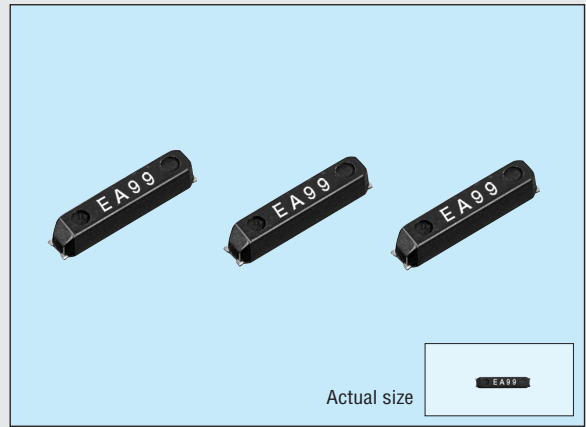


THIN SMD LOW/MEDIUM-FREQUENCY CRYSTAL UNIT

MC-146

- High-density mounting-type SMD of 1.4 mm thickness.
- Small packaging area and light weight.
- Excellent shock resistance and environmental capability.
- Most suitable for small communications devices.



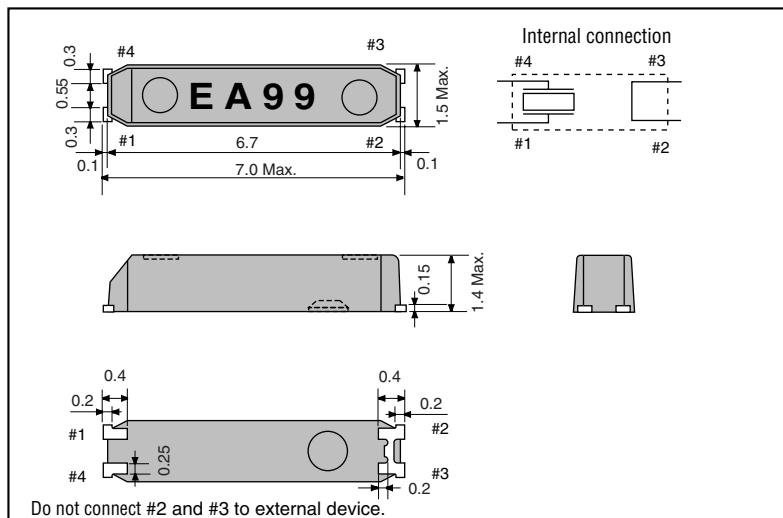
■ Specifications (characteristics)

Item		Symbol	Specifications		Remarks
Nominal frequency		f	32.768 kHz	75.000 kHz	please contact us for inquiries about usable frequencies
Temperature range	Storage temperature	T _{STG}	-55 °C to +125 °C		
	Operating temperature	T _{OPR}	-40 °C to +85 °C		
Maximum drive level		GL	1.0 μW Max.		Operating drive level 0.5 μW Max.
Soldering condition		T _{SO} L	Twice at under +260 °C within 10 s or under +230 °C within 3 min.		
Frequency tolerance(standard)		Δf/f	±20 × 10 ⁻⁶ , ±50 × 10 ⁻⁶		T _a =+25 °C, DL=0.1 μW
Peak temperature(frequency)		θT	+25 °C ±5 °C		
Temperature coefficient(frequency)		a	-0.04 × 10 ⁻⁶ /°C ² Max.		
Load capacitance		C _L	7 pF, 12.5 pF		Please specify
Series resistance		R ₁	65 kΩ Max.	30 kΩ Max.	
Motional capacitance		C ₁	1.9 fF Typ.		
Shunt capacitance		C ₀	0.8 pF Typ.		
Insulation resistance		IR	500 MΩ Min.		
Aging		fa	±3 × 10 ⁻⁶ /year Max.		T _a =+25 °C ±3 °C, first year
Shock resistance		S.R.	±5 × 10 ⁶ Max.		Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² × 0.3 ms × 1/2 sine wave × 3 directions

Metal may be exposed on the top of this product. This won't affect any quality, reliability or electrical spec.

■ External dimensions

(Unit: mm)



■ Recommended soldering pattern

(Unit: mm)

