

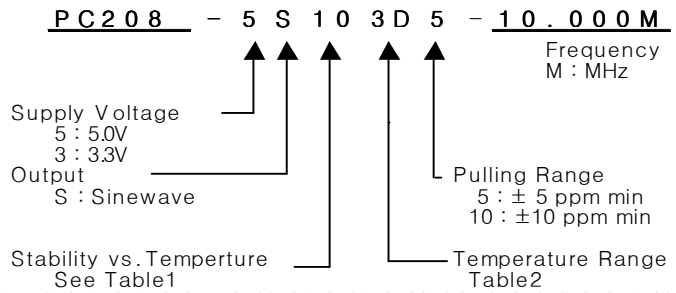
# VCTCXO

## PC208 Series

### Sinewave

### 5PIN DIP PACKAGE

#### \* PART NUMBERING GUIDE



| MECHANICAL DIMENSIONS   | ELECTRICAL SPECIFICATION  |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|---|---|--|---------------------|--------|--------------------|--|--|--|--------|-----------|--------|-------|--------|-------|----|---------------|---|-------------------|---|--------------------|----|---------------|---|---------------------|---|--------------------|----|---------------|---|---------------------|---|--------------------|----|---------------|---|---------------------|---|--------------------|----|---------------|---|---------------------|---|--------------------|----|---------------|--|--|---|--------------------|----|---------------|--|--|--|--|----|---------------|--|--|--|--|
| <p style="margin-left: 20px;"> <b>PIN CONNECTION</b><br/>           #1 V.C<br/>           #2 Output<br/>           #3 Supply Voltage<br/>           #4 GND<br/>           #5 GND         </p> | Frequency range   | 1.8432MHz to 190.000MHz  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Frequency Stability<br>vs. Temperature<br>vs. Supply Voltage<br>vs. Load<br>vs. Aging   | $\pm 0.5$ ppm to $\pm 5.0$ ppm<br>$\pm 0.1 / \pm 0.2$ ppm max / $V_{dd} \pm 5\%$<br>$\pm 0.2$ ppm max / $15\text{pF} \pm 10\%$<br>$\pm 1.0$ ppm max/ year                                |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Temperature Range<br>Operating<br>Storage   | See Table 2<br>$-55^\circ\text{C}$ to $125^\circ\text{C}$  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Supply Voltage  | $3.3\text{V} \pm 5\%$<br>$5.0\text{V} \pm 5\%$   |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Input Current<br><br>Sinewave   | 6.00MHz ~ 190.000MHz<br>12.0mA max ~ 100mA max   |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Output characteristics  | Level 3.3V Sinewave<br>5.0V 0 dBm typ<br>10 dBm typ<br>Load 50 $\Omega$  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Phase Noise (typical)<br>20MHz offset   | $-80$ dBc / Hz @ 10Hz<br>$-120$ dBc / Hz @ 100Hz<br>$-135$ dBc / Hz @ 1KHz<br>$-140$ dBc / Hz @ 10KHz<br>$-145$ dBc / Hz @ 100KHz  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Frequency Adjustment  | $\pm 3$ ppm min by internal trimmer  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Voltage Control Characteristics   |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Output Pulling Range<br>( $\Delta F / \Delta V$ )   | $\pm 5.0$ ppm or $\pm 10$ ppm min<br>( $\Delta F / \Delta V > \pm 20$ ppm is available, please contact us)   |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Control Voltage Range   | $1.65\text{V} \pm 1.5\text{V}$ ( $V_{dd} : 3.3\text{V}$ ), $2.5\text{V} \pm 2.0\text{V}$ ( $V_{dd} : 5.0\text{V}$ )  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | <b>ENVIRONMENTAL &amp; MECHANICAL SPECIFICATION</b>   |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   | Shock<br>Vibration<br>Solderability<br>Seal integrity<br>Marking  | MIL-STD-883C, Method 2002, Condition B<br>MIL-STD-883C, Method 2007, Condition A<br>MIL-STD-883C, Method 2003<br>MIL-STD-883C, Method 1014, Condition C & A2<br>MIL-STD-202F, Method 215 |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| <b>OUTPUT WAVEFORM</b>  |   |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
|   |   |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| <b>TEST CIRCUIT</b>   | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">TABLE1</th> <th colspan="4">TABLE2</th> </tr> <tr> <th>Symbol</th> <th>Stability</th> <th>Symbol</th> <th>Temp.</th> <th>Symbol</th> <th>Temp.</th> </tr> </thead> <tbody> <tr> <td>05</td> <td><math>\pm 0.5</math>ppm</td> <td>0</td> <td><math>0^\circ\text{C}</math></td> <td>A</td> <td><math>50^\circ\text{C}</math></td> </tr> <tr> <td>10</td> <td><math>\pm 1.0</math>ppm</td> <td>1</td> <td><math>-10^\circ\text{C}</math></td> <td>B</td> <td><math>60^\circ\text{C}</math></td> </tr> <tr> <td>15</td> <td><math>\pm 1.5</math>ppm</td> <td>2</td> <td><math>-20^\circ\text{C}</math></td> <td>C</td> <td><math>70^\circ\text{C}</math></td> </tr> <tr> <td>20</td> <td><math>\pm 2.0</math>ppm</td> <td>3</td> <td><math>-30^\circ\text{C}</math></td> <td>D</td> <td><math>75^\circ\text{C}</math></td> </tr> <tr> <td>25</td> <td><math>\pm 2.5</math>ppm</td> <td>4</td> <td><math>-40^\circ\text{C}</math></td> <td>E</td> <td><math>80^\circ\text{C}</math></td> </tr> <tr> <td>30</td> <td><math>\pm 3.0</math>ppm</td> <td></td> <td></td> <td>F</td> <td><math>85^\circ\text{C}</math></td> </tr> <tr> <td>35</td> <td><math>\pm 3.5</math>ppm</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>50</td> <td><math>\pm 5.0</math>ppm</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> |  | TABLE1              |        | TABLE2             |  |  |  | Symbol | Stability | Symbol | Temp. | Symbol | Temp. | 05 | $\pm 0.5$ ppm | 0 | $0^\circ\text{C}$ | A | $50^\circ\text{C}$ | 10 | $\pm 1.0$ ppm | 1 | $-10^\circ\text{C}$ | B | $60^\circ\text{C}$ | 15 | $\pm 1.5$ ppm | 2 | $-20^\circ\text{C}$ | C | $70^\circ\text{C}$ | 20 | $\pm 2.0$ ppm | 3 | $-30^\circ\text{C}$ | D | $75^\circ\text{C}$ | 25 | $\pm 2.5$ ppm | 4 | $-40^\circ\text{C}$ | E | $80^\circ\text{C}$ | 30 | $\pm 3.0$ ppm |  |  | F | $85^\circ\text{C}$ | 35 | $\pm 3.5$ ppm |  |  |  |  | 50 | $\pm 5.0$ ppm |  |  |  |  |
| TABLE1  |   | TABLE2   |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| Symbol  | Stability   | Symbol   | Temp.               | Symbol | Temp.              |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 05  | $\pm 0.5$ ppm   | 0  | $0^\circ\text{C}$   | A      | $50^\circ\text{C}$ |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 10  | $\pm 1.0$ ppm   | 1  | $-10^\circ\text{C}$ | B      | $60^\circ\text{C}$ |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 15  | $\pm 1.5$ ppm   | 2  | $-20^\circ\text{C}$ | C      | $70^\circ\text{C}$ |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 20  | $\pm 2.0$ ppm   | 3  | $-30^\circ\text{C}$ | D      | $75^\circ\text{C}$ |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 25  | $\pm 2.5$ ppm   | 4  | $-40^\circ\text{C}$ | E      | $80^\circ\text{C}$ |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 30  | $\pm 3.0$ ppm   |  |                     | F      | $85^\circ\text{C}$ |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 35  | $\pm 3.5$ ppm   |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |
| 50  | $\pm 5.0$ ppm   |  |                     |        |                    |  |  |  |        |           |        |       |        |       |    |               |   |                   |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |   |                     |   |                    |    |               |  |  |   |                    |    |               |  |  |  |  |    |               |  |  |  |  |