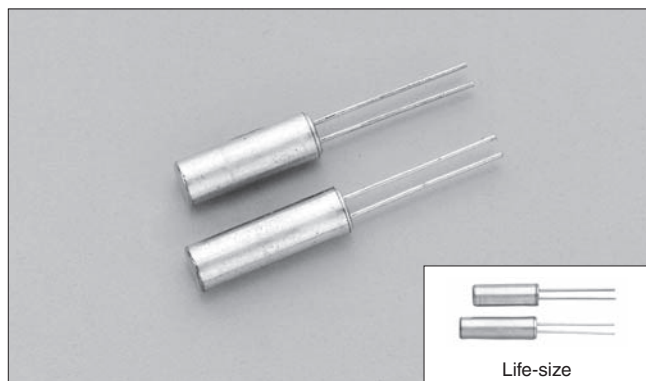


AT-CUT CRYSTAL UNITS (Cylinder Type)

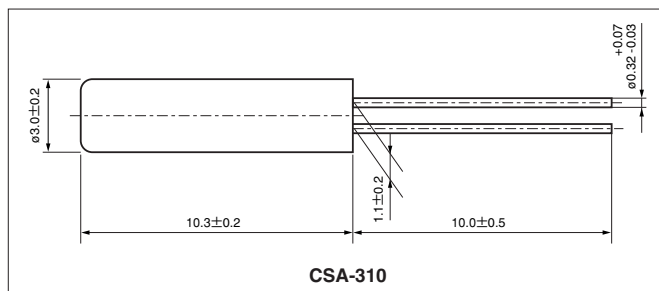
CSA-310 · CSA-309



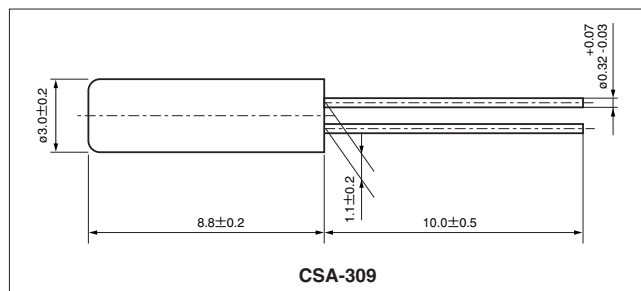
FEATURES

- High performance miniature crystal units with Citizen's ultra-precise processing technology.
- High-stability assured with tight vacuum sealing.
- Suitable for various applications.

DIMENSION [mm]



SOLDER PAD LAYOUT [mm]



STANDARD SPECIFICATIONS

Item	Model	CSA-310	CSA-309	Conditions
Nominal Frequency	f_0	3.5MHz~4.0MHz	4.001MHz~34.0MHz (Fundamental) 27.0MHz~70.0MHz (3rd Overtone)	Need to contact us for the available frequency
Frequency Tolerance	$\Delta f/f_0$	$\pm 30\text{ppm}$		at 25°C
Frequency Tolerance over Operating Temperature Range	$\Delta f/f_0$	below 6.0MHz: $\pm 50\text{ppm}$		-10°C ~ +60°C
		above 6.0MHz: $\pm 30\text{ppm}$		See figure 3 in P4
Operating Temperature Range	T_{OPR}	-20°C ~ +70°C		
Storage Temperature Range	T_{STR}	-40°C ~ +85°C		
Motional (series) resistance	R_1	Refer to the following table		at 25°C
Load capacitance	C_L	16.0pF, 18.0pF		Need to specify your requirement
Shunt capacitance	C_0	5.0pF Max.		
Level of drive	D_L	100 μW		
Insulation Resistance	I_R	500M Ω Min.		DC100V $\pm 15\text{V}$
Aging (first year)	$\Delta f/f_0$	$\pm 5\text{ppm}$ Max.		25°C $\pm 3^\circ\text{C}$

MOTIONAL (SERIES) RESISTANCE (R_1)

Frequency Range	$3.5\text{MHz} \leq f_0 < 4.0\text{MHz}$	$4.0\text{MHz} \leq f_0 < 6.0\text{MHz}$	$6.0\text{MHz} \leq f_0 < 10\text{MHz}$	$10\text{MHz} \leq f_0 < 27\text{MHz}$	$27\text{MHz} \leq f_0 < 36\text{MHz}$	$36\text{MHz} \leq f_0 \leq 70\text{MHz}$
Mode	Fundamental	Fundamental	Fundamental	Fundamental	Fundamental 3rd Overtone	3rd Overtone
R_1	200 Ω Max.	150 Ω Max.	100 Ω Max.	50 Ω Max.	50 Ω Max. 100 Ω Max.	80 Ω Max.