



actual size

# SMD Quartz Crystal · SMU4

- 2 pad version, 11.5 x 4.8 mm
- low cost SMD type
- reflow soldering temperature: 260 °C max.
- package height 4.0 mm max.



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

## GENERAL DATA

TYPE		SMU4
frequency range	fund. AT-cut	3.27680 ~ 33.0 MHz (> 33.0 MHz, ask if available)
	3rd OT AT-cut	ask for availability
	fund. BT-cut	ask for availability
frequency tolerance at 25 °C	±20 ppm ~ ±50 ppm / ±50 ppm if ≤ 3.57 MHz	
load capacitance $C_L$	12 pF ~ 32 pF or series / 30 pF standard	
shunt capacitance $C_0$	< 5 pF	
storage temperature	-40 °C ~ +125 °C	
drive level max.	500 µW (100 µW recommended)	
aging	< ±5 ppm first year	

## ESR (SERIES RESISTANCE RS)

frequency in MHz	vibration mode	ESR max. in Ω	ESR typ. in Ω
3.276 ~ 3.499	fund. - AT	200	100
3.500 ~ 3.999	fund. - AT	120	80
4.000 ~ 5.999	fund. - AT	80	60
6.000 ~ 6.999	fund. - AT	70	35
7.000 ~ 8.999	fund. - AT	50	25
9.000 ~ 13.999	fund. - AT	35	15
14.000 ~ 33.000	fund. - AT	30	10
(33.000 ~ 40.000)	fund. - AT	(30)	(10)
ask	3rd OT AT	(100)	(60)
ask	fund. - BT	(50)	(20)

numbers in brackets () only for reference

## TABLE 1: FREQUENCY STABILITY VS. TEMPERATURE

		±20 ppm	±30 ppm	±50 ppm	±100 ppm	±150 ppm	+10/-100 ppm
-20 °C ~ +70 °C	STD.	△	○	●			OBT-cut
-40 °C ~ +85 °C	T1		○	●(*)	○		
-40 °C ~ +105 °C	T2			○	○		
-40 °C ~ +125 °C	T3					○	

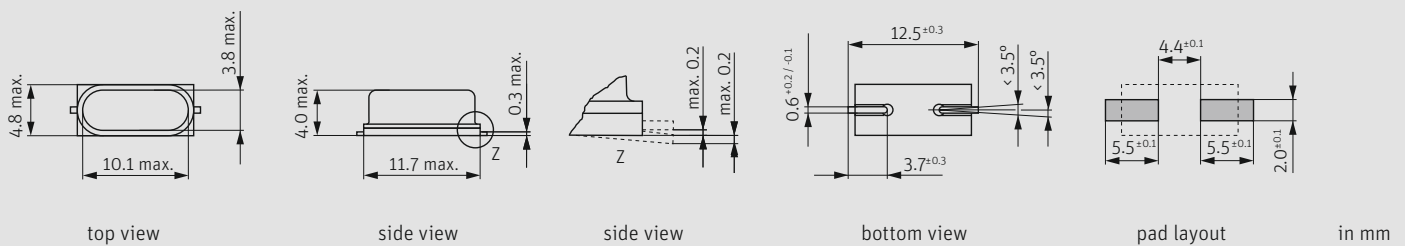
● standard ○ available △ ask if available

(\*) if ≤ 3.57 MHz, not better than ± 100 ppm at temp. range T1

## NOTE

- extended operating temperatures up to +125 °C
- please refer to the automotive datasheet for the AEC-Q200 qualified version

## DIMENSIONS



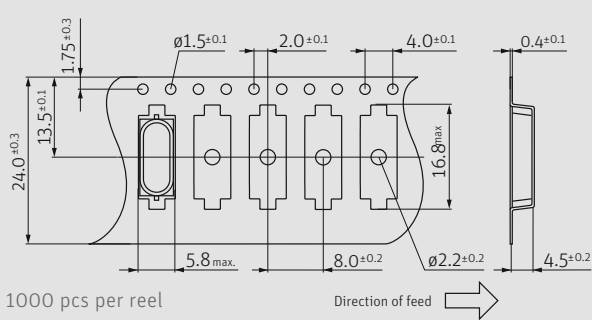
## ORDER INFORMATION

Q	frequency	type	load capacitance in pF	tolerance at 25 °C	stability vs. temp. range	option
Quartz	3.27680 ~ 33.0 MHz	SMU4	12 pF ~ 32 pF S for series 30 pF standard	30 = ±30 ppm std 20 = ±20 ppm 50 = ±50 ppm	see table	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +105 °C T3 = -40 °C ~ +125 °C FU = for fundamental frequencies ≥ 20 MHz 3OT = 3rd overtone (if available) BT = fundamental BT-cut (if available)

Example: Q 30.0-SMU4-30-30/50-FU-LF (Suffix LF = RoHS compliant / Pb free pins or pads)

# SMD Quartz Crystal · SMU4 · Industrial Application

## TAPING SPECIFICATION

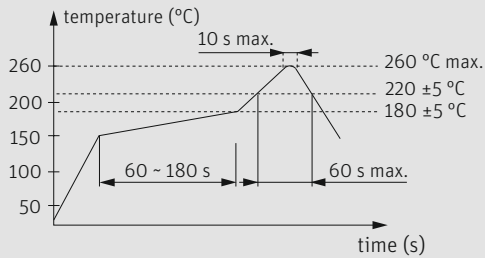


1000 pcs per reel

Direction of feed →

in mm

## REFLOW SOLDERING PROFILE



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

## LOAD CAPACITANCE CODES

7 pF: m	13 pF: v	20 pF: c	32 pF: e
8 pF: k	14 pF: x	22 pF: g	series: s
9 pF: n	15 pF: j	24 pF: d	T: 3rd OT
10 pF: h	16 pF: b	25 pF: r	
11 pF: l	17 pF: t	27 pF: w	
12 pF: a	18 pF: f	30 pF: .	

example 4.0 MHz / 12 pF: 4a000

## MARKING

frequency with load capacitance code  
company code / date code / internal code

		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2019	2023	a	b	c	d	e	f	g	h	j	k	l	m
2020	2024	n	p	q	r	s	t	u	v	w	x	y	z
2021	2025	A	B	C	D	E	F	G	H	J	K	L	M
2022	2026	N	P	Q	R	S	T	U	V	W	X	Y	Z