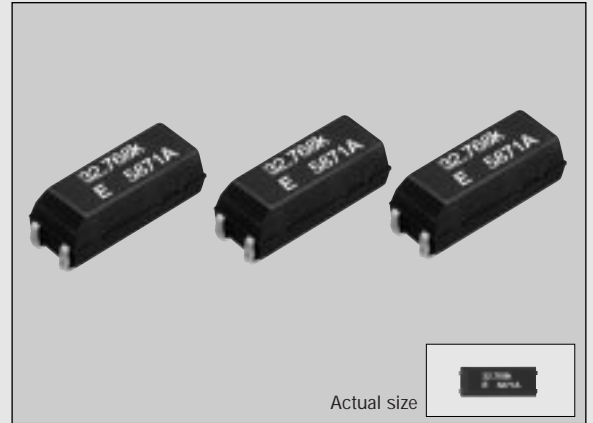


SMD LOW/MEDIUM-FREQUENCY CRYSTAL UNIT

MC-405/MC-406

- High-density mounting-type SMD.
- Photolithography finished allows uniform, stable performance.
- Excellent shock resistance and environmental capability.
- Capable of covering low-frequency range from 20 kHz to 165 kHz.
- Suitable for time keeping of clock and microcomputer.

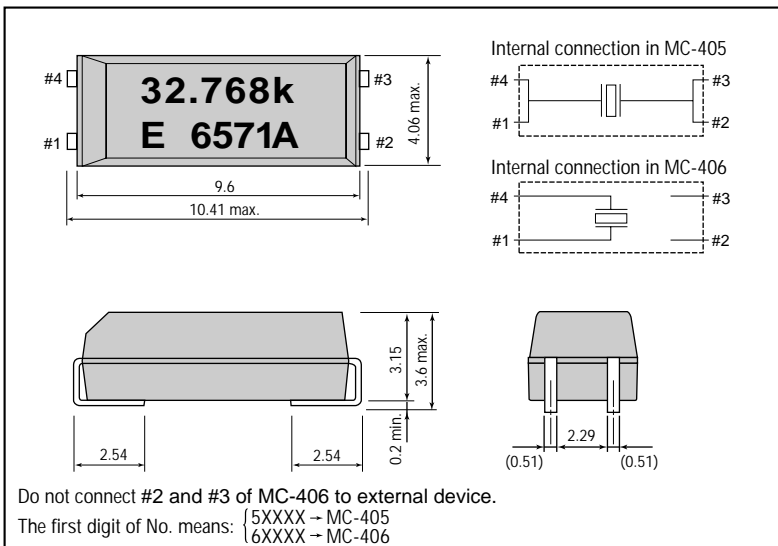


Specifications (characteristics)

Item	Symbol	Specifications		Remarks
Nominal frequency range	f	32.768 kHz	20.000 kHz to 165.000 kHz 307.2 kHz	
Temperature range	Storage temperature	T _{STG} -55°C to +125°C		Stored as bare product after unpacking
	Operating temperature	T _{OPR} -40°C to +85°C		
Maximum drive level	GL	1.0μW max.		
Soldering condition	T _{SOL}	Twice at under 260°C within 10 sec. or under 230°C within 3 min.		
Frequency tolerance (standard)	Δf/f	±20ppm, ±50ppm	±50ppm, ±100ppm (307.2 kHz: ±100ppm)	T _a =25°C, DL=0.1μW
Turnover temperature (frequency)	θT	25°C ±5°C		
Temperature coefficient (frequency)	a	-0.04ppm/°C ² max.		
Load capacitance	C _L	6pF to ∞		Please specify
Series resistance	R ₁	50 kΩ max.	55 kΩ to 6 kΩ	For details, refer to 15
Motion capacitance	C ₁	2.0fF typ.	4.0fF to 0.6fF	
Shunt capacitance	C ₀	0.85pF typ.	2.0pF to 0.6pF	
Insulation resistance	IR	500 MΩ min.		
Aging	f _a	±3ppm/year max.	±5ppm/year max.	T _a =25°C±3°C, first year
Shock resistance	S.R.	±5ppm max.		Three drops on a hard board from 75 cm or excitation test with 3000G x 0.3ms x 1/2 sine wave x 3 directions

External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)

