



**1. NOMINAL AND MAXIMUM RATINGS, OPERATING AND STORAGE CONDITIONS**

|   | PARAMETER                      | SYMB.           | MIN           | TYP | MAX  | Unit            | Conditions / Remarks |
|---|--------------------------------|-----------------|---------------|-----|------|-----------------|----------------------|
| 1 | Nominal frequency              | F <sub>N</sub>  | <b>10.000</b> |     |      | MHz             | --                   |
| 2 | Operating supply voltage range | V <sub>CC</sub> | 4.75          | 5.0 | 5.25 | V <sub>DC</sub> |                      |
| 3 | Output load                    | R <sub>L</sub>  |               | 15  |      | pF              | CMOS Level           |
| 4 | Operating temperature range    | T <sub>OP</sub> | -40           | +25 | +85  | °C              | Note 1               |
| 5 | Storage Temperature Range      | T <sub>ST</sub> | -55           |     | 90   | °C              | --                   |

Note 1: over the whole range, the unit stays within all relevant parameter limits as specified under point 2.

**2. ELECTRICAL PARAMETER LIMITS**

|    | PARAMETER                                | SYMB.                         | MIN  | TYP | MAX  | Unit            | Conditions / Remarks   |
|----|--|-------------------------------|------|-----|------|-----------------|--|
| 1  | Initial Frequency Accuracy               | $\Delta f/F_N$                | -500 |     | +500 | ppb             | Offset from nominal at +25°C   |
| 2  | Frequency stability over T <sub>OP</sub> | $\Delta f/F_{OP}$             | -500 |     | +500 | ppb             | Over T <sub>OP</sub> Note 1  |
| 3  | Short Term Stability ( in still air)     |                               |      |     | 0.05 | ppb/s           | Max, after power on 1h   |
| 4  | Warm-up Time                             |                               |      |     | 5.0  | min             | Within $\pm 500$ ppb of final frequency with reference after 1 hour on@+25°C |
| 5  | Frequency VS voltage changes             | $\Delta f/F_V$                | -20  |     | +20  | ppb             | V <sub>CC</sub> $\pm 5\%$ at +25°C   |
| 6  | Frequency VS load changes                | $\Delta f/F_L$                | -20  |     | +20  | ppb             | CL $\pm 10\%$ at +25°C   |
| 7  | Aging per day                            | $\Delta f/F_{Ad}$             | -5   |     | +5   | ppb             | Aging after 30 days of operation   |
| 8  | Aging first year                         | $\Delta f/F_{A1}$             | -500 |     | +500 | ppb             |  |
| 9  | Aging 10 years                           | $\Delta f/F_{A1}$             | -3.0 |     | +3.0 | ppm             |  |
| 10 | Output voltage level HIGH                | V <sub>OH</sub>               | 2.7  |     |      | V <sub>DC</sub> |  |
| 11 | Output voltage level LOW                 | V <sub>OL</sub>               |      |     | 0.4  | V <sub>DC</sub> |  |
| 12 | Output amplitude rise/fall time          | t <sub>R</sub> t <sub>F</sub> |      |     | 6.0  | ns              | 15pF / +25°C   |
| 13 | Output amplitude symmetry                | DC                            | 45   |     | 55   | %               | 15pF / +25°C   |
| 14 | Phase noise                              | L <sub>RMS</sub>              |      |     | -100 | dBc/Hz          | at 10Hz offset / at +25°C  |
|    |  |                               |      |     | -130 |                 | at 10Hz offset / at +25°C  |
|    |  |                               |      |     | -140 |                 | at 1kHz offset / at +25°C  |
|    |  |                               |      |     | -145 |                 | at 10kHz offset / at +25°C   |
|    |  |                               |      |     | -145 |                 | at 100kHz offset / at +25°C  |
| 15 | Operating Current                        | I <sub>CC</sub>               |      |     | 600  | mA              | During warm up   |
|    |  |                               |      |     | 200  |                 | At steady state,@25°C  |
| 16 | Control Voltage Range                    | V <sub>C</sub>                | 0    | 2.5 | 5.0  | V <sub>DC</sub> | 2.5 $\pm$ 2.5v   |
| 17 | Frequency tuning range                   | F <sub>-PULL</sub>            | -5.0 |     | +5.0 | ppm             | Positive Slope   |
| 18 | Linearity                                |                               |      |     | 10   | %               |  |

Note 1: Referenced to midpoint between minimum and maximum frequency over specified temperature range.

### 3. PRODUCT MARKING

|   |               |   |      |      |      |      |      |      |      |      |      |      |      |
|---|---------------|---|------|------|------|------|------|------|------|------|------|------|------|
| 1 | <b>FF.fff</b> | Nominal frequency in MHz (three digits after decimal point) |      |      |      |      |      |      |      |      |      |      |      |
| 2 | <b>HCI</b>    | Company logo  |      |      |      |      |      |      |      |      |      |      |      |
| 3 | <b>Y</b>      | Year code of manufacturing (see table below)                |      |      |      |      |      |      |      |      |      |      |      |
|   | <b>Year</b>   | 2021  | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|   | <b>Code</b>   | V   | W    | X    | Y    | Z    | A    | B    | C    | D    | E    | F    | G    |
| 4 | <b>M</b>      | Month code of manufacturing (see table below)               |      |      |      |      |      |      |      |      |      |      |      |
|   | <b>Month</b>  | Jan   | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  |
|   | <b>Code</b>   | A   | B    | C    | D    | E    | F    | G    | H    | J    | K    | L    | M    |



### 4. OUTLINE DRAWING

|   | Package description        | Package model | Remarks |
|---|----------------------------|---------------|---------|
| 1 | 20x13 DIP type with 4 pins | DIP-14h11     | --      |

