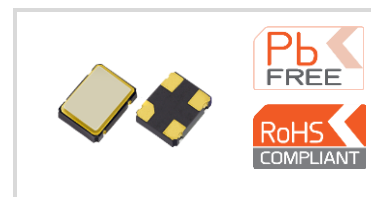


## QEN07

3.2 x 2.5 mm, SMD



### Frequency and Electrical Characteristics

| Parameter   | Min.                   | Typ.               | Max.               | Unit                 | Test condition / Description   |                        |                        |
|---|------------------------|--------------------|--------------------|----------------------|--|------------------------|------------------------|
| Nominal frequency <sup>1</sup> (Fn)               | 0.25                   |                    | 125                | MHz                  |  |                        |                        |
| Operating temperature range                       |                        | -10 to +70         | -55 to +125        | °C                   | See ‘Order Part Example’   |                        |                        |
| Frequency stability over temperature <sup>2</sup> |                        |                    | ±25 to ±100        | ppm                  | Referenced to frequency reading at 25°C and the specified load capacitance |                        |                        |
| Storage temperature range                         | -55                    |                    | +125               | °C                   |  |                        |                        |
| Long-term stability (Ageing)                      |                        |                    | ±3                 | ppm                  | Frequency drift over 1 year at 25°C  |                        |                        |
| Power supply voltage(V <sub>CC</sub> )            |                        |                    |                    |                      |  |                        |                        |
| 1.8V (N option)                                   | 1.710                  | 1.8                | 1.890              | V <sub>DC</sub>      | See ‘Order Part Example’   |                        |                        |
| 2.5V (M option)                                   | 2.375                  | 2.5                | 2.625              |                      |  |                        |                        |
| 3.3V (D option)                                   | 3.135                  | 3.3                | 3.465              |                      |  |                        |                        |
| 5.0V (A option)                                   | 4.750                  | 5.0                | 5.250              |                      |  |                        |                        |
| HCMOS output load                                 |                        |                    | 15                 | pF                   |  |                        |                        |
| Output logic levels                               |                        |                    |                    |                      |  |                        |                        |
| Output logic high (V <sub>OH</sub> )              | 90%V <sub>CC</sub>     |                    | 10%V <sub>CC</sub> | V <sub>DC</sub>      | With 15pF HCMOS load   |                        |                        |
| Output logic low (V <sub>OL</sub> )               |                        |                    |                    |                      |  |                        |                        |
| Duty cycle <sup>3</sup>                           | 40                     | 50                 | 60                 | %                    | See ‘Order Part Example’   |                        |                        |
| Rise & fall time                                  |                        |                    | 7                  | ns                   | 10% VCC ~ 90% VCC  |                        |                        |
| Start-up time                                     |                        |                    | 5                  | ms                   |  |                        |                        |
| Input current                                     |                        |                    |                    |                      |  |                        |                        |
|   | Load capacitance       | Frequency          |                    | V <sub>CC</sub> = 5V | V <sub>CC</sub> = 3.3V   | V <sub>CC</sub> = 2.5V | V <sub>CC</sub> = 1.8V |
|   | C <sub>L</sub> = 15 pF | 0.250 to 24.999MHz |                    | 15 mA                | 10mA   | 6 mA                   | 4 mA                   |
|   |                        | 25.00 to 39.999MHz |                    | 20 mA                | 15 mA  | 8 mA                   | 6 mA                   |
|   |                        | 40.00 to 59.999MHz |                    | 30 mA                | 20 mA  | 12 mA                  | 10 mA                  |
|   |                        | 60.00 to 125.00MHz |                    | 50 mA                | 40 mA  | 30 mA                  | 25 mA                  |

### Order Part Example – QEN07BDAR / 50.000MHZ

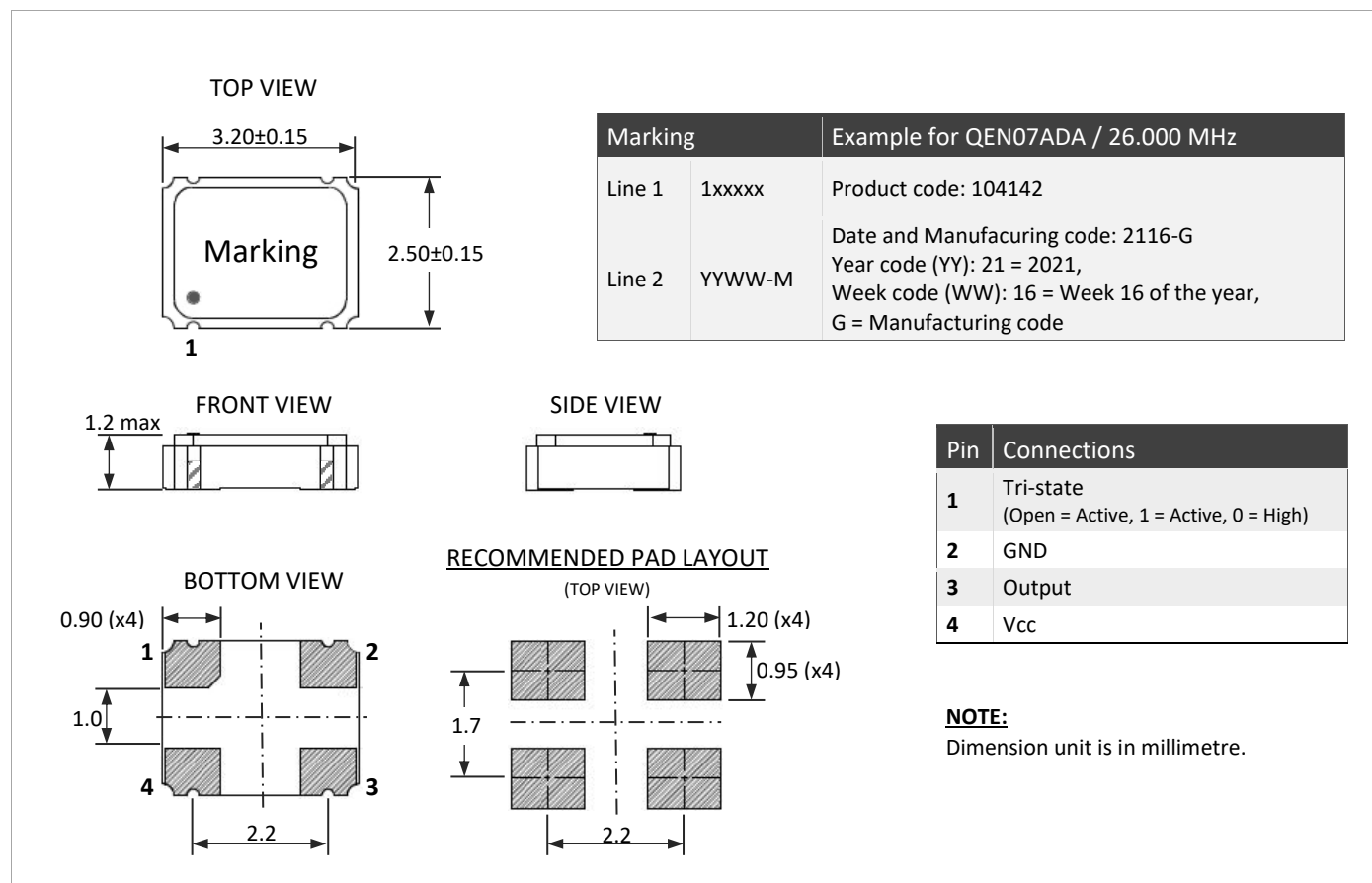
| Parameter | Product family and package                        | Frequency stability (FvT)   | Supply Voltage (V <sub>CC</sub> )  | Output                       | Output Symmetry                               | Nominal Frequency (Fn. MHz) |
|-----------|---|---|--|------------------------------|---|-----------------------------|
| Code      | <b>QEN07</b>                                      | <b>B</b>  | <b>D</b>   | <b>A</b>                     | <b>R</b>                                      | <b>50.000MHZ</b>            |
| Decode    | <b>QEN</b> = XO<br><b>07</b> = SMD,<br>3.2x2.5 mm | <b>A</b> = ±100ppm vs -10 to +70°C<br><b>B</b> = ±50ppm vs -10 to +70°C<br><b>C</b> = ±25ppm vs -10 to +70°C<br><b>D</b> = ±100ppm vs -40 to +85°C<br><b>F</b> = ±50ppm vs -40 to +85°C<br><b>G</b> = ±25ppm vs -40 to +85°C<br><b>J</b> = ±100ppm vs -55 to +125°C<br><b>K</b> = ±50ppm vs -55 to +125°C | <b>A</b> = 5.0V<br><b>D</b> = 3.3V<br><b>M</b> = 2.5V<br><b>N</b> = 1.8V | <b>A</b> =<br>HCMOS,<br>15pF | <b>Blank</b> =<br>40/60%<br><b>R</b> = 45/55% | Please enter Fn             |

<sup>1</sup> For 5V version, maximum frequency is 54MHz only.

<sup>2</sup> Include 25°C tolerance, operating temperature range, input voltage change (V<sub>CC</sub> ±5%), load change (15pF ±10%), first year ageing, shock and vibration.

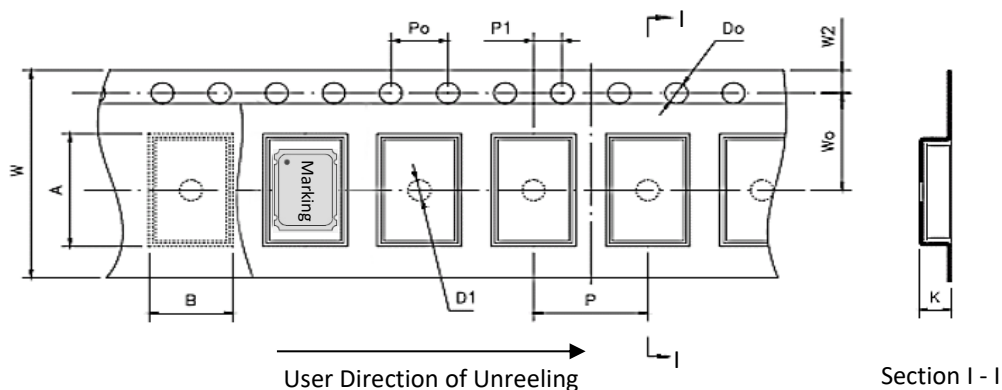
<sup>3</sup> Duty cycle 45/55% is available on option

## Model Outline, Recommended Pad Layout and Marking



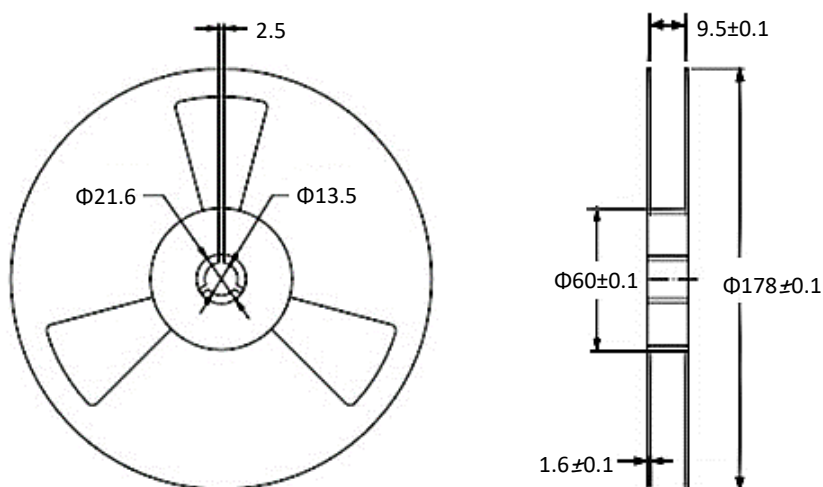
## Packaging

### TAPRE DETAILS:



| Parameter                                   | Code           | Dimension | Tolerance |
|---|----------------|-----------|-----------|
| Pitch of components                         | P              | 4.0       | ± 0.1     |
| Pitch of sprocket hole                      | P <sub>0</sub> | 4.0       | ± 0.1     |
| Length from hole center to component center | P <sub>1</sub> | 2.0       | ± 0.1     |
| Width of carrier tape                       | W              | 8.0       | ±0.3      |
| Width of adhesive tape                      | W <sub>0</sub> | 3.5       | ± 0.1     |
| Height of component pocket                  | A              | 3.5       | ± 0.1     |
| Width of component pocket                   | B              | 2.7       | ± 0.1     |
| Gap of hold down tape and carrier tape      | W <sub>2</sub> | 1.75      | ± 0.1     |
| Diameter of sprocket hole                   | D <sub>0</sub> | Φ 1.5     | ± 0.05    |
| Diameter of feed hole                       | D <sub>1</sub> | Φ 1.5     | ± 0.25    |
| Total of tape thickness                     | K              | 1.3       | ± 0.1     |

### REEL DETAILS



#### NOTE:

- Standard Packing Quantity (SPQ): 3000 pcs/reel
- Unit: mm

## Reflow soldering Profile

