

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

## Features

- ▶ Good frequency perturbation
- ▶ 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

## Bluetooth Applications

Frequency	Specification	IC	Part No
12.0MHz	9pF, ±11.3ppm/pF typ pullability	CSR, Zeevo	MA04647*
12.0MHz	16pF, ±3.7ppm/pF typ pullability		MA04650
13.0MHz	16pF, C <sub>1</sub> = 2.5fF typ	TI	MA04648
13.0MHz	7pF, C <sub>1</sub> = 2.5fF typ	Philips	MA04649
13.0MHz	9pF, C <sub>1</sub> = 2.4fF typ		MA04654
15.360MHz	10pF, C <sub>1</sub> = 3.0±0.6fF	Broadcom	MA04651
15.360MHz	12pF, C <sub>1</sub> = 3.0±0.6fF	Broadcom	MA04652
16.0MHz	9pF, ±18ppm/pF typ pullability	CSR	MA03057*
26.0MHz	9pF, ±27ppm/pF typ pullability		MA04653

\* Qualified for use with CSR chipset solutions. Golledge is a global supply partner for CSR

## Specifications

Parameters	Product	Option Codes
	GSX-433	
Frequency range:	12.0 ~ 44.0MHz	<input checked="" type="checkbox"/>
Calibration tolerance:	±10ppm ±15ppm ±20ppm Other values (±7.5 ~ ±100ppm)	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Temperature stability:	±10ppm ±15ppm ±20ppm ±30ppm Other values (±7.5 ~ ±100ppm)	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Operating temperature range:	-10 to +60°C -20 to +70°C -30 to +80°C Other values	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Storage temperature range:	-40 to +85°C	<input checked="" type="checkbox"/>
Circuit condition:	9pF 12pF 16pF Series resonant Other values	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Oscillation mode:	Fundamental	<input checked="" type="checkbox"/>
Equivalent series resistance:	60Ω max	<input checked="" type="checkbox"/>
Frequency perturbation:	±1ppm max	<input checked="" type="checkbox"/>
Ageing:	±1ppm max first year	<input checked="" type="checkbox"/>
Test drive level:	10μW	<input checked="" type="checkbox"/>
Soldering condition:	260°C, 10 sec x2 max	<input checked="" type="checkbox"/>

■ Standard. □ Optional - Please specify required code(s) when ordering

## Ordering Information

Product name + option codes + frequency

eg: **GSX-433/111NF 16.0MHz** 10/10/10/9-F

**GSX-433/1P3AF 26.0MHz** 10/15/30/10-F

Option code X (eg GSX-433/X) denotes a custom specification.

♦ ±10ppm temperature stability may not be available over -30+80°C.

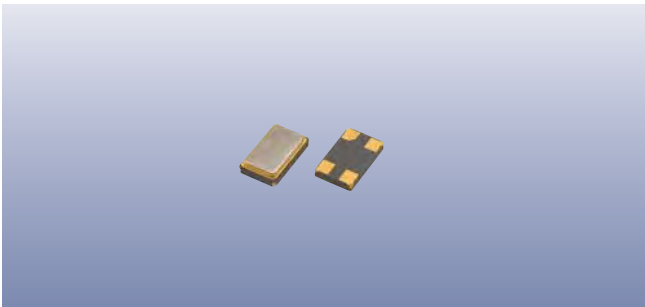
Check with our sales office before ordering.

♦ Available on T&R - 1k or 3k pcs per reel.

♦ Refer to our website for T&R and soldering details.

## GPS / Mobile Applications

Frequency	Specification	IC / Appln	Part No
12.0MHz	18pF, C <sub>1</sub> = 2.0fF typ	DSC mobile	MA06114
16.367667MHz	20pF, C <sub>1</sub> = 3.7fF typ		MA06113
24.0MHz	12pF, C <sub>1</sub> = 4.5fF typ	DSC mobile	MA06115
24.0MHz	20pF, C <sub>1</sub> = 4.5fF typ	DSC mobile	MA06116
24.5535MHz	32pF, C <sub>1</sub> = 5.1fF typ	SiRF GPS	MA06112
26.0MHz	12pF, C <sub>1</sub> = 5.5fF typ		MA06117



## Construction

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

## Composition



This product is lead-free, and is fully compliant with the RoHS directive 2002/95/EC



## Packaging & Handling

Production quantities supplied on T&R, 1k or 3k pcs per reel. Small quantities may be supplied on tape (no reel), or in bulk.

## Marking

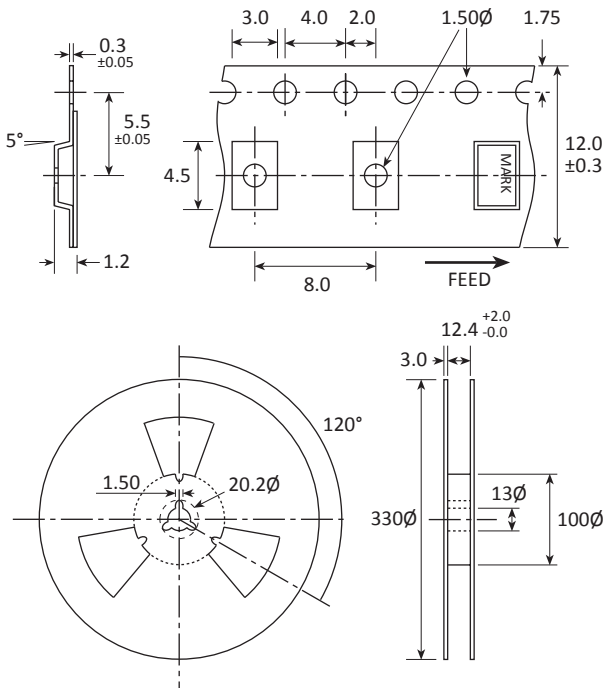
NNN
T zDC

Marking type: Laser  
 NNN = Part ID code  
 DC = Date code in YW, as shown below  
 Example: "zd" = 2012 week 30

Year	2009	2010	2011	2012
	2013	2014	2015	2016
Code	Z	z	⌒	⌒

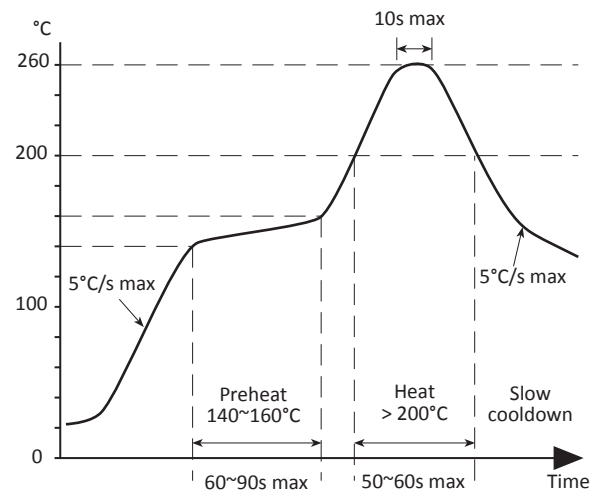
Week codes:  
 A ~ Z: weeks 1 to 26  
 a ~ z: weeks 27 to 52

## Tape & Reel Specification



Not to scale. Dimensional tolerances ±0.1mm unless otherwise stated.

## Soldering Profile



Solder resistance: 260°C x 10 secs x 2.