

actual size

Automotive SMD Crystal JTX210

- SMD Tuning Fork Crystal • 2.0 x 1.2 mm
- all versions are AEC-Q200 qualified
- version with extended shock & vibration immunity available
- low ESR options available



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

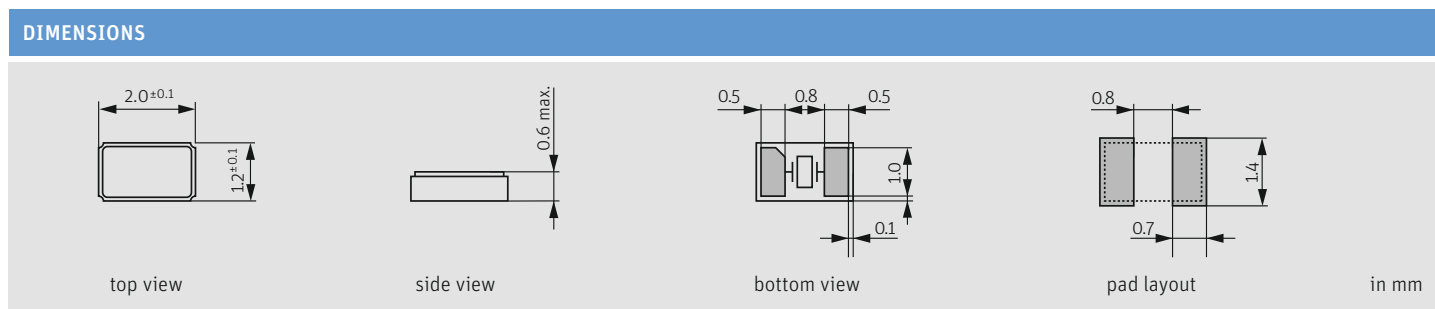
GENERAL DATA	
TYPE	JTX210 automotive
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. / 9 pF / 7 pF / 6 pF / 4 pF
temperature constant (T_C)	$T_C = -0.04 \text{ ppm} / ^\circ\text{C}^2 \text{ max.}$ $T_C = -0.034 \text{ ppm} / ^\circ\text{C}^2 \text{ typical}$
frequency temperature characteristic	$\Delta f = T_C \cdot (T_A - T_{TP})^2 \text{ in [ppm]}$ $T_A = \text{actual ambient temperature}$ $T_{TP} = 25 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ $T_{TP} = \text{turning point temperature}$
operating temperature range	refer to frequency stability table
shunt capacitance C_0	1.15 pF typical
series resistance max. (ESR)	90 kΩ (for STD. and T1) 100 kΩ (for T2) / 120 kΩ (for T3) 70 kΩ / 80 kΩ (options for STD. and T1) 80 kΩ (option for T2) 90 kΩ (option for T3)
storage temperature	-40 °C ~ +125 °C
drive level max.	0.5 μW
aging first year	< ± 3 ppm

TABLE 1: FREQUENCY STABILITY VS. TEMPERATURE					
frequency stability		-80 ppm	-160 ppm	-250 ppm	-400 ppm
-20 °C ~ +70 °C	STD.	●			
-40 °C ~ +85 °C	T1		●		
-40 °C ~ +105 °C	T2			○	
-40 °C ~ +125 °C	T3				○

● standard ○ available

MARKING													
Factory code / CL code / date code / internal code													
CL code: A = 12.5 pF, B = 9 pF, C = 7 pF, D = 6 pF													
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2022	2026	N	P	Q	R	S	T	U	V	W	X	Y	Z
2023	2027	a	b	c	d	e	f	g	h	j	k	l	m
2024	2028	n	p	q	r	s	t	u	v	w	x	y	z
2025	2029	A	B	C	D	E	F	G	H	J	K	L	M

NOTE
HMR option: mech. shock 3000 G / half sine wave / 0.3 ms



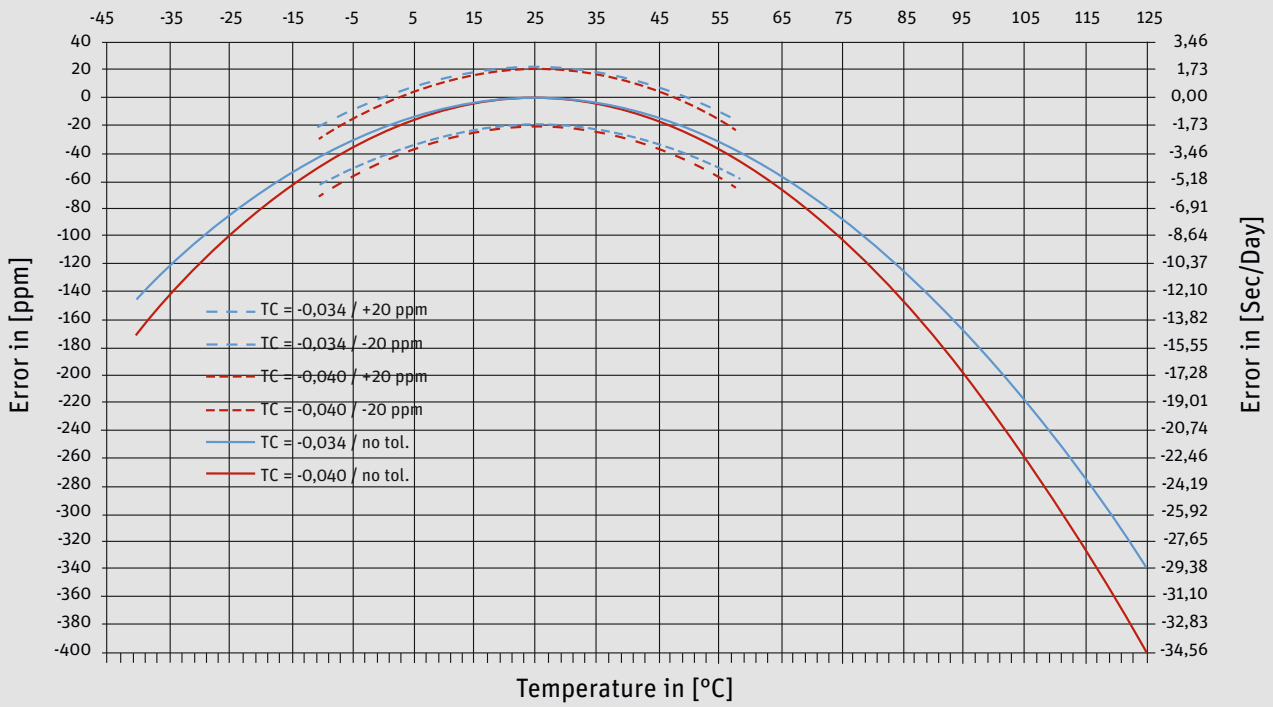
ORDER INFORMATION

Q	frequency	type	load capacitance	tolerance at 25 °C	option 1	option 2	option 3
Quartz	0.032768 MHz	JTX210	12.5 pF standard 9 pF 7 pF 6 pF on request 4 pF on request	20 = ± 20 ppm 30 = ± 30 ppm	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +105 °C T3 = -40 °C ~ +125 °C	AEC = AEC-Q200 qualified HMR = high mech. reliability	none = 90 kΩ for STD + T1 none = 100 kΩ if T2 none = 120 kΩ if T3 70K = option for STD + T1 80K = option for STD + T1 + T2 90K = option for T3

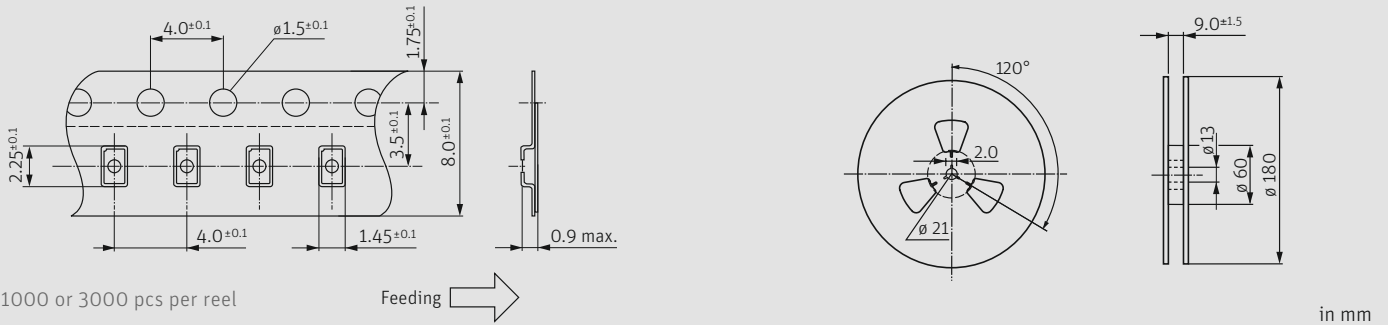
Example: Q 0.032768-JTX210-12.5-20-T1-AEC-70K-LF (Suffix LF = RoHS compliant / Pb free)

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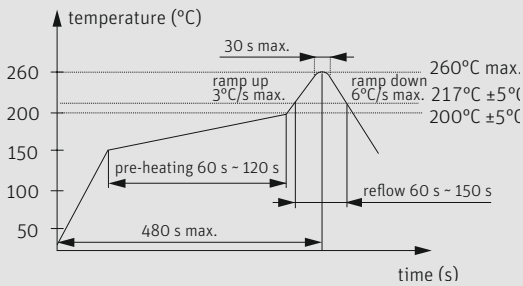
FREQUENCY ERROR VS. TEMPERATURE IN PPM OR SECONDS PER DAY



TAPING SPECIFICATION



REFLOW SOLDERING PROFILE



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