

## TTS27NS / VS Series => XNCHH; XTCHH

### High precision Temperature Compensated Crystal Oscillator

#### Features

Ultra-compact (2.5 x 2.0), lowest height, light weight and low current consumption type.  
 Low frequency is available. Using built in 1/2 frequency divide down function.  
 Reflow solderable, ceramic SMD package base offers superior flatness.

#### Applications

Suitable for cell phone, base station, GPS and mobile radio application. RoHS compliant

#### Specifications

Item	Symbol	Specifications		Conditions
		TTS27NSH (TCXO)	TTS27VSH (VC-TCXO)	
Output frequency	$f_0$	10.0 MHz to 52.0 MHz		
Supply voltage	Vcc	+1,8V to 3.7V		
Current consumption	Icc	2.0 mA max.		Vcc=3.0V , 10 kOhm//10 pF
Output voltage	Vpp	0.8V min.		NOTE1)DC coupling
Load	Load_R,C	10kOhm // 10 pF		
Frequency stability				
/ Frequency tolerance	$f_{tol}$	$\pm 2.0 \times 10^{-6}$ max.		after reflow, at 25 °C
/ Temperature	$f_{0\_Tc}$	$\pm 0.5 \times 10^{-6}$ max.		-30 °C to +85 °C
/ Voltage coefficient	$f_{0\_Vcc}$	$\pm 0.2 \times 10^{-6}$ max.		at 3.0V $\pm$ 5%
/ Load coefficient	$f_{0\_Load}$	$\pm 0.2 \times 10^{-6}$ max.		at (10kOhm // 10pF) $\pm$ 5%
/ Frequency aging	$f_{age}$	$\pm 1.0 \times 10^{-6}$ max.		1 year, at 25 °C
Frequency control range	$f_{cont}$	---	$\pm 3$ to $\pm 15 \times 10^{-6}$	Vc=1.5V $\pm$ 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.

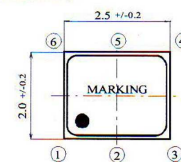
#### Phase Noise

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

at  $f_0=24.5535\text{MHz}$  (25 $\pm$ 2°C)

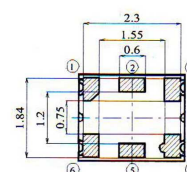
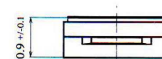
\*Please consult us for customized specifications.

#### Outline

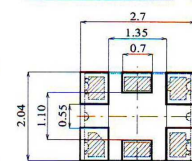


#### Pin Connections

- ① : Vc (VSB)  
NC or GND (NSB)
- ② : NC or GND
- ③ : GND
- ④ : OUT
- ⑤ : NC or GND
- ⑥ : Vcc



#### Recommended land pattern (Top View)



unit (mm)