

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

Scale 3:1

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 ₁ = 2.5fF typ	TI	MA04648
13.0MHz	7pF, C ₁ = 2.5fF typ	Philips	MA04649
13.0MHz	9pF, C ₁ = 2.4fF typ		MA04654
15.360MHz	10pF, C ₁ = 3.0±0.6fF	Broadcom	MA04651
15.360MHz	12pF, C ₁ = 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	■	
Calibration tolerance: ±10ppm ±15ppm ±20ppm Other values (±7.5 ~ ±100ppm)	■ □ □ □	1 P 2 specify
Temperature stability: ±10ppm ±15ppm ±20ppm ±30ppm Other values (±7.5 ~ ±100ppm)	■ □ □ □ □	1 P 2 3 specify
Operating temperature range: -10 to +60°C -20 to +70°C -30 to +80°C Other values	■ □ □ □	1 2 3 specify
Storage temperature range: -40 to +85°C	■	
Circuit condition: 9pF 12pF 16pF Series resonant Other values	□ □ ■ □ □	N B D S specify
Oscillation mode: Fundamental	■	F
Equivalent series resistance: 60Ω max	■	
Frequency perturbation: ±1ppm max	■	
Ageing: ±1ppm max first year	■	
Test drive level: 10μW	■	
Soldering condition: 260°C, 10 sec x2 max	■	

■ 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.

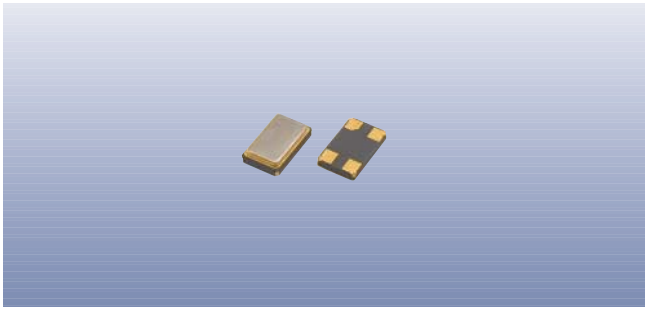
Check with our sales office before ordering.

♦ 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 ₁ = 2.0fF typ	DSC mobile	MA06114
16.367667MHz	20pF, C ₁ = 3.7fF typ		MA06113
24.0MHz	12pF, C ₁ = 4.5fF typ	DSC mobile	MA06115
24.0MHz	20pF, C ₁ = 4.5fF typ	DSC mobile	MA06116
24.5535MHz	32pF, C ₁ = 5.1fF typ	SiRF GPS	MA06112
26.0MHz	12pF, C ₁ = 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

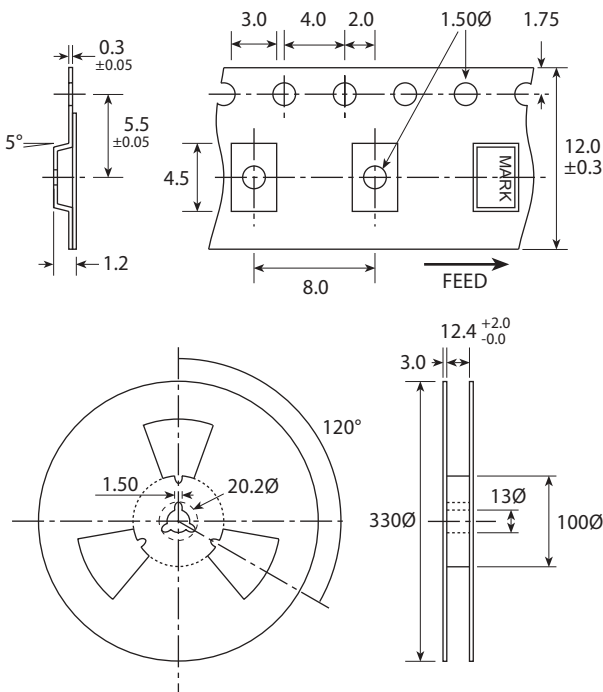
Production quantities supplied on T & R, 1k or 3k pcs per reel.
Small quantities may be supplied on tape (no reel), or in bulk.

Marking

Marking type: Laser
 NNN = Part ID code
 DC = Date code in YW, as shown below
 Example: "zd" = 2004 week 30

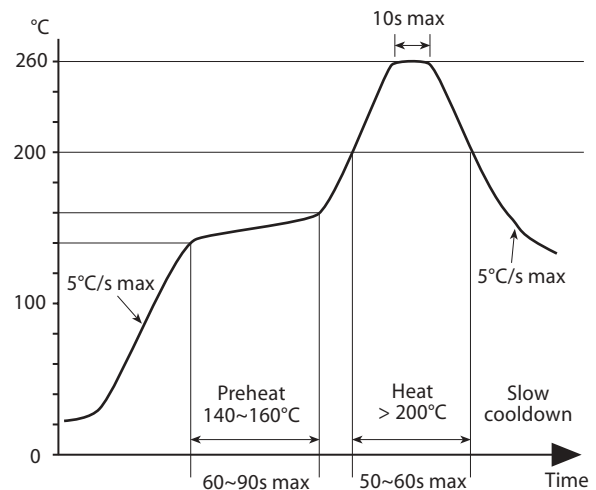
Year	2001	2002	2003	2004	Week codes:
	2005	2006	2007	2008	
Code	Z	z	Z	z	A ~ Z: weeks 1 to 26 a ~ z: weeks 27 to 52

Tape & Reel Specification



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

Soldering Profile



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