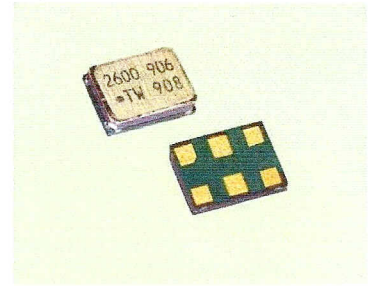


# TTS30NS / VS

## Ultra-compact Temperature Compensated Crystal Oscillator (TCXO)

### ◆ Feature

- Reflow solderable, SMD package base offers superior flatness.
- Ultra-compact (2.0×1.6), lowest height (0.8t max), light weight, and low Current consumption type.
- High frequency ( $f_0=52\text{MHz}$ ) available, and low frequency available using built in 1/2 frequency divide down function.
- Suitable for Cell phone, Base station, GPS, and mobile radio application.
- RoHS compliant.



### ◆ Specifications

Item	Symbol	Specifications		Conditions
		TTS30NS (TCXO)	TTS30VS (VC-TCXO)	
Output frequency	$f_0$	13.0 MHz to 52.0 MHz		
Supply voltage	Vcc	+1.7V to +3.7V		
Current consumption	Icc	2.0mA max.		at Vcc=+2.8V, 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	$f_{tol}$	$\pm 1.0 \times 10^{-6}$ max.		After reflow, at +25 °C
/ temperature characteristics	$f_{0\_Tc}$	$\pm 0.5 \times 10^{-6}$ to $\pm 2.5 \times 10^{-6}$ max.		-30 °C to +85 °C
/ voltage coefficient	$f_{0\_Vcc}$	$\pm 0.2 \times 10^{-6}$ max.		at Vcc=+2.8V $\pm$ 5%
/load coefficient	$f_{0\_Load}$	$\pm 0.2 \times 10^{-6}$ max.		at (10kOhm // 10pF) $\pm$ 10%
/ Frequency ageing	$f_{age}$	NOTE 2) $\pm 1.0 \times 10^{-6}$ max.		1 year, at +25 °C
Frequency controlled range	$f_{cont}$	---	$\pm 5$ to $\pm 15 \times 10^{-6}$	Vc=+1.4V $\pm$ 1.0V, Positive polarity

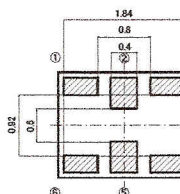
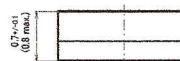
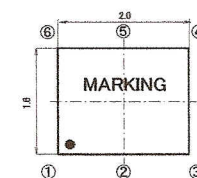
NOTE 1) DC-cut capacitor of output is not put in TCXO. Please add DC-cut capacitor (1,000pF) in oscillator output line.

### ◆ Phase Noise

Frequency Offset (Hz)	Phase Noise (dBc/Hz)
100	-110 typ.
1k	-130 typ.
10k	-145 typ.
100k	-145 typ.

at  $f_0=26.000\text{MHz}$  (25 $\pm$ 2°C)

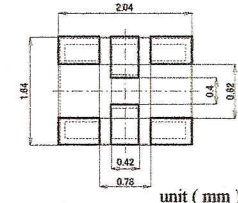
### ◆ Outline



#### Pin Connections

1. Vc ( VS )
2. GND or NC ( NS )
3. NC or GND
4. OUTPUT
5. NC or GND
6. Vcc

#### Recommended land pattern (Top View)



unit ( mm )

Products with specific requirements are available upon request.