kHz RANGE CRYSTAL UNIT
SMD

MC - 306
MC - 405 / MC - 406

- Frequency range : 32.768 kHz (20 kHz to 165 kHz)
- Thickness : 8.0 × 3.8 × 2.54 mm ···MC-306
  10.41 × 4.06 × 3.6 mm ···MC-405 / 406
- Overtone order : Fundamental
- Applications : Clock and Microcomputer

RoHS Compliant

Product Number (please contact us)
MC-306 : Q1xMC3061xxxx00
MC-405 : Q1xMC4051xxxx00
MC-406 : Q1xMC4061xxxx00

Actual size

MC-306	MC-405 / 406
	

Specifications (characteristics)

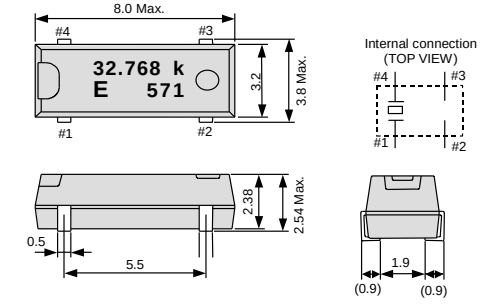
Item	Symbol	Specifications		Conditions / Remarks
Nominal frequency range	f_nom	32.768 kHz	20 kHz to 165 kHz	Please contact us regarding available frequencies
Storage temperature	T_stg	-55 °C to +125 °C		Store as bare product.
Operating temperature	T_use	-40 °C to +85 °C		
Level of drive	DL	1.0 μW Max.		
Frequency tolerance (standard)	f_tol	$\pm 20 \times 10^{-6}$, $\pm 50 \times 10^{-6}$	$\pm 50 \times 10^{-6}$, $\pm 100 \times 10^{-6}$	+25 °C, DL=0.1 μW
Turnover temperature	Ti	+25 °C ±5 °C		
Parabolic coefficient	B	-0.04×10^{-6} / °C^2 Max.		
Load capacitance	CL	6 pF to ∞ (standard :12.5 pF)		Please specify
Motional resistance (ESR)	R_1	50 kΩ Max.	As per below table	
Motional capacitance	C_1	1.8 fF Typ.	4.0 fF to 0.6 fF	MC-306
		2.0 fF Typ.		MC-405 / 406
Shunt capacitance	C_0	0.9 pF Typ.	2.0 pF to 0.6 pF	MC-306
		0.85 pF Typ.		MC-405 / 406
Frequency aging	f_age	$\pm 3 \times 10^{-6}$ / year Max.	$\pm 5 \times 10^{-6}$ / year Max.	+25 °C, First year

Motional resistance (ESR)

Frequency	20 kHz≤f_nom< 31.2 kHz	31.2 kHz≤f_nom< 40 kHz	40 kHz≤f_nom< 90 kHz	90 kHz≤f_nom< 130 kHz	130 kHz≤f_nom≤165 kHz
Motional resistance	55 kΩ Max.	35 kΩ Max.	20 kΩ Max.	12 kΩ Max.	10 kΩ Max.

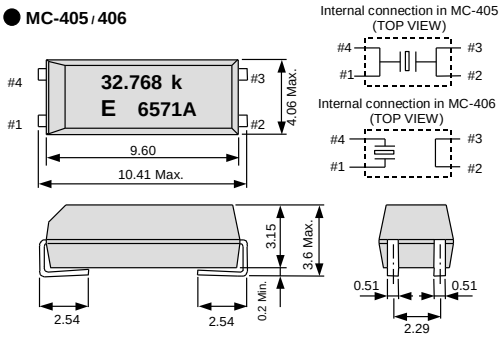
External dimensions (Unit:mm)

● MC-306



Do not connect #2 and #3 to external device.
Metal may be exposed on the top or bottom of this product.
This will not affect any quality, reliability or electrical spec.

● MC-405 / 406

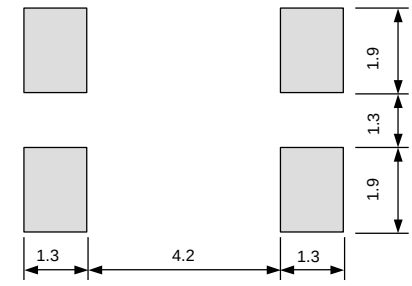


Do not connect #2 and #3 of MC-406 to external device.

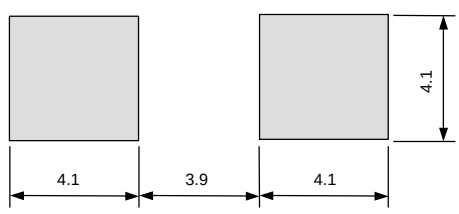
The first digit of No. means: 5×××× MC-405
6×××× MC-406

Footprint (Recommended) (Unit:mm)

● MC-306



● MC-405



● MC-406