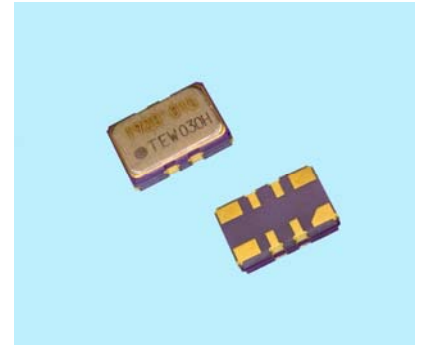


TTS14NSH / TTS14VSH , TTS14NCH / TTS14VCH

High Stability - Temperature Compensated Crystal Oscillator (HS – TCXO)

◆ Feature

- High Precision Frequency Stability
- Clipped Sine Wave or CMOS Output
- Low Current Consumption , RoHS Compliant
- Ceramic SMD Package – Superior Package Flatness
- Ultra-Compact (5.0×3.2) Extremely Low Profile (1.5 mm max.)



◆ Applications Femto Cells, Smart Grid, and Base Stations

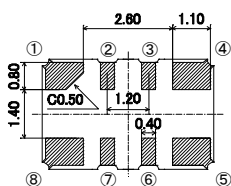
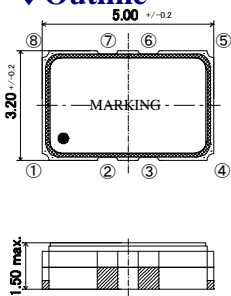
◆ Specifications

Item	Symbol	Specifications		Conditions	
		TTS14NSH/TTS14VSH (Clipped sine wave)	TTS14NCH/TTS14VCH (CMOS)		
Output Frequency	f_0	10.0MHz to 52.0MHz			
Supply Voltage	V_{cc}	+2.7V to +5.5V		10kohm//10pF	15pF
Current Consumption	I_{cc}	2.4mA max. ¹⁾	4.0mA max. ¹⁾	$V_{cc}=+3.3V$	
Output Voltage	V_{pp} $V_{OH/OL}$	0.8Vp-p min. ²⁾	$V_{cc} \times 90\% \text{ min.} / V_{cc} \times 10\% \text{ max.}$		
Load	Load	10kohm//10pF	15pF		
Frequency Stability					
/Frequency Tolerance	f_{0_tol}	$\pm 1.5 \times 10^{-6} \text{ max.}$		After reflow, at +25°C	
/Temperature Characteristic	$f_{_Tc}$	$\pm 0.20 \times 10^{-6} \text{ max.} / \pm 0.1 \times 10^{-6} \text{ max.}$		-40 to +85°C / -10 to +70°C	
/Voltage Coefficient	$f_{_Vcc}$	$\pm 0.05 \times 10^{-6} \text{ max.}^{1)}$	$\pm 0.1 \times 10^{-6} \text{ max.}^{1)}$	at $V_{cc} \pm 5\%$,	
/Load Coefficient	$f_{_Load}$	$\pm 0.05 \times 10^{-6} \text{ max.}^{1)}$	$\pm 0.1 \times 10^{-6} \text{ max.}^{1)}$	Load $\pm 10\%$	
/Frequency Ageing	$f_{_age}$	$\pm 0.5 \times 10^{-6} \text{ max.}^{1)}$		1 year, at +25°C	
Frequency Controlled Range	$f_{_cont}$	$N:- / V: \pm 3 \times 10^{-6} \text{ to } \pm 15 \times 10^{-6}$		$V_C = +1.5V \pm 1.0V$, Positive polarity	

NOTE 1) at $f_0=19.200\text{MHz}$

NOTE 2) The DC Blocking Capacitor is not internal to the TCXO. Please add DC Block (1,000pF typical) at oscillator output.

◆ Outline



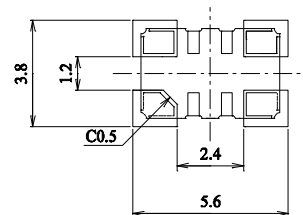
Pin Connections

- ① V_C (VSH/VCH), GND (NSH/NCH)*1
- ② NC
- ③ NC
- ④ GND
- ⑤ Clipped Sine OUTPUT(N/VSH), CMOS OUTPUT(N/VCH) *1
- ⑥ OUTPUT Enable/Disable*2
- ⑦ NC
- ⑧ V_{cc}

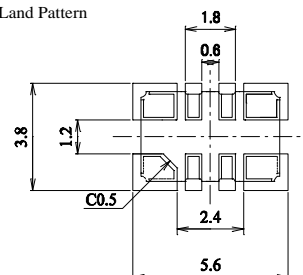
*1 Please Choose either
*2 Please connected to V_{cc} or unconnected if not required

◆ Land Pattern

4 Land Pattern TOP VIEW



8 Land Pattern



Note: Modified specifications are available upon request for specific applications.
The ordering number will be obtained separately by customer's requirement.

