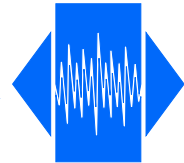


# TX7-705CM-SQ-HPG

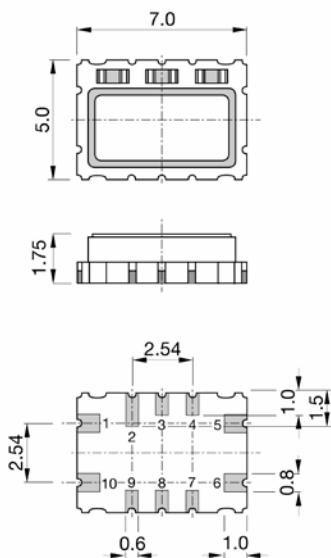
High shock resistant, low G-sensitivity 0.3 ppb/g  
temperature compensated CMOS SMD TCXO

**QuartzCom**  
the communications company



**Application: GNSS (Locating & navigation)**

Standard frequencies	10.0, 15.360, 16.368 & 20.0 MHz	
<b>Frequency stability:</b>		
vs. temperature reference to $(F_{MAX} + F_{MIN})/2$	$\leq \pm 0.50$ ppm	over -40 ~ +85 °C
vs. supply voltage changes reference to frequency at nominal supply	$\leq \pm 0.05$ ppm	$\pm 5$ %
vs. load changes reference to frequency at nominal load	$\leq \pm 0.1$ ppm	$\pm 10$ %
vs. aging	$\leq \pm 1.0$ ppm	1 <sup>st</sup> year
Frequency slope	$\leq 0.05$ ppm/°C	over operating temperature
Frequency-temperature-hysteresis	$\leq 0.2$ ppb (peak to peak)	quasi static
Short term stability (ADEV)	$< 1 \times 10^{-10}$	@ $\tau = 1$ s
G-sensitivity	$\leq 0.3$ ppb/g	Gamma $\Gamma$
Frequency tolerance ex factory	0 ~ 1.0 ppm	@ +25 °C
Supply voltage	+3.3 V	$\pm 5$ %
Current consumption	< 3mA	
Output waveform	CMOS	$V_{OH} \geq 0.9 \times V_{dc}$ $V_{OL} \leq 0.1 \times V_{dc}$
Rise / Fall time	< 2 ns	
Output load	10 pF	
Phase noise @ 15.36 MHz	< -125 dBc/Hz < -145 dBc/Hz < -153 dBc/Hz < -155 dBc/Hz	@ 100 Hz @ 1 kHz @ 10 kHz @ 100 kHz
Tri-state function	pin # 9 $\geq 2.1$ V or open pin # 9 $\leq 0.9$ V or GND	pin # 6 → oscillation pin # 6 → high Impedance
Operating temperature range	-40 ~ +85 °C	
Storage temperature range	-55 ~ +105 °C	
Moisture sensitivity level	Level #1	JEDEC J-STD-020C
Reflow Profiles as per IPC/JEDEC J-STD-020C	$\leq 260$ °C over 10 sec. Max.	

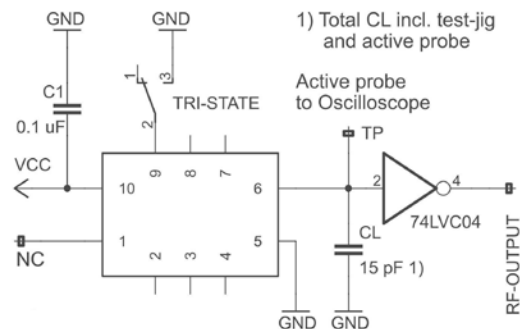


### Pin function

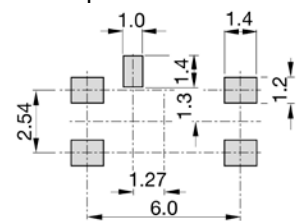
- # 1 GND or do not connect
- # 5 GND
- # 6 Output
- # 9 Tri-state or do not connect
- # 10 Vdc

Do not connect #2, #3, #4, #7, #8

### Test circuit



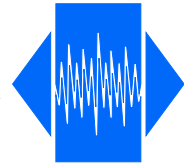
### Solder pattern



1) Total CL incl. test-jig and active probe

Active probe to Oscilloscope

# TX7-705CM-SQ-HPG



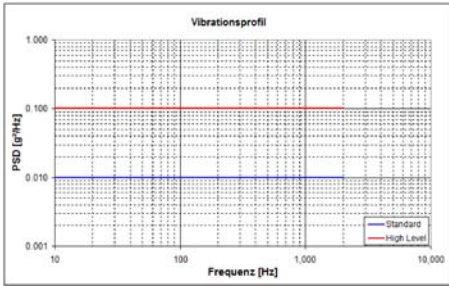
High shock resistant, low G-sensitivity 0.3 ppb/g  
temperature compensated CMOS SMD TCXO

**Application: GNSS (Locating & navigation)**

## Measurement of the G-sensitivity (report)

### Random vibrations profile

Noise Vibration of 20–1000 Hz with  $0.01 \text{ g}^2/\text{Hz}$ , ( $G_{\text{RMS}} = 4.46 \text{ g}$ ).  
The axes with very low G-sensitivity were measured with  $0.1 \text{ g}^2/\text{Hz}$ , ( $G_{\text{RMS}} = 4.46 \text{ g}$ )

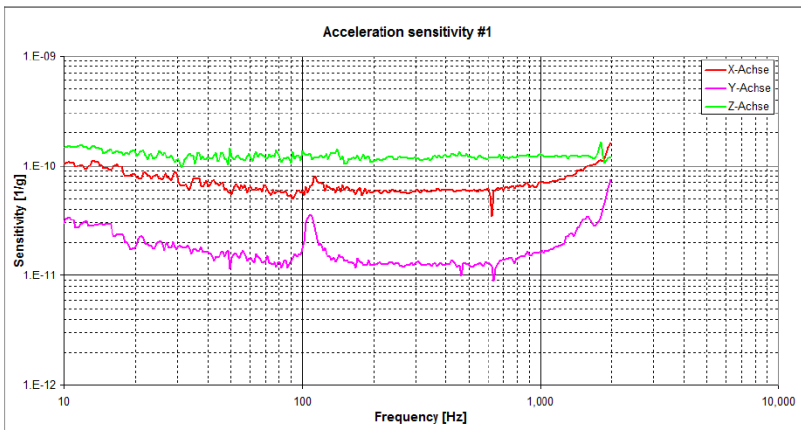
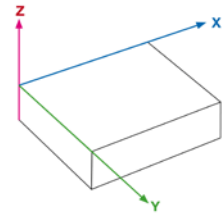


Vibrations profile (Power Spectral Density)

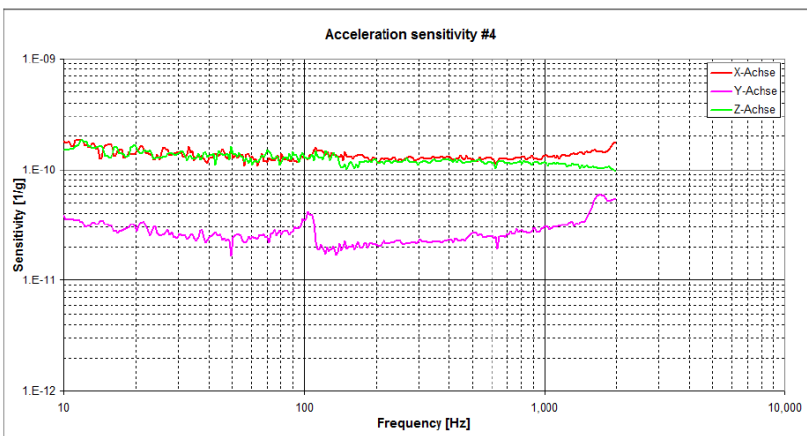
**G-sensitivity**  
average over 10 Hz to 1'000 Hz

15.360 MHz				
Oscillator No	X-axis [1/g]	Y-axis [1/g]	Z-axis [1/g]	Gamma $\Gamma$ [1/g]
1	6.88E-11	1.70E-11	1.24E-11	1.43E-10
4	1.35E-10	2.58E-11	1.30E-10	1.89E-10
5	829E-11	2.30E-11	2.23E-10	2.39E-10

Axes definition

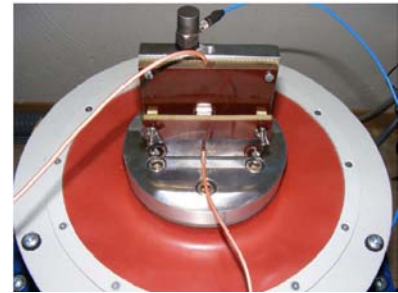


Osz #1

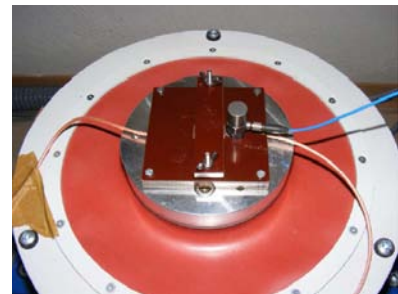


Osz #4

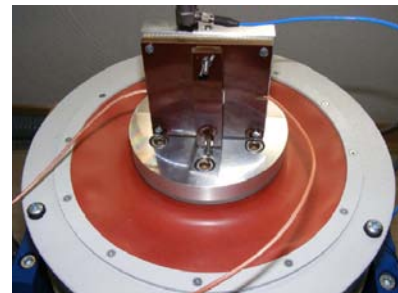
### Shaker with test Jig



Y-axis



Z-axis



X-axis