

## ACT4115A SMX

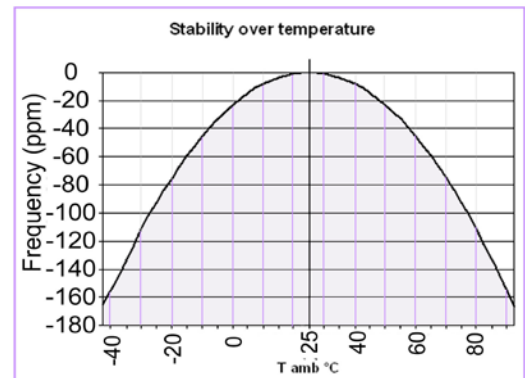
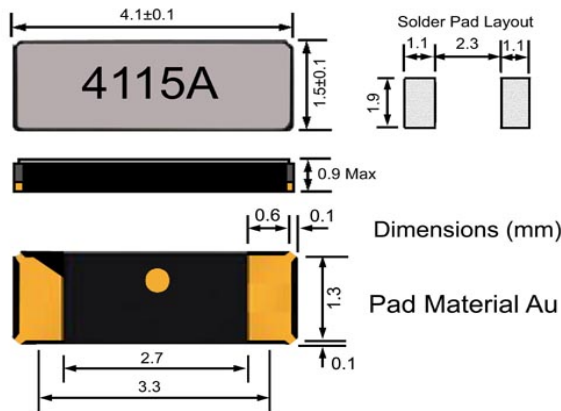
The **ACT4115A** is a miniature surface mount high density Watch Crystal in a metal lid ceramic package offering light weight and low height. High stability is assured with a vacuum, within a seam sealed package. It is very suitable for portable equipment and close component packing density requirements. The product is available taped and reeled on 3,000 piece reels and is fully RoHS compatible.



**NOT RECOMMENDED FOR NEW DESIGNS**

### Specification

Parameter	Symbol	Specification	condition
Nominal Frequency	fo	32.768KHz	
Frequency Tolerance @25°C	$\Delta f/f_0$	$\pm 20$ ppm	DL 0.1 $\mu$ W
Frequency v Temperature	$\Delta f/f_0$	See Drawing Below	
Turnover Temperature	Tm	25°C $\pm 5^\circ$ C	
Temperature Coefficient	$\beta$	-0.034 $\pm$ 0.006ppm / $^\circ$ C <sup>2</sup> max	
Temp Operating Range	Topr	-40 ~ +85°C	
Temp Storage Range	Tstg	-55 ~ +125°C	
Equivalent Series Resistance	ESR	70K $\Omega$ max	
Load Capacitance	CL	12.5pF (standard)	9pF and 7pF available please specify
Shunt Capacitance	C0	1.1 pF Typical	
Motional Capacitance	C1	0.0021 pF Typical	
Drive Level	DL	1.0 $\mu$ W max	
Insulation Resistance	IR	500M $\Omega$ @ 100 $\pm$ 15VDC min	
Aging	Fa	$\pm 3$ ppm max	First year, 25°C $\pm 3^\circ$ C
Reflow		Please refer to page 2	
Leakage		<1X10 <sup>-8</sup> hpa · 1/s	Helium leakage



ACT 4115 Material Content			
Material	Mass Grams	Material	Mass Grams
Ag	0.0900	Mo	0.0458
Al2O3	8.0770	Ni	1.0027
Au	1.0021	Pd	0.0001
CaO	0.0280	Si Resin	0.0100
Co	0.5260	SiO2	0.3020
Cr2O3	0.3420	Sn	0.1200
Fe	1.8070	Ti	0.0008
Ge	0.0650	TiO2	0.0900
MgO	0.0450	W	1.3130
<b>Total</b>	<b>15.725g</b>		

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

ISO9001:2000 Registered

For quotations or further information please contact us at:

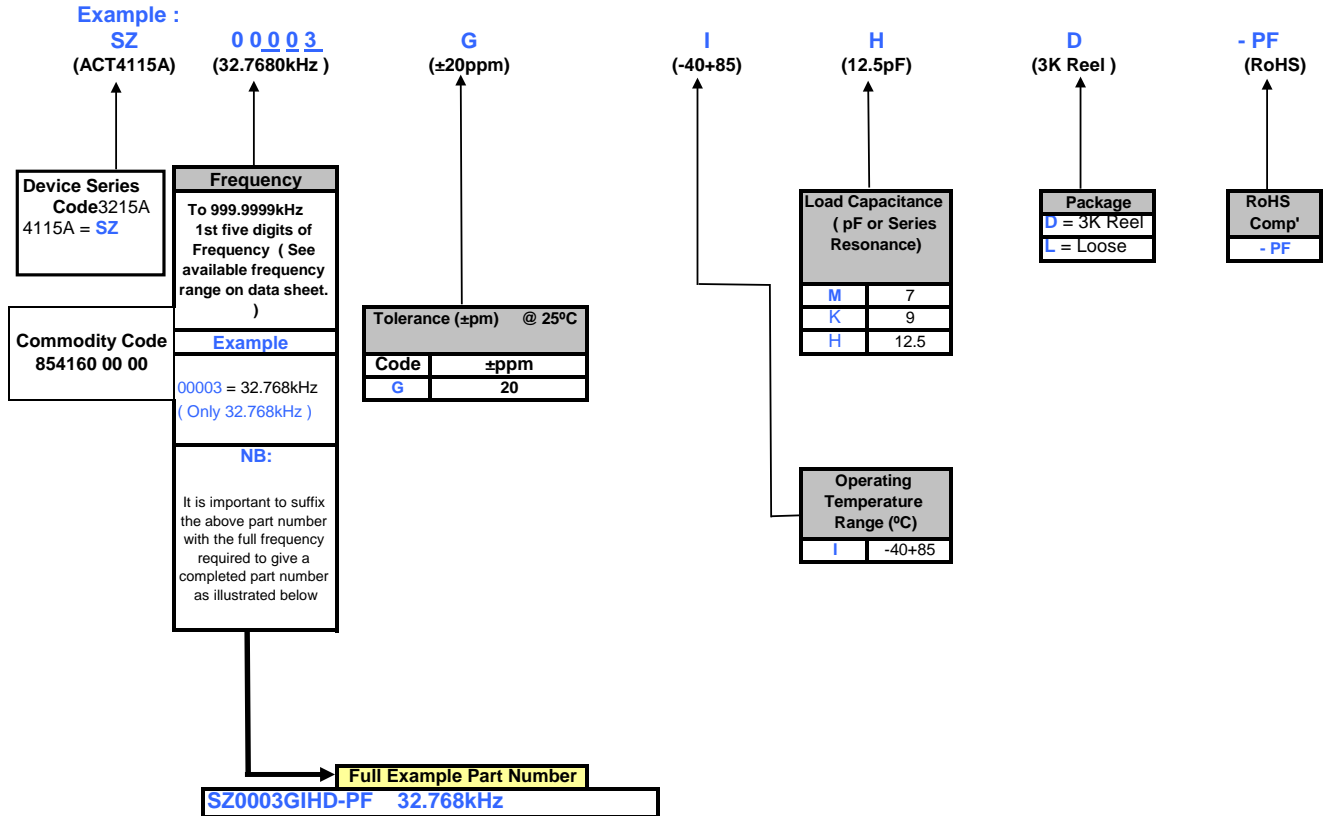
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<http://www.actcrystals.com>

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**ACT 4115A WATCH CRYSTAL ( 32.768kHz ) - PART NUMBERING & COMMODITY CODE**



**NOTES :**

- 1) Other Tolerances, CL's and other Operating Temperature Ranges may be available.  
As each of these specification parameters impact on each other, it is not always possible to combine all options in one device. Therefore, if a specification not catered for above is required, please contact us directly for the relevant part number code(s).
- 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 (°C) please refer to the data.

ISO9001 Registered

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