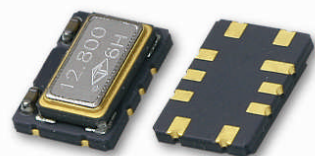


TS SERIES HIGH PRECISION



Features:

- Typical 7.0 x 5.0 x 2.0 mm ceramic SMD package
- High Precision for -20°C ~ +70°C, ±0.28 ppm
- CMOS and Clipped Sine wave (without DC-cut capacitor) output optional
- Packing: Tape & Reel 1000/3000 pcs. per reel

The TS high precision series of oscillators feature an industry standard 7x5mm ceramic package designed for applications where space is at a premium and tight frequency stability is required. This high precision model is capable of +/-0.14ppm @ -20°C ~ +70°C; +/-0.28ppm @ -40°C ~ +85°C, has very low power consumption, available CMOS and Clipped Sine Wave (without DC-cut capacitor) output, and VCTCXO pulling capability is optional. Popular uses of the TS high precision series include Telecommunication, Networking, and Satellite Communication.

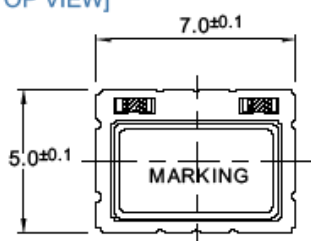
Ordering Information

TCXO	Package (mm)	Supply Voltage (V)	Pulling Range (ppm)	Freq. Stability (ppm)	Temp. Range (°C)	Output Logic and Symmetry		Oscillator Mode	Appearance	Lead Free	Freq. (MHz)
TS Series	L: 7.0	5	±5	±0.5	-20~+70	Output	Symmetry	AT Fundamental * Not selectable by customer	Normal	RoHS Compliant	XX.XXXXXX
	W: 5.0 H: 2.0	3.3	±8 TCXO	±0.14 ±0.28 ±0.37	-40~+85	CMOS 15pF Clipped Sine Wave @10KΩ/10pF	50±5%				

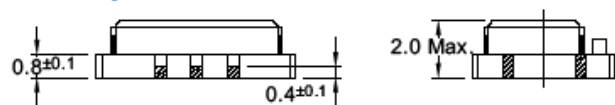
Ordering Example: TS high precision series; V_{DD}:3.3V; Pulling Range: ±5ppm; Freq. Stability: √0.5ppm; Temp. Range: -40°C to +85°C; Load: CMOS 15pF, symmetry: 50±5%; AT Fundamental; Normal Appearance; RoH Compliant; Freq.: 12.800000 MHz.

Outline Drawing

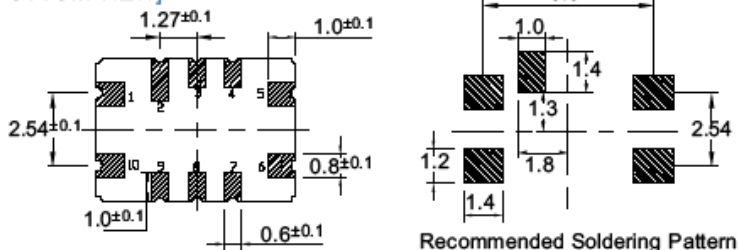
[TOP VIEW]



[SIDE VIEW]



[BOTTOM VIEW]



Freq. Stability vs. TEMP. Range

Temp. (°C)	ppm			
	±0.14	±0.28	±0.37	±0.5
0 ~ +55	○	○	○	○
-10 ~ +60	△	○	○	○
-20 ~ +70	X	○	○	○
-40 ~ +85	X	△	△	○

○ = Standard △ = Available (case by case) X = Not available

PIN CONNECTIONS

PIN	FUNCTION
1	VCON: VC-TCXO NC: TCXO
2	NC
3	NC
4	NC
5	GND
6	CMOS/CLIPPED SINE WAVE OUTPUT
7	NC
8	NC
9	TRI-STATE CONTROL *
10	VDD

*TRI-STATE:

1. Pad 9 > 70% VDD or NC: Output Enable
2. Pad 9 < 30% VDD or NC: Output Enable

TS SERIES HIGH PRECISION

Electrical Specification

Parameter	Min		Max.		Unit
	5.0	3.3	5.0	3.3	
Supply Voltage Variation (V _{DD}) 5%	4.75	3.13	5.25	3.47	V
Frequency Range	5		26		V
Standard Frequency (for CMOS)	5.000, 6.400, 8.000, 10.000, 12.500, 12.800, 16.000, 19.44, 25.000				MHz
Standard Frequency (for Clipped sine)	10.000, 12.500, 12.800, 16.000, 19.44, 25.000				
Operating Temperature Range	Refer to Ordering Information				°C
Frequency stability*	Refer to Ordering Information				ppm
Supply Current (CMOS output)	-		6		mA
Supply Current (Clipped Sine-wave output)	-		3.5		
Output Level (CMOS)					
Output High (Logic "1")	90% V _{DD}		-		V
Output Low (Logic "0")	-		10% V _{DD}		
Duty	45%		55%		%
Output Level (Clipped Sine Wave)	0.8		-		Vp-p
V _c Input Impedance	100		-		KΩ
Phase Noise @12.8 MHz					
100 Hz			-120		dBc/Hz
1 KHz			-140		
10 KHz			-148		
Start Time	-		2		mSec
Tri-state					
Disable	-		(V _{DD})*20%		V
Enable	(V _{DD})*80%		-		
Storage Temperature Range	-55		125		°C