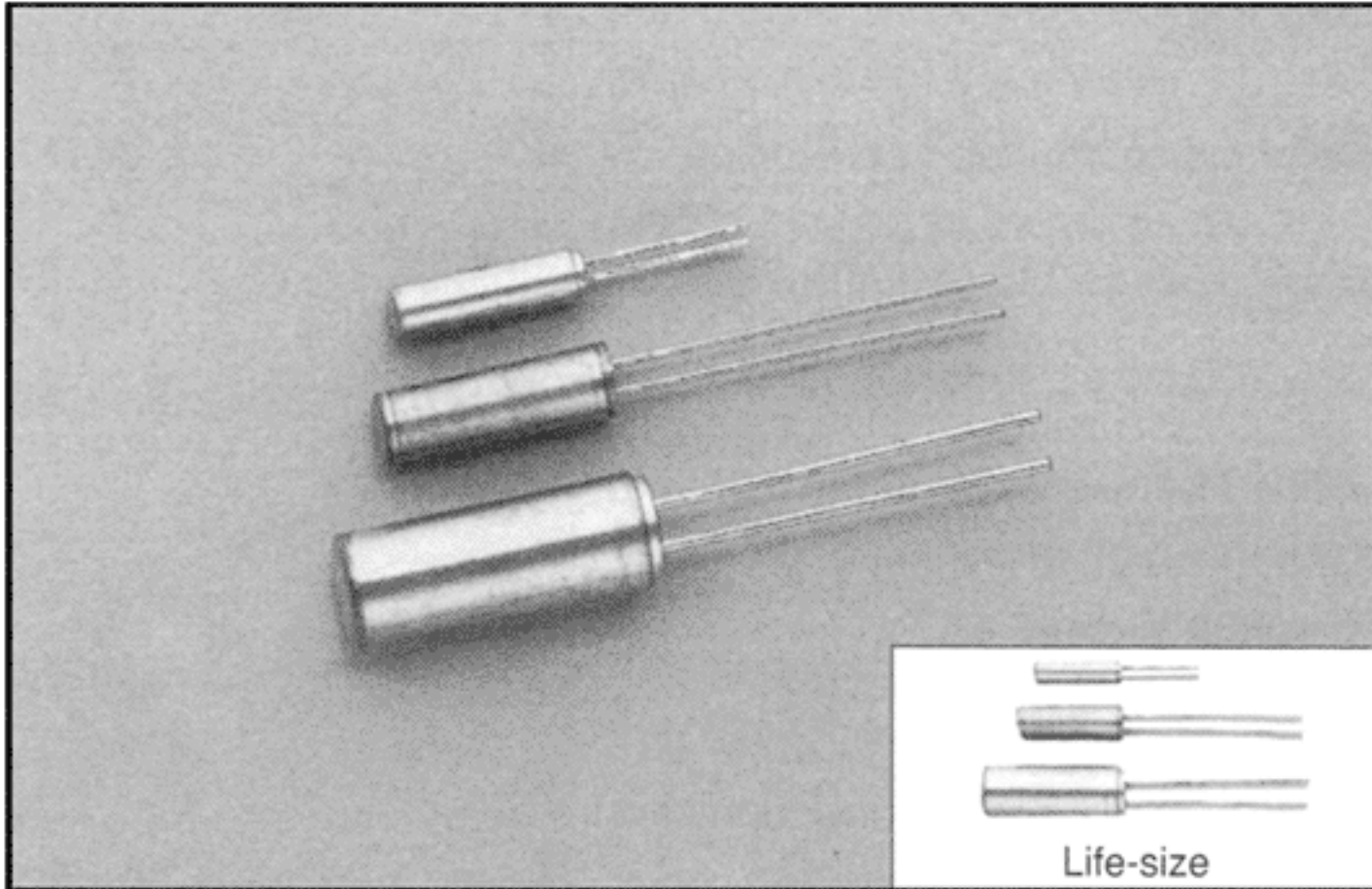


# KHz RANGE CRYSTAL UNITS (CYLINDER TYPE)

CITIZEN<sup>®</sup>

## CFS-308, CFS-206, CFS-145, CFV-206



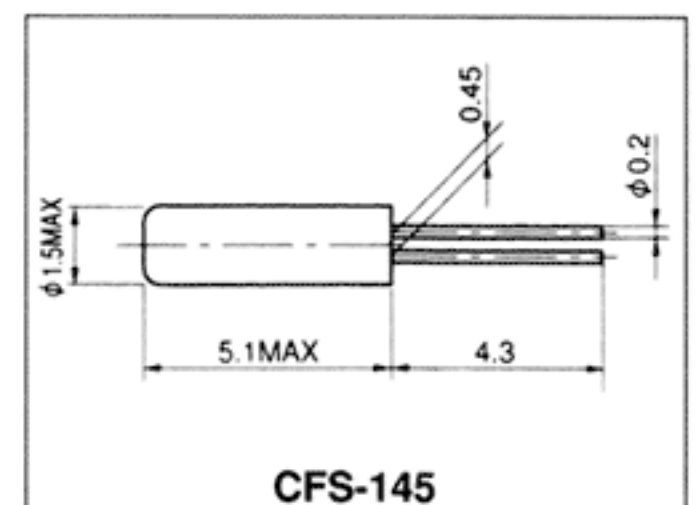
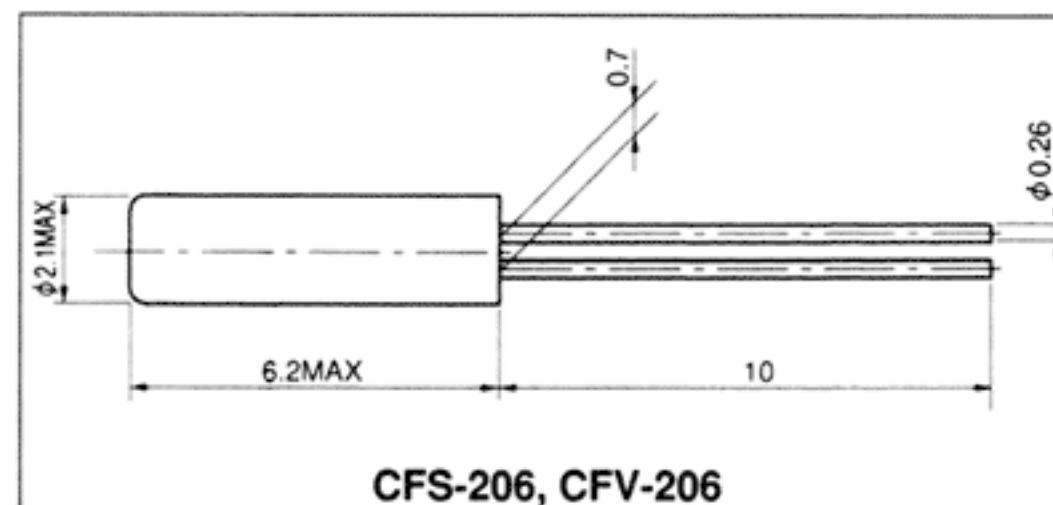
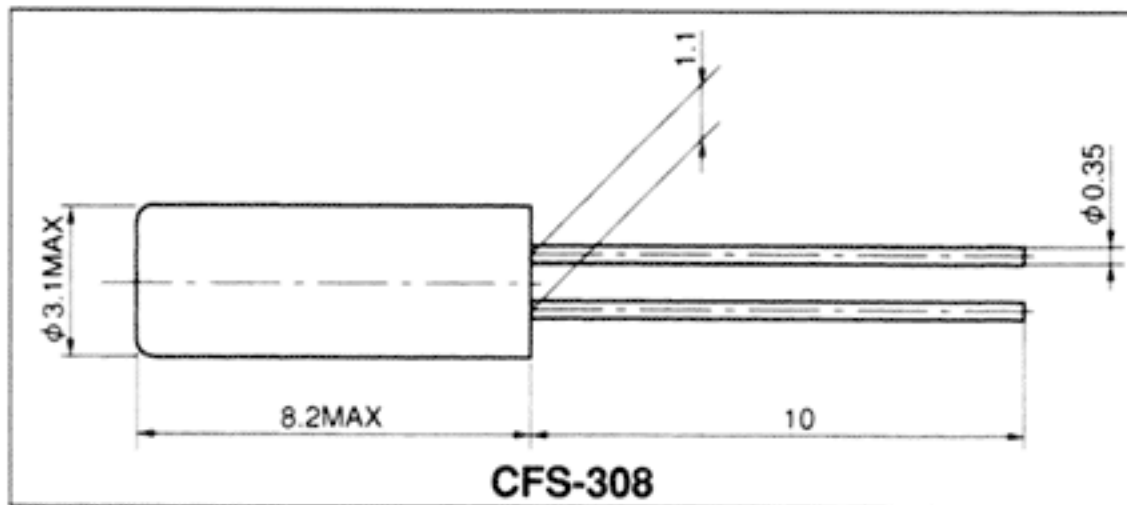
### ■ FEATURES:

- Because of their excellent shock resistance and low power consumption, the units are ideal for portable equipment.
- Features superior characteristics indigenous to tuning fork-type quartz crystal units.

### ■ APPLICATIONS:

- Permits use as a clock source for communication equipment, AV equipment, OA equipment, measuring instruments and various types of clocks.

### ■ DIMENSIONS: (UNIT=mm)



### ■ STANDARD SPECIFICATIONS

Item	Model	CFS-308	CFS-206	CFS-145	CFV-206	Conditions
Nominal frequency	$f_0$	32.768KHz			30KHz~100KHz	Please contact us for changes in frequency.
Frequency tolerance	$\Delta f/f_0$	$\pm 20$ ppm			$\pm 30$ ppm	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				
Temperature coefficient	$\beta$	$-0.034 \pm 0.006$ ppm/°C <sup>2</sup>				
Operating temperature range	$T_{OPR}$	-10°C~+60°C				
Storage temperature range	$T_{STG}$	-40°C~+85°C				
Equivalent series resistance	$R_1$	35k $\Omega$ MAX.		40k $\Omega$ MAX.	50k $\Omega$ MAX.	At 25°C
Load capacitance	$C_L$	12.5pF TYP.		8.0pF TYP.	12.5pF TYP.	Please specify
Motional capacitance	$C_1$	3.5fF TYP.	3.0fF TYP.	2.5fF TYP.	1~4fF TYP.	Varies depending on frequency.
Shunt capacitance	$C_0$	1.60pF TYP.	1.35pF TYP.	1.00pF TYP.	0.8~1.7pF TYP.	
Capacitance ratio	$\gamma$	460 TYP.	450 TYP.	400 TYP.	425~800 TYP.	
Drive level	DL	1 $\mu$ W MAX.				
Insulation resistance	IR	500M $\Omega$ MIN.				DC100V $\pm$ 15V
Aging (First year)	$\Delta f/f_0$	$\pm 3$ ppm MAX.			$\pm 5$ ppm MAX.	25°C $\pm$ 3°C
Sealing		1 x 10 <sup>-2</sup> $\mu$ 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

