

## TTS18NSH / VSH => XNCJH ; XTCJH

### High precision Temperature Compensated Crystal Oscillator

#### Features

Reflow solderable, ceramic SMD package base offers superior flatness.  
 Ultra-compact (3.2 x 2.5 x 1.0 mm), lowest height, light weight and low current consumption.

#### Applications

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

#### Specifications

Item	Symbol	Specifications		Conditions
		TTS18NSH (TCXO)	TTS18VSH (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, @ 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.		@ 3.0V $\pm$ 5%
/ Load coefficient	$f_{0\_Load}$	$\pm 0.2 \times 10^{-6}$ max.		@ (10kOhm // 10pF) $\pm$ 5%
/ Frequency aging	$f_{age}$	$\pm 1.0 \times 10^{-6}$ max.		1 year, @ 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

