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ACT1x5, 2x6 & 3x8 Watch Crystal

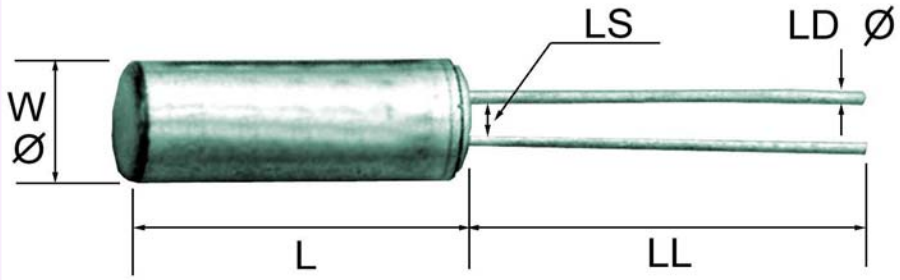
Compatible with Eu Directive 2002/EC - RoHS



The **ACT1x5, 2x6 & 3x8** are miniature cylindrical packages offering high vibration and shock resistance, together with high stability. They are suitable for portable equipment and where a close packing density is required.Two versions are offered, C1BLC: a low cost version and the HQM4E: a version with a higher Q value. The 1x5 device is only available in the High Q version.

Specification

		C1bLC Series		HQM4E Series		
Parameter		**Specification**		**Specification**		
Nominal Frequency	**fo**	**32.768KHz**				
Outline		**3x8**	**2x6**	**1x5**	**2x6**	**3x8**
Quality Factor (Typical)	**Q**	60,000	50,000	85,000	70,000	85,000
Shunt Capacitance (Typical)	**C0**	1.8pF	1.45pF	1.0pF	1.35pF	1.6pF
Equivalent Series Resistance	**ESR**	30KΩ max	35KΩ max	40KΩ max	35KΩ max	
Motional Capacitance (Typical)	**C1**	0.0030pF	0.0028pF	0.0024pF	0.0024pF	
Frequency Tolerance @25°C	**Δf/fo**	±20ppm standard ±5, ±10ppm options)		±20 standard	±20ppm standard (2x6 & 3x8: ±5 & ±10ppm options)	
Load Capacitance	**CL**	6pF~12.5pF(6, 12.5pF standard		12.5pF	12.5, 6.0pF	
Frequency v Temperature	**$\Delta f/t_{amb}$**	See Drawing -40 °C +85°C		See Drawing (-40 °C +85°C)		
Turnover Temperature	**Tm**	25°C ±5°C		25°C ±5°C		
Temperature Coefficient	**β**	-0.035±0.0086ppm / $°C^2$		-0.034+/-0.006ppm / $°C^2$		
Temp Operating Range	**Topr**	-10 +60°C standard , (-20~+70, -40 +85°C Options)		-20 +70°C ,(-40 +85°C option)		
Temp Storage Range	**Tstg**	-40 ~ +85°C		-40~+85°C		
Drive Level	**DL**	1μ W max		1μ W max		
Insulation Resistance	**IR**	500MΩ / 100VDC min		500MΩ / 100VDC min		
Aging	**Δf/yr**	±5ppm First year, 25°C (±3ppm option)		+/-3ppm(25°C 1st year)		
Shock Resistance	**$\Delta f/_{shock}$**	±5ppm		±5ppm		



DIMENSIONS (mm)

		L		W		LL		LD		LS	
C1bLC	2x6	6.0	+0.3/-0.2	2.0	+/-0.1	7	+/-0.3	0.20	+/-0.06	0.7	+/-0.15
HQM4E	2x6	6.0	+/-0.2	2.0	+/-0.1	10	+/-0.2	0.26	+/-0.05	0.7	+/-0.2
C1bLC	3X8	8.0	+0.3/-0.2	3.0	+/-0.1	9.6	+/-0.3	0.30	+/-0.01	0.8	+/-0.15
HQM4E	3X8	8.0	+/-0.2	3.1	+/-0.1	10	+/-0.2	0.35	+/-0.04	1.1	+/-0.2
HQM4E	1x5	5.0	+/-0.1	1.4	+/-0.1	4.3	+/-0.3	0.20	+/-0.05	0.45	+/-0.08

Soldering
Lead wires should be soldered within 10 seconds with a tip temperature not exceeding 270°C.
The device should ideally be upright on the board.
If the device can is required to be mechanically affixed to the board it should be stuck down with rubber adhesive.
Under no circumstances should any solder connection be made to the can of the device.

Please note that all parameters can not necessarily be specified in the same device
Customer To specify : Frequency Tolerance, Load Capacitance, Operating Temperature Range
In line with our ongoing policy of product evolvement and improvement, the above specification may be subject to change without notice

ISO9001:2000 Registered

Issue : 7C1b/M4E
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