

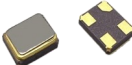
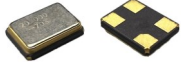










PLETRONICS Crystals

RoHS and REACH Compliant; Pb-Free

	Package	Series	Frequency Range	Package Size
CERAMIC		SM7T	26 MHz—60 MHz ◆ Fundamental	1.6 x 1.25 x 0.32h mm
		SM8T	20 MHz—80 MHz ◆ Fundamental	2.0 x 1.6 x 0.45h mm
		SM9T	16 MHz—80 MHz ◆ Fundamental	2.5 x 2.0 x 0.55h mm
		SM10T	8MHz—150MHz ◆ <u>Lowest cost ceramic surface mount package</u> ◆ Fundamental and 3rd Overtone	3.2 x 2.5 x 0.7h mm
		SM11T	8MHz—150MHz ◆ Fundamental and 3rd Overtone	5.0 x 3.2 x 0.85h mm
METAL SMD		SM25 SM30 SM42	3.2 MHz—70 MHz ◆ <u>Lowest cost metal surface mount package</u> ◆ Rugged reliable package ◆ Lowest frequencies not available in minimum height package	SM25: 5.0 max x 13.5 max x 2.9h mm SM30: 5.0 max x 13.5 max x 3.5h mm SM42: 5.0 max x 13.5 max x 4.6h mm
THRU-HOLE		MP49	1.8 MHz—210 MHz ◆ 3rd and 5th overtones available	4.47 x 10.8 x 13.21h mm
		LP21 LP24 LP49	3.2 MHz—70 MHz ◆ Leaded version of the SM25, SM30, SM42 ◆ 3rd overtone available	LP21: 4.47 x 10.8 x 2.1h mm LP24: 4.47 x 10.8 x 2.5h mm LP49: 4.47 x 10.8 x 3.56h mm
TUNING FORK	32.768 kHz CRYSTALS			
		SM8S	◆ 2 pad ceramic SMD	3.2 x 1.5 x 1.0h mm
		SM7S	◆ 2 pad ceramic SMD	2.0 x 1.2 x 0.6mm



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KEY PARAMETERS NEEDED TO SPECIFY A CRYSTAL

Cload (CL)

This parameter is valid for crystals used in load or parallel resonant oscillator circuits. C_{load} is the capacitance value, specified in pf, used during frequency calibration. e.g. 18 pf

ESR (Equivalent Series Resistance):

This resistance represents the equivalent impedance of the crystal at its resonant frequency and is specified in Ohms. e.g. 50 ohms max

Overtone:

Crystals have sharp resonant peaks at their fundamental frequency and at odd harmonics above the fundamental. Crystals designed to function at one of these harmonics are called overtone crystals. At higher oscillator frequencies overtone designs reduce cost by using thicker, and easier to manufacture, crystal elements.

The majority of crystals in use today are fundamental or third overtone. e.g. Fund

Calibration Tolerance:

This is the maximum deviation from nominal frequency at 25° C. Calibration tolerance is specified in Parts-Per-Million (ppm). e.g. ± 30 ppm

Stability:

Stability is the maximum deviation of the crystal frequency over the specified operational temperature range referenced to 25°C. Like calibration tolerance, stability is specified in ppm. (e.g. ± 20 ppm) The combined effects of calibration tolerance and stability are additive over the operational temperature range. e.g. ± 50 ppm (Calibration ± 30 ppm + stability ± 20 ppm)