

# VF Type Voltage Controlled Crystal Oscillator

RoHS Compliant Optional

## FEATURE

1. Typical 20.4 x 12.8 x 5.0mm, standard package & 14-Pin dual in line.
2. Pulling range:  $\pm 150$ ppm max.
3. Aging:  $\pm 1$ ppm/year.
4. TTL/ CMOS output.
5. Packing: 25 pcs per Tube.



## ORDERING INFORMATION

| V    | F            | T   | U | P  | C                                      | J   | -    | N          | L  | -    | ?          |
|------|--------------|---|---|--|--|---|------|------------|--|------|------------|
| VCXO | Package (mm) | Supply Voltage(V) & Pin Form                                      |   | Freq.Stability/ Tolerance/ Pulling Range(ppm)  | Temp. Range (°C)                       | Output Logic and Symmetry   | Dash | Appearance | Lead Free                                | Dash | Freq.(MHz) |
|      | 20.4x12.8    | Through Hole<br>T:5.0<br>E:3.3<br><br>Gull Wing<br>G:5.0<br>F:3.3 |   | M: $\pm 25/\pm 15/\pm 100$<br>G: $\pm 35/\pm 20/\pm 100$<br>P: $\pm 50/\pm 20/\pm 100$<br>R: $\pm 50/\pm 20/\pm 150$<br>T: $\pm 25/\pm 15/\pm 150$ | C: -20~+70<br>D: -30~+80<br>L: -40~+85 | 50 $\pm$ 5%<br>50 $\pm$ 10%<br><br>10TTL 15pF<br>A<br>B<br><br>CMOS 15pF<br>J<br>K<br><br>CMOS 50pF<br>F<br>G |      | N:Normal   | F:RoHS Compliant<br>L:Not RoHS Compliant |      | xx.xxxxxx  |

### Ordering Example: VFTUPCJ-NL-10.000000 MHz

VCXO F-TYPE; V<sub>DD</sub>: 5V; Freq. Stability:  $\pm 50$ ppm, Freq. Tolerance:  $\pm 20$ ppm, Pulling Range:  $\pm 100$ ppm; Temp. Range: -20°C to +70°C; CMOS 15pF, Duty: 50 $\pm$ 5%; Normal Appearance; Not RoHS Compliant; Freq. 10.000000MHz.

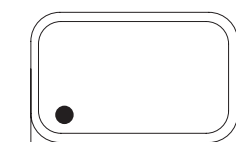
## FREQ. STABILITY vs. TEMP. RANGE

| Temp°C | Freq Stab/ Tolerance/ Pulling | M: $\pm 25/\pm 15/\pm 100$ | G: $\pm 35/\pm 20/\pm 100$ | P: $\pm 50/\pm 20/\pm 100$ | R: $\pm 50/\pm 20/\pm 150$ | T: $\pm 25/\pm 15/\pm 150$ |
|--------|-------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| C      | -20~ +70                      | △                          | ○                          | ○                          | ○                          | △                          |
| D      | -30~ +80                      | X                          | ○                          | ○                          | ○                          | X                          |
| L      | -40~ +85                      | X                          | ○                          | ○                          | ○                          | X                          |

○ : Standard    △ : Available (case by case)    × : Not available

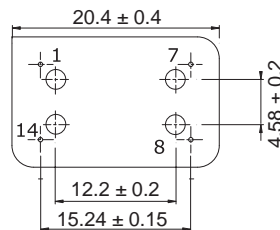
## OUTLINE DRAWING

[ TOP VIEW ]

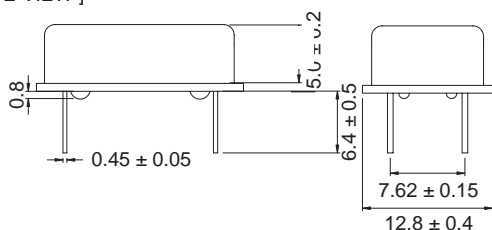


Pin 1 Symbol

[ BOTTOM VIEW ]



[ SIDE VIEW ]



| Pin | Function        |
|-----|-----------------|
| #1  | VC / NC         |
| #7  | GND             |
| #8  | OUTPUT          |
| #14 | V <sub>DD</sub> |

UNIT : mm

VCXO

## ELECTRICAL SPECIFICATION

| Parameter  | Min.                          |      | Max.                        |      | Unit     |
|--|-------------------------------|------|-----------------------------|------|----------|
|  | 5.0                           | 3.3  | 5.0                         | 3.3  | V        |
| <b>Supply Voltage Variation(V<sub>DD</sub>) 5%</b> | 4.75                          | 3.13 | 5.25                        | 3.47 | V        |
| <b>Frequency Range</b>                             | 2.5                           |      | 45                          |      | MHz      |
| <b>Operating Temp. Range</b>                       | Refer to Ordering Information |      |                             |      | °C       |
| <b>Frequency Stability *</b>                       | Refer to Ordering Information |      |                             |      | ppm      |
| <b>Frequency Stability</b>                         |                               |      |                             |      |          |
| Vs Supply Voltage(±5%) change                      | —                             |      | ±3                          |      | ppm      |
| Vs Load(±10%) change                               | —                             |      | ±3                          |      |          |
| Vs Aging   | —                             |      | ±1                          |      | ppm/year |
| <b>Supply Current</b>                              |                               |      |                             |      |          |
| 2.5000MHz Fo < 10.000MHz                           | —                             |      | 10                          | 7    | mA       |
| 10.000MHz Fo < 15.000MHz                           | —                             |      | 15                          | 10   |          |
| 15.000MHz Fo < 26.000MHz                           | —                             |      | 20                          | 15   |          |
| 26.000MHz Fo < 45.000MHz                           | —                             |      | 25                          | 20   |          |
| <b>Output Level (TTL/CMOS)</b>                     |                               |      |                             |      |          |
| High Level("1")                                    | 90% V <sub>DD</sub> or 2.4V   |      | —                           |      | V        |
| Low Level ("0")                                    | —                             |      | 10% V <sub>DD</sub> or 0.4V |      |          |
| Duty   | 40%                           |      | 60%                         |      |          |
| <b>Vc Input impedance</b>                          | 50                            |      | —                           |      | KΩ       |
| <b>Start Time</b>                                  | —                             |      | 2                           |      | mSec     |
| <b>Storage Temp. Range</b>                         | -55                           |      | 125                         |      | °C       |

\*Inclusive of calibration @ 25°C, operating temperature range, input voltage variation, load variation, aging, shock, and vibration.