actual size

Oscillator JTP32CS(V) · (VC)TCXO

- precision temperature compensated crystal oscillator, 3.2 x 2.5 mm
- frequency stability ±0.28 ppm available
- temperature range up to -40 °C ~ +85 °C
- JTP32CSV with frequency tuning option
- for a Stratum 3 compliant version refer to JTS32CS(V)

RoHS compliant · Pb free · REACH compliant · Conflict mineral free

GENERAL DATA

TYPE		JTP32CS / JTP32CSV (clipped sine output)
frequency range		9.60 ~ 50.0 MHz (see developed frequ.)
frequency tolerance / stability	at +25 °C (*1)	± 1.0 ppm max.
	after 2x reflow (*2)	± 0.5 ppm max.
	temperature (*3)	see table 1
	supply voltage (*4)	± 0.1 ppm max. (at V_{DC} ± 5%)
	load change (*5)	± 0.1 ppm max. (at nom load ± 5%)
	aging first year (*6)	± 1.0 ppm max. (at +25 °C)
	aging per day (*7)	± 0.02 ppm max.
	short term (ADEV)	0.2 ppb max. / 0.1 ppb typ. with τ = 1 sec
current consumption max.		3.0 mA max.
supply voltage V_{DC}		1.8V / 2.5V / 2.8V / 3.0V / 3.3V (all ± 5%)
tempera-ture	operating	see table 1
	operable	-40 °C ~ +85 °C
	storage	-55 °C ~ +105 °C
output	nominal load	10 kΩ // 10 pF
	level min.	0.6 Vpp (clipped sine)
start-up time max.		3.0 ms
V_C frequ. tuning range JTP32CSV		see examples in table 2 (ask for options)
V_C frequ. tuning voltage JTP32CSV		see examples in table 3 (ask for options)
input impedance of V_C min.		100 kΩ
V_C frequ. tuning linearity max.		10%

For (*1) ~ (*7) please refer to definitions shown on the 2nd page of this datasheet

TABLE 1: FREQUENCY STABILITY CODE

frequency stability temperature code		B ± 2.0 ppm	D ± 1.0 ppm	E ± 0.5 ppm	F* ± 0.28 ppm	
-20 °C ~ +70 °C	B	O	O	O	O	
-30 °C ~ +75 °C	G	O	O	O	O	
-40 °C ~ +85 °C	K	O	O	O	O	

O available
* frequency stability option F can be ordered as Stratum 3 compliant version, see separate JTS32CS(V) datasheet

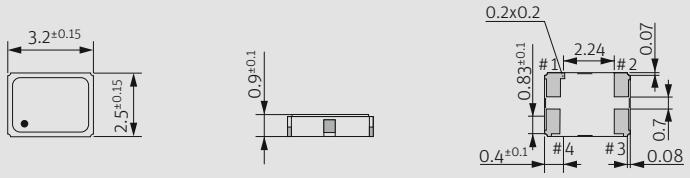
TABLE 2: VC DEPENDENT FREQUENCY TUNING RANGE CODING METHOD

V_C frequency tuning range of JTP32CSV	code	minimal	maximal
table shows examples, ask for more options	0510	± 5.0 ppm	± 10.0 ppm
	0813	± 8.0 ppm	± 13.0 ppm
	1015	± 10.0 ppm	± 15.0 ppm
	05X0	± 5.0 ppm	undefined

TABLE 3: VC CODING METHOD (EXAMPLES)

V_C center voltage and V_C range	code	center of V_C	range of V_C	
	1515	1.5 V	± 1.5 V	1.5 V ± 1.5 V at V_{DC} = 3.0 V & 3.3 V
	1510	1.5 V	± 1.0 V	1.5 V ± 1.0 V at V_{DC} = 2.5 V ~ 3.3 V
	1414	1.4 V	± 1.4 V	1.4 V ± 1.4 V at V_{DC} ≥ 2.8 V
	1410	1.4 V	± 1.0 V	1.4 V ± 1.0 V at V_{DC} = 2.5 V & 2.8 V
	0909	0.9 V	± 0.9 V	0.9 V ± 0.9 V at V_{DC} = 1.8 V

DIMENSIONS



top view · side view · bottom view · pad layout

TCXO JTP32CS	VCTCXO JTP32CSV
# 1: GND	# 1: Vcontrol
# 2: GND	# 2: GND
# 3: output	# 3: output
# 4: V_{DC}	# 4: V_{DC}

pin connection · in mm

ORDER INFORMATION

0	frequency	– type	– frequency stability code	– operating temp. code	– supply voltage	– control voltage (for JTP32CSV)	– tuning range (for JTP32CSV)
Oscillator	9.60 ~ 50.0 MHz	JTP32CS = TCXO JTP32CSV = VCTCXO	B-F see table 1	B = -20 °C ~ +70 °C G = -30 °C ~ +75 °C K = -40 °C ~ +85 °C	1.8 = 1.8 V 2.5 = 2.5 V 2.8 = 2.8 V 3.0 = 3.0 V 3.3 = 3.3 V	see table 3	see table 2

Example: O 10.0-JTP32CSV-F-K-3.3-1510-1015-LF (Suffix LF = RoHS compliant / Pb free)

Jauch Quartz GmbH • e-mail: info@jauch.com • full data can be found under: www.jauch.com

Oscillator JTP32CS(V) · Precision TCXO & VCTCXO

PHASE NOISE INFORMATION

phase noise at f0 10.0 MHz, V_{DC} = 3.3 V @ 25 °C	at 10 Hz	-90 dBc/Hz typ.
	at 100 Hz	-120 dBc/Hz typ.
	at 1 KHz	-140 dBc/Hz typ.
	at 10 KHz	-145 dBc/Hz typ.
	at 100 KHz	-148 dBc/Hz typ.

DEVELOPED FREQUENCIES

all frequencies in MHz:	10.0	12.80	16.320	16.3840	19.20
	19.440	20.0	25.0	26.0	30.720
	32.0	38.40	40.0	48.0	50.0

PACKAGING NOTE

– non-multiple packing units are only supplied taped / bulk
– moisture sensitivity: MSL1

NOTE

- for best supply noise rejection, connect a capacitor of 100nF and a second capacitor of 10µF closely to the supply voltage pins
- a separate voltage supply rail ensures best phase noise
- keep digital or high frequency signals as far away from V_C pin as possible

DEFINITIONS

*1: Measured frequency observed with T_A =+25 °C and nominal load, at nominal V_{DC} and nominal center V_C (if applicable) within 30 days after ex-factory. The measured frequency is referenced to the specified nominal frequency.

*2: At specified reflow soldering profile, tested with T_A =+25 °C and nominal load, at nominal V_{DC} and nominal center V_C (if applicable). At least 4 hours of static placement at room temperature is necessary after completion of 2 times reflow.

*3: T_A varied in the specified operating temperature range, frequency variation is normalized to $f_{ref} = (f_{max} + f_{min})/2$, at nominal V_{DC} and nominal center V_C (if applicable), and at nominal output load, temperature variable speed less than 2 °C per minute.

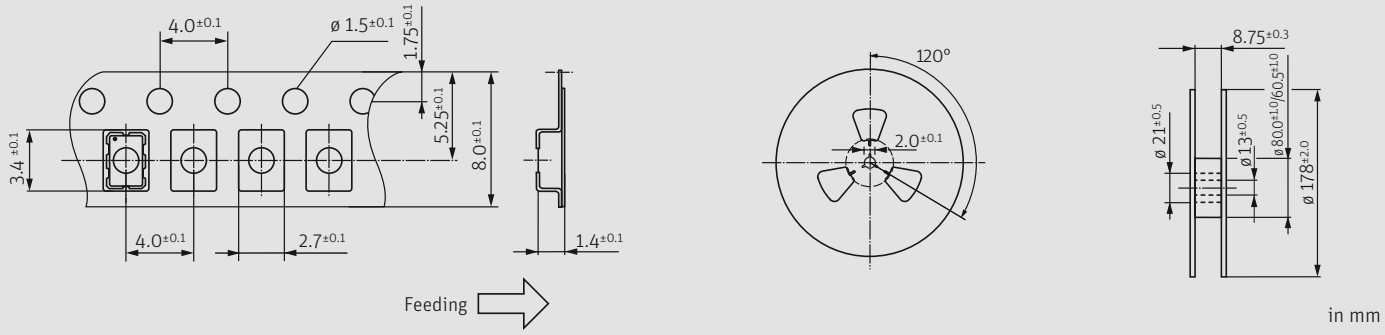
*4: Frequency variation if V_{DC} is varied by ± 5% of nominal V_{DC}, frequency variation is normalized to frequency observed at nominal V_{DC}, nominal center V_C (if applicable), T_A=+25 °C and nominal load.

*5: Frequency variation if the load is varied by ± 5% of nominal load, frequency variation is normalized to frequency observed at nominal V_{DC}, nominal center V_C (if applicable), T_A=+25 °C and nominal load.

*6: The maximum 1st-year frequency deviation from the ex-factory status. T_A=+25 °C, at nominal V_{DC}, nominal center V_C (if applicable), T_A=+25 °C and nominal load. Normally, the largest frequency deviation occurs within the 1st year.

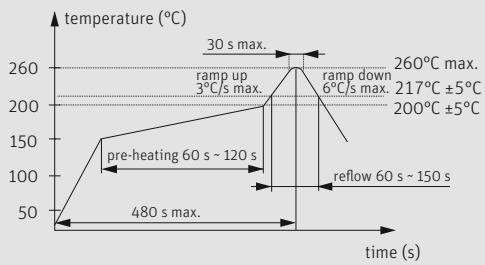
*7: The maximum frequency deviation within 24 hours in a steady state. The initial status acquired at T_A=+25 °C, at nominal V_{DC}, nominal center V_C (if applicable), nominal load and after 1h of continuous operation.

TAPING SPECIFICATION



in mm

REFLOW SOLDERING PROFILE



note: parts are also suitable for soldering systems with lead (Pb) content

MARKING

frequency / internal code (optional)
dot / D / internal code

note: for more information please contact Jauch