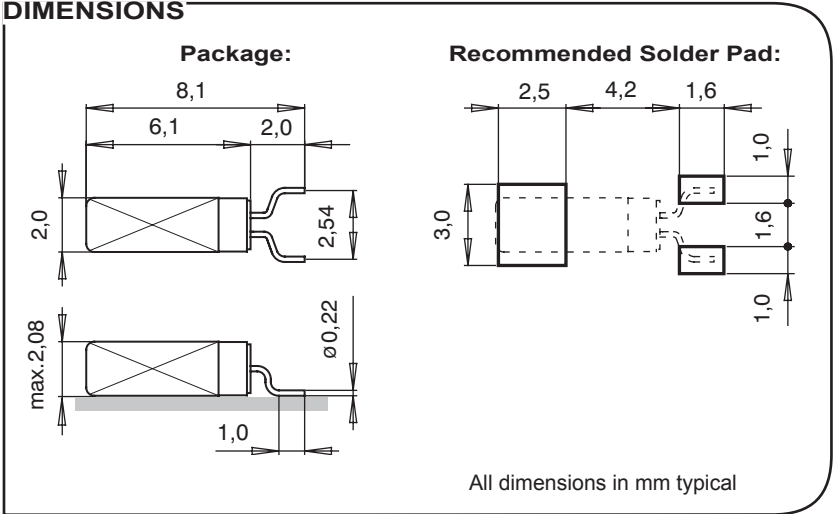
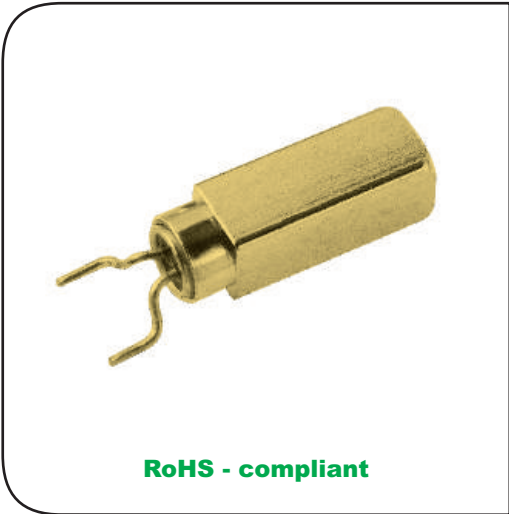


# MS1V-T1K

## Tuning Fork Crystal 30 kHz – 200 kHz



**Small SMT package**  
**Package height 2.08 mm max.**  
**Formed leads for SMD mounting**  
**Industrial temp. range**  
**Very price competitive**  
**High stability**  
**Low aging**  
**Low power consumption**  
**High shock and vibration resistance**

**DESCRIPTION:**

The MS1V-T1K is a square-bodied 2 x 2 x 6 mm metal-can package with formed leads, intended for surface mounting and reflow soldering. Within the package is a high-quality tuning fork quartz crystal resonator, manufactured with a precision high-volume photolithographic process and operating in the fundamental mode. Due to highly automated, large-volume production, the MS1V-T1K is very price competitive and ideal for any consumer and industrial applications. For pick-and-place equipment, the crystals are supplied in 16 mm tape: 13" (330 mm) reel with 8'000 crystals

**ELECTRICAL CHARACTERISTICS AT 25°C:**

Frequency Range	F <sub>L</sub>	30–200	kHz
Load capacitance <sup>1)</sup>	C <sub>L</sub>	12.5	pF
Frequency tolerance <sup>2)</sup>	ΔF/F	+/-20	ppm
	ΔF/F	+/-30	ppm
	ΔF/F	+/-100	ppm
Drive level max.	P	1.0	μW
Insulation resistance min.	R <sub>i</sub>	500	MΩ
Aging first year max.	ΔF/F	+/-3	ppm

Frequency Example <sup>3)</sup>	F <sub>L</sub>	32.000	32.768	76.800	kHz
Series resistance typ./max.	R <sub>s</sub>	45 / 60	45 / 60	18 / 30	kΩ
Motional capacitance typ.	C <sub>1</sub>	2.3	2.1	1.35	fF
Static capacitance typ.	C <sub>0</sub>	0.9	0.9	0.9	pF
Turnover temperature	T <sub>0</sub>	25 +/-5	25 +/-5	22 +/-5	°C
Frequency vs. temperature	ΔF/F <sub>0</sub>	-0.035 ppm/°C <sup>2</sup> (T - T <sub>0</sub> ) <sup>2</sup> +/-10%			ppm

1) For standard and other load capacitances consult factory.  
 2) Tighter and wider frequency tolerances on request.  
 3) Values for other frequencies consult factory.

**STANDARD FREQUENCIES:**

Frequency kHz				
32.000	32.768	38.400	40.000	60.000
75.000	76.800	77.500		
Other frequencies on request				

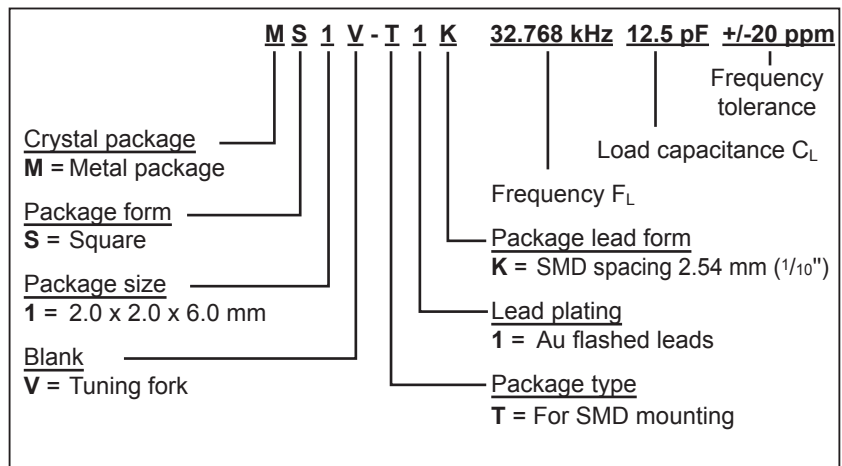
**ENVIRONMENTAL CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +85°C	
Operating temp. range		-40 to +85°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, 1/2 sine	+/-5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10-2000 Hz	+/-5 ppm

**TERMINATIONS AND PROCESSING:**

Type	Termination	Processing
MS1V-T1K	Can: Au flashed Leads: Formed leads Au flashed	For SMD mounting Reflow soldering 260°C / 20 sec. max

**PART NUMBER/  
ORDERING INFORMATION  
EXAMPLE:**



All specifications subject to change without notice. 10.08



Micro Crystal AG  
Mühlestrasse 14  
CH-2540 Grenchen  
Switzerland

Tel. +41 32 655 82 82  
Fax +41 32 655 82 83  
sales@microcrystal.ch  
www.microcrystal.com