



KHz RANGE CRYSTAL UNIT

LOW PROFILE SMD

FC - 12D/FC - 12M

- Frequency range : 32.768 kHz (32 kHz to 77.5 kHz)
- External dimensions : 2.05 × 1.25 × 0.35 mm...FC-12D
2.05 × 1.2 × 0.6 mm...FC-12M
- Overtone order : Fundamental
- Applications : Smart card, Small devices...FC-12D
Small devices...FC-12M



Product Number (please contact us)

FC-12D: X1A000111xxxx00

FC-12M: X1A0000x1xxxx00



Actual size

FC-12D FC-12M



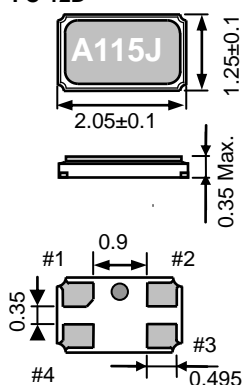
Specifications (characteristics)

Item	Symbol	Specifications			Conditions / Remarks
		FC-12D	FC-12M		
Nominal frequency range	f_nom	32.768 kHz	32.768 kHz	32 kHz to 77.5 kHz	Please contact us for inquiries regarding available frequency.
Storage temperature	T_stg	-55 °C to +125 °C			Store as bare 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	B	-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 kΩ Max.	90 kΩ to 65 kΩ	
Motional capacitance	C1	3.7 fF Typ.	6.4 fF Typ.	7.0 fF to 2.7 fF	
Shunt capacitance	C0	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

External dimensions

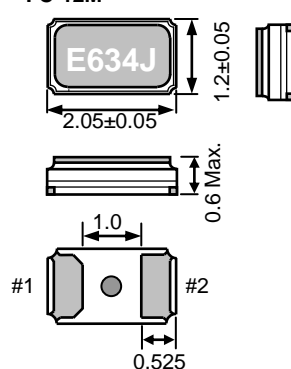
(Unit: mm)

FC-12D



#2 is connected to cover.
Please connect to GND.
Do not connect #4 externally.

FC-12M



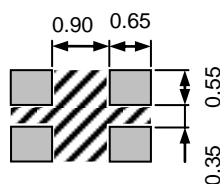
Internal connection (TOP VIEW)

#1 #2

Footprint (Recommended)

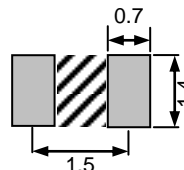
(Unit: mm)

FC-12D



*Do not design any
pattern on shaded
area.

FC-12M



*Do not design any
pattern on shaded
area.

Mouser Electronics

Authorized Distributor

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Epson:

[FC-12M 32.7680KA-A5](#)