

CC7V-T1A

Tuning Fork Crystal 32.768 kHz

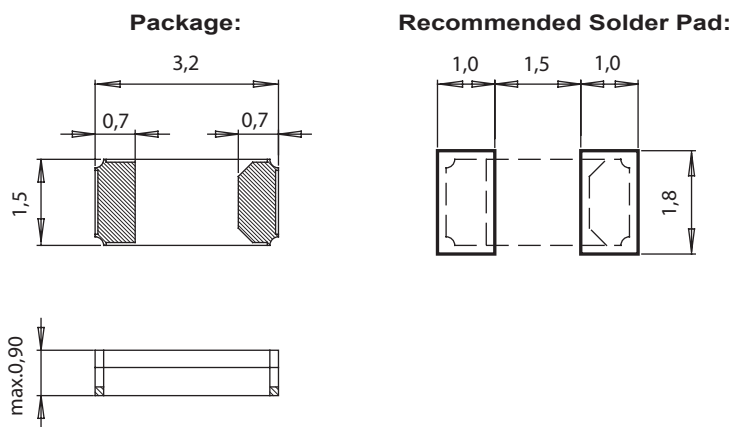


100% leadfree, RoHS - compliant

Miniature SMT ceramic package
Package height 0.90 mm
SMD-package in Tape and Reel
Ind. and Ext. temperature ranges
AEC-Q200 automotive compliant
High stability, Low aging
Low power consumption
High shock and vibration resistance

ELECTRICAL CHARACTERISTICS AT 25°C:

DIMENSIONS



All dimensions in mm typical

DESCRIPTION:

This SMD ceramic package has been specially designed for miniature industrial, telecom and portable applications. This part is available for extended operating temperature range and is compliant with the AEC-Q200 quality standards for automotive applications. A special crystal manufacturing process is used to achieve improved electrical characteristics and a miniaturized blank size.

The crystals are supplied in special trays (200 crystals per tray).
 For pick-and-place equipment, the parts are available in 12 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

Nominal Frequency	¹⁾ F _L	32.768	kHz
Load capacitance	²⁾ C _L	7.0 / 9.0 / 12.5	pF
Frequency tolerance	³⁾ ΔF/F	+/-20	ppm
	ΔF/F	+/-100	ppm
Series resistance typ./max.	R _s	50 / 70	kΩ
Motional capacitance typ.	C ₁	3.7	fF
Static capacitance typ.	C ₀	1.2	pF
Drive level max.	P	1.0	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
Other frequencies on request

**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	
TC Extended oper. temp. range		-55 to +125°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, ½ sine	+/-5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	+/-5 ppm

**TERMINATIONS AND
PROCESSING:**

Type	Termination	Processing
CC7V-T1A	For SMD mounting Au plated pads	Reflow soldering 260°C / 20 s max.

**PRODUCT DESCRIPTION AND
ORDERING INFORMATION:**

CC7V-T1A	32.768kHz	12.5pF	+/-20ppm	TA	QC
<u>Frequency F₁</u>					
<u>C_L Load Capacitance</u>					
7.0 pF					
9.0 pF					
12.5 pF					
<u>Frequency tolerance</u>					
+/- 20 ppm					
+/- 100 ppm					
<u>Optional:</u> if not defined, 'Standard' will apply					
			<u>Temperature Range</u>		
			TA = -40 to 85°C (Standard)		
			TB = -40 to +125°C		
			TC = -55 to +125°C		
			<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:					
20xxx-MG01			1'000 pcs	(in 12mm tape on 7" reel)	
20xxx-MG03			3'000 pcs	(in 12mm tape on 7" reel)	
20xxx-PG14			14'000 pcs	(in 12mm tape on 13" reel)	
Please contact us.					

All specifications subject to change without notice.



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