

# SMD Temperature Compensated Crystal Oscillators 3.2 x 2.5 x 1.0 mm 7Q Series

## Features

- Temperature Stability:  $\pm 0.5$  ppm ~  $\pm 2.0$  ppm
- Operating Temperature Range:  $-30$  °C ~  $85$  °C
- Supply Voltage:  $1.8$  V ~  $3.3$  V
- Voltage Control Function Available
- Frequencies: 16.367667 MHz, 16.368 MHz, 16.369 MHz, 16.8 MHz, 19.2 MHz, 20 MHz, 26 MHz, 33.6 MHz, 38.4 MHz, 40 MHz
- Applications: GPS, WiMAX, Cellular and Wireless Communications
- RoHS Compliant / Pb Free



## Electrical Specifications

| Item / Type   |   | 7Q   |
|---|---|--|
| Output Type   |   | Clipped Sinewave                                     |
| Output Load   |   | 10K $\Omega$ // 10 pF                                |
| Oscillation Mode  |   | Fundamental  |
| Supply Voltage  |   | 1.8 ~ 3.3 V  |
| Frequency Range   |   | 13 ~ 52 MHz  |
| Clipped Sinewave Output Voltage                         |   | 0.8 Vp-p typical                                     |
| Frequency Stability                                     | Vs. Temperature ( $-30$ ~ $+85$ °C )  | $\pm 0.5 / \pm 2.0$ ppm                              |
|   | Vs. Load ( Load varies $\pm 10$ % )   | $\pm 0.2$ ppm Max.                                   |
|   | Vs. Supply Voltage ( $V_{CC} =$ Typical $\pm 0.1$ V )                       | $\pm 0.2$ ppm Max.                                   |
| Frequency Tolerance                                     | at 25 °C after 2 Reflows with Typical Applied to Auto Frequency Control Pin | $\pm 2.5$ ppm Max.                                   |
| Slope of Frequency Drift                                |   | $\pm 0.1$ ppm / °C Typical ; $\pm 0.5$ ppm / °C Max. |
| Storage Temperature Range                               |   | $-40$ ~ $+85$ °C                                     |
| Auto Frequency Control ( AFC ) Range ( Center @ 1.4 V ) |   | $\pm 7$ ~ $\pm 16$ ppm / V                           |
| Supply Current  |   | 2.0 mA Max.  |
| Start-up Time   |   | 5 ms Max.  |
| Harmonics   |   | - 5 dBc Max.   |
| Phase Noise at 1 KHz offset                             |   | - 130 dBc / Hz                                       |
| Aging ( at 25 °C )                                      |   | $\pm 1$ ppm / year Max.                              |

## Dimensions



Units: mm