Advanced crystal technology

Tel : 0044 (0)118 979 1238
Fax : 0044 (0)118 979 1283
email : info@actcrystals.com

ACT631SMX-4

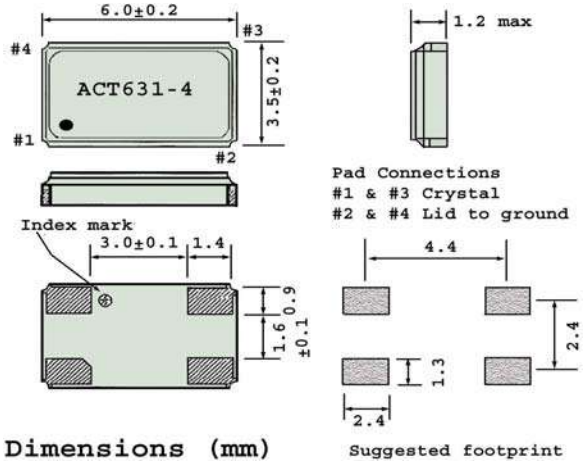
The **ACT631SMX-4** is a 4 pad, high quality, low aging, metal seam, packaged crystal suitable for automatic placement on printed circuit boards. It utilises a ceramic base and metal lid for durability. the lid is grounded through the package and the pads are gold plated. With a wide frequency range, and tight stability it has become one of the optimum choices for design engineers. **Applications** include Communications, Microprocessor Systems, Instrumentation and many more.

Specification

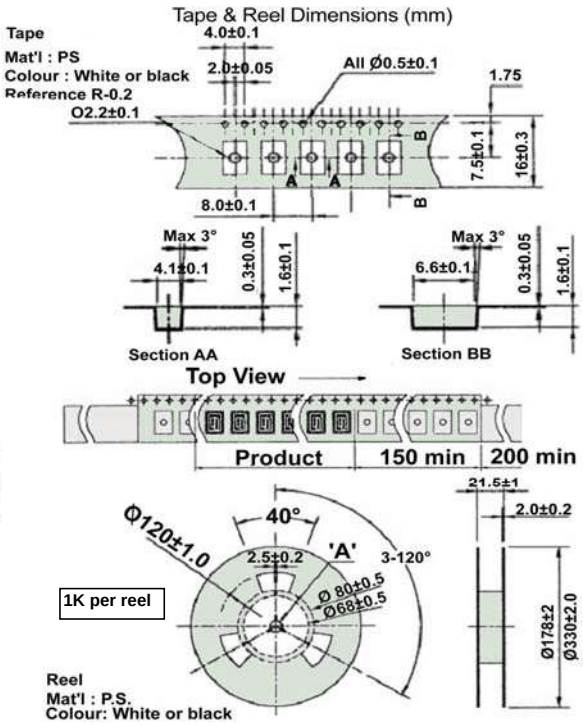
Parameter	Symbol	Specification	Condition
Frequency Range	fo	10.00 ~ 120.00 MHz	Please specify
Frequency Tolerance (@25°C)	Δf/fo	±10,±15,±30,±50 & ±100ppm	(±7.5ppm available to 24.999MHz)
Stability over Temp Range	Tc	See Table 2	Please specify
Temp Operating Range	Topr	-10~+60°C,-20~+70°C,-40~+85°C	Please specify
Temp Storage Range	Tstg	-40 ~ +85°C	
Equivalent Series Resistance	ESR	See Table 1	
Load Capacitance	CL	8 ~ 50pF or Series	Please specify
Shunt Capacitance	C0	7pF max	
Drive Level	DL	100μW Typical	(100μW ~1.0mW options available)
Insulation Resistance	IR	500MΩ min	@100V DC
Aging	Fa	±5ppm / year max	@25°C

Table 2

Frequency Range (MHz)	ESR (Ω) max	Mode
10.000~11.999	70	Fundamental
12.000~19.999	60	Fundamental
20.000~34.999	50	Fundamental
35.000~43.999	40	Fundamental
44.000~120.000	80	3rd Overtone



Pad Surface Material Gold (Au)



Reflow Profile

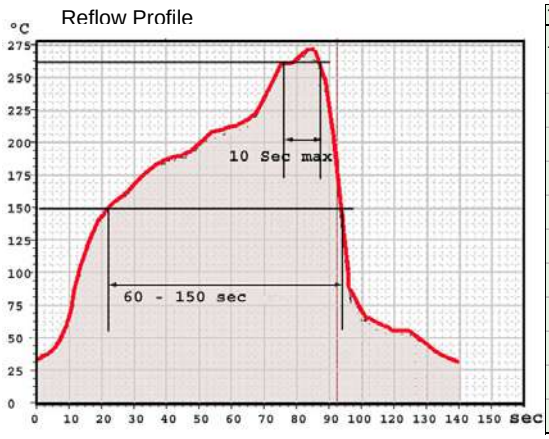


Table 2 Frequency Stability v Temperature (ppm)

Temp \ Stability ppm	+/- 5	+/- 7.5	+/- 10	+/- 15	+/- 20	+/- 30	+/- 50	+/- 100
0~+60°C	✓	✓	✓	✓	✓	✓	✓	✓
-10+60°C		✓	✓	✓	✓	✓	✓	✓
-10~+70°C		✓	✓	✓	✓	✓	✓	✓
-20~+70°C		✓	✓	✓	✓	✓	✓	✓
-30~+65°C		✓	✓	✓	✓	✓	✓	✓
-30~+70°C			✓	✓	✓	✓	✓	✓
-20~+85°C				✓	✓	✓	✓	✓
-30~+85°C				✓	✓	✓	✓	✓
-40~+85°C				✓	✓	✓	✓	✓
-40~+90°C						✓	✓	✓
-40~+105°C						✓	✓	✓

Please note that all parameters can not necessarily be specified in the same device

Customer to specify : Frequency, Frequency Tolerance, Temperature Stability, Operating Temperature & Load Capacitance

In line with our ongoing policy of product evolvement and improvement, the above specification may be subject to change without notice

ISO9001:2000 Registered

For quotations or further information please contact us at:

3 The Business Centre, Molly Millars Lane, Wokingham, Berkshire, RG41 2EY, UK

http://www.actcrystals.com

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SERIES : ACT631SMX-4 Part numbering code is PA

Example :

PA	1200	I	K	G	RO	F	C	- PF
631SMX-4	(12.000MHz)	(±30ppm)	(±30ppm)	(-20+70)	(16pF)	(Fund')	(1K Reel)	(RoHS)

Frequency

6~9.999MHz 0 and 1st 3 digits of frequency 10- 99.9999MHz 1st four digits of Frequency. See note 4. 100~120MHz first five digits of frequency.

Examples

0983 = 9.8304MHz
1200 = 12.000MHz
7999 = 79.9999MHz
12525 = 125.250MHz

NB:
It is important to suffix the above part number with the full frequency required to give a completed part number as illustrated below

Tolerance (±pm) @ 25ºC

C	7.5 *
E	10
F	15
G	20
H	25
I	30
L	50
N	100

* Only available for fo <25MHz

Stability Over Operating Temperature (ºC)

B	5
B	7.5
F	10
G	15
I	20
K	30
O	50
V	100

Operating Temperature Range (ºC)

E	-10+60
B	-0+60
F	-10+70
G	-20+70
W	-30+65
T	-30+70
H	-20+85
L	-30+85
M	-40+85
N	-40+90
Y	-40+105

Load Capacitance (pF or Series Resonance)

GO	8
JO	9
KO	10
MO	11
OO	12
ZO	14
PO	15
RO	16
TO	18
VO	20
AA	24
BA	25
DA	30
SR	SR

Mode

F	Fundamental
A	3rd Overtone

Package

L = Loose
C =1K Reels

RoHS Comp'

- PF

Full Example Part Number

PA1200IKGROFC - PF 12.0000MHz

Table 2 Frequency Stability v Temperature (ppm)

Temp / Stability ppm	+/- 5	+/- 7.5	+/- 10	+/- 15	+/- 20	+/- 30	+/- 50	+/- 100
0~+60°C	✔	✔	✔	✔	✔	✔	✔	✔
-10+60°C		✔	✔	✔	✔	✔	✔	✔
-10~+70°C		✔	✔	✔	✔	✔	✔	✔
-20~+70°C		✔	✔	✔	✔	✔	✔	✔
-30~+65°C		✔	✔	✔	✔	✔	✔	✔
-30~+70°C			✔	✔	✔	✔	✔	✔
-20~+85°C				✔	✔	✔	✔	✔
-30~+85°C				✔	✔	✔	✔	✔
-40~+85°C				✔	✔	✔	✔	✔
-40~+90°C						✔	✔	✔
-40~+105°C						✔	✔	✔

NOTES :

1) **Tighter Tolerances and Stabilities and other Operating Temperature Ranges may be available.**

2) **ACT are always happy to consider truly custom specification parts which may require non-standard specification parameters, specific testing, customer requested AQL requirements, non standard packaging or taping and reeling and custom marking. Such devices would normally be allocated a custom specification part number which is wholly customer specific.**

(EG : A 12.00MHz custom ACT631SMX-4 device may have a part number such as PA1200C- C1122-PF)

3) **A guide to availability of tighter stabilities appears on page one of this data sheet and above in Table 2**

4) **Frequencies below 10.000MHz are prefixed with a "0" (eg: 0900 = 9MHz.Whereas 10.000MHz is 1000)**