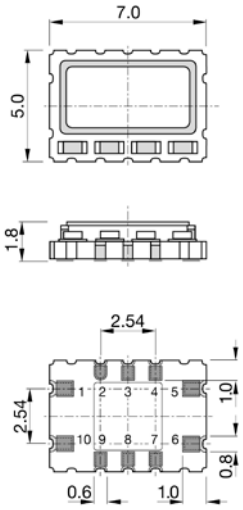
103702

VT7-705CM-SQN-UHP

Ultra high precision, temperature compensated
CMOS VC-TCXO

Nominal frequency Fo	**23.0400 MHz**	
Frequency stability:		
vs. temperature reference (FMAX+FMIN)/2	≤ ±0.28 ppm	over -40 to +85 °C
vs. supply voltage changes reference to frequency at nominal supply	≤ ±0.05 ppm	±5 %
vs. load changes reference to frequency at nominal load	≤ ±0.05 ppm	±10 %
vs. aging	≤ ±0.5 ppm ≤ ±3.0 ppm	1st year over 10 years
Frequency slope	≤ 0.05 ppm/°C	over operating temperature
Short term stability ADEV	< 1 x 10^{-10}	τ = 1 sec.
Frequency tolerance ex factory	0 ~ +1.0 ppm	@+25 °C
Supply voltage	+3.3 V	
Current consumption	< 3 mA	
Output waveform	CMOS	V_{OH} ≥ 0.9 x Vcc / V_{OL} ≤ 0.1 x Vcc
Output load	12 pF	
Electronic Frequency Control (EFC) range	ΔF = ±5 ppm	
EFC voltage Vc	+1.50 V ±1.0 V	positive slope
Phase noise @ 23.04 MHz	< -90 dBc/Hz <-120 dBc/Hz <-145 dBc/Hz <-155 dBc/Hz <-155 dBc/Hz	@ 10 Hz @ 100 Hz @ 1 kHz @ 10 kHz @ 100 kHz
Operating temperature range	-40 ~ +85 °C	
Storage temperature range	-55 ~ +125 °C	
Reflow Profiles as per IPC/JEDEC J-STD-020C	≤ 260 °C over 10 sec. Max.	
Moisture sensitivity	Level 1 (unlimited)	



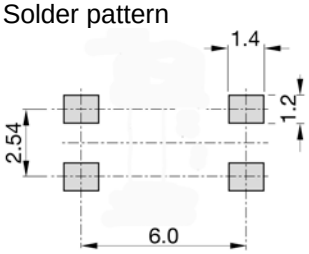
Terminal coating	Nickel (Ni)	1.5 ~7 µm
	Gold (AU)	0.7 ~ 0.9 µm standard
	Palladium, in state of Gold, on request	

Pin function

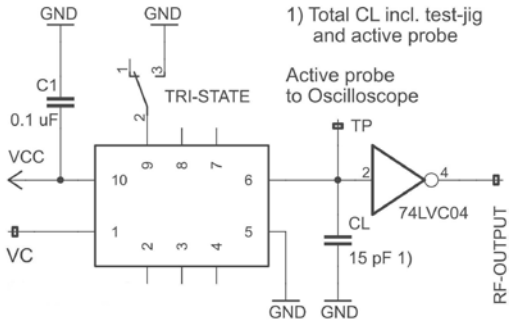
# 1	Vc
# 5	GND
# 6	Output
# 9	Tri-state or NC
# 10	Vcc

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

Solder pattern



Test circuit



2011/65/EU RoHS compliant

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From design to production in Switzerland

Handling precautions

The oscillators must be protected from air flow and/or thermal shock causing unexpected thermal gradient. Temperature variations due air flow or thermal shock can cause frequency drift.

Flux Residue Resistance

Yes, even an unclean board can affect analog circuit performance.

Be aware that if the circuit has very high resistances — even in the low MΩ — special attention may need to be paid to cleaning. A finished assembly may be adversely affected by flux or cleansing residue. The electronics industry in the past few years has joined the rest of the world in becoming environmentally responsible. Hazardous chemicals are being removed from the manufacturing process — including flux that has to be cleaned with organic solvents. Water-soluble fluxes are becoming more common, but water itself can become contaminated easily with impurities. These impurities will lower the insulation characteristics of the PCB substrate. It is vitally important to clean with freshly distilled water every time a high-impedance circuit is cleaned. There are applications that may call for the older organic fluxes and solvents, such as very low power battery powered equipment with resistors in the 10s of MΩ range. Nothing can beat a good vapor defluxing machine for ensuring that the board is clean.

Environmental conditions

Test	IEC 60068 Part…	IEC 60679-1 Clause	MIL-STD-202G Method	MIL-STD-810F Method	MIL-PRF-55310D Clause	Test conditions (IEC)
Sealing tests (if applicable)	2-17	5.6.2	112E		3.6.1.2	Gross leak: Test Qc, Fine leak: Test Qk
Solderability Resistance to soldering heat	2-20 2-58	5.6.3	208H 210F		3.6.52 3.6.48	Test Ta method 1, Test Td_1 method 2, Test Td_2 method 2
Shock *	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axis 100 g, 6 ms half-sine pulse
Vibration, sinusoidal*	2-6	5.6.7.1	201A 204D	516.4-4	3.6.38.1 3.6.38.2	Test Fc, 30 min per axis, 1 oct/min 10 Hz – 55 Hz 0,75 mm; 55 Hz – 2 kHz, 10 g
Vibration, random*	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Endurance tests - ageing - extended ageing		 5.7.1 5.7.2	108A		4.8.35	 30 days @ 85 °C 1000 h, 2000 h, 8000 h @ 85 °C

Other environmental conditions on request

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