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]

![Dimensions of CFS-206 and 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>at 25°C</td>
<td></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>T_{OPR}</td>
<td>−20°C ～ +70°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>T_{STR}</td>
<td>−40°C ～ +85°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover Temperature</td>
<td>T_{M}</td>
<td>25°C±5°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>β</td>
<td>−0.034±0.006ppm/°C²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motional (series) resistance</td>
<td>R₁</td>
<td>35KΩ Max.</td>
<td>40KΩ Max.</td>
<td>at 25°C</td>
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<tr>
<td>Level of drive</td>
<td>D_L</td>
<td>1μW Max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aging (first year)</td>
<td>Δf/f₀</td>
<td>±3ppm Max.</td>
<td>25°C±3°C</td>
<td></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
PART NUMBERING SYSTEM

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

Frequency
- Please specify the frequency in Hz.

Frequency Tolerance (at 25℃)
- D: ±20ppm (STD)
- E: ±10ppm
- H: ±5ppm

Frequency Tolerance over Operating Temp. Range

Package specification
- B: Only Bulk

Load capacitance (CL)
- B: 6.0pF
- F: 12.5pF (STD)
- V: 8.0pF
- Y: 7.0pF

PART NUMBERING SYSTEM

Part Marking [standard]

CFS-206

33 : Manufacture’s ID Code
y : The last digit of production year
m : Production month (See Table.1)
# : Production Lot No.

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>

Part Marking [standard]

CFS-145

No marking

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.

Product specifications are subject to change without notice.