

actual size

Quartz Crystal SMQ32SL

- SMD Tuning Fork Crystal • 8.0 x 3.8 mm
- 32.768 kHz standard
- package height 2.5 mm max.

RoHS compliant
Pb free pads
REACH compliant
Conflict mineral free

GENERAL DATA

TYPE	SMQ32SL
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm
	± 10 ppm (ask if available)
load capacitance C_L	12.5 pF std. (6 pF optional)
temperature constant (T_C)	T_C = -0.04 ppm / °C² max.
	T_C = -0.034 ppm / °C² typical
frequency temperature characteristic	$\Delta f = T_C \cdot (T_A - T_{TP})^2$ in [ppm]
	T_A = actual ambient temperature
	T_{TP} = 25 °C ± 5 °C
	T_{TP} = turning point temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.3 pF typical
series resistance max. (ESR)	50 kΩ
storage temperature	-40 °C ~ +90 °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

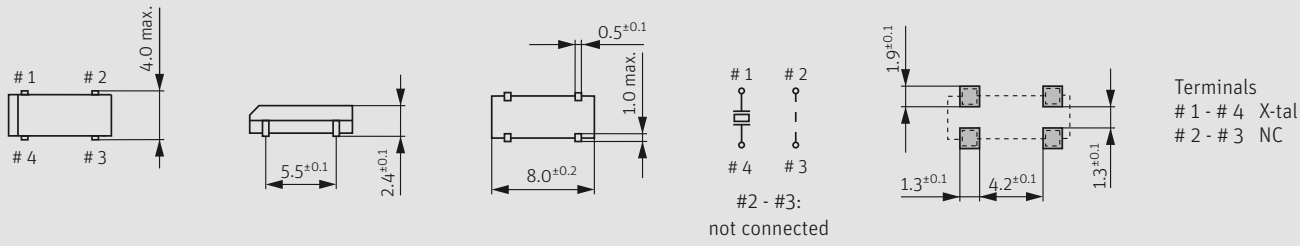
MARKING

frequency (optional)
internal code / date code

PACKING UNIT

3000 pcs per reel standard
1000 pcs per reel on request

DIMENSIONS



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

ORDER INFORMATION

Q	frequency	–	type	–	load capacitance	–	tolerance at 25 °C	–	option
Quartz	0.032768 MHz		SMQ32SL		12.5 pF Std. 6 pF optional		10 = ±10 ppm 20 = ±20 ppm 30 = ±30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SMQ32SL-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

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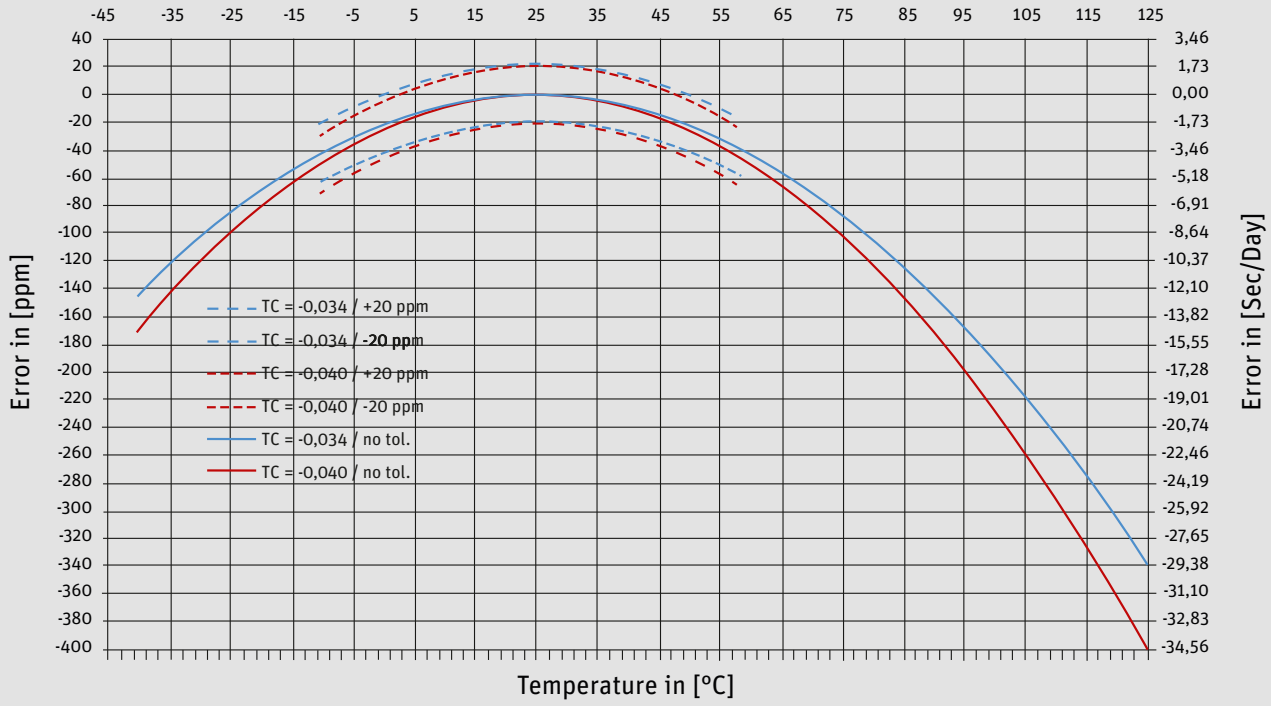
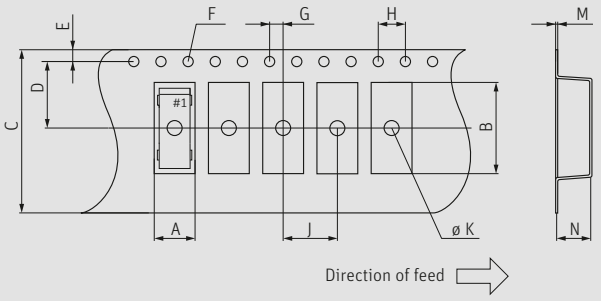
FREQUENCY ERROR VS. TEMPERATURE IN PPM OR SECONDS PER DAY



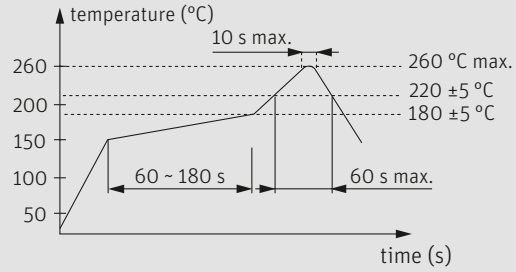
TAPING SPECIFICATION



in mm

A	B	C	D	E	G
4.1±0.2	8.4±0.2	16.0±0.3	7.5±0.1	1.75±0.1	ø1.5 ±0.1
G	H	J	K	L	M
2.0±0.1	4.0±0.1	8.0±0.1	ø2.5 max.	0.3±0.05	2.7±0.1

REFLOW SOLDERING PROFILE



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