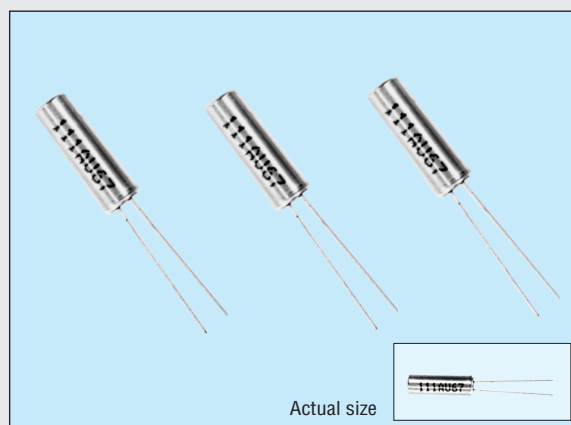


CYLINDER HIGH-STABILITY CRYSTAL UNIT

CA-303HS

- High-stability in a dia.3 mm cylindrical package.
- Small package allows high-density mounting and less weight.
- Excellent shock resistance and environmental capability.
- High-stability with tight vacuum sealing and AT-cut single side mounting structure.
- Suitable for small telecommunication equipment.



■ Specifications (characteristics)

Item	Symbol	Specifications	Remarks
Nominal frequency range	f	9.600 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
Drive level	Maximum drive level	GL	2 mW Max.
	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	T _a = +25 °C ±3 °C, DL=100 μW
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	f _a	±1 × 10 ⁻⁶ / year Max.	T _a = +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 x 0.3 ms x 1/2 sine wave x 3 directions

Measured values for frequency tolerance and temperature characteristics need to be brought into mutual correlation prior to the start of production.

■ Frequency temperature characteristics

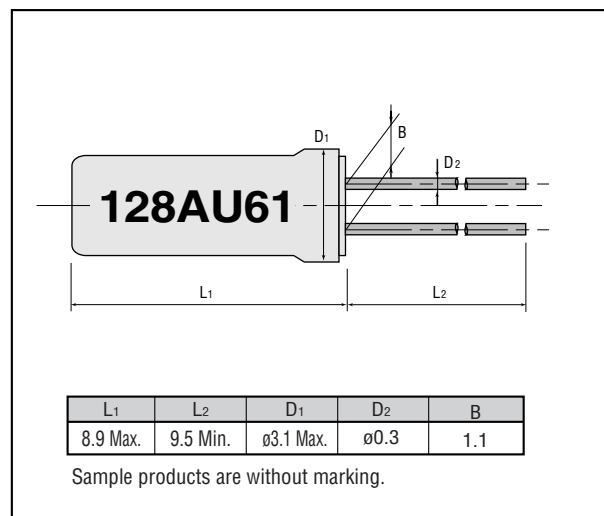
Temperature range	Frequency tolerance
0 °C to +50 °C	± 3 × 10 ⁻⁶ Min.
-10 °C to +60 °C	± 5 × 10 ⁻⁶ Min.
-20 °C to +70 °C	± 7 × 10 ⁻⁶ Min.
-30 °C to +80 °C	± 10 × 10 ⁻⁶ Min.
-40 °C to +85 °C	± 15 × 10 ⁻⁶ Min.

■ Series resistance

Frequency (MHz)	Series resistance (Ω)
9.6 ≤ f < 10.0	50 Ω Max.
10.0 ≤ f < 12.0	40 Ω Max.
12.0 ≤ f < 16.0	30 Ω Max.
16.0 ≤ f ≤ 27.0	25 Ω Max.

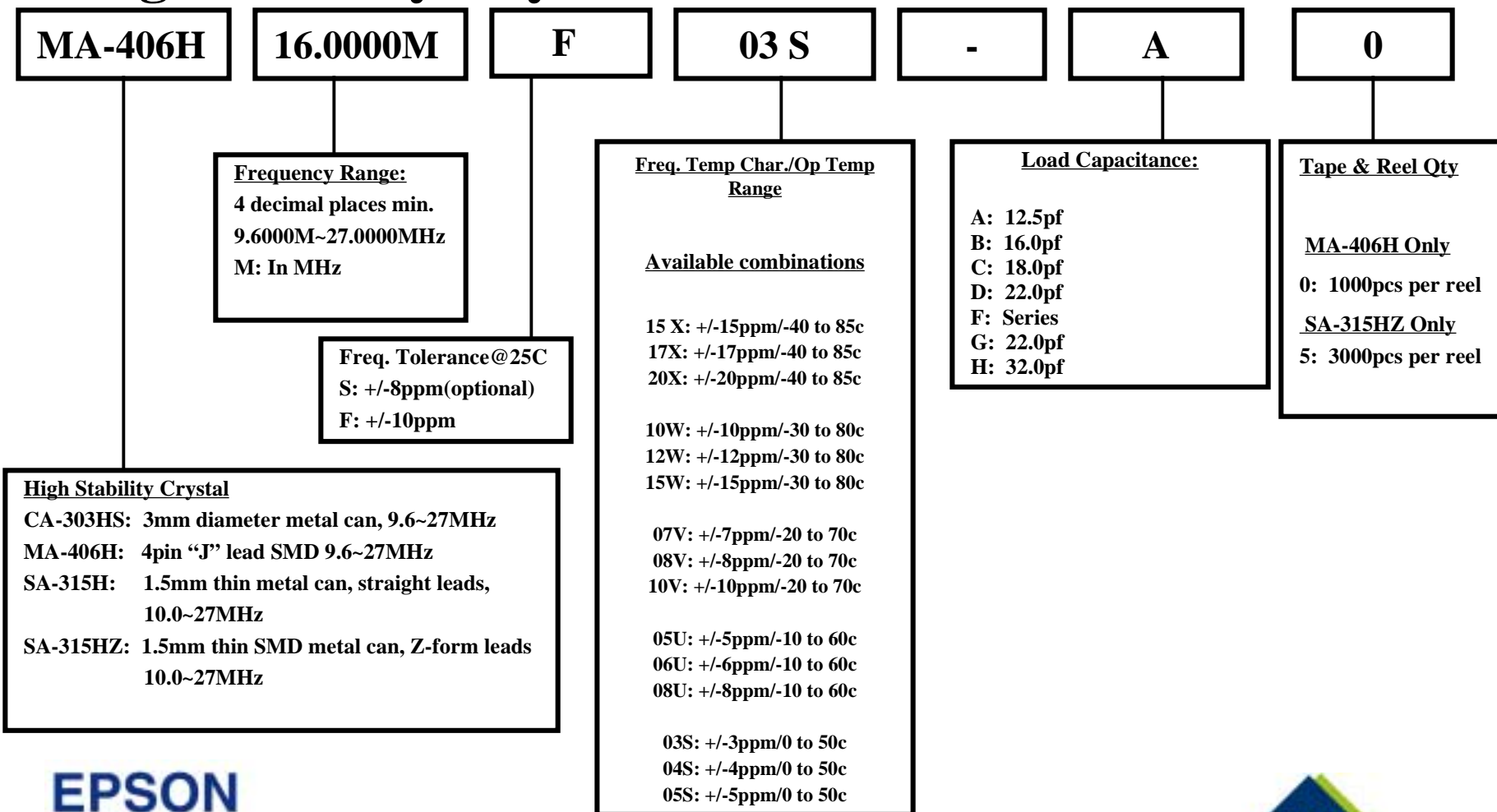
■ External dimensions

(Unit: mm)



Part Numbering System

High Stability Crystals



EPSON

EPSON ELECTRONICS AMERICA, INC.

