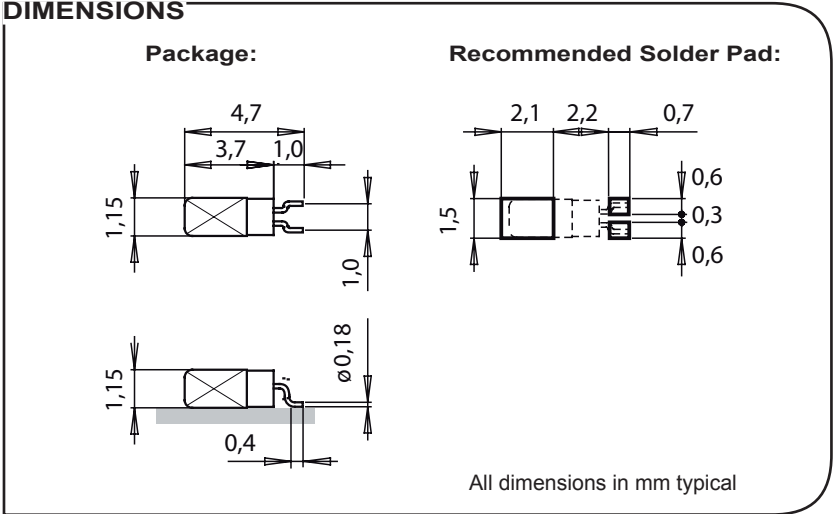
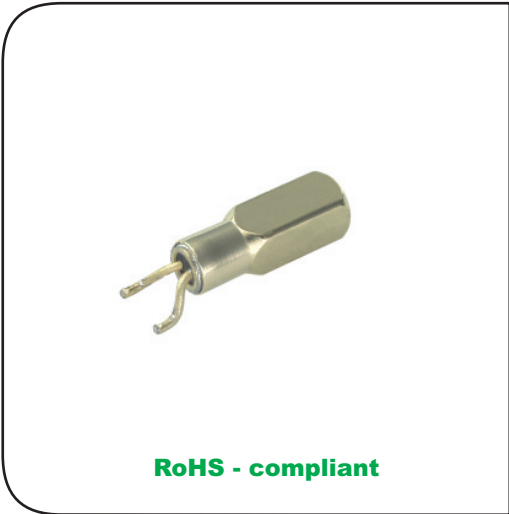


MS5V-T1R

Miniatur Tuning Fork Crystal 32.768 kHz



- Miniaturized SMT package
- Package height 1.15 mm max.
- Formed leads for SMD mounting
- Industrial temp. range
- Very price competitive
- Low aging
- Low power consumption
- High shock and vibration resistance

DESCRIPTION:

The MS5V-T1R is a miniature square-bodied 1.15 x 1.15 x 4.7 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 MS5V-T1R is very price competitive and ideal for any consumer and industrial application. For pick-and-place equipment, the crystals are supplied in 12 mm tape: 13" (330 mm) reel with 10'000 crystals

ELECTRICAL CHARACTERISTICS AT 25°C:

Frequency Range	F _L	30-200	kHz
Load capacitance ¹⁾	C _L	7.0 / 9.0 / 12.5	pF
Frequency tolerance ²⁾	ΔF/F	+/-20	ppm
	ΔF/F	+/-30	ppm
	ΔF/F	+/-100	ppm
Drive level max.	P	0.5	μW
Insulation resistance min.	R _i	500	MΩ
Aging first year max.	ΔF/F	+/-3	ppm

Frequency Example ³⁾	F _L	32.768	kHz
Series resistance typ./max.	R _S	60 / 80	kΩ
Motional capacitance typ.	C ₁	3.8	fF
Static capacitance typ.	C ₀	1.0	pF
Turnover temperature	T ₀	25 +/-5	°C
Frequency vs. temperature	ΔF/F ₀	-0.035 ppm/°C ² (T - T ₀) ² +/-10%	ppm

Preliminary

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
32.768
Other frequencies on request

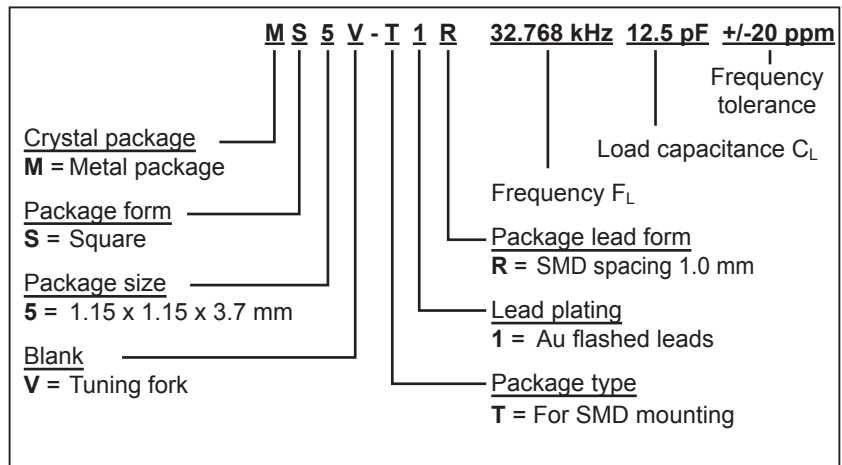
**ENVIRONMENTAL
CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +85°C	
Operating temp. range		-40 to +85°C	
Shock resistance	ΔF/F	5000 g, 0.3 ms, ½ sine	+/-5 ppm
Vibration resistance	ΔF/F	20 g / 10-2000 Hz	+/-5 ppm

**TERMINATIONS AND
PROCESSING:**

Type	Termination	Processing
MS5V-T1R	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. 04.09



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