

CERAMIC RESONATOR



Ceramic Resonator CSA/CSB Series

CERALOCK® with two leaded terminals.

The CSA and CSB series ceramic resonator owe their development to MURATA's innovative expert technologies and the application of mass production techniques typically utilized in the manufacture of piezoelectric ceramic components. Because of their high mechanical Q and consistent high quality, both the CSA and CSB series are ideally suited to microprocessor and remote control unit applications.

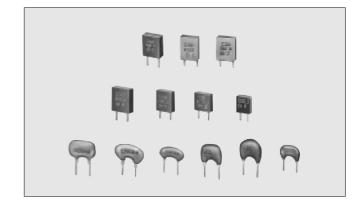
The CSB series includes the thin and compact J type which is ideal in high-speed 4-bit microprocessor applications. In addition, MURATA offers a special CERALOCK® version suitable for automatic insertion utilizing tape and reel and other packaging forms. For further information, please contact your local MURATA representative office or authorized distributor.



- 1. The series is stable over a wide temperature range and with respect to long-term aging.
- 2. The series comprises fixed, tuned, solid-state devices.
- 3. The resonators are miniature and light weight.
- 4. They exhibit excellent shock resistance performance.
- 5. Oscillating circuits requiring no adjustment can be designed by utilizing these resonators in conjunction with transistors or appropriate ICs.

■APPLICATIONS

- 1. Square-wave and sine-wave oscillator.
- 2. Clock generator for microprocessors.
- 3. Tone Dialers and Pulse Dialers for telephone.
- 4. Remote control systems.
- 5. Automotive electronics (engine control, digital speed meters, etc.)





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■SPECIFICATIONS

Туре	CSA Series			CSB Series		
Item	CSA□MK	CSA□MG	CSA□MTZ	CSA□MXZ040	No Washable	Washable*6
Frequency Range	1.26-1.79MHz	1.80-6.30MHz	6.31-13.00MHz	13.01-60.00MHz	375-699kHz	375-1250kHz
Oscillation Frequency Initial Tolerance			±0.5%		±2kHz	±0.5kHz
Oscillation Frequency Temperature Stability*1	±0.3%		±0.5%	±0.3%	±0.3%	
Aging*2	±0.3%		±0.5%	±0.3%	±0.5%	
Oscillation Frequency Measuring Circuit	IC :1/6CD4069UBEX2 VDD :5V (MTZ series:12V) X :CERALOCK® C1,C2 :30pF			C ₁ X C ₂ IC :1/6TC74HCU04×2 V _{DD} :5V X :CERALOCK® C ₁ ,C ₂ :30pF*5	VDD IC Output IMΩ Output IC :1/6CD4069UBEX2 VDD :5V X :CERALOCK® C1,C2 :Load Capacitors*3 Rd :5.6kΩ®4	

- *1 At -20 to +80℃
- *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 For the MXZ040 series, the value changes according to frequency.
- *6 Washing the resonator is allowed. However, temperature, time and other washing conditions should be evaluated to confirm that stable electrical characteristics are maintained.

■DIMENSIONS

		Frequency	375-429kHz	430-509kHz		_					
Products		Part Number	CSB□P	CSB□E		CSB□P		_			
	Not Washable	Dimensions (in mm)	7.9 CSB 400P G* 1-1.1 1-0.8 COT 1-1 1-0.8	7.0 CSB 455E 06 0 9 1.1+++++++++++++++++++++++++++++++++++	7.0 CSB 600P 3.5 1.11 1.11 5.0 1.15						
Standard Pr		Frequency	375-429kHz	430-519kHz	520-589kHz	590-655kHz	656-699kHz	700—1250kHz			
		Part Number	CSB□J*	CSB□J*	CSB□J*	CSB□JR*	CSB□J*	CSB□J*			
	5	Ultrasonic Cleaning*	ALLOWED	ALLOWED	ALLOWED	ALLOWED	ALLOWED	ALLOWED			
	Washable	Dimensions (in mm)	8.0 CSB 400J 06 07 1.1	7.5 CSB 455.1 Q * 1 Q 1 Q 1 Q 1 Q 1 Q 1 Q 1 Q 1 Q 1 Q	7.5 CSB 550J 72 1.1 0.8 0.15	7.5 CSB 600 G 7 G 7 G 7 G 7 G 7 G 7 G 7 G 7 G 7 G	7.5 CSB 670 C * 1.1 0.8 - 0.15	5.0 2.2 1000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			

^{*} 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	2.45-6.30MHz	6.31-13.00MHz	13.01-32.99MHz	33.00-60.00MHz
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)	1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	12.0 2.00G(P*) 0.5 0.5 0.5 0.5	10.0 4.00 1.3 0.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	10.0 5.0 CSA 8.00MT 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	10.0 CSA 16.00MX 16.00MX 10.00 P	10.0 50.00C*) 99 1.3 0.5 1.6 1.7 1.8 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9

^{*} The CSA MK type is not washable.

■THE STABILITY OF OSCILLATION FREQUENCY WITH TEMPERATURE VARIATION

