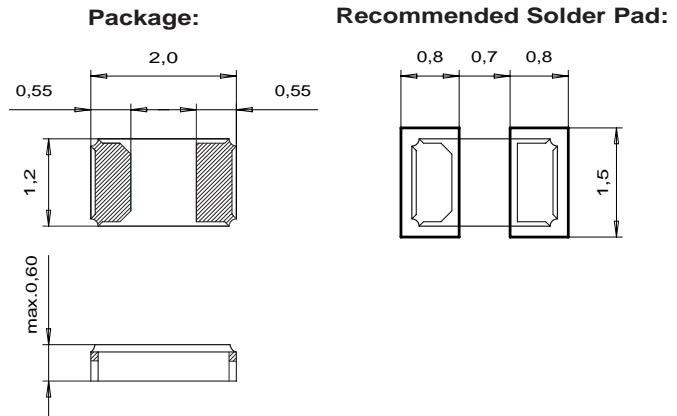


CM8V-T1A

Tuning Fork Crystal 32.768 kHz



DIMENSIONS



All dimensions in mm typical

Smallest SMT ceramic package
 Ultra low profile: 0.60 mm height
 SMD-package in Tape and Reel
 Ind. and Ext. temperature ranges
 High stability
 Low aging
 Low power consumption
 High shock and vibration resistance

DESCRIPTION:

This SMD ceramic package has been specially designed for miniature telecom and portable applications. The Ultra Miniature Tuning Fork (UMTF) in this product is achieved by a special manufacturing process, this technology leads to improved electrical characteristics.

For pick-and-place equipment, the parts are available in 8 mm tape:

- 7" (178 mm) reel with 1'000 crystals
- 7" (178 mm) reel with 3'000 crystals
- 13" (330 mm) reel with 14'000 crystals

ELECTRICAL CHARACTERISTICS AT 25°C:

Nominal Frequency	¹⁾ F_L	32.768	kHz
Load capacitance	²⁾ C_L	7.0 / 9.0 / 12.5	pF
Frequency tolerance	³⁾ $\Delta F/F$	+/-20	ppm
		+/-100	ppm
Series resistance max.	R_S	90	k Ω
Motional capacitance typ.	C_1	3.5	fF
Static capacitance typ.	C_0	1.0	pF
Drive level max.	P	0.5	μ W
Insulation resistance min.	R_i	500	M Ω
Aging first year max.	$\Delta F/F$	+/-3	ppm
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) Other frequencies on request.
- 2) Other load capacitances on request.
- 3) Tighter and wider frequency tolerances on request.

STANDARD FREQUENCIES:

Frequency kHz
32.768
Other frequencies on request

**ENVIRONMENTAL
CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°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
CM8V-T1A	For SMD mounting Au plated pads	Reflow soldering 260°C / 20 s max.

**PRODUCT DESCRIPTION AND
ORDERING INFORMATION:**

CM8V-T1A 32.768kHz 12.5pF +/-20ppm TA QC

Frequency F₀ _____

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-MC01 1'000 pcs (in 8mm tape on 7" reel)
 20xxxx-MC03 3'000 pcs (in 8mm tape on 7" reel)
 20xxxx-PC14 14'000 pcs (in 8mm tape on 13" reel)
 Please contact us.

All specifications subject to change without notice.



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