

## ACT26SMX

The ACT26SMX is a miniature cylindrical SMD package offering high vibration and shock resistance together with high stability. It is most suitable for portable equipment and close packing density. The series offers a wide, low frequency range and is popular for use in Microprocessor, Consumer and Instrumentation applications

### Specification



Parameter	Symbol	Specification	Condition
Frequency Range	fo	30.00 ~ 200KHz	
Frequency Tolerance @25°C	$\Delta f/fo$	$\pm 20\text{ppm} \sim 200\text{ppm}$ See attached notes	150KHz ~ 200KHz, supplied as $\pm 200\text{ppm}$ only
Turnover Temperature	Tm	25°C $\pm 5^\circ\text{C}$	
Freq. Temp. coefficient	$\beta$	-0.034 $\pm$ 0.006ppm / °C <sup>2</sup> max	
Temp Operating Range	Topr	-10 ~ +60°C	
Temp Storage Range	Tstg	-20 ~ +70°C	
Equivalent Series Resistance	ESR	See Table	@ 25°C
Shunt Capacitance	C0	1.4pF typical ( >100KHz, 1.0pf Typical )	
Load Capacitance	CL	12.5pF (Others available.)	Please specify
Motional Capacitance	C1	3.0fF (Typical)	
Drive Level	DL	1.0 $\mu$ W max	
Capacitance Ratio	$\gamma$	450 typical	
Q Factor	Q	60,000 typical ( 50,000 ~ 80,000, see popular frequencies below )	
Insulation Resistance	IR	500M $\Omega$ Min	
Aging	Fa	$\pm 5\text{ppm}$	@ 25°C $\pm 3^\circ\text{C}$

Popular Frequencies and Parameters (Operating Temperature -10 ~ + 60 C )						Notes:														
Centre Freq.	Tolerance at 25 C	ESR	C0	C1	Q Value															
30.000KHZ	$\pm 3\text{OPPM}$	40K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	50000	1, Lower tolerance (+/-10ppm) for frequencies less than 76.8KHz is available, Please enquire. 2, Frequencies less than 100KHz apart from above popular ones will require longer lead times 3, For frequency of equal or more than 100KHz, only the above 5 popular points frequencies +/-2kHz are normally available. 4, Lower tolerances than shown in the above table for frequencies more than 100KHz are not available.														
32.000KHZ	$\pm 3\text{OPPM}$	40K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	50000															
32.768KHZ	Please refer to ACT2x6HRSMX Data																			
38.4KHZ	$\pm 2\text{OPPM}$	35K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	60000															
65.536KHZ	$\pm 2\text{OPPM}$	35K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	80000	<table border="1"> <thead> <tr> <th colspan="2">ESR v Frequency</th> </tr> <tr> <th>Frequency kHz</th> <th>ESR K <math>\Omega</math> max</th> </tr> </thead> <tbody> <tr> <td>30.00 ~ 32.768</td> <td>40</td> </tr> <tr> <td>32.768 ~ 40.00</td> <td>35</td> </tr> <tr> <td>40.00 ~ 80.00</td> <td>35</td> </tr> <tr> <td>80.00 ~ 150.00</td> <td>35</td> </tr> <tr> <td>150.00 ~ 200.00</td> <td>35</td> </tr> </tbody> </table>	ESR v Frequency		Frequency kHz	ESR K $\Omega$ max	30.00 ~ 32.768	40	32.768 ~ 40.00	35	40.00 ~ 80.00	35	80.00 ~ 150.00	35	150.00 ~ 200.00	35
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77.5KHZ	$\pm 2\text{OPPM}$	35K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	80000															
75.000KHZ	$\pm 2\text{OPPM}$	35K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	80000															
76.8KHZ	$\pm 2\text{OPPM}$	35K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	80000															
100.000KHZ	$\pm 5\text{OPPM Min.}$	35K $\Omega$	1.4 $\pm 0.2\text{PF}$	3.0PF	80000															
120.000KHZ	$\pm 10\text{OPPM Min.}$	35K $\Omega$	1.0 $\pm 0.2\text{PF}$	3.0PF	80000															
153.600KHZ	$\pm 10\text{OPPM Min.}$	35K $\Omega$	1.0 $\pm 0.2\text{PF}$	3.0PF	80000															
192.000KHZ	$\pm 20\text{OPPM Min.}$	35K $\Omega$	1.0 $\pm 0.2\text{PF}$	3.0PF	80000															
200.000KHZ	$\pm 20\text{OPPM Min.}$	35K $\Omega$	1.0 $\pm 0.2\text{PF}$	3.0PF	80000															

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

Customer to Specify : Frequency, Frequency Tolerance, Operating Temperature Range & Load Capacitance

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

**ISO9001: 2000 Registered**

For quotations or further information please contact us at:

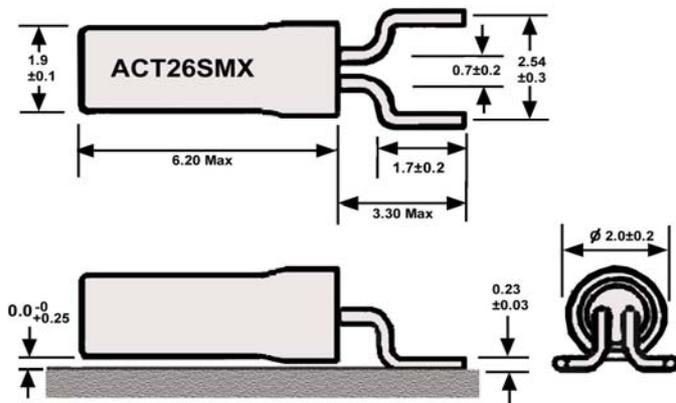
3 The Business Centre, Molly Millars Lane, Wokingham, Berks, RG41 2EY, UK

<http://www.actcrystals.com>

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## Dimensions (mm)



Lead Plating:  
CuSn

### Soldering of the ACT26SMX

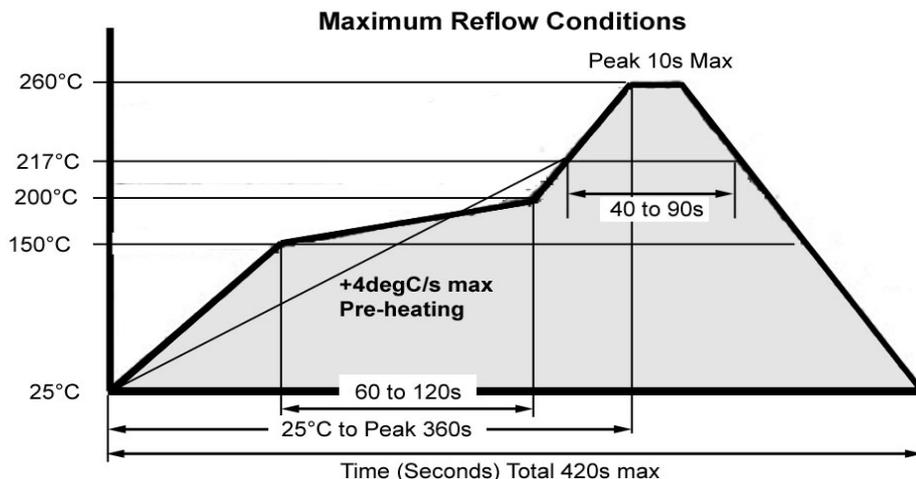
Reflow oven should be set up to emulate the maximum reflow profiles temperatures and times shown in the diagram below. Note it is just as important to conform to the times specified as the temperatures.

Pre-heat should not exceed 217°C and rate of heating from 25°C to 217°C should be limited to 4deg C/sec  
 Peak soldering temperature should not exceed 260°C.  
 Time at peak temperature should not exceed 10 seconds.  
 Total reflow time should not exceed 7 minutes.

Should it be required to solder the can to the PCB, then the area and volume of solder should be kept to an absolute minimum, and trials should be conducted to determine if the re-flow process in use is satisfactory.

### Wash Processes for Watch Crystals

Ultrasonic cleaning should be avoided.

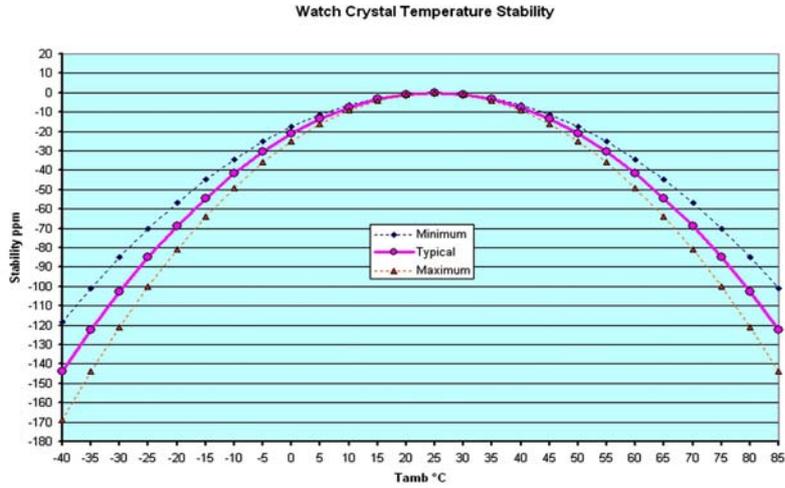


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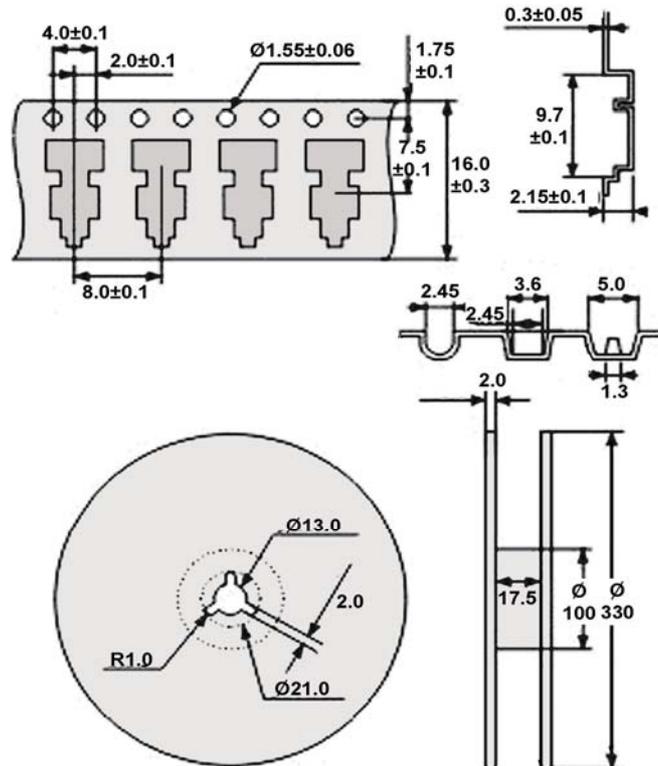
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## Temperature Stability



## Tape and reel Dimensions (mm)



Normal Reel Quantity 2000 Pieces

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