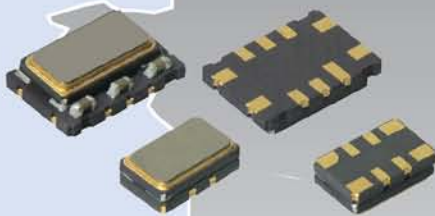
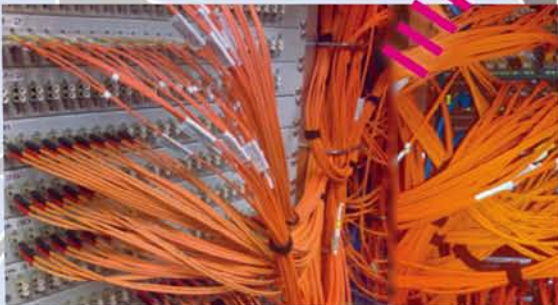


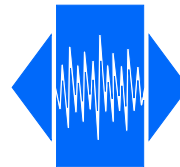


TCXO High Precision Analogue Compensated Crystal Oscillators

for STRATUM III, IEEE 1588v2

Synchronization of TDM Networks, SDH/SONET, Metro Ethernet, Fibre Channel, Wireless Communications, Wireless Backhaul





for network synchronization

Applications	<ul style="list-style-type: none"> • TDM networks, SONET / SDH, Metro Ethernet, • Wireless backhaul, • Wireless communications, picocells, femtocells, • STRATUM III, Synchronous Ethernet, IEEE 1588 v2, SETS
---------------------	--

Features	<ul style="list-style-type: none"> • Holdover stability: ± 0.37 ppm over 24 h • Overall stability: ± 4.60 ppm including 20 years aging • Short term aging, G.813 Option 1: ± 0.01 ppm over 24 h @ +25 °C
-----------------	--

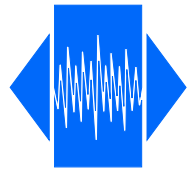
Standard frequencies	10.0, 12.80, 16.3840, 19.440, 20.0, 25.0, 32.0, 38.880 & 40.0 MHz	
Frequency range	5.0 ~ 52.0 MHz	
Frequency stability	$\leq \pm 4.60$ ppm	overall inclusive (Note #1)
Overall inclusive	frequency stability vs. temperature, tolerance ex factory, aging over 20 years, supply & load variation	
Frequency stability vs. temperature	$\leq \pm 0.28$ ppm	over operating temperature range
Long term aging	$\leq \pm 3.0$ ppm	over 20 years
Holdover stability	$\leq \pm 0.37$ ppm	over 24 h (Note #2)
Short term aging, G.813 Option 1	$\leq \pm 0.01$ ppm/day	@ +25 °C ± 1 °C (Note #3)
Frequency slope	≤ 0.05 ppm/°C	over operating temperature
Short term stability (ADEV)	$< 1 \times 10^{-10}$	@ $\tau = 1$ s
Frequency tolerance ex factory	$\leq \pm 0.50$ ppm	@ +25 °C
Supply voltage (Vdc)	+2.7 V to +5.0 V	nominal value needs to be defined, standard: 3.3 V and 5.0 V ± 5 %
Supply current	< 3 mA < 8 mA	10 MHz ~ 20 MHz up to 40 MHz
Output signal	CMOS	(Note #4)
Output level	$V_{OH} > 0.9 \times V_{dc}$	$V_{OL} < 0.1 \times V_{dc}$
Output load	15 pF	± 10 %
Symmetry (duty cycle)	45 % ~ 55 %	@ $\frac{1}{2}$ Vdc
Tri-state function	Input $\geq 0.7 \times V_{dc}$ or open Input $\leq 0.3 \times V_{dc}$ or GND	Output \rightarrow oscillation Output \rightarrow high impedance
Jitter (rms) 1σ	< 0.5 ps	@ $F_j = 12$ kHz ~ 20 MHz
Phase noise @ 19.44 MHz	< -95 dBc/Hz < -125 dBc/Hz < -145 dBc/Hz < -155 dBc/Hz < -155 dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz @ 100 kHz
Operating temperature range	-20 ~ +70 °C -40 ~ +85 °C	indoor use outdoor use (extended temperature range on request)
Storage temperature range	-55 ~ +125 °C	
Packing units	tape & reel	500 or 1000 pieces

Note #1: Including frequency stability vs. temperature, tolerance @ +25 °C, aging 20 years, supply & load variation

Note #2: Including frequency stability vs. temperature, supply change of ± 1 % and aging over 24 h

Note #3: 1 day = 24 h

Note #4: Clipped sine wave on request



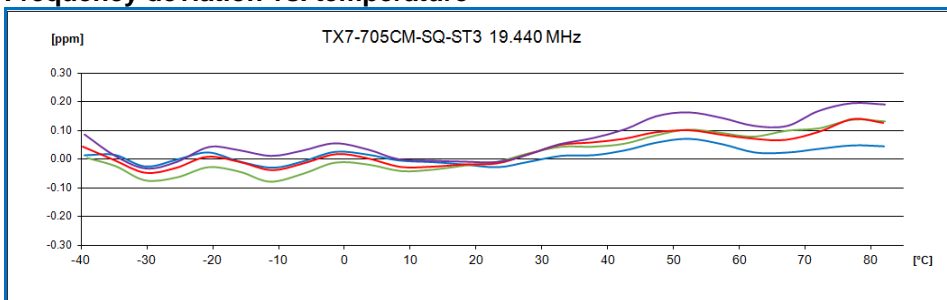
for network synchronization

Package outline and recommended solder pattern

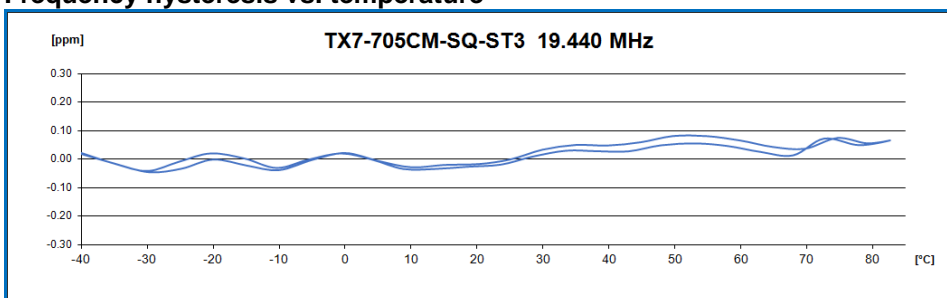
TX7-705CM-SQ-ST3		TX7-705CM-TQ-ST3	
	<p>Pin function</p> <ul style="list-style-type: none"> # 1 Do not connect # 5 GND # 6 Output # 9 Tri-state (Enable) # 10 Vdc <p>Do not connect: #2, #3, #4, #7 & #8</p>		<p>Pin function</p> <ul style="list-style-type: none"> # 1 Do not connect # 2 GND # 3 Output # 4 Vdc
	<p>Solder pattern</p>		<p>Solder pattern</p>

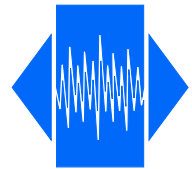
TX7-503CM-SQ-ST3		IR reflow soldering temperature	
	<p>Pin function</p> <ul style="list-style-type: none"> # 1 Do not connect # 4 GND # 5 Output # 6 Tri-state (Enable) # 8 Vdc <p>Do not connect: #2, #3 & #7</p>		<p>Solder pattern</p>
		<p>Reflow conditions per JEDEC J-STD-020, 260 °C maximum</p>	

Frequency deviation vs. temperature



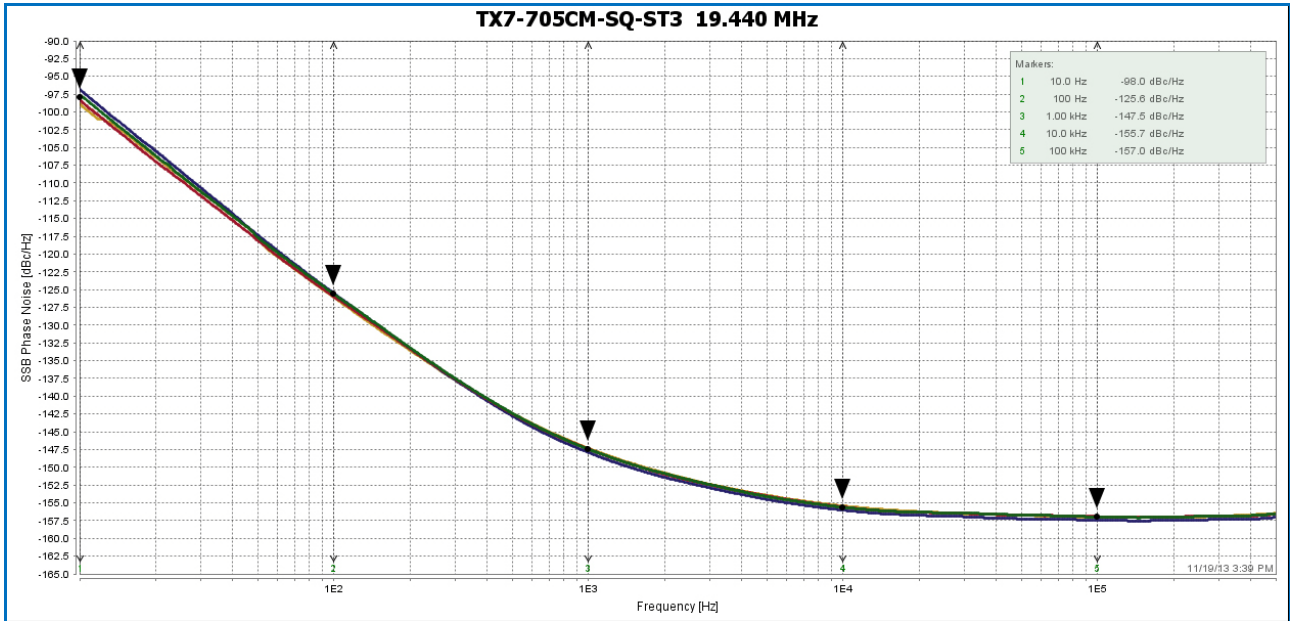
Frequency hysteresis vs. temperature



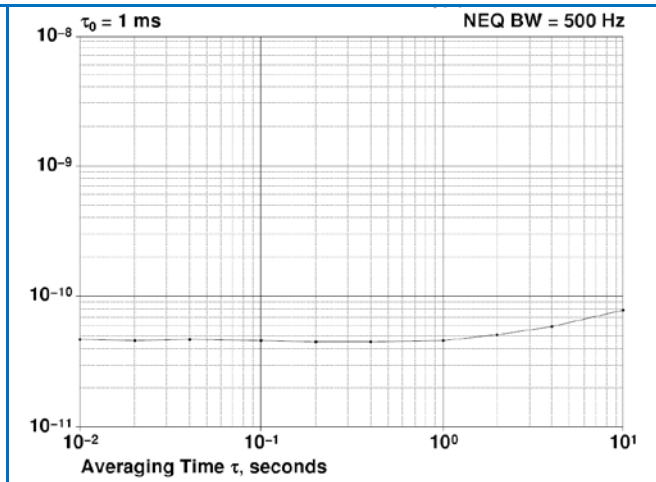
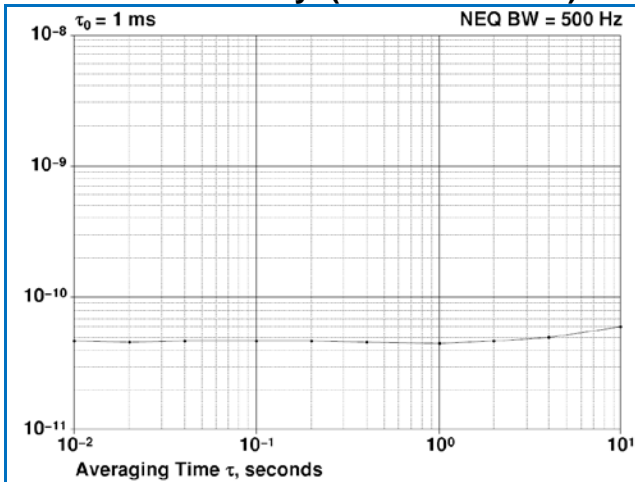


for network synchronization

Phase noise



Short term stability (Allan deviation)



Environmental	Reference STD.		Test condition
Vibration sinusoidal	IEC 60028-2-6	IEC 60679-1-5.6.7	Test Fc, 30 min per axis 10 Hz – 55 Hz with 0.75 mm, 55 Hz – 2 kHz with 10 g
Shock	IEC 60028-2-27	IEC 60679-1-5.6.8	Test Ea, 3 x per axis, 100 g, 6 ms half sine pulse
Solder ability	IEC 60028-2-20 IEC 60028-2-58	IEC 60679-5.6.3	Test Ta (235 ±2) °C Method 1 Test Tb Method 1A, 5 s

QuartzCom, more than frequency

QuartzCom AG
Bischmattstrasse 11
CH 2544 Bettlach
Switzerland

Fax +41 32 644 24 05
Tel +41 32 644 24 00
E-Mail sales@quartzcom.com
www.quartzcom.com

