# SMALL SMD LOW / MEDIUM-FREQUENCY **CRYSTAL UNIT**

# MC-306

- High-density mounting-type SMD.
- Photolithography finished allows uniform and stable performance.
- Excellent reliability and environmental capability.
- 2.54mm thickness is equal to SMD-type IC.



## **■** Specifications (characteristics)

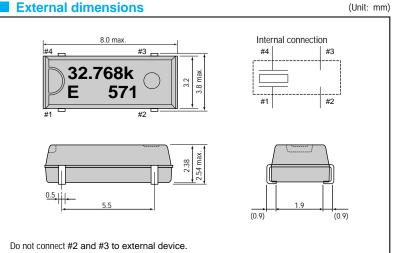
Item		Symbol	Specifications		Remarks		
Nominal frequency		f	32.768 kHz	20.000 kHz to 165.000 kHz			
Temperature	Storage temperature	Тѕтс	-55°C to +125°C		Stored as bare product after unpacking		
range	Operating temperature	Topr	-40°C to +85°C				
Maximum drive level		GL	1.0μW max.				
Soldering condition		Tsol	Twice at under 260°C within 10 sec. or under 230°C within 3 min.				
Frequency tolerance (standard)		Δf/f	±20ppm, ±50ppm	±50ppm, ±100ppm	Ta=25°C, DL=0.1μW		
Peak temperature (frequency)		θТ	25°C ±5°C				
Temperature coefficient (frequency)		а	-0.04ppm/*C² max.				
Load capacitance		CL	6pF to ∞		Please specify		
Series resistance		R <sub>1</sub>	50 kΩ max.	55 kΩ to 10 kΩ	As per below table		
Motional capacitance		C <sub>1</sub>	1.8fF typ.	4.0fF to 0.6fF			
Shunt capacitance		Co	0.9pF typ.	2.0pF to 0.6pF			
Insulation resistance		IR	500 MΩ min.				
Aging		fa	±3ppm/Y max.	±5ppm/Y max.	Ta=25°C ±3°C, first year		
Shock resistance		S.R.	±5ppm max.		Three drops on a hard board from 75 cm or excita test with 3000G x 0.3ms x 1/2 sine wave x 3 directions		

There are some cases that a parts of the cylindrical capsule of quartz unit expose on the surface of the molding material.

#### Series resistance

Frequency (kHz)	20 ≤ f < 30	30 ≤ f < 40	40 ≤ f < 60	60 ≤ f < 70	70 ≤ f < 120	120 ≤ f < 165
Series resonance resistance $(\Omega)$	55K $\Omega$ max.	45K Ω max.	20K Ω max.	15K <b>Ω</b> max.	12K Ω max.	10K Ω max.

### **External dimensions**



# **Recommended soldering pattern** (Unit: mm) 1.9