



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	
Termination: Gold flashed leads, 2.54mm pitch Tin plated leads, 2.54mm pitch	■ □	T1K T2K
Frequency range: 32.768kHz 32.0 ~ 200kHz	■ □	specify
Calibration tolerance: ±20ppm ±30ppm ±100ppm	■ □ □	specify
Operating temperature range: -40 to +85°C	■	
Storage temperature range: -55 to +125°C	■	
Circuit condition: 12.5pF other values	■ □	specify
Static capacitance (C₀): 0.9pF typ	■	
Motional capacitance (C₁): 2.1fF typ	■	
Equivalent series resistance: 50kΩ typ, 70kΩ max @ 25°C	■	
Ageing: ±3ppm max first year	■	
Drive level: 1.0μW max	■	
Turnover temperature (T₀): +25°C ±5°C	■	
Frequency / temp coefficient: -0.035ppm/°C ² ±10% typ	■	
Shock resistance: ±5ppm max 5,000g, 0.3ms, ½ sine	■	
Vibration resistance: ±5ppm max 20g, 10.0 ~ 2,000Hz	■	
Soldering conditions: 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).