**MHz RANGE CRYSTAL UNIT**

**FA-128**

- **Nominal frequency range**: 16 MHz to 54 MHz
- **External dimensions**: 2.0 x 1.6 x 0.5 mm
- **Overtone order**: Fundamental
- **Applications**: Mobile phone, Bluetooth, W-LAN ISM band radio, Clock for MPU

### Specifications (characteristics)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Specifications</th>
<th>Conditions / Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal frequency range</td>
<td>f_nom</td>
<td>16 MHz to 54 MHz</td>
<td>Fundamental</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>T_stg</td>
<td>-40 °C to +125 °C</td>
<td>Storage as single product.</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>T_use</td>
<td>-40 °C to +85 °C (+105 °C)</td>
<td>Please contact us about +85 °C &lt; T_use</td>
</tr>
<tr>
<td>Level of drive</td>
<td>DL</td>
<td>100 µW Max.</td>
<td>+25 °C, please contact us for requirements not listed in this specification.</td>
</tr>
<tr>
<td>Frequency tolerance (standard)</td>
<td>f_tol</td>
<td>±10 x 10⁻⁶</td>
<td>Please contact us for requirements not listed in this specification.</td>
</tr>
<tr>
<td>Frequency versus temperature characteristics (standard)</td>
<td>f_tem</td>
<td>±10 x 10⁻⁶</td>
<td>-20 °C to +75 °C, please contact us for requirements not listed in this specification.</td>
</tr>
<tr>
<td>Load capacitance</td>
<td>CL</td>
<td>6 pF to ∞</td>
<td>Please specify.</td>
</tr>
<tr>
<td>Motional resistance (ESR)</td>
<td>R1</td>
<td>As per table below</td>
<td>-20 °C to +75 °C</td>
</tr>
<tr>
<td>Frequency aging</td>
<td>f_age</td>
<td>±1 x 10⁻⁶ / year Max.</td>
<td>+5 x 10⁻⁶ / year Max.</td>
</tr>
</tbody>
</table>

*Please contact us for available frequency tolerances as they are dependent upon the nominal frequency.

### Motional resistance (ESR)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Motional resistance (Ω Max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 MHz ≤ f_nom &lt; 18 MHz</td>
<td>200</td>
</tr>
<tr>
<td>18 MHz ≤ f_nom &lt; 20 MHz</td>
<td>150</td>
</tr>
<tr>
<td>20 MHz ≤ f_nom &lt; 24 MHz</td>
<td>100</td>
</tr>
<tr>
<td>24 MHz ≤ f_nom &lt; 26 MHz</td>
<td>80</td>
</tr>
<tr>
<td>26 MHz ≤ f_nom ≤ 54 MHz</td>
<td>60</td>
</tr>
</tbody>
</table>

### External dimensions

(Unit:mm)

- Product name: FA-128 24.000MHz ±1.0-10.0
- Model: ①
- Frequency: ②
- Load capacitance(pF): ③
- Frequency tolerance (×10⁻⁶, +25 °C): ④

In addition to the above mentioned specification item, please specify frequency temperature characteristics and operating temperature range in case of inquiry.

### Footprint (Recommended)

(Unit:mm)

- Internal connection (TOP VIEW)
  - #2 and #4 are connected to the cover. (Please connect to ground)
- Width: 1.45
- Height: 1.15
- Length: 0.85
- Thickness: 0.95

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**Product Number**

Q22FA1280xxx18
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