

## ACT534A-SMX-2

The **ACT534ASMX-2** family is a low cost, 2 pad, high quality, low aging 5x3.2mm SMD Crystal in a ceramic base / ceramic lid package, glass sealed for good reliability. The wide frequency range and specification options ensure suitability for many applications.

**APPLICATIONS:** Instrumentation, Notebook, Security, Games, Audio-visual, Office automation, Micro Clock, Process Control & Consumer.

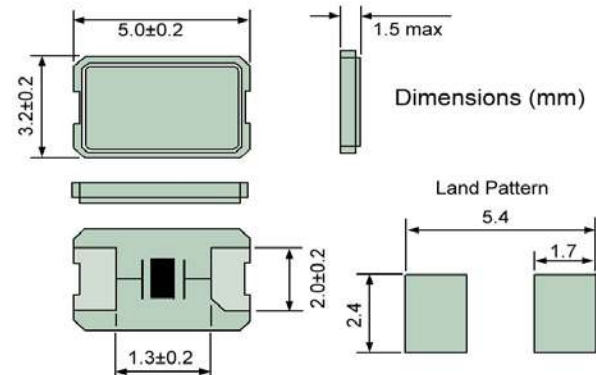


### Specification

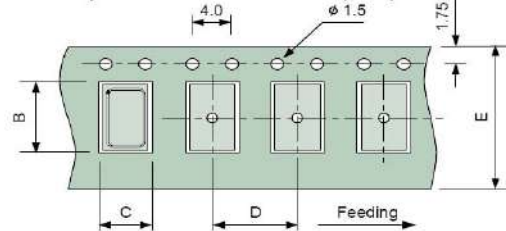
| Parameter                    | Symbol         | Specification                              | Condition               |
|------------------------------|----------------|--------------------------------------------|-------------------------|
| Frequency Range              | $f_0$          | 6.00 ~ 80.0MHz                             | Please specify          |
| Frequency Tolerance (@25°C)  | $\Delta f/f_0$ | $\pm 30, \pm 50$ ppm (Standard or Specify) | Please specify          |
| Stability over temp range    | Tc             | $\pm 30, \pm 50$ ppm (Standard or Specify) | Please specify          |
| Temp Operating Range         | Topr           | 0~+50°C ~ -40~-+85°C                       | Please specify          |
| Temp Storage Range           | Tstg           | -55 ~ +125°C                               |                         |
| Equivalent Series Resistance | ESR            | See table 1                                |                         |
| Load Capacitance             | CL             | 9pF, 10pF, 16pF, 20pF & Series or specify  | Please Specify          |
| Shunt Capacitance            | C0             | 5pF max                                    |                         |
| Drive Level                  | DL             | 10 ~ 100µW                                 |                         |
| Drive Level Dependency       | DLD            | FDLD <10ppm <1.3<br>ESR max / ESR min <1.3 | 10 ~ 100µW 6 steps      |
| Insulation Resistance        | IR             | 500MΩ min                                  | @100V DC                |
| Aging                        | Fa             | $\pm 5$ ppm p/year ( $\pm 3$ ppm option)   | (First year max @ 25°C) |

**Table 1**

| Frequency Range (MHz) | ESR (Ω) max | Mode / Cut       |
|-----------------------|-------------|------------------|
| 8.000 ~ 9.999         | 70          | Fundamental / AT |
| 10.000 ~ 29.999       | 40          | Fundamental / AT |
| 29.999 ~ 44.999       | 60          | 3rd Overtone AT  |
| 45.000 ~ 80.000       | 50          | 3rd Overtone AT  |

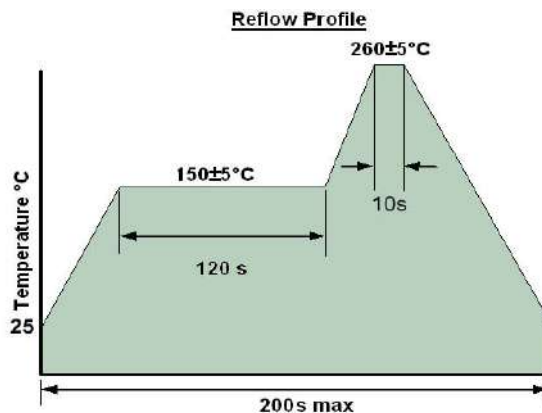
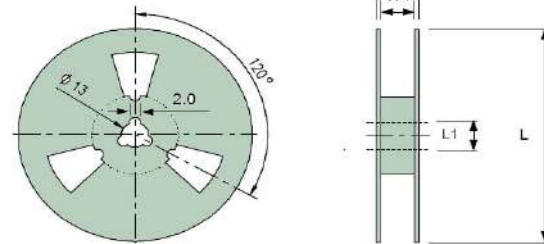


### Tape & Reel Dimensions (mm)



| A    | B   | C   | D   | E  | L   | L1 | W    | W1 |
|------|-----|-----|-----|----|-----|----|------|----|
| 1.46 | 5.5 | 3.6 | 8.0 | 12 | 180 | 13 | 15.4 | 13 |

Standard reel quantity 1K pieces



| AVAILABLE TEMPERATURE Vs STABILITY |     |     |     |     |     |      |
|------------------------------------|-----|-----|-----|-----|-----|------|
| Stability (ppm)                    | ±10 | ±15 | ±20 | ±30 | ±50 | ±100 |
| Temperature (°C)                   |     |     |     |     |     |      |
| -10 ~ +60                          | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -20 ~ +60                          | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| 0 ~ +60                            | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -10 ~ +70                          | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -20 ~ +70                          | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -30 ~ +65                          |     |     |     |     | STD | STD  |
| -30 ~ +70                          |     |     |     |     | STD | STD  |
| -20 ~ +85                          |     |     |     |     | STD | STD  |
| -30 ~ +85                          |     |     |     |     | STD | STD  |
| -40 ~ +85                          |     |     |     |     | STD | STD  |
| -40 ~ +90                          |     |     |     |     | STD | STD  |

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 evolution and improvement, the above specification may subject to change without notice

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For quotations or further information please contact us at:

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<http://www.actcrystals.com>

## SERIES : ACT534ASM-X-2 Part numbering code is BW

Example :

**BW** 534ASM-X-2    **1200** (12.000MHz)    **I** (±30ppm)    **K** (±30ppm)    **G** (-20+70)    **RO** (16pF)    **F** (Fund')    **C** (1K Reel)    **- PF** (RoHS)

| Frequency                                              |
|--------------------------------------------------------|
| 6-9.999MHz 0 and 1st 3 digits of frequency             |
| 10-99.9999MHz 1st four digits of Frequency. See note 4 |

### Examples

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

### 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 (±ppm) @ 25°C |    |
|-------------------------|----|
| E                       | 10 |
| F                       | 15 |
| G                       | 20 |
| H                       | 25 |
| I                       | 30 |
| L                       | 50 |

| Stability Over Operating Temperature (°C) |     |
|-------------------------------------------|-----|
| F                                         | 10  |
| G                                         | 15  |
| I                                         | 20  |
| K                                         | 30  |
| O                                         | 50  |
| V                                         | 100 |

| Operating Temperature Range (°C) |        |
|----------------------------------|--------|
| 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 |

| 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 |

| RoHS Comp' |  |
|------------|--|
| - PF       |  |

| Package |          |
|---------|----------|
| L       | Loose    |
| C       | 1K Reels |

| AVAILABLE TEMPERATURE Vs STABILITY |     |     |     |     |     |      |
|------------------------------------|-----|-----|-----|-----|-----|------|
| Stability (ppm)                    | ±10 | ±15 | ±20 | ±30 | ±50 | ±100 |
| Temperature (°C)                   |     |     |     |     |     |      |
| -10 ~+60                           | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -20 ~+60                           | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| 0 ~+60                             | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -10 ~+70                           | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -20 ~+70                           | ✓   | ✓   | ✓   | ✓   | STD | STD  |
| -30 ~+65                           |     |     |     |     | STD | STD  |
| -30 ~+70                           |     |     |     |     | STD | STD  |
| -20 ~+85                           |     |     |     |     | STD | STD  |
| -30 ~+85                           |     |     |     |     | STD | STD  |
| -40 ~+85                           |     |     |     |     | STD | STD  |
| -40 ~+90                           |     |     |     |     | STD | STD  |

### Full Example Part Number

**BW1200IKGROFC - PF 12.0000MHz**

## 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 12.000MHz custom ACT534ASM-X-2 device may have a part number such as BW1200C- C1122-PF)
- 3) A guide to availability of tighter stabilities appears on page one of this data sheet in Table 2
- 4) Frequencies below 10.000MHz are prefixed with a "0" (eg: 0900 = 9MHz. Whereas 10.000MHz is 1000 )

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