

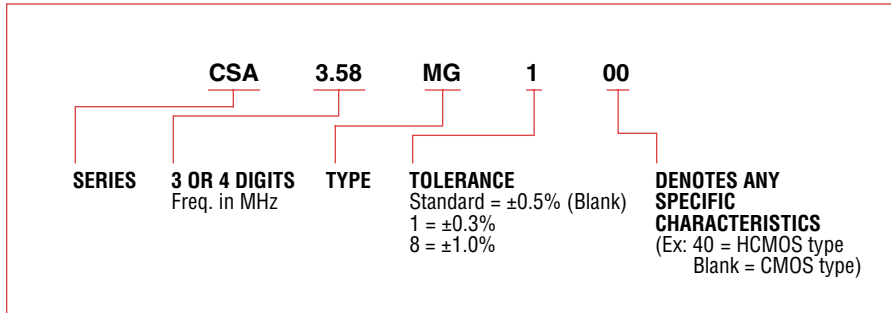


The CSA Series of ceramic resonators cover the frequency range of 1.25MHz to 60.00MHz with an initial frequency tolerance of $\pm 0.5\%$. Since the CSA Series utilizes the thickness mode of vibration of the piezoelectric element,

there is little dimensional change with frequency. All CSA resonators are epoxy coated and completely washable (except MK series). Tape and reel packaging is available.

The CSA series has been de-emphasized in favor of the CST series.

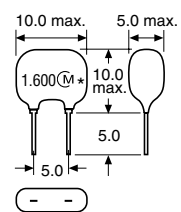
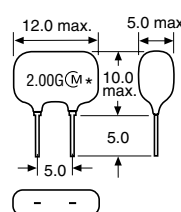
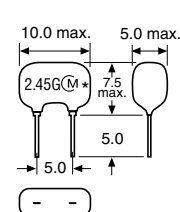
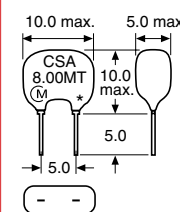
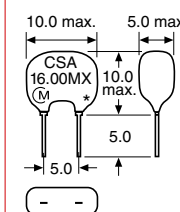
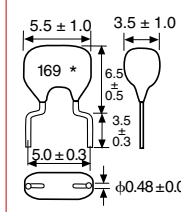
PART NUMBERING SYSTEM



RESONANT IMPEDANCE

Type	Frequency Range (MHz)	Impedance at Resonance (V max.)
MK	1.26 to 1.499	150
	1.500 to 1.799	100
MG	1.80 to 2.99	80
	3.00 to 3.49	50
	3.50 to 6.30	30
MTZ	6.31 to 6.99	30
	7.00 to 13.0	25
MXZ	12.00 to 60.00	40

DIMENSIONS: mm CSA SERIES: 1.26MHz – 70.00MHz

Frequency	1.26 – 1.79MHz	1.80 – 2.44MHz	2.45 – 6.30MHz	6.31 – 13.0MHz	12.00 – 15.99MHz	16.00 – 70.00MHz
Series	CSA□□□MK	CSA□□□MG	CSA□□□MG	CSA□□□MTZ	CSA□□□MXZ040	CSALS□□□□X
Washability	Non-Washable	Washable	Washable	Washable	Washable	Washable
Dimensions						
	* : EIA-J Date Code	* : EIA-J Date Code	* : EIA-J Date Code	* : EIA-J Date Code	* : EIA-J Date Code	* : EIA-J Date Code

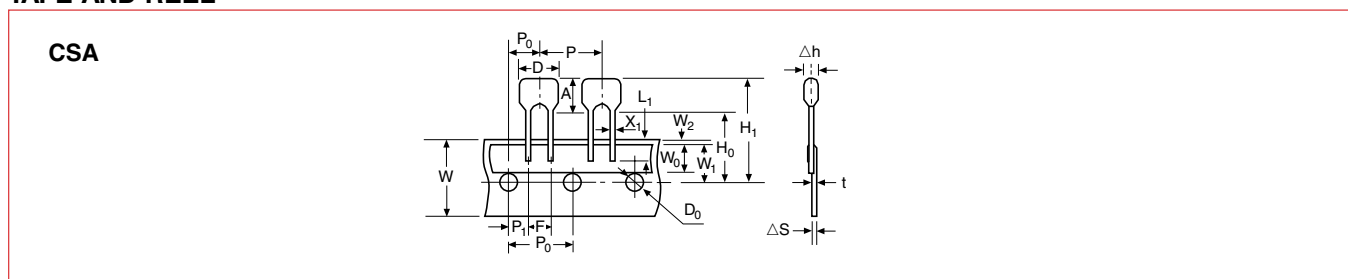
The resonators are washable. However, temperature, time and other processing conditions should be checked to ensure that suitable electrical characteristics are maintained.

CERAMIC RESONATORS

SPECIFICATIONS

TYPE	With CMOS IC			With HCMOS IC			
	MK	MG	MTZ	MK040	MG040	MTZ040	MXZ040
Frequency Range (MHz)	1.26 to 1.799	1.80 to 6.30	6.31 to 13.0	1.26 to 1.799	1.80 to 6.30	6.31 to 13.0	13.01 to 60.00
Oscillation Frequency Tolerance	±0.5%			±0.5%			
Oscillation Frequency Temp. Stability (-20°C to +80°C)	±0.3%		±0.5%	±0.3%		±0.5%	±0.3%
Aging (Room Temp., 10 years)	±0.3%		±0.5%	±0.3%		±0.5%	±0.3%
Standard Measuring Circuit	<p>IC : CD4069UBE V_{DD}: +5V (MTZ Series: +12V) X: Ceramic Resonator C_{L1}, C_{L2}: 30pF</p>			<p>IC: TC74HCU04 X: Ceramic Resonator C_{L1}, C_{L2}, R_L: Depends on frequency</p>			

TAPE AND REEL



PACKAGING DIMENSIONS: mm

Type (Suffix)	Item	TR/TF				TR01/TF01*			
		MG		MTZ/MXZ		MG		MTZ/MXZ	
Description	Symbol	Nominal Value	Tolerance	Nominal Value	Tolerance	Nominal Value	Tolerance	Nominal Value	Tolerance
Width of Resonator**	D	10.0 max.	—	10.0 max.	—	10.0 max.	—	10.0 max.	—
Height of Resonator	A	7.5 max.	—	10.0 max.	—	7.5 max.	—	10.0 max.	—
Terminal Dimensions	X ₁	0.5 x 0.3	±0.1	0.5 x 0.4	±0.1	0.5 x 0.3	±0.1	0.5 x 0.3	±0.1
Adhered Terminal Length	L ₁	3.0 min.	—	3.0 min.	—	3.0 min.	—	3.0 min.	—
Taping Pitch	P	12.7	±0.5	12.7	±0.5	12.7	±0.5	12.7	±0.5
Guide Pitch	P ₀	12.7	±0.2	12.7	±0.2	12.7	±0.2	12.7	±0.2
Hole Position to Terminal	P ₁	3.85	±0.5	3.85	±0.5	3.85	±0.5	3.85	±0.5
Hole Position to Body	P ₂	6.35	±0.5	6.35	±0.5	6.35	±0.5	6.35	±0.5
Terminal Spacing	F	5.0	+0.5/-0.2	5.0	+0.5/-0.2	5.0	+0.5/-0.2	5.0	+0.5/-0.2
Deviation Across Tape	Δh	0	±1.0	0	±1.0	0	±1.0	0	±1.0
Carrier Tape Width	W	18.0	±0.5	18.0	±0.5	18.0	±0.5	18.0	±0.5
Hold Down Tape Width	W ₀	6.0 min.	—	6.0 min.	—	6.0 min.	—	6.0 min.	—
Position of Sprocket Hole	W ₁	9.0	±0.5	9.0	±0.5	9.0	±0.5	9.0	±0.5
Margin Between Both Tapes	W ₂	0	+0.5/-0	0	+0.5/-0	0	+0.5/-0	0	+0.5/-0
Lead Distance Between Reference and Bottom Plane	H ₀	16.0	±0.5	16.0	±0.5	18.0	±0.5	18.0	±0.5
	H ₁	24.0 max.	—	26.5 max.	—	26.0 max.	—	28.5 max.	—
Diameter of Sprocket Hole	D ₀	4.0D.	±0.2	4.0D.	±0.2	4.0D.	±0.2	4.0D.	±0.2
Total Tape Thickness	t	0.6	±0.2	0.6	±0.2	0.6	±0.2	0.6	±0.2

* TF01 is the standard packaging.

** 1.80 - 2.44 MHz is 12.0 max.

Note: The only difference between TR and TR01 (TF and TF01) is the dimension of H₀.

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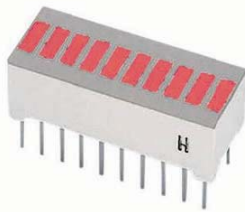


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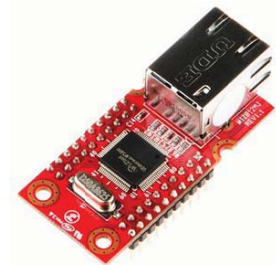
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LCD+Keyboard Shield



10-Segments LED Bar Display



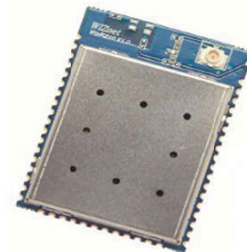
Ethernet Module



Arduino Uno



MicroSD Breakout Board



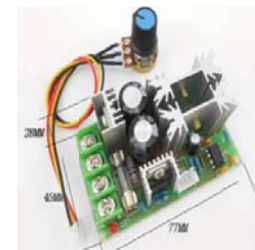
WiFi Module



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Stepper Motor Driver



PWM Motor Speed Controller



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