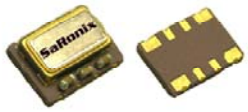
SaRonix

TCXO (optional Voltage Control) 3 or 3.3V, Ceramic SMD

Technical Data

S6C & S7C Series



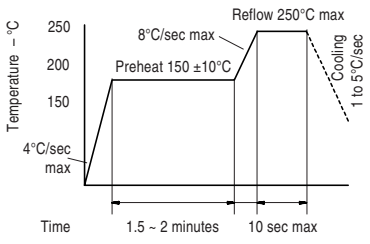
Description

A surface mountable, temperature compensated crystal oscillator with voltage control option for 3 or 3.3 Volt operation. The miniature size, extremely low profile and low power consumption of this (V)TCXO make it ideally suited for compact or portable wireless/microwave networking and telecommunications. The hermetically sealed ceramic package is fully compatible with standard surface mounting processes.

Applications & Features

- GPS/Navigation
- Mobile and Portable Radio/Telephone
- Communications Transceivers
- Commercial SATCOM
- Microwave transceivers
- Wireless networking/Digital datalinks
- 3 or 3.3 Volt operation
- Analog compensation for superb phase noise and tight stabilities
- Miniature 5 x 7 mm, very low profile 2.0mm max height package
- Optional voltage control pin for frequency tuning
- Advanced lead-free design and manufacturing techniques
- Available on tape & reel; 16mm tape, 500pcs per reel

Solder Reflow Guide



Frequency Range:	10 MHz to 30 MHz
Frequency Stability:	vs. temperature: ±1ppm to ±5ppm, as specified vs. supply voltage (±5% change): ±0.3 ppm vs. aging: ±1ppm @40°C for one year vs. load: ±0.3 ppm, (C_L: 10pF ±10%) vs. hysteresis: ±0.2ppm ($\delta T/\delta t$ = 1°C/min) vs. temp. cycles: ±0.2ppm (10 cycles min-max storage temp.) vs. reflow: ±1.5ppm max (room temp., nominal VC, first reflow) Perturbations: 0.3ppm peak-to-peak max
Temperature Range:	
Operating:	0 to +55°C, -20 to +75°C, -40 to +85°C, or as specified
Storage:	-40 to +85°C
Supply Voltage:	3.0V ±5% or 3.3V ±5%
Supply Current:	2mA max (3V); 2.25mA max (3.3V)
Output:	
Clipped Sinewave	
Level:	1.0V peak-to-peak min
Load:	10KΩ // 10pF
Pull Characteristics (if applicable):	
Rated Control Voltage (VC):	0.5V to 2.5V
Relative Pull Range (VC = 1.5V ±1V):	±5ppm to ±12ppm (see part number guide)
Input Impedance (pin 1):	1MΩ min, 2MΩ typ
Transfer Function:	Frequency increases when control voltage increases
Phase Noise: (offset from carrier)	-40 dBc/Hz @ 1Hz -80 dBc/Hz @ 10Hz -110 dBc/Hz @ 100Hz -135 dBc/Hz @ 1kHz -140 dBc/Hz @ 10kHz -145 dBc/Hz @ 100kHz
Mechanical:	
Shock:	MIL-STD-883, Method 2002, Condition B
Solderability:	MIL-STD-883, Method 2003
Vibration:	MIL-STD-883, Method 2007, Condition A
Solvent Resistance:	MIL-STD-202, Method 215
Resistance to Soldering Heat:	MIL-STD-202, Method 210, Condition I or J
Terminal Strength:	MIL-STD-883, Method 2004, Condition D
Environmental:	
Gross Leak Test:	MIL-STD-883, Method 1014, Condition C
Fine Leak Test:	MIL-STD-883, Method 1014, Condition A2
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883C, Method 1004

Part Numbering Guide

S C 5 8 S S V B – 10.0000 (T)

Model
6 = 3V
7 = 3.3V

Temperature Stability
3 = ±1.0ppm max †
4 = ±1.5ppm max †
5 = ±2.0ppm max †
6 = ±2.5ppm max
7 = ±3.0ppm max
C = ±3.5ppm max
A = ±4.0ppm max
8 = ±5.0ppm max

Operating Temperature
1 = 0 to +55°C
8 = -10 to +60°C
4 = -20 to +75°C
9 = -30 to +80°C
7 = -40 to +85°C

Package Type
S = Surface Mount
5 x 7mm ceramic

Output
S = Clipped Sinewave

Relative Pulling Range
Blank = TCXO, No Control Voltage
VA = ±5ppm min
VB = ±8ppm min
VC = ±10ppm min ††
VD = ±12ppm min ††

Nominal Frequency, MHz

Packaging
Blank = Bulk
(T) = Tape & Reel*
*full reel increments only (500pcs)

† Please inquire about availability for specific Operating Temperatures

†† Please inquire about availability for specific Temperature Stabilities

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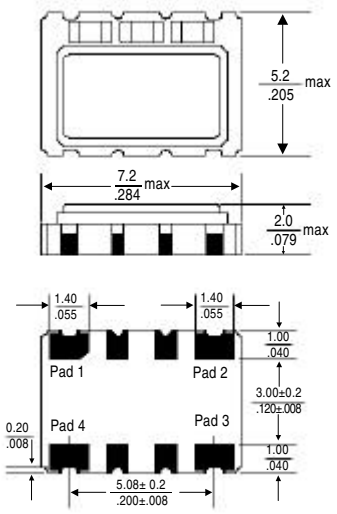
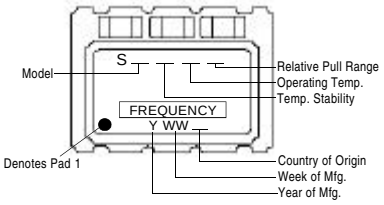
Package Details



Pad Functions:

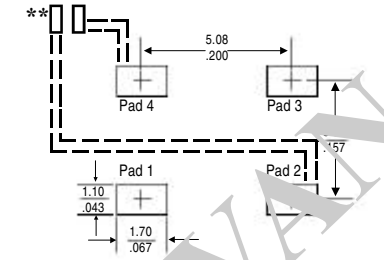
Pin 1: Control Voltage (TCXO - NC)
Pin 2: GND
Pin 3: Output
Pin 4: V_{CC}

Marking Format*



*Exact location of items may vary

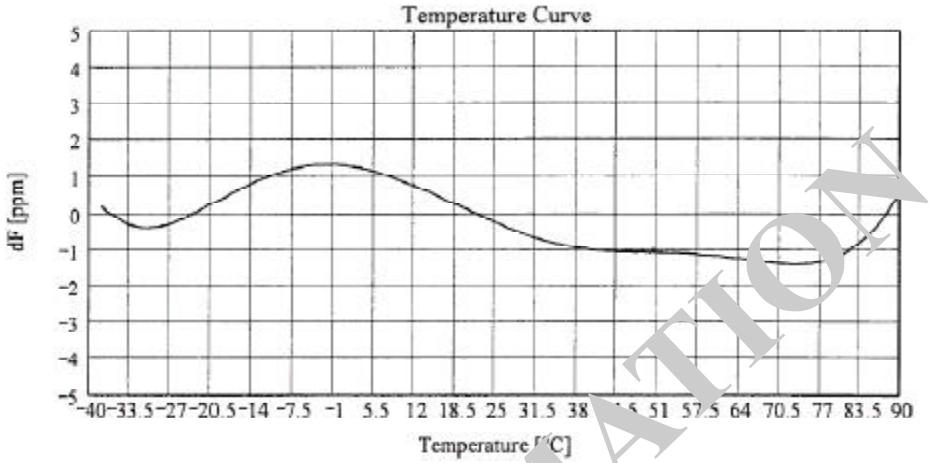
Recommended Land Pattern



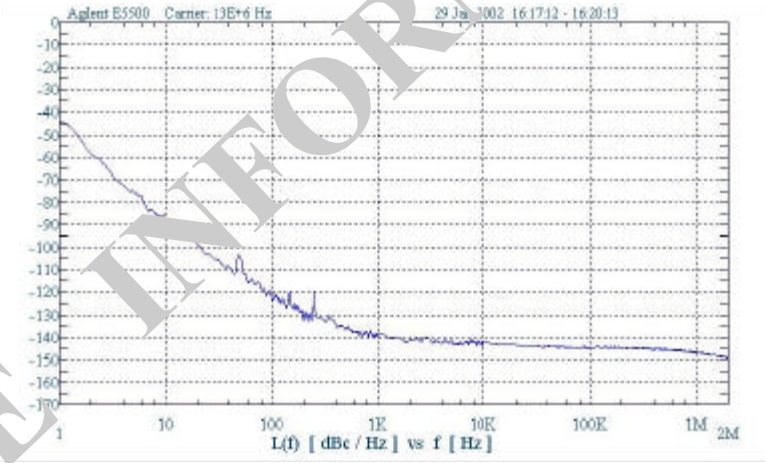
**External power supply decoupling required.

Scale: none (Dimensions in mm / inches)

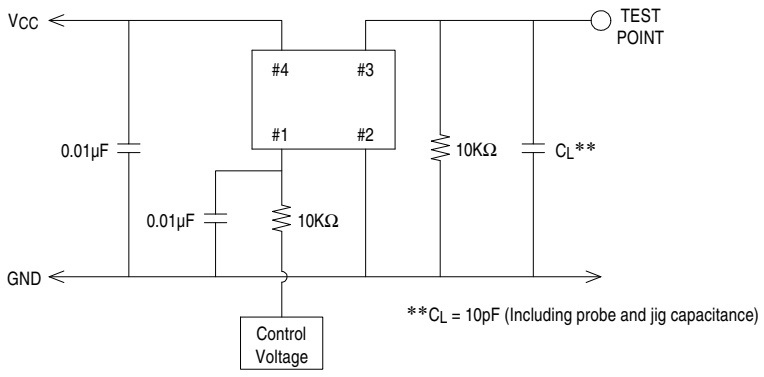
Typical Frequency vs. Temperature Characteristics



Typical Phase Noise Characteristics



Test Circuit



**C_L = 10pF (Including probe and jig capacitance)

All specifications are subject to change without notice.