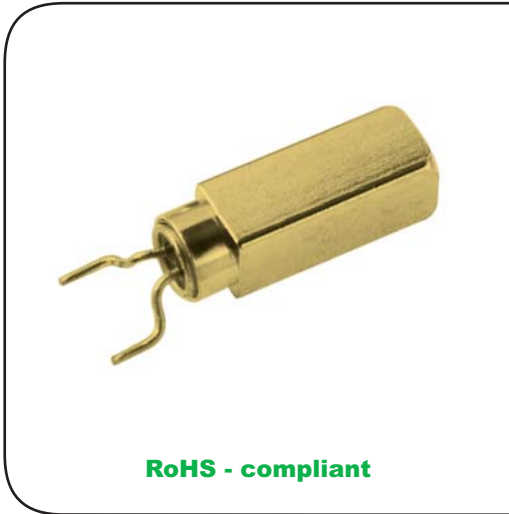
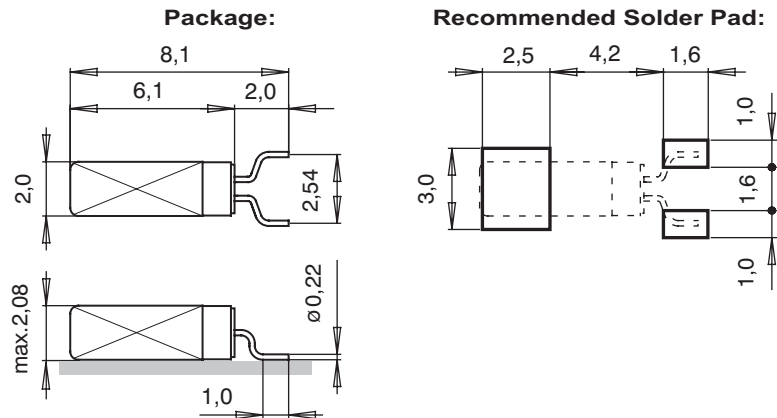


MS1V-T1K

Tuning Fork Crystal 30 kHz – 200 kHz



DIMENSIONS



All dimensions in mm typical

Small SMD 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_L | 30–200 | kHz |
|-----------------------------------|----------------|--------|---------|
| Load capacitance ¹⁾ | C_L | 12.5 | pF |
| Frequency tolerance ²⁾ | $\Delta F/F$ | +/-20 | ppm |
| | $\Delta F/F$ | +/-30 | ppm |
| | $\Delta F/F$ | +/-100 | ppm |
| Drive level max. | P | 1.0 | μW |
| Insulation resistance min. | R_i | 500 | M |
| Aging first year max. | $\Delta F/F_0$ | +/-3 | ppm |

| Frequency Example ³⁾ | F_L | 32.000 | 32.768 | 76.800 | kHz |
|---------------------------------|----------------|--|---------|---------|-----|
| Series resistance typ./max. | R_s | 50 / 70 | 50 / 70 | 18 / 30 | k |
| Motional capacitance typ. | C_1 | 2.3 | 2.3 | 1.35 | fF |
| Static capacitance typ. | C_0 | 0.9 | 0.9 | 0.9 | pF |
| Turnover temperature | T_0 | 25 +/-5 | 25 +/-5 | 22 +/-5 | °C |
| Frequency vs. temperature | $\Delta F/F_0$ | $-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \text{ +/-} 10\%$ | | | 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 | | | | |

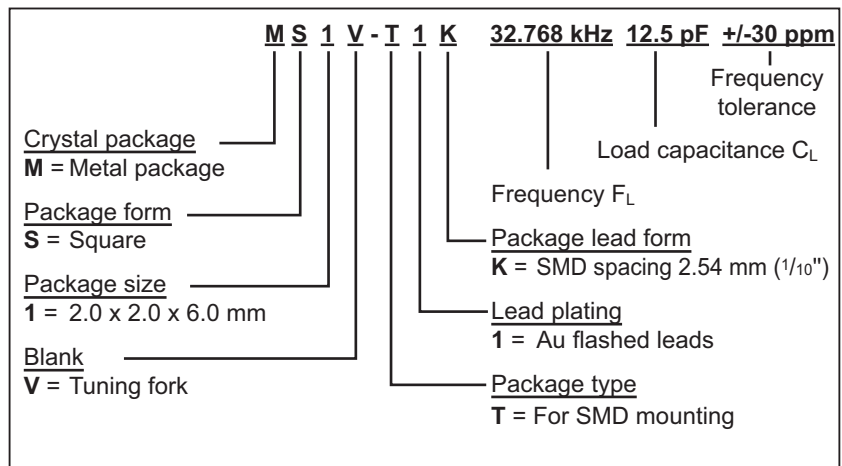
ENVIRONMENTAL CHARACTERISTICS:

| | | 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. 04.05



A COMPANY OF THE **SWATCH GROUP**

Headquarters:

Micro Crystal
Div. of ETA SA
Mühlestrasse 14
CH-2540 Grenchen
Switzerland
Tel. +41 32 655 82 82
Fax +41 32 655 82 83
sales@microcrystal.ch
www.microcrystal.ch

North American Sales Office:

Micro Crystal
A Div. of The Swatch Group (U.S.) Inc.
1615 Barclay Boulevard
Buffalo Grove, IL 60089
USA
Tel. +1 847 818 9825
Fax +1 847 818 9915
sales@microcrystal.com
www.microcrystal.com