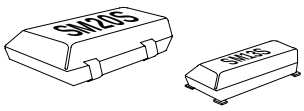
Pletronics, Inc.
19013 36th Ave. W, ▪ Lynnwood, WA 98036 USA
Manufacturer of High Quality Frequency Control Products

SM Watch Crystals

- 4 Lead Surface Mount Tuning Fork Watch Crystals
- **SM13S**: 1.5x7x1.4mm, **SM20S**: 3.8x8.5x2.5mm



32.768 kHz

Standard Specifications

Calibration Frequency Tolerance	± 20 PPM at 25°C std, SM20SD = ± 10 PPM
Operating Temperature Range (OTR)	-40 to +85°C
Frequency Stability over OTR	
Calculate as: Frequency shift from 25°C to T°C in PPM = - 0.038 x $(T - 25)^2$ ± 10%	
Load Capacitance	12.5 pF std, 6 pF avail. for SM20S only
Equivalent Series Resistance (ESR)	SM20S: 50 k ohm max, SM13S: 65 k ohm max
Drive Level	1μW maximum
Aging at 25°C for the 1st year	± 5 PPM maximum
Shunt Capacitance	1.0 pF to 1.45 pF typical

Part Numbering Guide

SM20S - 32.768K - 6pF - XXX (Internal Code or blank)

- SM20S - Model
- 32.768K - Frequency in kHz
- 6pF - Load Capacitance, Blank = 12.5pF

or

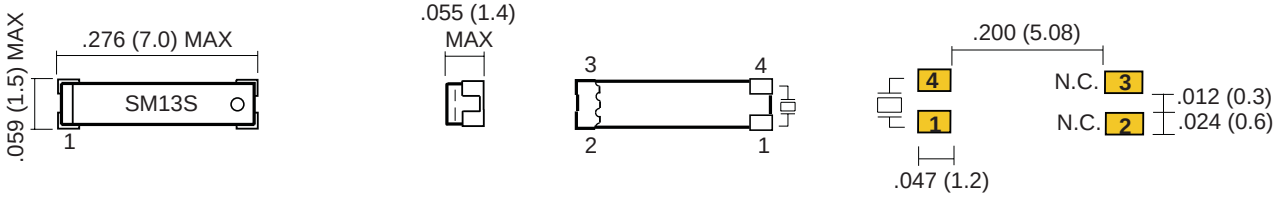
SM13S - 32.768K

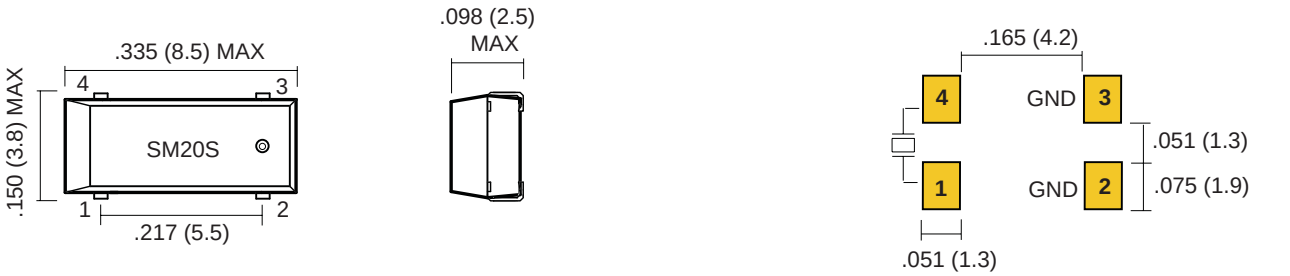
Consult factory for available specifications.
A special part number may be assigned.

Mechanical: inches (mm) not to scale Solder Pads

Due to part size and factory abilities, part marking may vary from lot to lot and may contain our part number or an internal code.

Packaging
16mm tape
8mm pitch





Apr 2008