

# Quartz Crystal · SMQ32SN

SMD Tuning Fork Crystal · 7.0 x 1.5 mm



actual size

- 32.768 kHz standard
- reflow soldering temperature: 260 °C max.
- package height 1.4 mm max.



## 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	$f$ (ppm) = $T_C \cdot (25^\circ\text{C} - T)^2$ $T$ = requested 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 k $\Omega$ (12.5 pF) 70 k $\Omega$ (7 pF)
storage temperature	-55 °C ~ +125 °C
drive level max.	1 $\mu$ W
aging first year	< ± 3 ppm

## Frequency Stability vs. Temperature

		- 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:

KHz	Code
32.768	3

month code:

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

CL code:

CL (pF)	Code
12.5	C
7.0	7

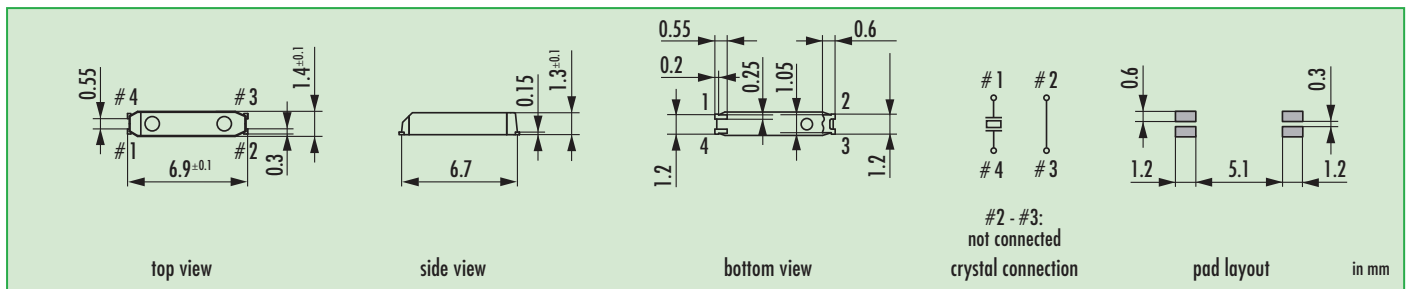
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	M	N

year code:

2013	2014	2015	2016	2017	2018	2019
D	E	F	G	H	J	K

example: C3 ED C, ED = May 2013, C = 12.5pF

## Dimensions



## Order Information

<b>Q</b>	frequency	type	load capacitance	stability 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)