



S1V-T1K

#### APPLICATIONS

IoT Metering Wearables Health Care Consumer Electronics

### DESCRIPTION

The MS1V-T1K is a low frequency surface mount technology Quartz Crystal Unit that incorporates a tuning fork Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed square-bodied metal can package.

### FEATURES

High stability is guaranteed by hermetic sealing. High shock and vibration resistant. Proven surface mount technology package for reflow soldering. Excellent lead coplanarity for surface mounting. RoHS-compliant.

## ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequency	1)	FL	32.768	kHz
Load capacitance	2)	CL	6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance	3)	$\Delta F/F$	±20	ppm
		$\Delta F/F$	±100	ppm
Series resistance typ./max.		$R_S$	45 / 60	kΩ
Motional capacitance typ.		C <sub>1</sub>	2.25	fF
Static capacitance typ.		C <sub>0</sub>	0.9	pF
Drive level max.		Р	1.0	μW
Insulation resistance min.		R <sub>i</sub>	500	MΩ
Aging first year max.		$\Delta F/F$	±3	ppm
Turnover temperature		T <sub>0</sub>	25 ±5	°C
Frequency vs. temperature		$\Delta F/F_0$	$-0.035 \text{ ppm/}_{C^2} (T - T_0)^2 \pm 10\%$	ppm

1) Other frequencies on request.

2) Other load capacitances on request.

3) Tighter and wider frequency tolerances on request.

### STANDARD FREQUENCIES

Frequencies				
32.768 kHz	60.000 kHz	76.800 kHz		
Other frequencies on request				

### ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature range		–55 to +85°C	
TA Operating temperature range		–40 to +85°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, ½ sine	±5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	±5 ppm

# TERMINATIONS AND PROCESSING

Туре	Termination	Processing
MS1V-T1K	Can: Au flashed Leads: Formed leads Au flashed	For surface mounting IPC/JEDEC J-STD-020C 260°C / 20 - 40 s
MS1V-T1N	Can: Au flashed Leads: Straight leads Au flashed	For through-hole mounting IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

### ORDERING INFORMATION

<u>M S</u>	<u>1 V - T 1 K</u> <u>32.768 kHz</u> <u>12.5 pF</u> <u>±20 ppm</u> <u>TA</u> <u>QC</u>
Square metal packa MS1V = 2.0 x 2.0 x 6 SMT Package — Au flashed leads — Package lead form K = SMD spacing 2.54 N = Straight leads	b.1 mm Load capacitance C_   6.0 pF   7.0 pF   9.0 pF   12.5 pF   Other C, on request
A unique part numb	per will be generated for each product specification, i.e:
20xxxx-ML02	2'000 pcs (in 16 mm tape on 7" reel) MS1V-T1K
20xxxx-PL08	8'000 pcs (in 16 mm tape on 13" reel) MS1V-T1K
20xxxx-BA01	1'000 pcs (in plastic bag) MS1V-T1N

All specifications subject to change without notice.



Micro Crystal AG Muehlestrasse 14 CH-2540 Grenchen Switzerland Phone +41 32 655 82 82 sales@microcrystal.com www.microcrystal.com