



## kHz RANGE CRYSTAL UNIT



Product Number

FC-135R : X1A000141xxxx00

FC-135 : Q13FC1350xxxx00

FC-135 TYPE: Q14FC1350xxxx00

# FC-135R

## FC-135 / FC-135 TYPE

- Frequency range : FC-135R / FC-135...32.768 kHz  
: FC-135 TYPE...32 kHz to 76.8 kHz
- External dimensions : 3.2 × 1.5 × 0.9 mm
- Overtone order : Fundamental
- Applications : Small communications devices

**Specifications (characteristics)**

Item	Symbol	Specifications			Conditions / Remarks
		FC-135R	FC-135	FC-135 TYPE	
Nominal frequency range	f_nom	32.768 kHz	32.768 kHz	32 kHz to 76.8 kHz	Please contact us about available frequencies.
Storage temperature range	T_stg	-55 °C to +125 °C			Storage as single product.
Operating temperature range	T_use	-40 °C to +85 °C (+105 °C)			Please contact us about +85 °C < T_use
Level of drive	DL	0.5 μW (1.0 μW Max.)			Please contact us if you require 1.0 μW Max.
Frequency tolerance (standard)	f_tol	±20 × 10 <sup>-6</sup>			+25 °C, DL = 0.1 μW Please ask for tighter tolerance
Turnover temperature	Ti	+25 °C ± 5 °C			
Parabolic coefficient	B	-0.04 × 10 <sup>-6</sup> / °C <sup>2</sup> Max.			
Load capacitance	CL	7 pF, 9 pF, 12.5 pF			Please contact us other CL values
Motional resistance (ESR)	R1	50 kΩ Max.	70 kΩ Max.	70 kΩ to 45 kΩ Max.	
Motional capacitance	C1	3.4 fF Typ.	3.4 fF Typ.	3.7 fF to 1.9 fF Typ.	
Shunt capacitance	C0	1.0 pF Typ.	1.0 pF Typ.	1.3 pF to 0.8 pF Typ.	
Frequency aging	f_age	±3 × 10 <sup>-6</sup> / year Max.			+25 °C, First year

**Product name**

Product name FC-135R 32.768000kHz 12.5 +20.0-20.0

(Standard form)

①

②

③

④

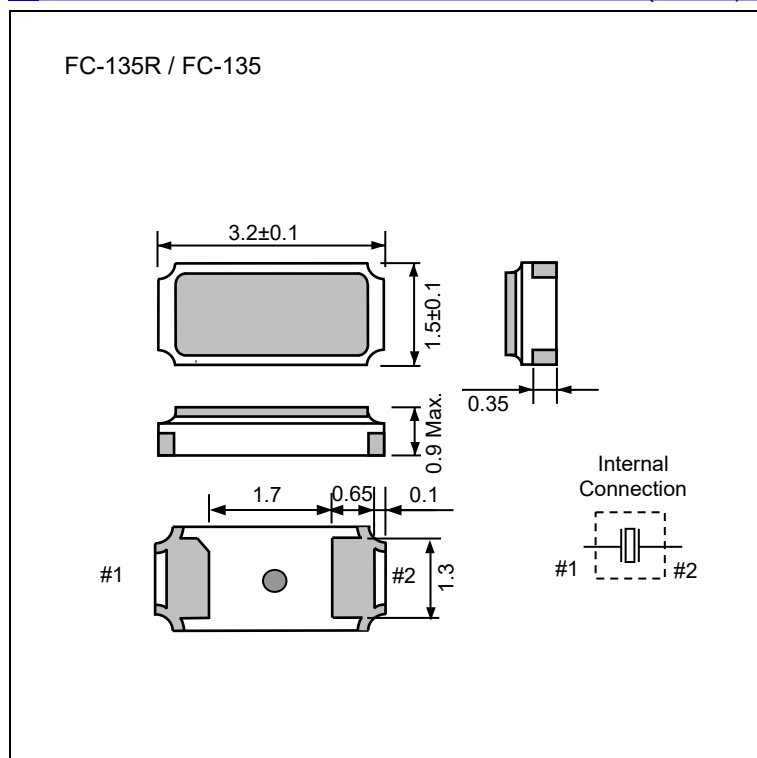
①Model

②Frequency

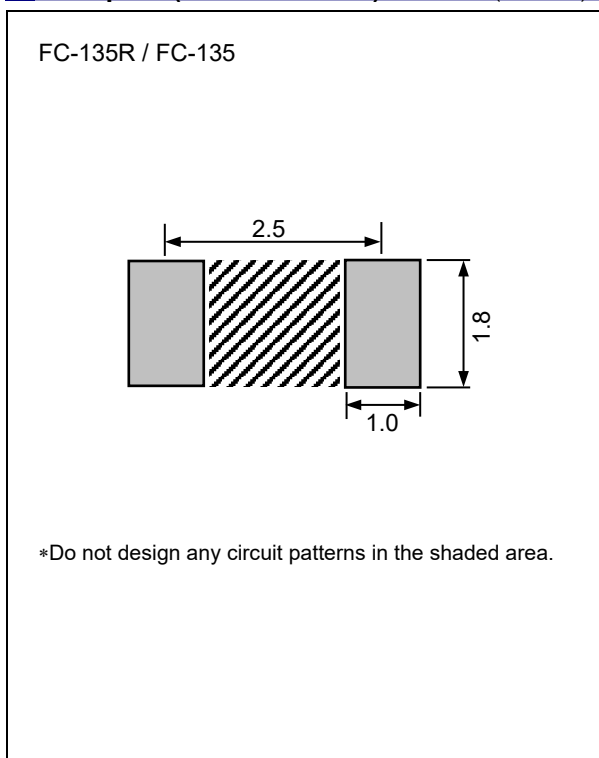
③Load capacitance (pF)

④Frequency tolerance (× 10<sup>-6</sup>, +25 °C)**External dimensions**





(Unit:mm)

**Footprint (Recommended)**

(Unit:mm)



► Explanation of the mark that are using it for the catalog

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive general equipment.
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