



CERAMIC RESONATOR (CERALOCK®)



Ceramic Resonator CSA/CSB Series (CERALOCK®)

SPECIFICATIONS

Item \ Type	CSA Series (for MOS)				CSA Series (for LS-TTL)				CSB Series		
	CSA□MK	CSA□MG	CSA□MTZ	CSA□MXZ040	CSA□MK011	CSA□MG011	CSA□MTZ011	CSA□MXZ011	Not Washable	Washable*7	
Frequency Range	1.26— 1.79MHz	1.80— 6.30MHz	6.31— 13.0MHz	13.01— 60.0MHz	1.26— 1.79MHz	1.80— 6.30MHz	6.31— 11.9MHz	12.0— 30MHz	375— 699kHz	190— 374kHz	375— 1250kHz
Oscillation Frequency Initial Tolerance	±0.5%				±0.5%				±2KHz	±1KHz	±0.5%
Oscillation Frequency Temperature Stability*1	±0.3%	±0.5%	±0.3%		±0.3%	±0.5%	±0.3%		±0.3%		
Aging*2	±0.3%	±0.5%	±0.3%		±0.3%	±0.5%	±0.3%		±0.5%		
Oscillation Frequency Measuring Circuit	<p>IC :1/6CD4069UBE×2*5 V_{DD} :5V (MTZ Series:12V) X :CERALOCK® C1,C2 :30pF*6</p>				<p>IC :1/6SN74LS04×2 V_{CC} :5V X :CERALOCK® C1,C2 :Load Capacitors*3 Rt :2.2—4.7Ω Rb :2.2—22kΩ</p>				<p>IC :1/6CD4069UBE×2 V_{DD} :5V X :CERALOCK® C1,C2 :Load Capacitors*3 Rd :5.6kΩ*4</p>		

- ※1 At -20°C to +80°C
- ※2 For 10 years at room temperature
- ※3 Values vary according to frequency. Please contact us for details.
- ※4 700—1250kHz (J Type) only.
- ※5 TC74HCU04 is used as the standard circuit for the MXZ040 series. Please contact us for details.

- ※6 For the MXZ040 series, the value changes according to frequency.
- ※7 Washing the resonator is allowed. However, temperature, time and other washing conditions should be evaluated to confirm that stable electrical characteristics are maintained.

DIMENSIONS

Standard Products	Frequency	Not Washable		Standard Products		Washable	
		Part Number	Dimensions (in mm)	Part Number	Dimensions (in mm)	Part Number	Dimensions (in mm)
Standard Products	375—429kHz	CSB□P		375—429kHz	CSB□J*		
	430—509kHz	CSB□E		430—519kHz	CSB□J*		
Standard Products	510—699kHz	CSB□P		520—699kHz	CSB□J*		
	700—1250kHz	CSB□J*		700—1250kHz	CSB□J*		
Washable	190—249kHz	CSB□D		190—249kHz	CSB□D		
	250—374kHz	CSB□D		250—374kHz	CSB□D		

※ Please consult MURATA regarding ultrasonic cleaning conditions to avoid possible damage during ultrasonic cleaning.



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Frequency	1.26—1.79MHz	1.80—2.44MHz	2.45—6.30kHz	6.31—13.00MHz	12.00—32.00kHz	32.01—60.00MHz
Part Number	CSA□MK*	CSA□MG	CSA□MG	CSA□MTZ	CSA□MXZ	CSA□MXZ
Oscillation Mode*	Shear Vibration	Thickness Shear Vibration	Thickness Shear Vibration	Thickness Longitudinal Vibration	Thickness Longitudinal Vibration (3rd OVERTONE)	Thickness Longitudinal Vibration (3rd OVERTONE)
Dimensions (in mm)						

*The CSA□MK type is not washable.

THE STABILITY OF OSCILLATION FREQUENCY WITH TEMPERATURE VARIATION

