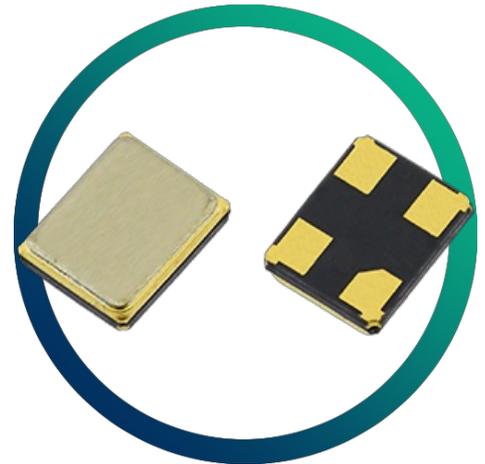


# GSX-221

## Ultra-miniature SM Crystal

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



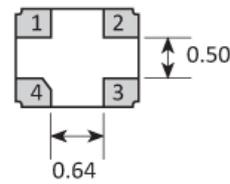
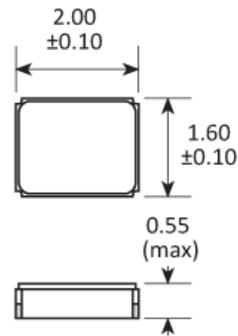
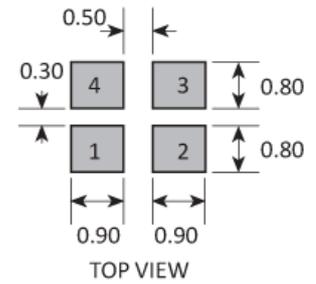
### CONFIGURABLE OPTIONS

Parameter	Option Code
<b>Frequency</b>	
<b>Calibration tolerance</b>	
Any	
±10ppm	1
±15ppm	P
±20ppm	2
<b>Temperature stability</b>	
Any	
±10ppm	1
±15ppm	P
±20ppm	2
±30ppm	3
<b>Operating temperature range</b>	
Any	
-10 to +60 °C	1
-20 to +70 °C	2
-30 to +80 °C	3
-40 to +85 °C	4
<b>Circuit condition</b>	
Any	
8pF	M
9pF	N
10pF	A
12pF	B
<b>Oscillation mode</b>	
Fundamental	F

\* ±10ppm temperature stability may not be available over -30+85 °C. Check with our sales office before ordering

**SPECIFICATIONS**

Frequency range	16.0 ~ 56.0MHz
Dimensions	2.0 x 1.6 x 0.55mm
Storage temperature range	-40 to +90°C
Equivalent series resistance	150Ω max (16.0 ~ 19.9MHz)
	100Ω max (20.0 ~ 29.9MHz)
	80Ω max (30.0 ~ 35.9MHz) 60Ω max (36.0 ~ 56.0MHz)
Ageing	±3ppm max first year
Static capacitance (C <sub>0</sub> )	5pF max
Test drive level	10μW typ
Soldering condition	260°C, 10 sec x2 max

**PACKAGE DRAWING**

**SOLDER PAD LAYOUT**


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

Dimensions in mm

## ORDERING INFORMATION

To request a quotation for the GSX-221 please use the configurable options form to choose the options you require and then submit your configured product to our team. Our expert advisers are always happy to help with your requirements and can be contacted on +44 1460 256 100 or at [sales@golledge.com](mailto:sales@golledge.com).

Following product selection you will be issued with a seven character Golledge part number. Your Golledge part number is the internationally accepted Golledge manufacturing part number (MPN) that should be used for all project documentation, including bills of materials (BoMs) and purchase orders.

If you have any queries regarding any of our documentation our dedicated sales team will be happy to help.

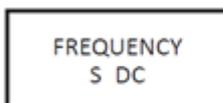
## APPLICATIONS

Our crystals and oscillators are regularly supplied for use with industry-leading ICs, from world-leading manufacturers including:

Analogue Devices  
 Atmel (Microchip Technology Inc.)  
 Broadcom  
 Dialog Semiconductor PLC  
 Intel  
 Nordic Semiconductor  
 NXP Semiconductors  
 Qualcomm (and CSR)  
 Silicon Labs  
 STMicroelectronics  
 Texas Instruments (TI)  
 Xilinx  
 and more...

If you'd like more information about chipset compatibility please [get in touch with our team here](#).

## MARKING

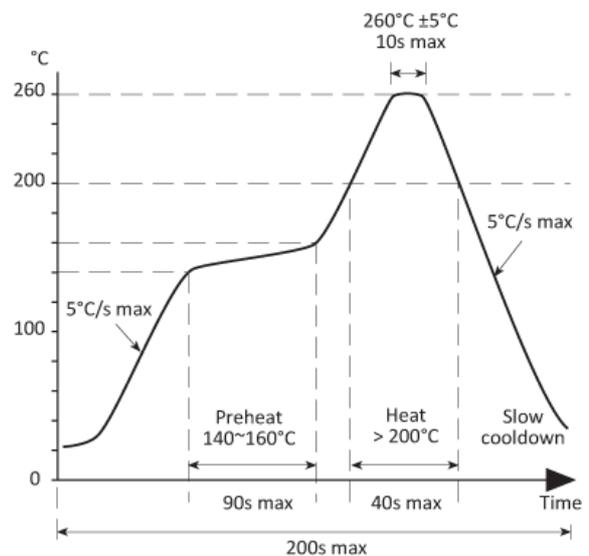


Marking type: Laser

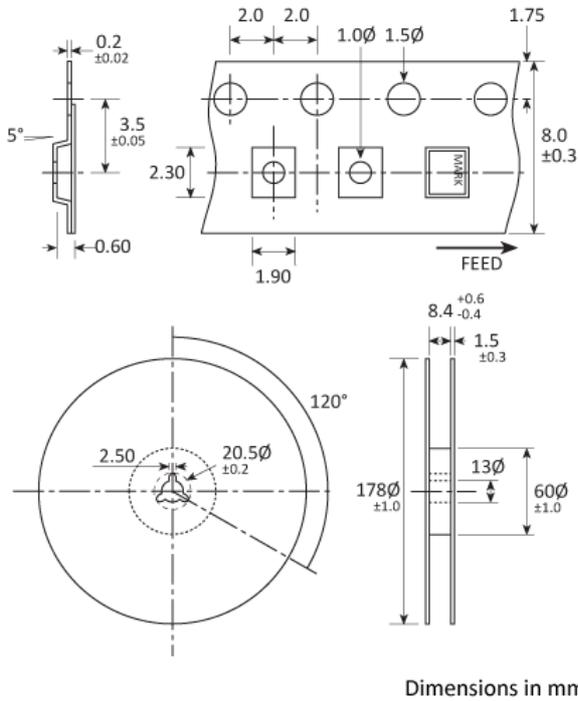
DC = Date Code in YM, eg. "GF" = Jun 2017

	A	B	C	D	E	F	G	H	J	K	L	M
Y	1	2	3	4	5	6	7	8	9	0		
M	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

## SOLDERING PROFILE



**TAPE & REEL SPECIFICATION**



**HANDLING & STORAGE**



Human Body Model (HBM) 1A (250V to <500V)



Moisture Sensitivity Level (MSL): 1 (or not applicable)

**CONSTRUCTION**

Ceramic body with gold-plated pads  
Metal lid, seam sealed

**COMPLIANCE**



Lead-free (< 0.1% by weight)



RoHS compliant with no exemptions. [See our declaration](#)



REACH compliant. [See our statement](#)



Free of conflict minerals. [See our declaration](#)



Free of Halogens. [See our declaration](#)



Free of Ozone-depleting substances. [See our declaration](#)