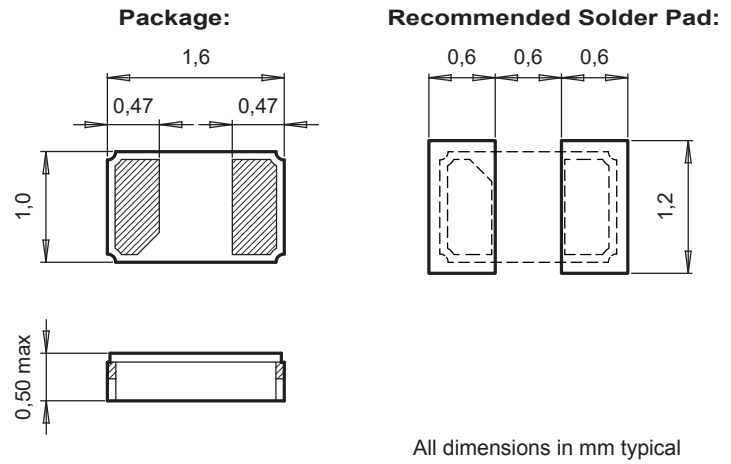


CM9V-T1A

Tuning Fork Crystal 32.768 kHz



DIMENSIONS



APPLICATIONS

IoT
 Metering
 Industrial
 Health Care
 Ultra Small Devices
 Wearables, Portables

DESCRIPTION

The CM9V-T1A is a low frequency SMD Quartz Crystal Unit that incorporates a tuning fork Quartz Crystal Resonator. It operates under vacuum in a hermetically sealed ceramic package with metal lid.

FEATURES

Ultra small size (1.6 × 1.0 × 0.50 mm).
 Outstanding hermetic sealing with gold-tin preform.
 High stability and low aging guaranteed by hermetic sealing.
 Available for extended operating temperature range.
 Lightweight (2.4 mg).
 High shock and vibration resistant.
 100% Pb-free, RoHS-compliant.

ELECTRICAL CHARACTERISTICS AT 25°C

Standard Frequency	¹⁾ F _L	32.768	kHz
Load capacitance	²⁾ C _L	4.0 / 6.0 / 7.0 / 9.0 / 12.5	pF
Frequency tolerance	³⁾ ΔF/F	±20	ppm
	ΔF/F	±100	ppm
Series resistance typ./max.	R _S	60 / 75	kΩ
Motional capacitance typ.	C ₁	6.3	fF
Static capacitance typ.	C ₀	1.4	pF
Drive level max.	P	0.5	μW
Insulation resistance min.	R _i	500	MΩ
Aging first year max.	ΔF/F	±3	ppm
Turnover temperature	T ₀	25 ±5	°C
Frequency vs. temperature	ΔF/F ₀	-0.035 ppm/°C ² (T - T ₀) ² ±10%	ppm

1) Other frequencies on request.
 2) Other load capacitances on request.
 3) Tighter frequency tolerances on request.

STANDARD FREQUENCIES

Frequency
32.768 kHz
Other frequencies on request

ENVIRONMENTAL CHARACTERISTICS

		Conditions	Max. Dev.
Storage temperature range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
TB Extended oper. temp. range		-40 to +125°C	
TC Extended oper. temp. range		-55 to +125°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
CM9V-T1A	Au flashed pads	IPC/JEDEC J-STD-020C 260°C / 20 - 40 s

ORDERING INFORMATION

C M 9 V - T 1 A 32.768 kHz 12.5 pF ±20 ppm TA QC	
Ceramic package	Frequency F_L
Metal lid	Load capacitance C_L
Package size	4.0 pF
9 = 1.6 x 1.0 x 0.50 mm	6.0 pF
Tuning fork	7.0 pF
SMD Package	9.0 pF
Au flashed pads	12.5 pF
2 pads	Other C_L on request
	Frequency tolerance
	±20 ppm
	±100 ppm
	Tighter freq. tolerances on request
	Temperature range
	TA = -40 to +85°C (Standard)
	TB = -40 to +125°C
	TC = -55 to +125°C
	Qualification
	QC = Commercial Grade (Standard)

A unique part number will be generated for each product specification, i.e:	
20xxxx-MC01	1'000 pcs (in 8 mm tape on 7" reel)
20xxxx-MC03	3'000 pcs (in 8 mm tape on 7" reel)

All specifications subject to change without notice.



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