TUNING FORK CRYSTAL UNIT (Cylinder Type)

RoHS compliant / Pb free  CFS-206・CFS-145

■ FEATURES

● Frequency range: 32.768kHz
● External dimensions (mm)
  CFS-206  Φ : 2.0 x L : 6.2
  CFS-145  Φ : 1.5 x L : 5.1
● Applications
  Watch / Clock / Security devices / Consumer products

■ DIMENSION [mm]

![CFS-206](image)
![CFS-145](image)

■ STANDARD SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
<th>CFS-206</th>
<th>CFS-145</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Frequency</td>
<td>f0</td>
<td>32.768kHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Tolerance</td>
<td>Δf/f0</td>
<td>±5ppm / ±10ppm / ±20ppm</td>
<td></td>
<td>at 25℃</td>
</tr>
<tr>
<td>Load capacitance</td>
<td>CL</td>
<td>6.0pF / 7.0pF / 8.0pF / 12.5pF</td>
<td>Please specify your requirement</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>Topr</td>
<td>-20℃ ～ +70℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>Tstr</td>
<td>-40℃ ～ +85℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover Temperature</td>
<td>Tm</td>
<td>25℃±5℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>β</td>
<td>-0.034±0.006ppm/℃²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motional (series) resistance</td>
<td>Ri</td>
<td>35KΩ Max.</td>
<td>40KΩ Max.</td>
<td>at 25℃</td>
</tr>
<tr>
<td>Level of drive</td>
<td>Dl</td>
<td>1 μW Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aging (first year)</td>
<td>Δf/f0</td>
<td>±3ppm Max.</td>
<td></td>
<td>25℃±3℃</td>
</tr>
<tr>
<td>Shunt capacitance</td>
<td>C0</td>
<td>1.2pF Typ.</td>
<td>1.0pF Typ.</td>
<td></td>
</tr>
</tbody>
</table>

http://cfd.citizen.co.jp/english/prod-tech/product/cvo_top.html

CITIZEN FINEDEVICE CO., LTD.
**Part Numbering System**

- **CFS-206 / CFS-145**
  - 32768
  - D Z F B - □□□

- **Frequency**
  - (at 25°C)
  - **D**: ±20ppm (STD)
  - **E**: ±10ppm
  - **H**: ±5ppm

- **Frequency Tolerance**
  - **F**: 12.5pF (STD)
  - **V**: 8.0pF
  - **Y**: 7.0pF

- **Load capacitance (CL)**
  - **B**: 6.0pF

- **Part Marking** [standard]
  - **CFS-206**
    - 22 : Manufacturer's ID Code
    - y : The last digit of production year
    - m : Production month (See Table.1)
    - # : Production Lot No.

  - **CFS-145**
    - No marking

- **Table.1**

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>…</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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</thead>
<tbody>
<tr>
<td>Code</td>
<td>1</td>
<td>2</td>
<td>…</td>
<td>9</td>
<td>X</td>
<td>Y</td>
<td>Z</td>
</tr>
</tbody>
</table>

- **Handling Notes**
  - **Mounting**
    - Soldering the body of cylinder type crystal unit must be strictly avoided as it may cause significant deterioration in characteristics of the product.
    - Rubber adhesive is recommended for mounting.

  - **Bending Lead**
    - Hold the body of crystal unit by hand, and the part to be bent with tweezers leaving more than 1.5mm of lead from the body case. (3.0mm is recommended)
    - Bend the lead 90° holding with the tweezers. Pulling the lead strongly may crack the hermetic seal glass at the root of the lead and may cause the airtightness and the characteristics to deteriorate.

**Part Numbering System**

- Please contact us for specifications available.

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