

## THIN CYLINDER HIGH-STABILITY CRYSTAL UNIT

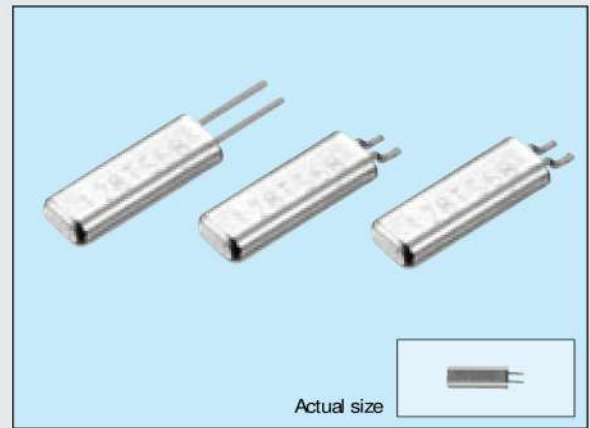
## SA-315H/315HZ

Product number (please refer to page 1)

Q23S315Hxxx00

Q24S315Zxxx00

- Thin cylinder of 1.55 mm Max. thickness featuring high stability.
- Small and thin with small mounting area and light weight.
- High heat resistance allows reflow soldering.
- Excellent environmental capability.
- Embossed tape usable for SMD.(SA-315HZ)
- Most suitable for small communications devices.



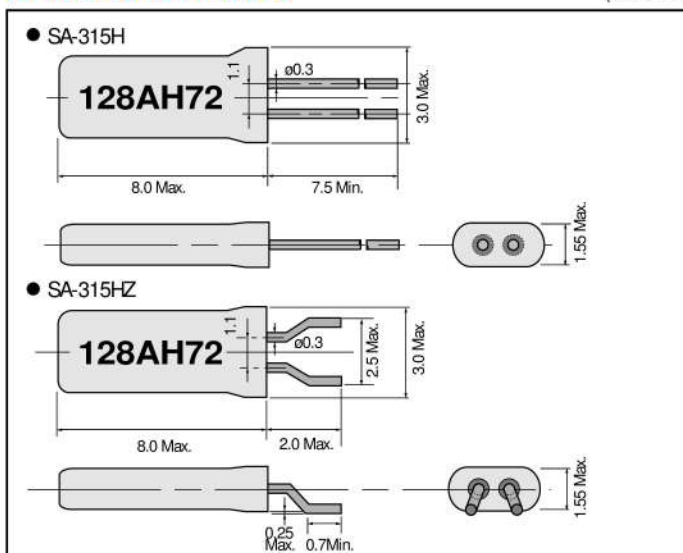
## Specifications (characteristics)

Item	Symbol	Specifications	Remarks	
Nominal frequency range	f	10.000 MHz to 27.000 MHz	Fundamental mode Please contact us for inquiries about the available frequency and Frequency temperature characteristics.	
Temperature range	Storage temperature	T <sub>STG</sub>	-55 °C to +125 °C	Stored as bare product after unpacking
	Operating temperature	T <sub>OPR</sub>	-40 °C to +85 °C	Specified equivalent series resistance must be satisfied.
	Operable temperature	T <sub>USE</sub>	As per below table	Specified equivalent series resistance and frequency-temperature characteristics must be satisfied.
Drive level	Maximum drive level	GL	2 mW Max.	Only crystal oscillation is guaranteed
	Recommended drive level	DL	10 μW to 100 μW	
Frequency tolerance (standard)	Δf/f	±10 × 10 <sup>-6</sup>	D <sub>L</sub> =100 μW at T <sub>a</sub> =+25 °C±3 °C and specified load capacity.	
Frequency temperature characteristics		As per below table	Please contact us for inquiries about the available frequency and Frequency temperature characteristics.	
Load capacitance	Q <sub>L</sub>	10 pF to ∞	Please contact us for inquiries.	
Series resistance	R <sub>i</sub>	As per below table	Operable temperature range, DL=100 μW	
Shunt capacitance	C <sub>0</sub>	3.0 pF Max.		
Insulation resistance	IR	500 MΩ Min.		
Aging	f <sub>a</sub>	±1 × 10 <sup>-6</sup> / year Max.	T <sub>a</sub> =+25 °C±1 °C, 100 μW	
Shock resistance	S.R.	±1 × 10 <sup>6</sup> Max.	Three drops on a hard wooden board from 750 mm or excitation test with 29400 m/s <sup>2</sup> × 0.3 ms × 1/2 sine wave × 3 directions	

Measured values for frequency tolerance and temperature characteristics need to be brought into mutual correlation prior to the start of production. Please check the soldering condition of plug case department before use.

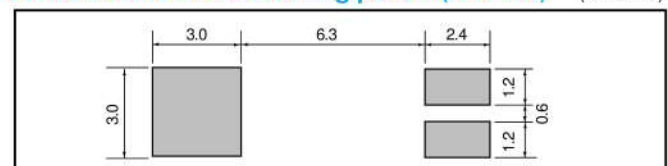
## External dimensions

(Unit: mm)



## Recommended soldering pattern(SA-315HZ)

(Unit: mm)



## Frequency temperature characteristics

Operating temperature range	Frequency tolerance
0 °C to +50 °C	±3 × 10 <sup>-6</sup> Min.
-10 °C to +60 °C	±5 × 10 <sup>-6</sup> Min.
-20 °C to +70 °C	±7 × 10 <sup>-6</sup> Min.
-30 °C to +80 °C	±10 × 10 <sup>-6</sup> Min.
-40 °C to +85 °C	±15 × 10 <sup>-6</sup> Min.

## Series resistance

Frequency (MHz)	Series resistance (R <sub>i</sub> )
10.0 ≤ f < 12.0	40 Ω Max.
12.0 ≤ f ≤ 27.0	30 Ω Max.