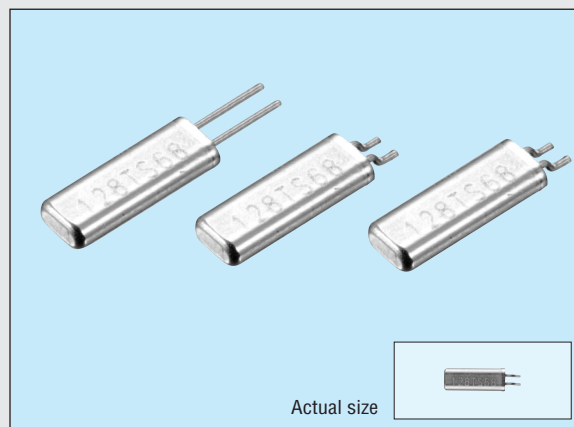


THIN CYLINDER HIGH-STABILITY CRYSTAL UNIT

SA-315H/315HZ

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



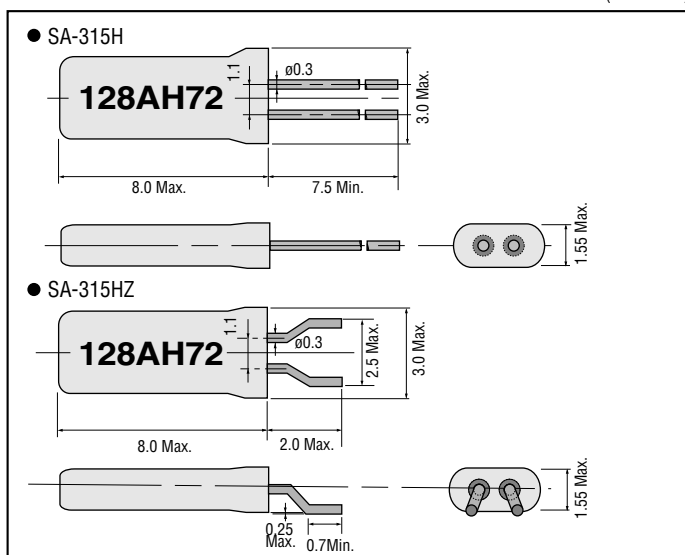
Specifications (characteristics)

| Item | | Symbol | Specifications | Remarks |
|---------------------------------------|-------------------------|------------------|--|---|
| Nominal frequency range | | f | 10.000 MHz to 27.000 MHz | Fundamental mode |
| Temperature range | Storage temperature | T _{STG} | -55 °C to +125 °C | |
| | Operating temperature | T _{OPR} | -40 °C to +85 °C | Specified equivalent series resistance must be satisfied. |
| | Operable temperature | T _{USE} | 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 | |
| Soldering condition (reflow) | | T _{SOL} | +240 °C Max. within 10 s and under +200 °C within 40 s | |
| Frequency tolerance (standard) | | Δf/f | ±10 × 10 ⁻⁶ | D _L =100 μW at Ta=+25 °C ±3 °C and specified load capacity. |
| Frequency temperature characteristics | | | As per below table | |
| Load capacitance | | C _L | 10 pF to ∞ | Please specify |
| Series resistance | | R ₁ | As per below table | Operable temperature range, DL=100 μW |
| Shunt capacitance | | C ₀ | 3.0 pF Max. | |
| Insulation resistance | | IR | 500 MΩ Min. | |
| Aging | | fa | ±1 × 10 ⁻⁶ / year Max. | Ta =+25 °C ±1 °C, 100 μW |
| Shock resistance | | S.R. | ±1 × 10 ⁻⁶ Max. | Three drops on a hard wooden board from 750 mm or excitation test with 29400 m/s ² × 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.

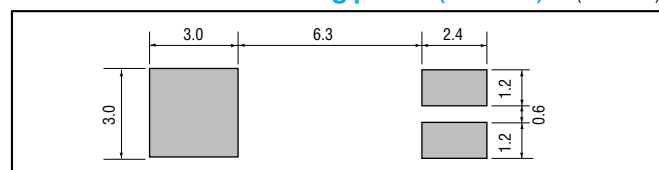
External dimensions

(Unit: mm)



Recommended soldering pattern(SA-315HZ)

(Unit: mm)



Frequency temperature characteristics

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

Series resistance

| Frequency (MHz) | Series resistance (R ₁) |
|-----------------|-------------------------------------|
| 10.0 ≤ f < 12.0 | 40 Ω Max. |
| 12.0 ≤ f ≤ 27.0 | 30 Ω Max. |