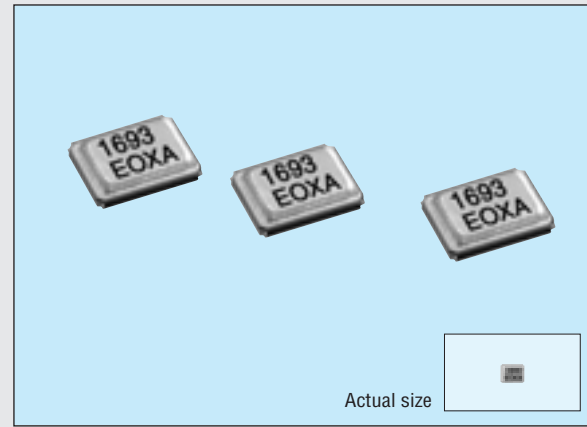


THIN SMD HIGH-FREQUENCY CRYSTAL UNIT

FA-238

- High-density mounting-type SMD.
- Excellent reliability and environment capability.
- Capable of covering a wide frequency range. (from 20 MHz to 50 MHz)
- 0.7 mm Max. thickness is equal to SMD-type IC.

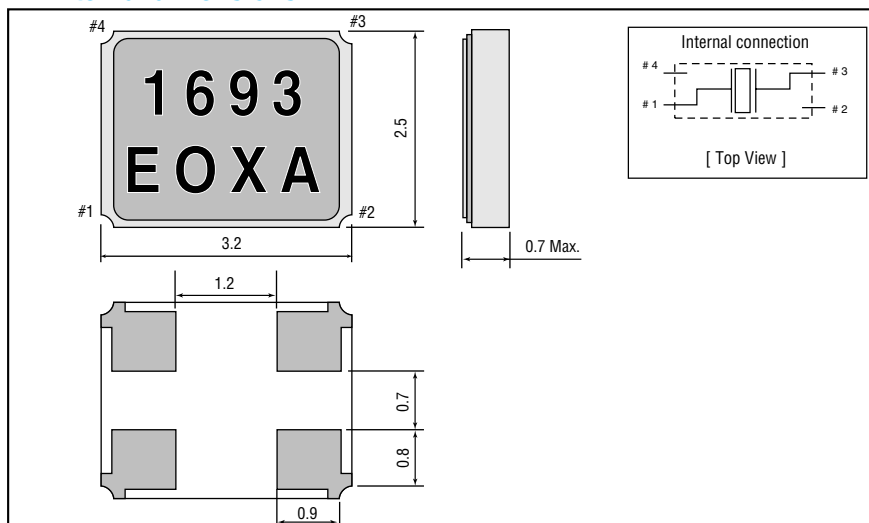


Specifications (characteristics)

Item	Symbol	Specifications	Remarks	
Nominal frequency range	f	20.000 MHz to 50.000 MHz	Fundamental mode	
Temperature range	Storage temperature	T _{STG}	-55 °C to +125 °C	Stored as bare product after unpacking
	Operating temperature	T _{OPR}	-20 °C to +70 °C	
Drive level	Maximum drive level	GL	2 mW Max.	Only crystal oscillation is guaranteed
	Recommended drive level	DL	100 μW Typ.	
Frequency tolerance (standard)	Δf/f	±50 x 10 ⁻⁶	T _a =+25 °C±3 °C Please ask tighter tolerance	
Frequency temperature characteristics (standard)		±30 x 10 ⁻⁶ (STD)	-20 °C to +70 °C	
		Available from ±12 x 10 ⁻⁶ (Custom)	-10 °C to +60 °C	
		Available from ±15 x 10 ⁻⁶ (Custom)	-20 °C to +70 °C	
Load capacitance	C _L	10 pF to ∞ (standard:12 pF)	Please specify	
Series resistance	R ₁	100 Ω Max. (20 MHz ≤ f < 30 MHz)	-20 °C to +70 °C, DL=100 μW	
		60 Ω Max. (30 MHz ≤ f ≤ 50 MHz)		
Shunt capacitance	C ₀	5.0 pF Max.		
Insulation resistance	IR	500 MΩ Min.		
Aging	fa	±5 x 10 ⁻⁶ /year Max.	T _a =+25 °C ±3 °C, first year	
Shock resistance	S. R.	±10 x 10 ⁻⁶ Max.	Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² x 0.3 ms x 1/2 sine wave x 3 directions	

External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)

