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ACT200B and ACT200C



The **ACT200B and ACT200C are** miniature SMD Watch Crystals with excellent low power consumption, making it ideal for portable applications. Its small footprint makes it suitable for high density circuit boards and applications where PCB space is limited. The tape and reel packaging means that it is ideal for automatic placement machines (loose product is also available).
The heart of the device is a heat resistant precision tuning fork, cylinder type, crystal which provides for good stability characteristics, sufficient to allow reflow soldering. Both parts are RoHS compatiblethe ACT200C being Lead free and the 200B having high melting point tin lead solder exempted by the directive.
Applications include: Clock, Sub Clock, Small Communications Devices, Microcomputer etc.

Specification

Parameter	Symbol	Specification 200B	Specification 200C	Condition
RoHS		Compatible with Eu Directive 2002/95/EC - RoHS *Contains Pb>85% high melting point solder exempted from Article 4(1) of the directive*	Compatible with Eu Directive 2002/EC - RoHS	
Nominal Frequency	fo	32.768KHz	32.768KHz	
Frequency Tolerance	Δf/fo	±20ppm	±20ppm	@25°C
Frequency v Temp Characteristics	Δf/fo	See Fig. 1	See Fig. 1	-10 ~ +60°C
Turnover Temperature	Tm	25°C ±5°C	25°C ±5°C	refer to fig 1
Freq. Temp. coefficient	β	-0.035±0.008 ppm/°C²	-0.04 ppm/°C²	
Temp Operating Range	Topr	-40 ~ +85°C	-40 ~ +85°C	
Temp Storage Range	Tstg	-40 ~ +85°C	-55 ~ +125°C	
Equivalent Series Resistance	ESR	50KΩ max	50KΩ max	@25°C
Shunt Capacitance	Co	1.18pF Typical	1.45pF Typical	
Motional Capacitance	C1	2.65fF Typical	2.8fF Typical	
Load Capacitance	CL	12.5pF	12.5pF & 6.0pF	Please specify
Capacitance Ratio	γ	430 Typical	480 Typical	
Drive Level	DL	1μW max	1μW max	
Insulation Resistance	IR	500MΩ min	500MΩ min	@ DC 100V ±15V
Aging (first year)	Fa	±5ppm max	±3ppm max	25°C ±3°C

Dimensions (mm)

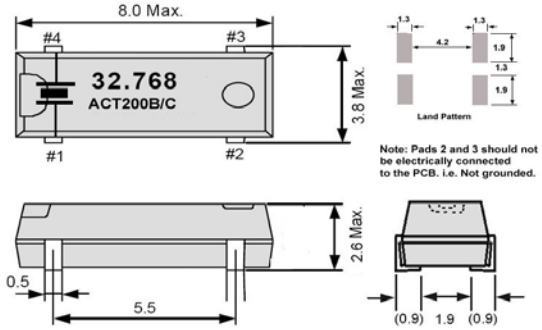
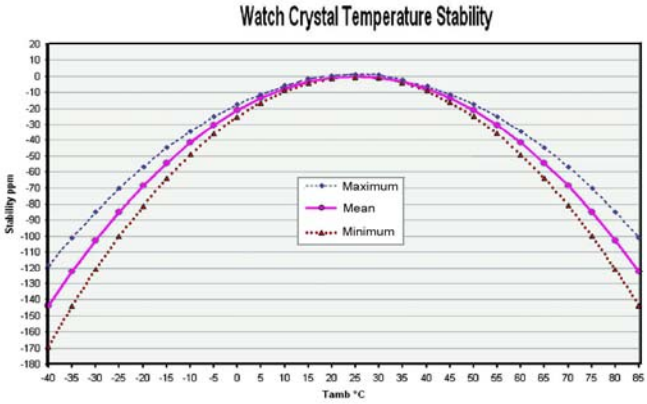


Fig 1.



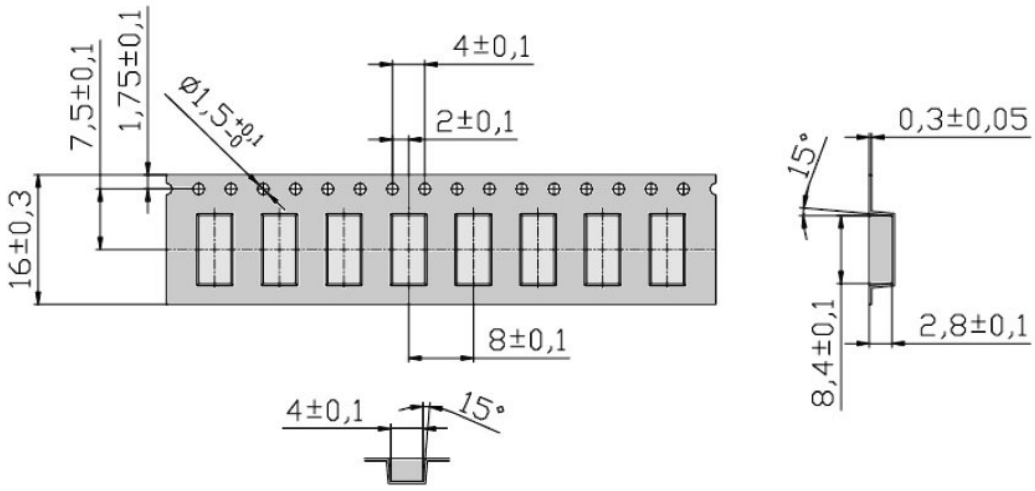
Please note that all parameters can not necessarily be specified in the same device
Customer to specify: Load Capacitance / ACT200B or ACT200C
In line with our ongoing policy of product evolvement and improvement, the above specification may be subject to change without notice
ISO9001:2000 Registered
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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ACT200B / ACT200C

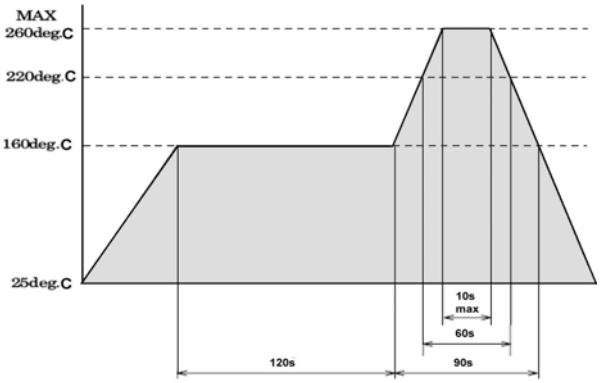
Tape and Reel specification **Standard reel quantity 3000 pieces per reel**
Reel Diameted 330±0.5mm



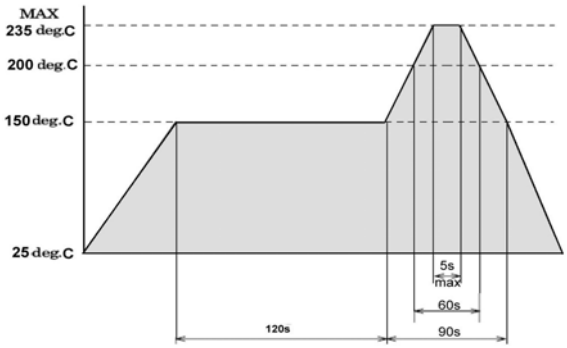
SOLDERING of SMD WATCH CRYSTALS

Reflow oven should be set up to emulate or better the maximum reflow profile shown in the diagrams below. Note: The times given as well as the temperatures are equally important to avoid excessive changes of the crystals characteristics. It is advised that trials with any new reflow profile are carried out to determine the suitability of that profile.

ACT 200B

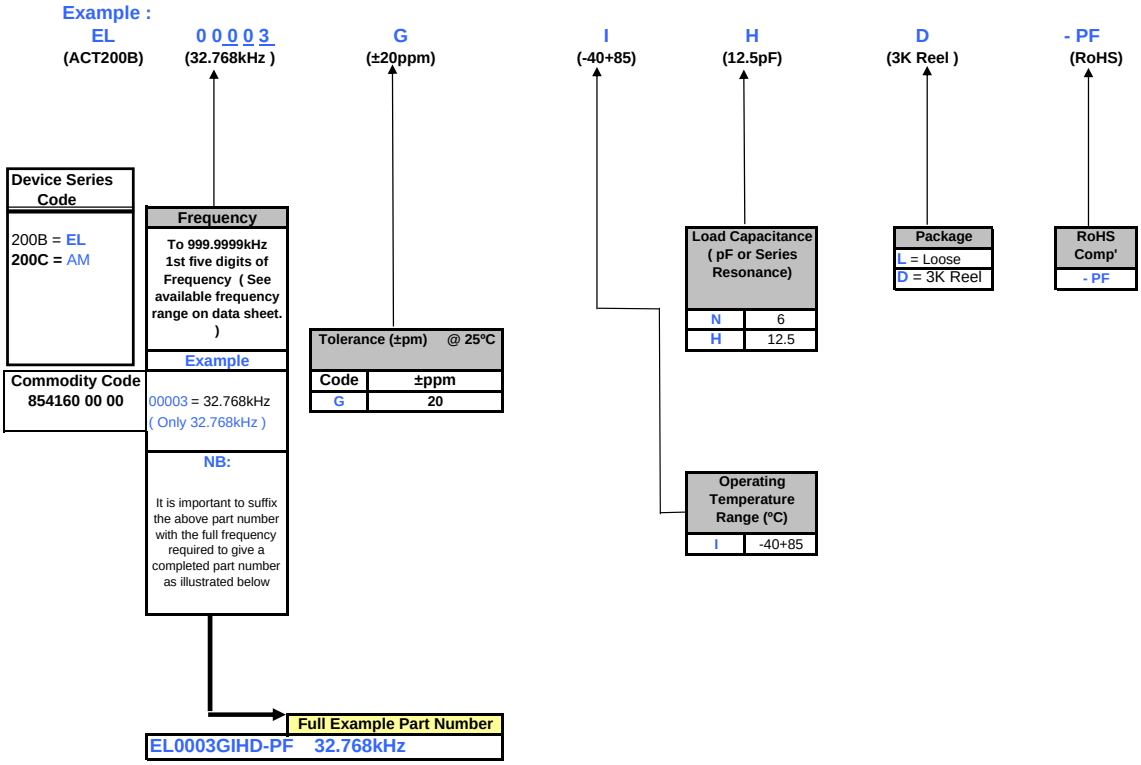


ACT 200C



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ACT 200B/200C WATCH CRYSTALS (32.768kHz) - PART NUMBERING & COMMODITY CODE



NOTES :

1) **Other Tolerances, CL's 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. (MOQ DEPENDENT) Such devices would normally be allocated a custom specification (An ACT200A device may have a part number such as EK00003C- C1101-PF)**

3) **Stability Over Operating Temperature (ºC) please refer to the data.**

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