

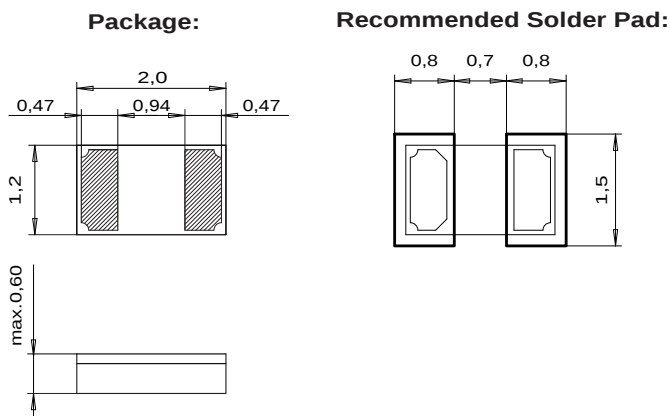
CC8V-T1A

Tuning Fork Crystal 32.768 kHz



100% leadfree, RoHS - compliant

DIMENSIONS



All dimensions in mm typical

AEC-Q200 automotive compliant
Miniature SMT ceramic package
Ultra low profile: 0.60 mm height
Ind. and Ext. temperature ranges
Optimized electrical characteristics
"Low ESR and Low Sensitivity"
High stability, low aging
Low power consumption
High shock and vibration resistance
Qualified for implantable medical applications

DESCRIPTION:

This SMD ceramic package has been specially designed for miniature high-reliable applications including implantable medical devices. The Ultra Miniature Tuning Fork (UMTF) in this product is realized by an optimized, proprietary design of the Quartz Crystal Resonator and special manufacturing processes resulting in improved electrical characteristics "Low ESR and Low Sensitivity".

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

ELECTRICAL CHARACTERISTICS AT 25°C:

Nominal Frequency ¹⁾	F _L	32.768	kHz
Load capacitance ²⁾	C _L	7.0 / 9.0	pF
Frequency tolerance ³⁾	ΔF/F	+/-20	ppm
	ΔF/F	+/-100	ppm
Series resistance max.	R _S	60 / 80	kΩ
Motional capacitance typ.	C ₁	4.0	fF
Static capacitance typ.	C ₀	1.1	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 and wider frequency tolerances on request.

STANDARD FREQUENCIES:

Frequency kHz
32.768

**ENVIRONMENTAL
CHARACTERISTICS:**

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
TB Extended oper. temp. range		-40 to +125°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
CC8V-T1A	For SMD mounting Au plated pads	Reflow soldering 260°C / 20 s max.
CC8V-T2A	Sn/Pb plated pads available on request	Reflow soldering 260°C / 20 s max.

**PRODUCT DESCRIPTION AND
ORDERING INFORMATION:**

CC8V-T1A	32.768kHz	9.0 pF	+/-20ppm	TA	QM
<u>Frequency F_0</u>					
<u>C_L Load Capacitance</u>					
7.0 pF					
9.0 pF					
<u>Frequency tolerance</u>					
+/- 20 ppm					
+/- 100 ppm					
			<u>Temperature Range</u>		
			TA = -40 to 85°C (Standard)		
			TB = -40 to +125°C		
<u>Optional:</u> if not defined, 'Standard' will apply			<u>Qualification</u>		
			QC = Commercial (Standard)		
			QA = Automotive AEC-Q200		
			QM = Medical		
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)	
Please contact us.					

All specifications subject to change without notice.



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