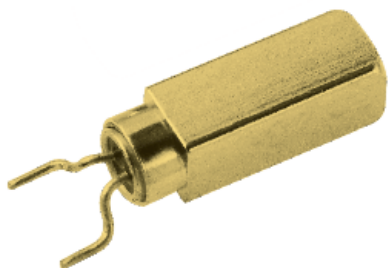


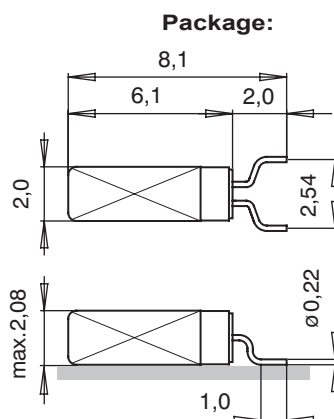
MS1V-T1K

Tuning Fork Crystal 30 kHz – 200 kHz

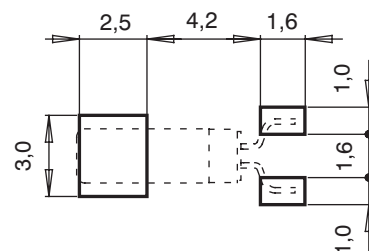


RoHS - compliant

DIMENSIONS



Recommended Solder Pad:



All dimensions in mm typical

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

Frequency Example ³⁾	F _L	32.000	32.768	76.800	kHz
Series resistance typ./max.	R _s	45 / 60	45 / 60	18 / 30	kΩ
Motional capacitance typ.	C ₁	2.3	2.1	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	ΔF/F ₀	-0.035 ppm/°C ² (T - T ₀) ² +/-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:

<u>Crystal package</u> M = Metal package	<u>Package form</u> S = Square	<u>Package size</u> 1 = 2.0 x 2.0 x 6.0 mm	<u>Blank</u> V = Tuning fork	M S 1 V - T 1 K	32.768 kHz	12.5 pF	+/-20 ppm
					Frequency F_L	Load capacitance C_L	Frequency tolerance
					<u>Package lead form</u> K = SMD spacing 2.54 mm (1/10")		
					<u>Lead plating</u> 1 = Au flashed leads		
					<u>Package type</u> T = For SMD mounting		

All specifications subject to change without notice.

10.08



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