

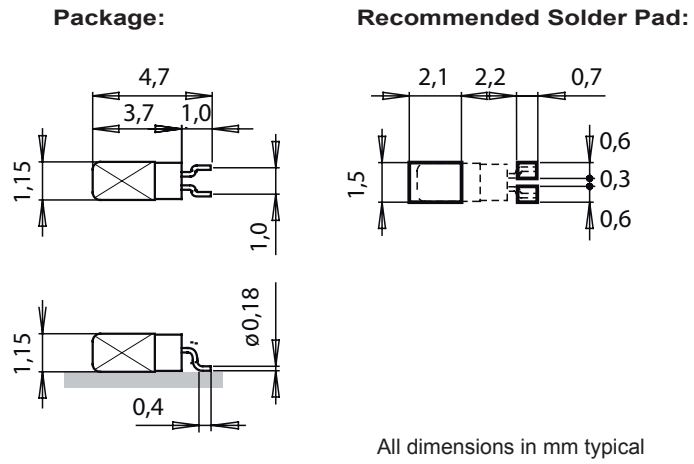
MS5V-T1R

Miniatur Tuning Fork Crystal 32.768 kHz



RoHS - compliant

DIMENSIONS



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 4.7 x 1.15 mm metal 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:
 7" (178 mm) reel with 2'000 crystals
 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⁾	$\Delta F/F$	+/-20	ppm
	$\Delta F/F$	+/-100	ppm
Drive level max.	P	0.5	μW
Insulation resistance min.	R_i	500	M Ω
Aging first year max.	$\Delta F/F$	+/-3	ppm

Frequency Example ³⁾	F_L	32.768	kHz
Series resistance typ./max.	R_S	60 / 80	k Ω
Motional capacitance typ.	C_1	3.7	fF
Static capacitance typ.	C_0	1.0	pF
Turnover temperature	T_0	25 +/-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
32.768
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	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

PRODUCT DESCRIPTION AND ORDERING INFORMATION:

	MS5V-T1R	32.768kHz	12.5pF	+/-20ppm	TA	QC
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Frequency F_L			
C_L Load Capacitance			
7.0 pF			
9.0 pF			
12.5 pF			
Frequency tolerance			
+/- 20 ppm			
+/- 100 ppm			
		Temperature Range	
		TA = -40 to 85°C (Standard)	
	Optional: if not defined, ,Standard' will apply	Qualification	
		QC = Commercial (Standard)	

A unique part number will be generated for each product specification, i.e:

20xxxx-MG02	2'000 pcs (in 12mm tape on 7" reel)
20xxxx-PG10	10'000 pcs (in 12mm tape on 13" reel)

Please contact us.

All specifications subject to change without notice.



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