



Quartz Crystal SMQ32SN

- SMD Tuning Fork Crystal • 7.0 x 1.5 mm
- 32.768 kHz standard
- package height 1.4 mm max.



RoHS compliant



Pb free pads



REACH compliant



Conflict mineral free

actual size

GENERAL DATA	
TYPE	SMQ32SN
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF / 7 pF
temperature constant (T_C)	$T_C = -0.04 \cdot 10^{-6} / ^\circ\text{C}^2$ max. $T_C = -0.034 \cdot 10^{-6} / ^\circ\text{C}^2$ typical
frequency temperature characteristic	$\Delta f = T_C \cdot (T_A - T_{TP})^2$ in [ppm] T_A = actual ambient temperature $T_{TP} = 25^\circ\text{C} \pm 5^\circ\text{C}$ T_{TP} = turning point temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	0.8 pF typical
series resistance max. (ESR)	65 kΩ (12.5 pF) 70 kΩ (7 pF)
storage temperature	-55 °C ~ +125 °C
drive level max.	1 μW
aging first year	< ± 3 ppm

TABLE 1: FREQUENCY STABILITY VS. TEMPERATURE

frequency stability		-80 ppm	-160 ppm
-20 °C ~ +70 °C	STD.	●	
-40 °C ~ +85 °C	T1		●

● standard

MARKING

internal code / frequency code / date code (my) / CL code

frequency code:

month code:

KHz	Code
32.768	3

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F

CL-code:

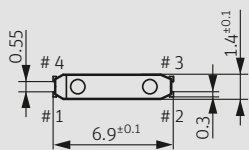
CL (pF)	Code
12.5	C
7.0	7

July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	M	N

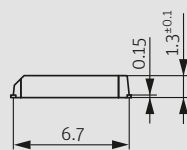
2018	2019	2020	2021	2022	2023	2024
J	K	M	N	O	P	Q

example: C3 EJ C, ED = May 2018, C = 12.5 pF

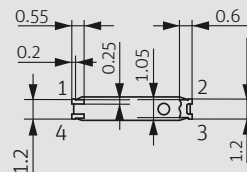
DIMENSIONS



top view



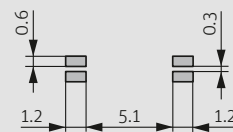
side view



bottom view



crystal connection
#2 - #3
not connected



pad layout

in mm

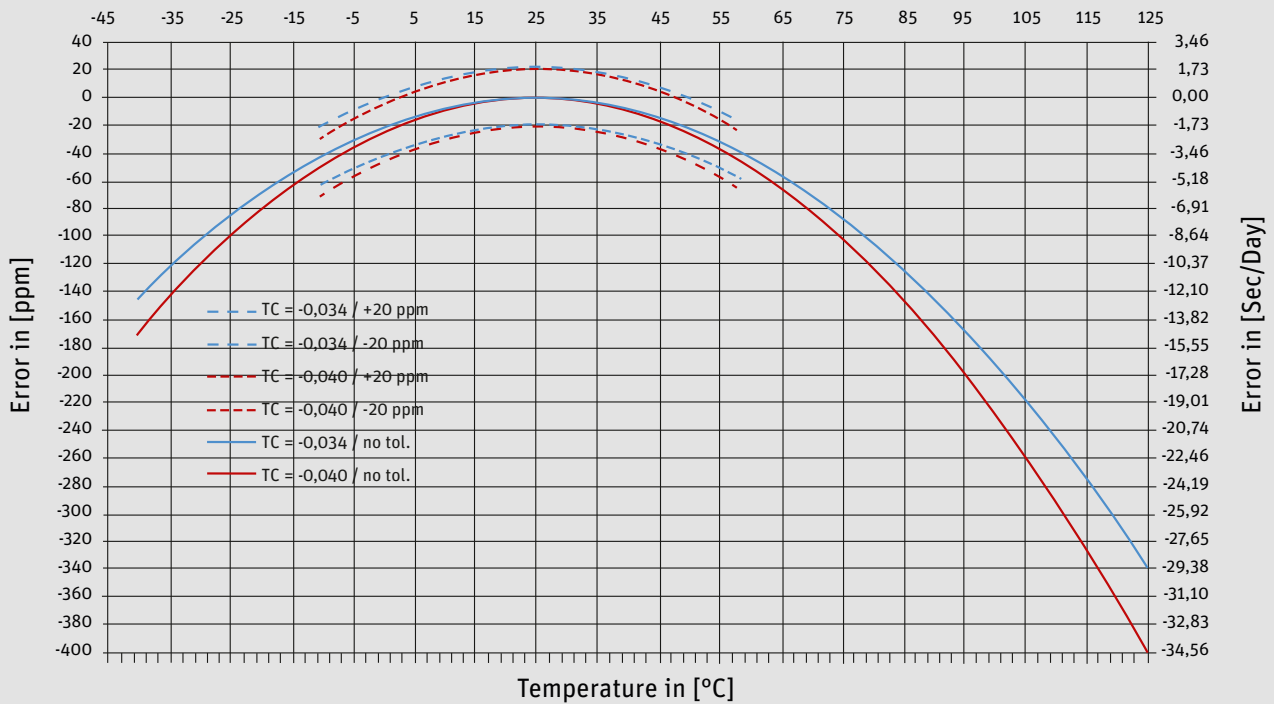
ORDER INFORMATION

Q	frequency	type	load capacitance	tolerance at 25 °C	option
Quartz	0.032768 MHz	SMQ32SN	12.5 pF standard 7 pF	20 = ±20 ppm 30 = ±30 ppm	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

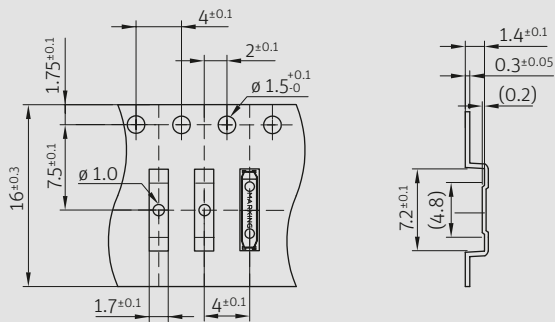
Example: Q 0.032768-SMQ32SN-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

Quartz Crystal SMQ32SN

FREQUENCY ERROR VS. TEMPERATURE IN PPM OR SECONDS PER DAY



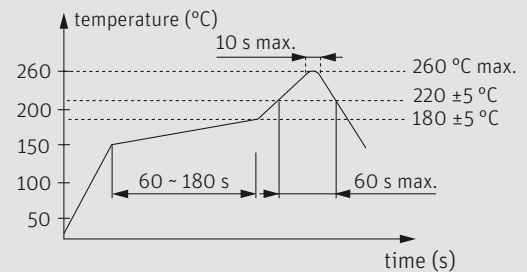
TAPING SPECIFICATION



3000 pcs per reel

in mm

REFLOW SOLDERING PROFILE



note: parts are also suitable for soldering systems with lead (Pb) content