

**90SMX(SH) CRYSTALS**  
**9mm x 3.8mm x 2.5mm**

**DESCRIPTION**

90SMX(SH) crystals utilize the standard 90SMX package but with AT-Cut crystal blanks, providing a compact crystal with the frequency range of 12MHz to 40MHz. The crystals have a low-profile and are manufactured in epoxy resin.

**FEATURES**

- Frequency 12MHz to 40MHz
- Industry-standard package
- Compact and low-profile: 9.0mm x 3.8mm x 2.5mm
- Supplied in standard EIA 16mm tape and reel

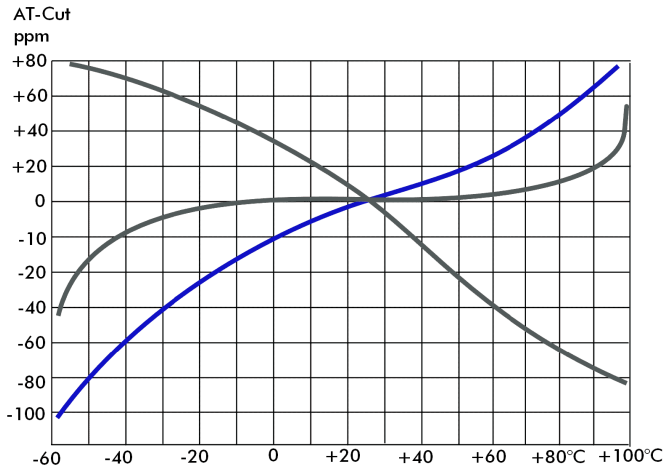
**GENERAL SPECIFICATION**

Frequency Range:	12.0MHz to 40.0MHz
Calibration Tolerance at 25°C*:	±50ppm
Mode:	Fundamental
Temperature Stability:	±50ppm over -20° to +70°C
Shunt Capacitance:	5pF maximum
Load Capacitance:	12.5pF to 35pF (Customer specified.)
Drive Level:	100mW maximum
Ageing:	±3ppm in first year at 25°C
Crystal Cut:	AT-Cut
Reflow Soldering:	10s max. at +235°C ±5°C
Packaging:	Tape and Reel (EIA 16mm tape)

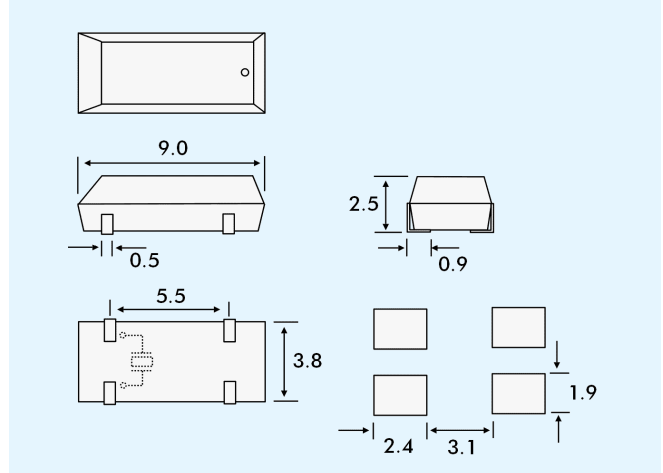
**OSCILLATION MODE & ESR**

Frequency (MHz)	Crystal Cut Oscillation Mode	ESR (max) (Ohms)
12.0 ~ 16.667	AT Fund.	80
16.668 ~ 23.999	AT Fund.	60
24.0 ~ 40.0	AT Fund.	50

**STABILITY/TEMPERATURE PERFORMANCE**



**OUTLINES AND DIMENSIONS**



**PART NUMBER GENERATION**

90SMX(SH) crystal part numbers are derived as follows:

Example: **16.000MHz 90SMX 30/50/10/30pF/ATF**

