

## Product Description

|                 |                               |
|-----------------|-------------------------------|
| Description:    | 38.40MHz GSX-213/X SM Crystal |
| Product family: | GSX-213                       |
| Category:       | SM Quartz Crystal             |
| Order code:     | MP12396                       |

## Features

- ▶ Ultra-miniature for maximum space saving
- ▶ Metal lid grounded to minimise EMI
- ▶ Seam sealed for excellent long-term stability

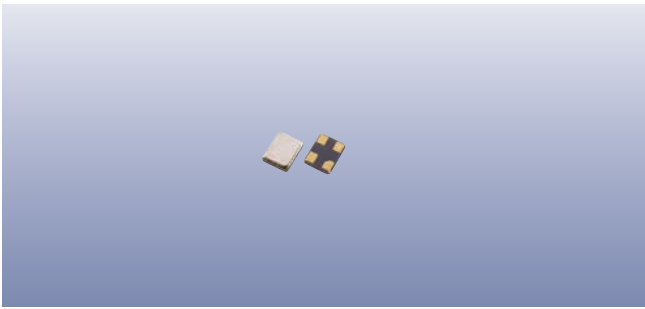
## Additional Information

For further information regarding packaging, construction, material composition, soldering profile and environment, please refer to **GSX-213 Product Information sheet**

For dimensions, refer to package drawing: **D0324-A**

## Electrical Specifications

| Parameter   | Value  | Notes   |
|---|--|---|
| Nominal frequency:  | 38.40MHz   |   |
| Operating temperature range:  | -40 to +105°C  |   |
| Storage temperature range:  | -40 to +105°C  |   |
| Circuit condition:  | 6pF  |   |
| Oscillation mode:   | Fundamental  |   |
| Equivalent series resistance:   | 60Ω max  |   |
| Spurious mode series resistance:  | 1100Ω min  |   |
| Motional inductance:  | 13mH max   |   |
| Pullability/sensitivity:  | ±20ppm/pF  |   |
| Static capacitance:   | 1.2pF max  |   |
| Drive level:  | 0.01μW min, 100μW typ, 200μW max   |   |
| Initial frequency tolerance:<br>Frequency drift after reflow:<br>Tolerance over temperature:<br>Ageing:<br>Frequency perturbations:<br><b>TOTAL BUDGET:</b> | -4ppm min, 6ppm max<br>-1ppm min, 1ppm max<br>-10ppm min, 10ppm max<br>-2ppm min, 0ppm max<br>-1ppm min, 1ppm max<br>-18ppm min, 18ppm max | @25°C ±3°C<br>After 2 reflows<br>@-30°C to 85°C<br>Over 5 years |



## Construction

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

## Composition



This product is lead-free, and is fully compliant with current RoHS directives



## Packaging & Handling

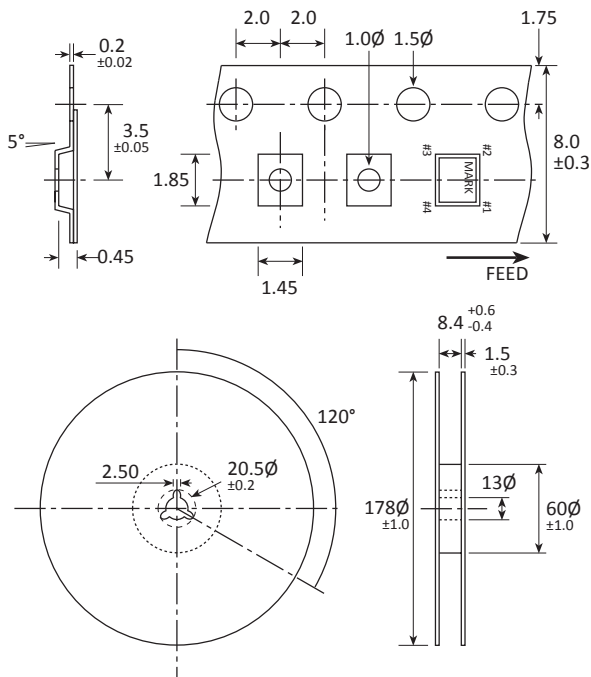
Production quantities supplied on T&R, 3k pcs per reel.  
Small quantities may be supplied on tape (no reel), or in bulk.

## Marking

**FREQUENCY**  
T DC

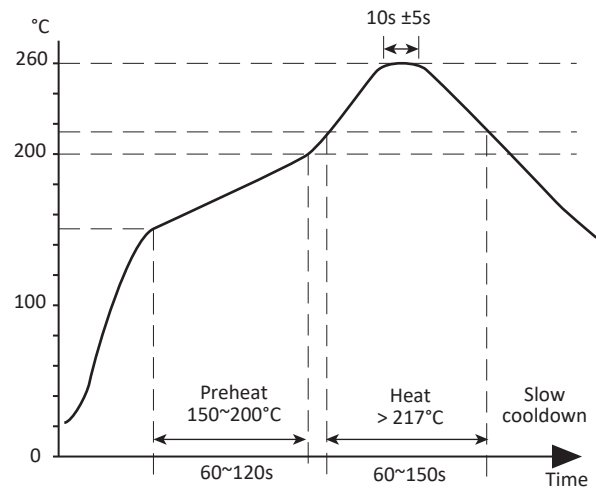
Marking type: Laser  
DC = Date code

## Tape & Reel Specification

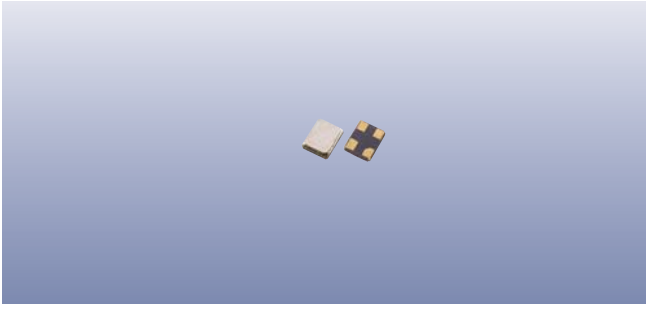


Dimensional in mm

## Soldering Profile



Lead free solderability limits 260°C ±5°C x 10s ±5s x 2.



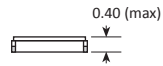
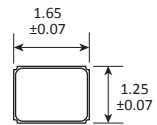
## Product Family

GSX-213, GRX-210

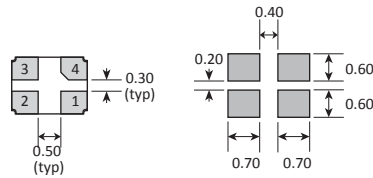
## Construction

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

## Dimensions (mm)



### SOLDER PAD LAYOUT



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