

# 90SMX & 91SMX Crystals

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## Delivery Options

- Please contact our sales office for current leadtimes

## Holder Style

- 90SMX & 91SMX surface mount crystals are plastic encapsulated

## General Specifications

- Load Capacitance ( $C_L$ ): 6pF and 12.5pF standard
- Drive Level: 1.0µW max

## Packaging

- 90SMX & 91SMX surface mount crystals are available packaged individually or on tape and reel

## Standard Frequency Tolerance

- ±20ppm

## Operating Temperature Ranges

- 0 to 50°C    -30 to 80°C
- 10 to 60°C    -40 to 90°C
- 20 to 70°C

## Storage Temperature Range

- -55 to 125°C

## Solder Condition

- For typical soldering conditions, please see the relevant page in Application Notes

## Marking

- Frequency Indicator + Date Code

## Marking Explanation

Example: 32K152B

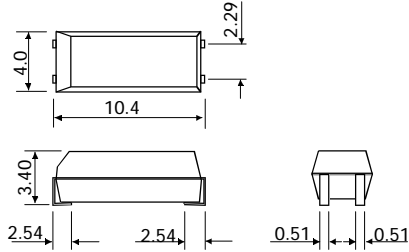
The 32K is a code indicating frequency, in this case 32.768kHz

The 152 is the date code in YWW, ie.2001 wk 52

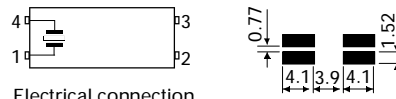
The letter on the end indicies: A for 90SMX, B for 91SMX

Note, if the letter is at the end of the crystal then it is 12.5pF loaded. If it appears after the 32K as 32KA152, then the crystal is 6pF loaded. This is the same for both 90SMX and 91SMX.

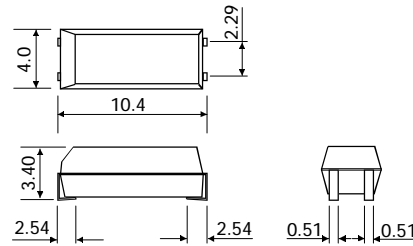
## Outline in mm - 90SMX



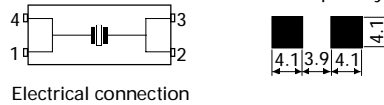
## Solder pad layout



## Outline in mm - 91SMX



## Solder pad layout

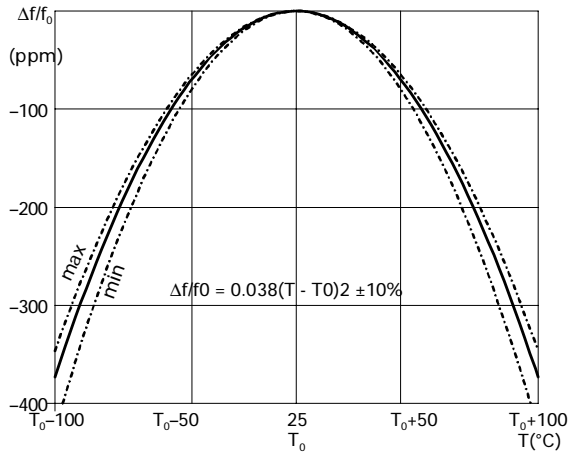


Electrical Specification - maximum limiting values

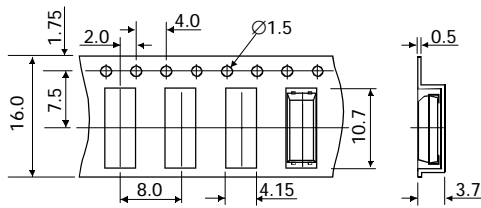
Frequency Range	Frequency Tolerance @ 25°C ±2°C	Operating Temperature Range	Frequency Stability Available Over Operating Temperature		ESR max.	Vibration Mode
32.7680kHz	±10ppm to ±100ppm	0 to 50°C	-25ppm	-100ppm	60kΩ	Fundamental AT cut
		-10 to 60°C	-50ppm	-100ppm		
		-20 to 70°C	-85ppm	-100ppm		
		-30 to 80°C	-150ppm	-300ppm		
		-40 to 90°C	-180ppm	-500ppm		

SURFACE MOUNT QUARTZ CRYSTALS

Frequency Temperature Curve



Outline in mm - Tape



Outline in mm - Reel

