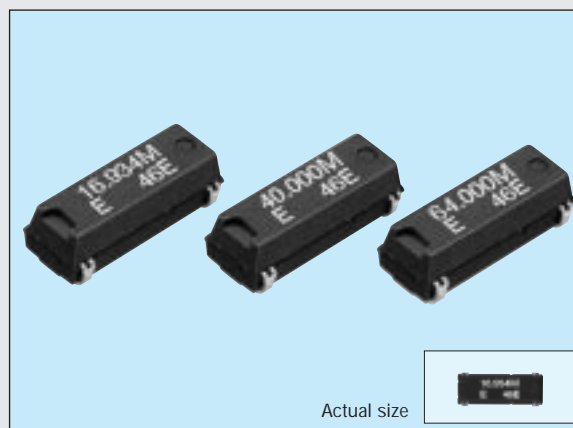


SMD HIGH-FREQUENCY CRYSTAL UNIT

MA-406

- High-density mounting-type SMD.
- Excellent heat-resistance and environment capability.
- Cover a wide frequency range, from 4 MHz to 64 MHz.



Specifications (characteristics)

Item	Symbol	Specifications	Remarks	
Nominal frequency	f	4.000 MHz to 30.000 MHz *1	Fundamental mode	
		26.000 MHz to 64.000 MHz	3rd overtone 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	2mW	Only crystal oscillation is guaranteed
	Recommended drive level	DL	10μW to 100μW	
Soldering condition	T _{SOL}	Twice at under 260°C within 10 sec. or under 230°C within 3 min.		
Frequency tolerance (standard)	Δf/f	±50ppm	T _a =25°C±3°C	
Frequency temperature characteristics (standard)			Under 5.5 MHz: ±50ppm	-20°C to +70°C
			Over 5.5 MHz: ±30ppm	
Load capacitance	C _L	Fundamental: 10pF to ∞		Please specify
		Over tone: 5pF to ∞		
Series resistance	R ₁	As per table below		-20°C to +70°C, DL=100μW
Shunt capacitance	C ₀	5pF max.		
Insulation resistance	IR	500 MΩ min.		
Aging	f _a	±5ppm/year		T _a =25°C±3°C, first year
Shock resistance	S.R.	±10ppm 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

*1 8.0 MHz < f < 8.2 MHz: Unavailable.

For frequencies below 5.5 MHz, see "Available frequencies from 4.0 MHz to less than 5.5 MHz" on page 20.

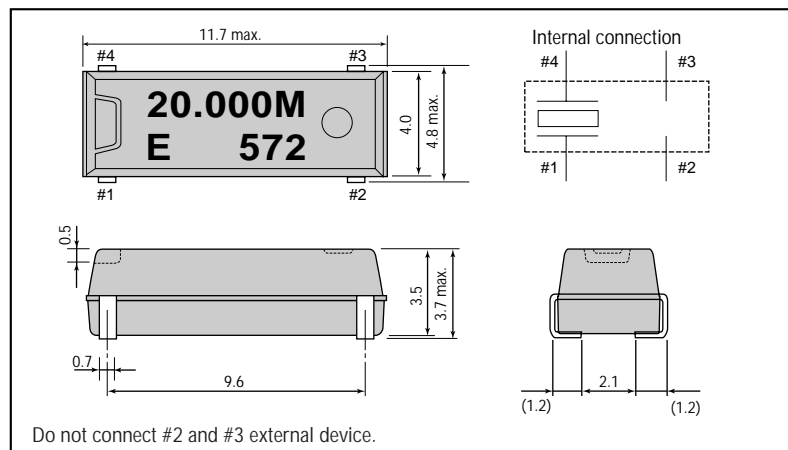
26.000 MHz to 30.000 MHz: If not specified, 3rd overtone will be delivered.

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

Frequency (MHz)	4.0 ≤ f < 5.5	5.5 ≤ f < 6.0	6.0 ≤ f < 10.0	10.0 ≤ f < 12.0	12.0 ≤ f < 16.0	16.0 ≤ f < 30.0	26.0 ≤ f ≤ 36.0	36.0 < f ≤ 64.0
Series resonance resistance (Ω)	150 Ω max.	100 Ω max.	80 Ω max.	60 Ω max.	50 Ω max.	40 Ω max.	100 Ω max.	80 Ω max.
Mode	Fundamental mode						3rd overtone mode	

External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)

