kHz RANGE CRYSTAL UNIT

FC - 12D/FC - 12M

: 32.768 kHz (32 kHz to 77.5 kHz) •Frequency range 2.05 x 1.25 x 0.35 mm...FC-12D External dimensions : $2.05 \times 1.2 \times 0.6 \text{ mm} \cdot \cdot \cdot \text{FC-12M}$

 Overtone order : Fundamental

 Applications Smart card (Please contact us for

except Smart card use.)...FC-12D

Small devices...FC-12M





Product Number (please contact us) FC-12D: X1A000111xxxx00 FC-12M: X1A0000x1xxxx00





Actual size

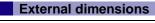
FC-12D	FC-12M
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Specifications (characteristics)

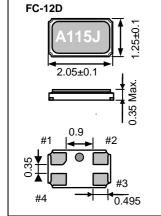
Item	Symbol	Specifications		Conditions / Remarks	
		FC-12D	FC-	12M	Conditions / Remarks
Nominal frequency range	f_nom	32.768 kHz	32.768 kHz	32 kHz to 77.5 kHz	Please contact us about available frequencies.
Storage temperature	T_stg	-55 °C to +125 °C		Storage as single product.	
Operating temperature	T_use	-40 °C to +85 °C			
Level of drive	DL	0.25 μW Max.	0.5 μW Max.		
Frequency tolerance (standard)	f_tol	±20 × 10 ⁻⁶	±20 × 10 ⁻⁶ ±30 × 10 ⁻⁶		+25 °C, DL=0.1 μW Please ask for tighter tolerance
Turnover temperature	Ti	+25 °C ±5 °C			
Parabolic coefficient	В	-0.04 × 10 ⁻⁶ / °C ² Max.			
Load capacitance	CL	7 pF, 9pF, 12.5pF	12.5pF		Please specify
Motional resistance (ESR)	R1	75 kΩ Max.	90 k Ω Max.	90 k Ω to 65 k Ω	
Motional capacitance	C1	3.7 fF Typ.	6.4 fF Typ.	7.0 fF to 2.7 fF	
Shunt capacitance	Co	0.8 pF Typ.	1.3 pF Typ.	1.6 pF to 0.8pF	
Frequency aging	f_age	±3 × 10 ⁻⁶ / year Max.			+25 °C, First year

FC-12D 32.768000kHz 12.5 +20.0-20.0 Product name (Standard form) 1 4

①Model ③Load capacitance(pF) ④Frequency tolerance(x 10⁻⁶, +25 °C) ②Frequency









Pin #2 is connected to the device lid.

Please connect to GND. Do not connect #4 externally.

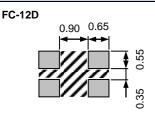
0.525

FC-12M

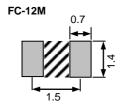


Footprint (Recommended)

(Unit: mm)



*Do not design any circuit patterns in the shaded area.



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