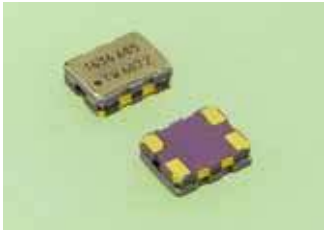
# TTS18NSE / VSE

## Temperature Compensated Crystal Oscillator (TCXO)

### ♦Feature



Reflow solderable, Ceramic SMD package base offers superior flatness.

Ultra-compact (3.2×2.5), lowest height, light weight,

and low Current consumption type.

Low Frequency available using built in 1/2 frequency divide down function.

Suitable for Cell phone, Base stationand mobile radio application.

RoHS compliant.

### ♦Specifications

| Item | Symbol | Specifications | | Conditions |
|---|---|---|---|---|
| | | TTS18NSE (TCXO) | TTS18VSE(VC-TCXO) | |
| Output frequency | $f_0$ | 10.0 MHz to 40.0 MHz | | |
| Supply voltage | Vcc | +2.3V to +3.6V | | |
| Current consumption | Icc | NOTE 2) 2.0 mA max. | | at Vcc=+3.0V, 10 kOhm//10 pF |
| Output voltage | Vpp | 0.8 V min. | | NOTE 1) DC coupling |
| Load | Load_R,C | 10 kOhm // 10 pF | | |
| Frequency Stability | | | | |
| /Frequency tolerance | f_tol | ± $1.0\times10^{-6}$ max. | | After reflow , at +25 °C |
| / temperature characteristics | $f_0$_$T_C$ | ± $2.0\times10^{-6}$ max. | | -30 °C to +85 °C , at Vc=+1.5V |
| / voltage coefficient | $f_0$_Vcc | ± $0.2\times10^{-6}$ max. | | at Vcc=+3.0 ± 5% |
| / load coefficient | $f_0$_Load | ± $0.2\times10^{-6}$ max. | | at (10kOhm // 10pF) ± 10% |
| / Frequency ageing | f_age | NOTE 2) ± $1.0\times10^{-6}$ max. | | 1 year , at +25 °C |
| Frequency controlled range | f_cont | --- | ±5 to ±$15\times10^{-6}$ | Vc=+1.5V±1.0V , Positive polarity |

NOTE 1) DC-cut capacitor of output is not put in TCXO. Please add DC-cut capacitor (1,000pF) in oscillator output line.

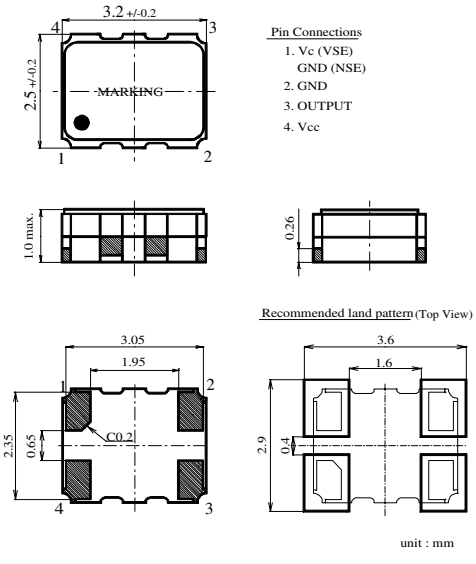
NOTE 2) at $f_0$=26.000MHz

### ♦ Phase Noise

| Frequency Offset (Hz) | Phase Noise (dBc/Hz) |
|---|---|
| 100 | -110 typ. |
| 1k | -130 typ. |
| 10k | -148 typ. |
| 100k | -148 typ. |

at $f_0$=26.000MHz (25±2°C)

### ♦Outline




Products with specific requirements are available upon request.