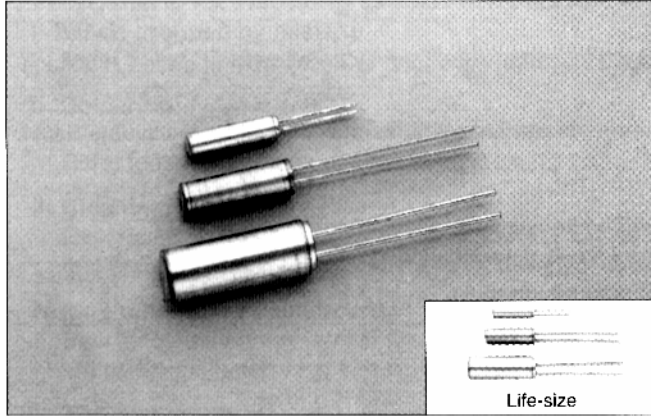


32.768kHz CRYSTAL UNITS (CYLINDER TYPE)

CITIZEN[®]

CFS-308, CFS-206, CFS-145



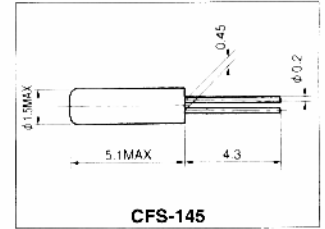
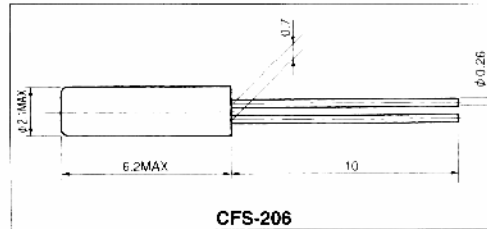
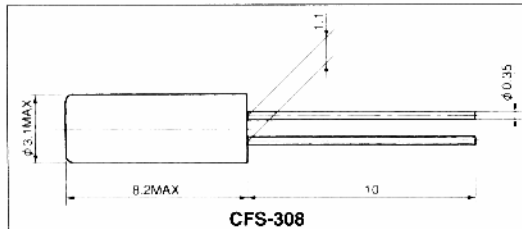
■ FEATURES:

- 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)

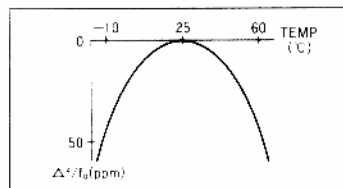


■ STANDARD SPECIFICATIONS

Item	Model	CFS-308	CFS-206	CFS-145	Conditions
Nominal frequency	f_0	32.768kHz			
Frequency tolerance	$\Delta f/f_0$	± 20 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	β	-0.034 ± 0.006 ppm/°C ²			
Operating temperature range	T_{OPR}	-10°C~+60°C			
Storage temperature range	T_{STG}	-40°C~+85°C			
Quality factor	Q	90,000 TYP.	70,000 TYP.	80,000 TYP.	
Equivalent series resistance	R_1	35k Ω MAX.		40k Ω MAX.	At 25°C
Load capacitance	C_L	12.5pF TYP.		8.0pF TYP.	Please specify
Motional capacitance	C_1	0.0035pF TYP.	0.0030pF TYP.	0.0025pF TYP.	
Shunt capacitance	C_0	1.60pF TYP.	1.35pF TYP.	1.00pF TYP.	
Capacitance ratio	γ	460 TYP.	450 TYP.	400 TYP.	
Drive level	DL	1 μ W MAX.			
Insulation resistance	IR	500M Ω MIN.			DC100V \pm 15V
Aging (First year)	$\Delta f/f_0$	± 3 ppm MAX.			25°C \pm 3°C
Sealing		$1 \times 10^{-2} \mu$ Pa \cdot m ³ /s MAX.			
Shock resistance		± 5 ppm MAX.			

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



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