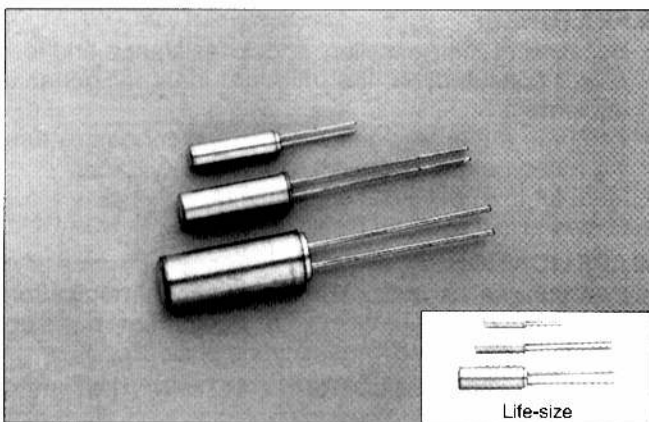


# kHz RANGE CRYSTAL UNITS (CYLINDER TYPE)

## CFV-308, CFV-206, CFV-145, CSE-145



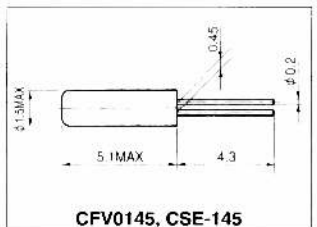
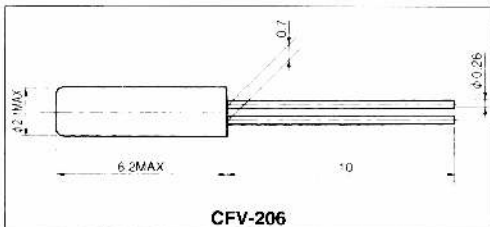
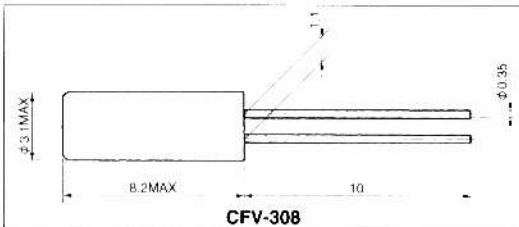
**■ FEATURES:**

- Similar to the CFS series, the CFV series features superior characteristics of a kind that only tuning fork-type crystal units can offer. Ideal for application to compact portable equipment.
- CSE-145, which adopts Citizen's unique E-shaped configuration for its crystal piece, not only boasts the world's smallest size among 1MHz-band crystals, but also features outstanding shock resistance.

**■ APPLICATIONS:**

- Because of their miniature size and excellent impact resistance, the units are ideal for such compact portable equipment as communication equipment, AV equipment and measuring instruments.

**■ DIMENSIONS: (UNIT=mm)**



**■ STANDARD SPECIFICATIONS**

Item	Model	CFV-308	CFV-206	CFV-145	CSE-145	Conditions
Nominal frequency	$f_0$	30kHz~40kHz	30kHz~165kHz	200kHz	1MHz	Please contact us for changes in frequency.
Frequency tolerance	$\Delta f/f_0$	$\pm 30$ ppm	$\pm 30$ ppm	$\pm 10,000$ ppm	$\pm 3,000$	At 25°C
Frequency vs. Temperature characteristics	$\Delta f/f_0$	See drawing				-10°C ~ +60°C
Turnover temperature	$T_m$	25°C $\pm 5$ °C			35°C TYP.	
Temperature coefficient	$\beta$	-0.034 $\pm 0.006$ ppm/°C <sup>2</sup>				Varies depending on frequency.
Operating temperature range	$T_{OPR}$	-10°C~+60°C				
Storage temperature range	$T_{STG}$	-40°C~+85°C				
Equivalent series resistance	$R_1$	35k $\Omega$ ~50k $\Omega$		10k $\Omega$	3k $\Omega$	At 25°C
Load capacitance	$C_L$		12.5pF TYP.		8.0pF TYP.	Please specify
Motional capacitance	$C_1$		1~4fF TYP.		1fF TYP.	Varies depending on frequency.
Shunt capacitance	$C_0$		0.8~1.7pF TYP.		0.4pF TYP.	
Capacitance ratio	$\gamma$		425~800 TYP.		400 TYP.	
Drive level	DL		1 $\mu$ W MAX.			
Insulation resistance	IR		500M $\Omega$ MIN.			DC100V $\pm 15$ V
Aging (First year)	$\Delta f/f_0$		$\pm 5$ ppm MAX.			25°C $\pm 3$ °C
Sealing			$1 \times 10^{-2} \mu$ Pa·m <sup>3</sup> /s MAX.			
Shock resistance			$\pm 5$ ppm MAX.			Conditions will vary depending on frequency.
		Drop test of 3 times on a hard board from 75cm height or shock test of 3000G x 0.3ms x 1/2 sin wave x 3 directions				

FREQUENCY vs TEMPERATURE CURVE

