



actual size

Quartz Crystal SMQ32

- SMD Tuning Fork Crystal • 13.2 x 4.9 mm
- 32.768 kHz standard
- package height 4.8 mm max.



RoHS compliant



Pb free pads



REACH compliant



Conflict mineral free

GENERAL DATA	
TYPE	SMQ32
frequency	32.768 kHz (30.0 ~ 80.0 kHz on request)
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. (6 pF ~ 12.5 pF on request)
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 $T_{TP} = 25 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ T_{TP} = turning point temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	2 pF typical
series resistance max. (ESR)	33.0 kΩ
storage temperature	-40 °C ~ +90 °C
drive level max.	1 μW
aging first year	< ± 5 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					
factory code / 327 / date code (MY)					
data code: A ~ M: Jan. - Dec.					
8: 2018	9: 2019	0: 2020	1: 2021	2: 2022	3: 2023
Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

DIMENSIONS

top view **side view** **bottom view** **crystal connection** **pad layout** **in mm**

Terminals
 # 1 - # 4 X-tal
 # 2 - # 3 GND

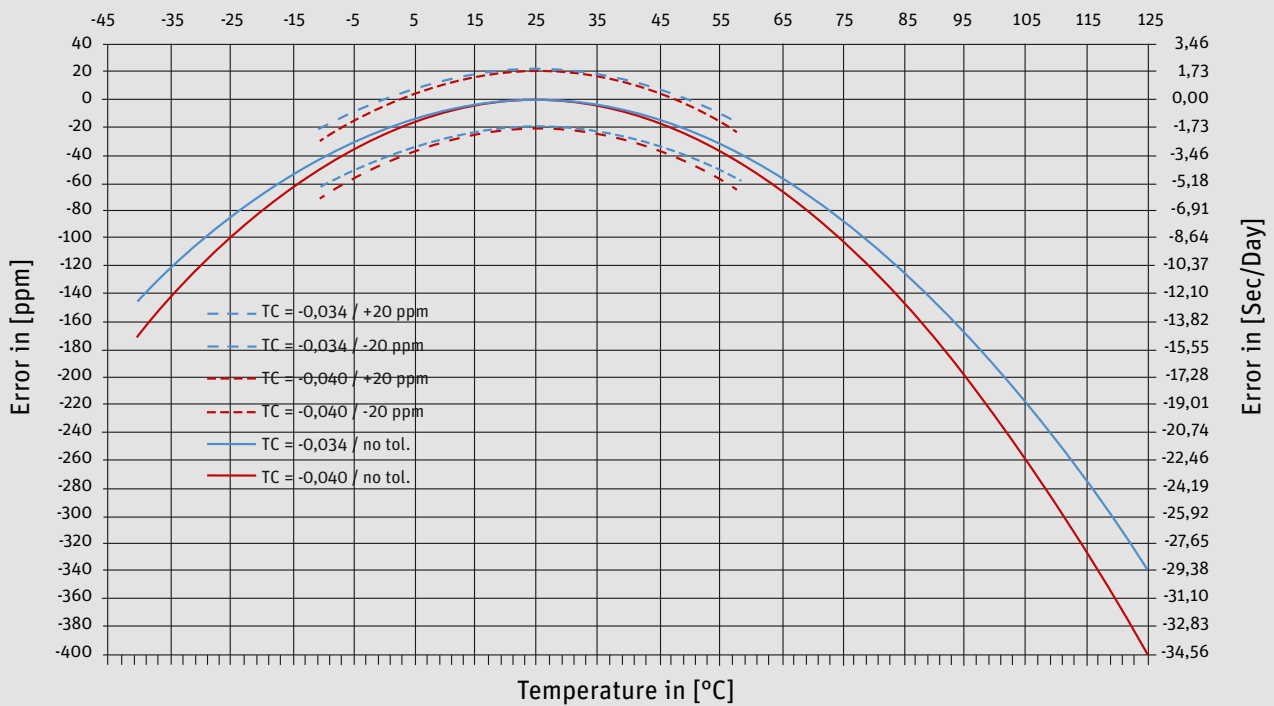
#2 - #3 connected to housing

ORDER INFORMATION

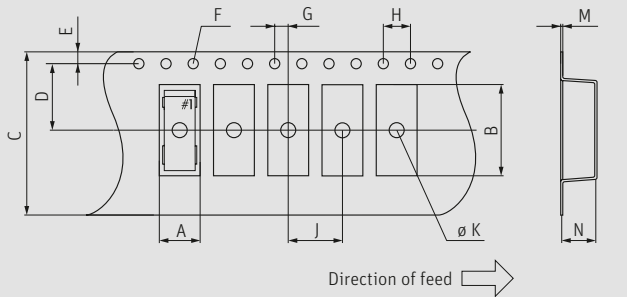
Q	frequency	type	load capacitance	tolerance at 25 °C	option
Quartz	0.032768 MHz	SMQ32	6 pF ~ 12.5 pF 12.5 pF Std.	30 = ±30 ppm 20 = ±20 ppm	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SMQ32-12.5-30-LF (Suffix LF = RoHS compliant / Pb free pads)

FREQUENCY ERROR VS. TEMPERATURE IN PPM OR SECONDS PER DAY



TAPING SPECIFICATION

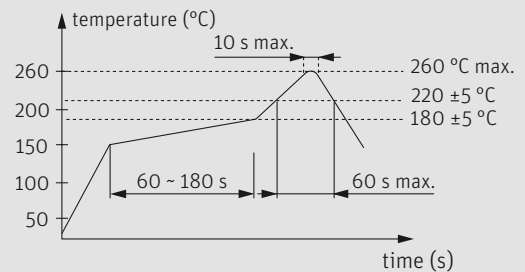


1000 pcs per reel

in mm

A	B	C	D	E	G
5.3 ^{+0.1}	13.4 ^{+0.1}	24.0 ^{+0.3}	11.5 ^{+0.1}	1.75 ^{+0.1}	∅1.5 ^{+0.1}
G	H	J	K	M	N
2.0 ^{+0.1}	4.0 ^{+0.1}	8.0 ^{+0.1}	∅2.5 ^{+0.05}	0.4	6.0 max.

REFLOW SOLDERING PROFILE



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