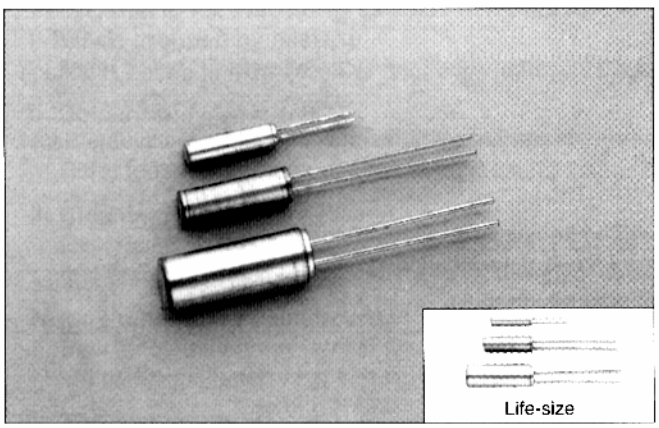
32.768kHz CRYSTAL UNITS (CYLINDER TYPE)

CITIZEN

CFS-308, CFS-206, CFS-145



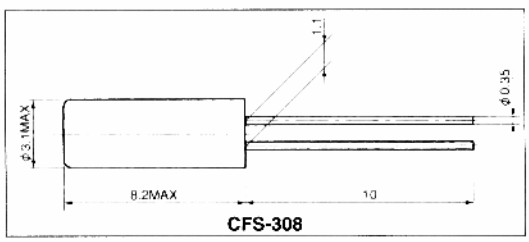
■FEATURES:

- 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.

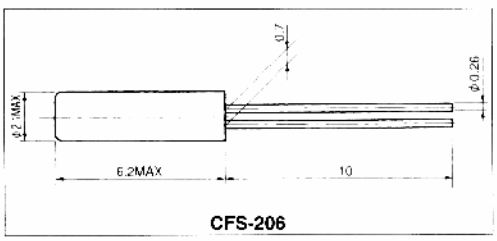
■APPLICATIONS:

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

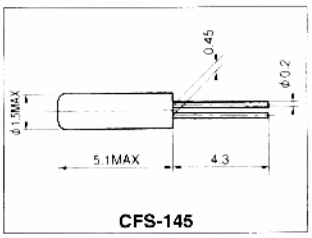
■DIMENSIONS: (UNIT=mm)



CFS-308



CFS-206



CFS-145

■STANDARD SPECIFICATIONS

Item \ Model		CFS-308	CFS-206	CFS-145	Conditions
Nominal frequency	f_0	32.768kHz			
Frequency tolerance	$\triangle f/f_0$	±20ppm			At 25°C
Frequency vs. Temperature characteristics	$\triangle f/f_0$	See drawing			−10°C~+60°C
Turnover temperature	Tm	25°C±5°C			
Temperature coefficient	β	−0.034 ±0.006ppm/°C²			
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	35kΩ MAX.		40kΩ 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	1μW MAX.			
Insulation resistance	IR	500MΩ MIN.			DC100V±15V
Aging (First year)	$\triangle f/f_0$	±3ppm MAX.			25°C±3°C
Sealing		1 x 10^{-2} μPa·m³/s MAX.			
Shock resistance	±5ppm 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