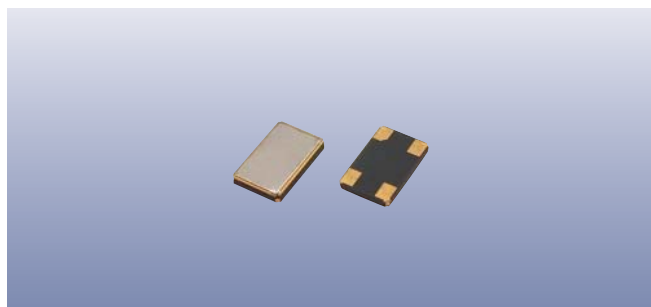


| PAD | CONNECTION   |
|-----|--------------|
| 1   | Crystal      |
| 2   | Ground & lid |
| 3   | Crystal      |
| 4   | Ground & lid |

## 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, $C_1 = 4fF \pm 20\%$       | Philips | MA06096  |
| 12.0MHz   | 18pF, $C_1 = 4fF \pm 20\%$      | Philips | MA06097  |
| 15.360MHz | 18pF, 6.5ppm/pF typ pullability |         | MA06098  |
| 16.0MHz   | 9pF, 20ppm/pF min pullability   | CSR     | MA05625* |
| 32.0MHz   | 12pF, 20ppm/pF typ pullability  | S. Wave | MA06099  |

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

## Specifications

| Parameters                                                                                                                                 | Product<br>GSX-533                                                                                                                                                                                    | Option<br>Codes                  |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Frequency range:</b> 8.0 ~ 54.0MHz<br>(54.0 ~ 160MHz, 3rd OT under dev)                                                                 | <input checked="" type="checkbox"/><br><input type="checkbox"/>                                                                                                                                       |                                  |
| <b>Calibration tolerance:</b> $\pm 10$ ppm<br>$\pm 15$ ppm<br>$\pm 20$ ppm<br>Other values ( $\pm 7.5 \sim \pm 100$ ppm)                   | <input checked="" type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/>                                                                               | 1<br>P<br>2<br>specify           |
| <b>Temperature stability:</b> $\pm 10$ ppm<br>$\pm 15$ ppm<br>$\pm 20$ ppm<br>$\pm 30$ ppm<br>Other values ( $\pm 7.5 \sim \pm 100$ ppm)   | <input checked="" type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/>                                                   | 1<br>P<br>2<br>3<br>specify      |
| <b>Operating temperature range:</b> -10 to +60°C<br>-20 to +70°C<br>-30 to +80°C<br>Other values                                           | <input checked="" type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/><br><input type="checkbox"/>                                                                               | 1<br>2<br>3<br>specify           |
| <b>Storage temperature range:</b> -40 to +85°C                                                                                             | <input checked="" type="checkbox"/>                                                                                                                                                                   |                                  |
| <b>Circuit condition:</b> 9pF<br>12pF<br>16pF<br>18pF<br>20pF<br>Other values                                                              | <input type="checkbox"/><br><input type="checkbox"/><br><input checked="" type="checkbox"/><br><input checked="" type="checkbox"/><br><input checked="" type="checkbox"/><br><input type="checkbox"/> | N<br>B<br>D<br>E<br>F<br>specify |
| <b>Oscillation mode:</b> Fundamental<br>3rd overtone (>54.0MHz)                                                                            | <input checked="" type="checkbox"/><br><input checked="" type="checkbox"/>                                                                                                                            | F<br>3                           |
| <b>Equivalent series resistance (max):</b> 100Ω (8.0 ~ 11.99MHz)<br>60Ω (12.0 ~ 13.99MHz)<br>50Ω (14.0 ~ 15.99MHz)<br>40Ω (16.0 ~ 54.0MHz) | <input checked="" type="checkbox"/><br><input checked="" type="checkbox"/><br><input checked="" type="checkbox"/><br><input checked="" type="checkbox"/>                                              |                                  |
| <b>Perturbations:</b> $\pm 1$ ppm max                                                                                                      | <input checked="" type="checkbox"/>                                                                                                                                                                   |                                  |
| <b>Ageing:</b> $\pm 1$ ppm max first year                                                                                                  | <input checked="" type="checkbox"/>                                                                                                                                                                   |                                  |
| <b>Test drive level:</b> 10μW                                                                                                              | <input checked="" type="checkbox"/>                                                                                                                                                                   |                                  |
| <b>Soldering condition:</b> 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-533/111NF 16.0MHz** 10/10/10/9-F

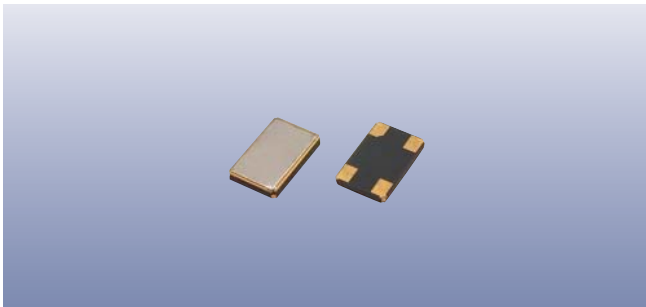
**GSX-533/1P3AF 26.0MHz** 10/15/30/10-F

Option code X (eg GSX-533/X) denotes a custom specification.

- ♦  $\pm 10$ ppm temperature stability may not be available over -30/+80°C.
- ♦ Available on T&R - 1k pcs per reel.

## GPS / Mobile Applications

| Frequency    | Specification                  | IC / Appln   | Part No |
|--------------|--------------------------------|--------------|---------|
| 13.0MHz      | 8pF, 22.5ppm/pF $\pm 15\%$     | Silicon Labs | MA06106 |
| 13.0MHz      | 8pF, 29.5ppm/pF $\pm 10\%$     | Silicon Labs | MA06118 |
| 13.0MHz      | 8.5pF, 25.5ppm/pF $\pm 10\%$   | Silicon Labs | MA06119 |
| 13.0MHz      | 11.5pF, $C_1 = 4.9fF \pm 20\%$ | Infineon     | MA06107 |
| 16.367667MHz | 20pF, $C_1 = 6.0fF \pm 15\%$   |              | MA06105 |
| 24.5535MHz   | 32pF, $C_1 = 8.5fF \pm 15\%$   | SiRF GPS     | MA05925 |
| 26.0MHz      | 10pF, 18~25ppm/pF              | Infineon     | MA06108 |
| 26.0MHz      | 9.5pF, 20ppm/pF min            | Hitachi      | MA06122 |



## Packaging & Handling

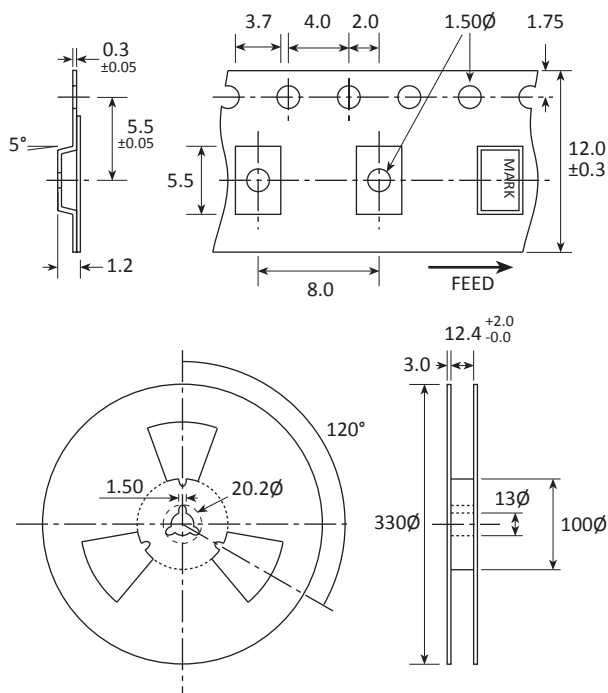
Production quantities supplied on T&R, 1k or 3k pcs per reel.  
Small quantities may be supplied on tape (no reel), or in bulk.

## Marking

|                                                                                                                                                                                                  |      |      |      |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|
| <div> <div> <div>NNN</div> <div>T DC</div> </div> <div> <p>Marking type: Laser<br/>NNN = Part ID code<br/>DC = Date code in YW, as shown below<br/>Example: "zD" = 2010 week 4</p> </div> </div> |      |      |      |      |
| 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  $\pm 0.1\text{mm}$  unless otherwise stated.

## Construction

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

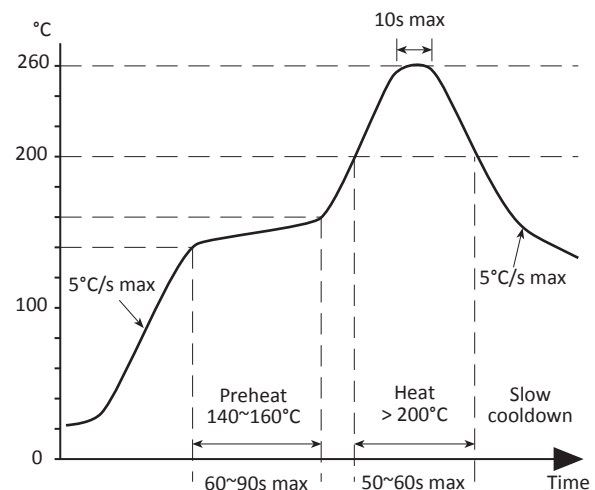
## Composition



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



## Soldering Profile



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