	Super-miniature SM crystal with low ESR GSX-113	21
OM7604C7 SM oscillator 32.768kHz	28	Supporting your business	11
OM7605C8 Ultra-miniature SM 32.768kHz oscillator	27	Surface mount quartz crystals and oscillators	13
OM7605C8 SM oscillator 32.768kHz	28	Surface mount VCXO GVXO-338	46
OM7605C9 Ultra-miniature 32.768kHz SM oscillator	29	Technical help	11
Order by email	10	TechPoint	9
Ordering	10	Temperature compensated oscillators TCXO	39
OVO100C8 Fully ceramic 100kHz SM oscillator	31	Testing capabilities	6
OV7604C7 Fully ceramic 32.768kHz SM oscillator	30	This is what we promise	4
OV7604C8 Fully ceramic 32.768kHz SM oscillator	30	Ultra high frequency VCXO - up to 1GHz GVXO-E76L (L76L)	47
Patch Antenna GPA Patch antennas from Cirocomm Technology Corp	66	Ultra-low power 1°C RTC module RV-3028-C7	51
Publicity tell us your story	11	Ultra-miniature 1.6 x 1.2mm footprint (VC) TCXO GTXO-163	42
Request a free sample	49	Ultra-miniature 2.0 x 1.6mm footprint TCXO GTXO-203	40
RTC 1°C bus high accuracy and low power RV-3032-C7	51	Ultra-miniature 32.768kHz SM oscillator OM7605C9	29
RV-3028-C7 Ultra-low power 1°C RTC module	51	Ultra-miniature 100kHz SM oscillator OM0100C8	29
RV-3032-C7 RTC 1°C bus high accuracy and low power	51	Ultra-miniature 1610 package SM 32.768kHz crystal CM9V-T1A/M	18
SAW duplexers GSDX	62	Ultra-miniature CMOS oscillator with low jitter GXO-U121	34
SAW filters GSRF GSIF	62	Ultra-miniature SM 16.0 ~ 96.0MHz crystal GSX-223	20
SAW resonators GSRS	63	Ultra-miniature SM 20.0 ~ 315MHz crystal GSX-228	25
SCOCXOHS Sine output OCXO with excellent stability	59	Ultra-miniature SM crystal for NFC, smartcard etc GSX-213	20
Sine output OCXO with excellent stability SCOCXOHS	59	Ultra-miniature SM 32.768kHz oscillator GAO-3201	27
SM 10.0 ~ 315MHz crystal GSX-338	24	Ultra-miniature SM 32.768kHz watch crystal GWX-1610	15
SM 12.0 ~ 315MHz crystal GSX-328	24	Ultra-miniature SM oscillator 32.768kHz OM7605C8	27
SM 32.768kHz crystal CM7V-T1A/M	17	Ultra-tight stability 1.8V ~ 3.6V TCXO GTXO-253	40
SM 32.768kHz watch crystal GSX-317	14	Vanilla	9
SM crystal CC2A	26	VCX02EV High temperature CMOS VCXO	48
		VCX02HV High frequency VCXO with military temperature range	48



PARTNERS AND DISTRIBUTORS

SERVICES

TESTING CAPABILITIES	6
----------------------	---

ADMIN AND OTHER SERVICES	9
--------------------------	---

PRODUCTS

SURFACE MOUNT QUARTZ CRYSTALS	12
-------------------------------	----

SURFACE MOUNT OSCILLATORS	27
---------------------------	----

TEMPERATURE COMPENSATED OSCILLATORS	39
-------------------------------------	----

VOLTAGE CONTROLLED OSCILLATORS	45
--------------------------------	----

REAL TIME CLOCK MODULES	50
-------------------------	----

MONOLITHIC CRYSTAL FILTERS	53
----------------------------	----

OVEN CONTROLLED OSCILLATORS	57
-----------------------------	----

SURFACE ACOUSTIC WAVE DEVICES SAWs DIELECTRIC FILTERS	61
---	----

ANTENNA	65
---------	----

INDEX	67
-------	----

PARTNERS AND DISTRIBUTORS	69
---------------------------	----

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