



## Features

- ▄ Unique square profile case for pick & place
- ▄ Low cost
- ▄ Large stocks held at all times
- ▄ Miniature size for high density applications
- ▄ High shock & vibration resistance
- ▄ Wide temperature range

## Standard Frequencies

Frequencies in kHz		
32.000	40.000	76.800
32.768	60.000	77.500
38.400	75.000	

## Specifications

Parameters	Product	Option Codes
	MS1V	
<b>Termination:</b> Gold flashed leads, 2.54mm pitch Tin plated leads, 2.54mm pitch	■ □	T1K T2K
<b>Frequency range:</b> 32.768kHz 32.0 ~ 200kHz	■ □	specify
<b>Calibration tolerance:</b> ±20ppm ±30ppm ±100ppm	■ □ □	specify
<b>Operating temperature range:</b> -40 to +85°C	■	
<b>Storage temperature range:</b> -55 to +125°C	■	
<b>Circuit condition:</b> 12.5pF other values	■ □	specify
<b>Static capacitance (C<sub>0</sub>):</b> 0.9pF typ	■	
<b>Motional capacitance (C<sub>1</sub>):</b> 2.1fF typ	■	
<b>Equivalent series resistance:</b> 50kΩ typ, 70kΩ max @ 25°C	■	
<b>Ageing:</b> ±3ppm max first year	■	
<b>Drive level:</b> 1.0μW max	■	
<b>Turnover temperature (T<sub>0</sub>):</b> +25°C ±5°C	■	
<b>Frequency / temp coefficient:</b> -0.035ppm/°C <sup>2</sup> ±10% typ	■	
<b>Shock resistance:</b> ±5ppm max 5,000g, 0.3ms, ½ sine	■	
<b>Vibration resistance:</b> ±5ppm max 20g, 10.0 ~ 2,000Hz	■	
<b>Soldering conditions:</b> 260°C, 20sec max	■	

■ Standard. □ Optional - Please specify required code(s) when ordering

## Ordering Information

Product name + termination + frequency + calibration tol.  
eg: **MS1V-T1K 32.768kHz ±20ppm** (standard)  
Option code X (eg MS1V-T1K/X) denotes a custom spec.

- ◆ Our standard SM watch crystal.
- ◆ Available on T&R - 8k pcs per reel.
- ◆ Refer to our website for T&R and soldering details.
- ◆ Specifications vary by frequency. Specifications shown are for 32.768kHz.
- ◆ Pad compatible with many standard watch crystals (eg MC-306, MC-406, SP-T1A, SP-T2A, CM-200S, CM-202S).