



actual size

Quartz Crystal JTX310

- SMD Tuning Fork Crystal • 3.2 x 1.5 mm
- 32.768 kHz
- optional extra shock proof versions available
- package height 0.9 mm max.



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

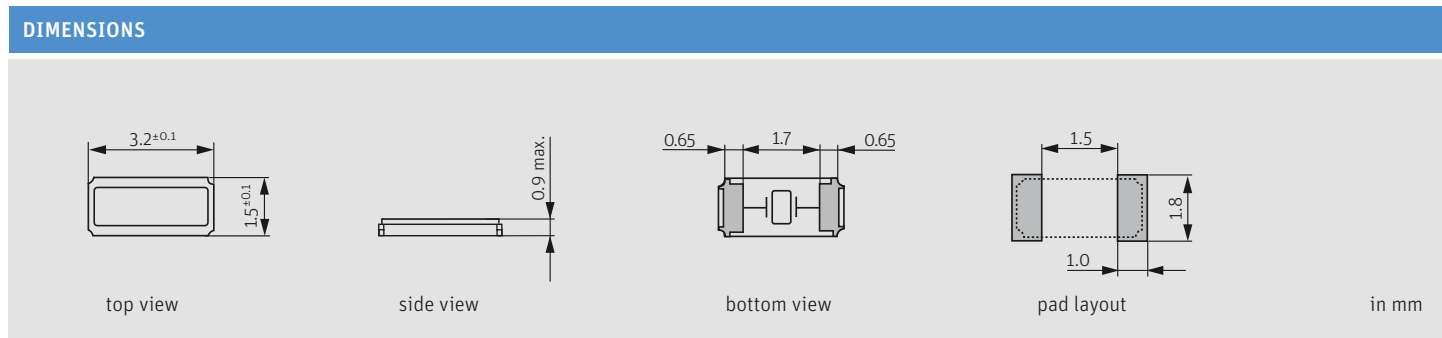
GENERAL DATA	
TYPE	JTX310
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 10 ppm / ± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF / 9 pF / 7 pF / 6 pF std. (lower CL ask if available)
temperature constant (T_C)	$T_C = -0.04 \text{ ppm} / ^\circ\text{C}^2 \text{ max.}$ $T_C = -0.034 \text{ ppm} / ^\circ\text{C}^2 \text{ typical}$
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_o	1.15 pF typical
series resistance max. (ESR)	70 kΩ for STD. & T1 & opt. for T2 & T3 80 kΩ for T2 and T3 60 kΩ and 50 kΩ opt. for T1
storage temperature	-55 °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	
company code	
date code / production code	

MECHANICAL ENDURANCE OPTIONS	
HMR (high mechanical reliability):	3000 g, half sine pulse, 0.3 ms



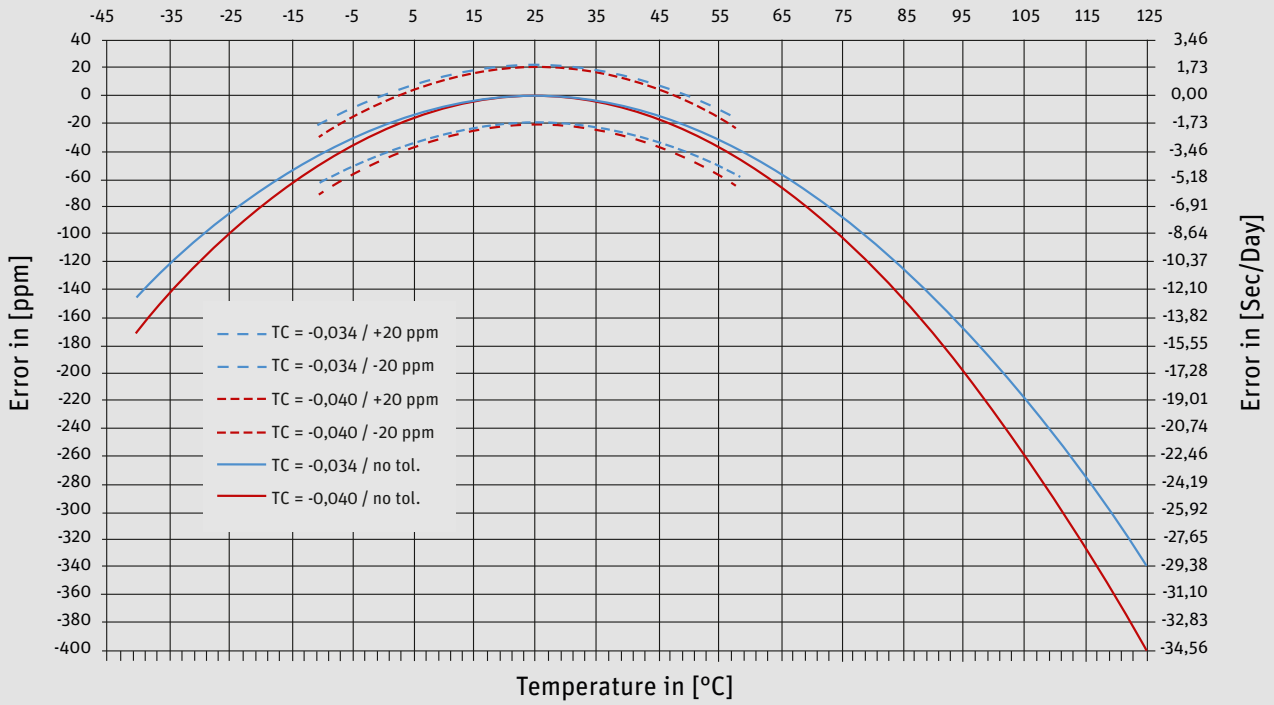
ORDER INFORMATION

Q	frequency	type	load capacitance	tolerance at 25 °C	option 1	option 2	option 3
Quartz	0.032768 MHz	JTX310	12.5 pF std. 6 pF ~ 9 pF (on request)	10 = ±10 ppm 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	HMR = high mechanical reliability	none = 70kΩ for T1 80kΩ for T2 & T3 70K = 70kΩ opt. for T2 & T3 60K = 60kΩ opt. for T1 50K = 50kΩ opt. for T1

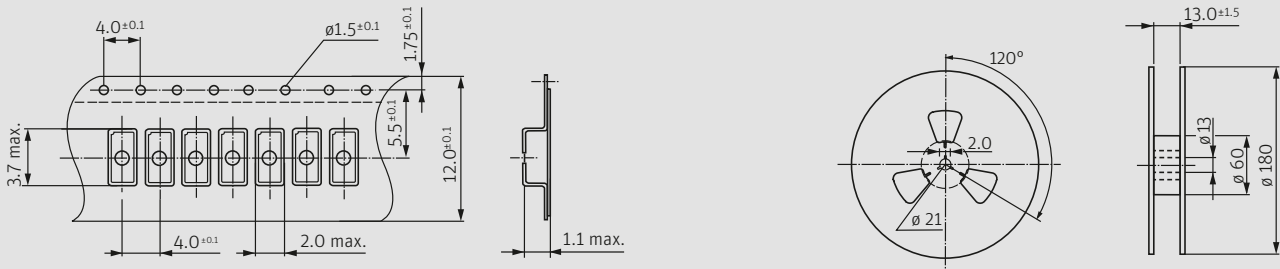
Example: Q 0.032768-JTX310-12.5-20-T1-HMR-60 K-LF (Suffix LF = RoHS compliant / Pb free)

Quartz Crystal JTX310

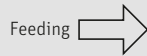
FREQUENCY ERROR VS. TEMPERATURE IN PPM OR SECONDS PER DAY



TAPING SPECIFICATION

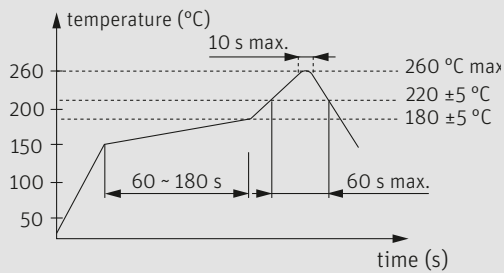


3000 pcs per reel (standard)
1000 pcs per reel (on request)



in mm

REFLOW SOLDERING PROFILE



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