

SMD HIGH-FREQUENCY CRYSTAL UNIT

MA-406 / 505 / 506

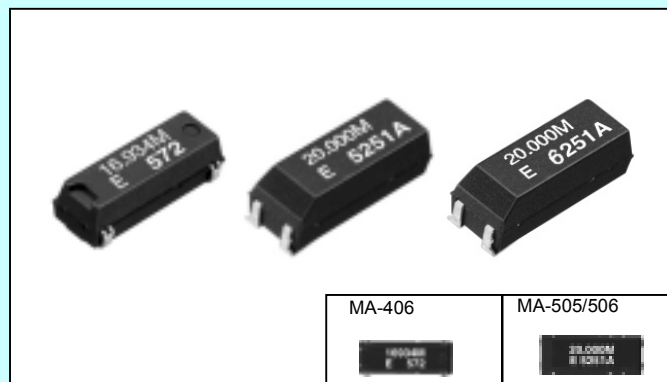
Product number (please contact us)

MA-406 : Q22MA4061xxxx00

MA-505 : Q22MA5051xxxx00

MA-506 : Q22MA5061xxxx00

- Frequency range : 4 MHz to 64 MHz
- Thickness : 3.7 mm Max.(MA-406)
4.6 mm Max.(MA-505 / 506)
- Overtone order : Fundamental
3rd overtone(30 MHz to 64 MHz)
- Applications : For Clock of integrated circuit
- Lead(Pb)-free : Complies with EU RoHS directive



MA-406

MA-505/506

Actual size

■ Specifications (characteristics)

Item	Symbol	Specifications	Remarks	
Nominal frequency range	f	4.000 MHz to 29.999 MHz	Fundamental *1	
		30.000 MHz to 64.000 MHz	3rd overtone *2	
Temperature range	Storage temperature	TSTG	-55 °C to +125 °C	Stored as bare product after unpacking
	Operating temperature	TOPR	-20 °C to +70 °C	Please contact us on availability of -40 °C to +85 °C
Recommended drive level	GL	10 μW to 100 μW		
Frequency tolerance (standard)	Δf/f	±50 × 10 ⁻⁶	T _a =+25 °C ±3 °C	
Frequency temperature characteristics (standard)		Under 5.5 MHz : ±50 × 10 ⁻⁶	-20 °C to +70 °C	
		Over 5.5 MHz : ±30 × 10 ⁻⁶	For the out of standard specifications, please contact us for inquiries	
Load capacitance	C _L	Fundamental: 10 pF to ∞ Overtone: 5 pF to ∞	Please specify	
Series resistance	R ₁	As per below table	-20 °C to +70 °C, DL=100 μW	
Shunt capacitance	C ₀	5 pF Max.		
Insulation resistance	IR	500 MΩ Min.		
Aging	f _a	±5 × 10 ⁻⁸ / year Max.	T _a =+25 °C ±3 °C, first year	
Shock resistance	S.R.	±10 × 10 ⁻⁶ Max.	Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² x 0.3 ms x 1/2 sine wave x 3 directions	

*1 4.0 MHz ≤ f < 5.5 MHz : See "Available frequencies form 4.0 MHz to less than 5.5 MHz". 8.0 MHz < f < 8.2 MHz: Unavailable.

*2 26.000 MHz ≤ f < 30.000 MHz : please contact us for inquiries for 3rd overtone mode.

■ Available frequency from 4.0 MHz to less than 5.5 MHz (MHz)

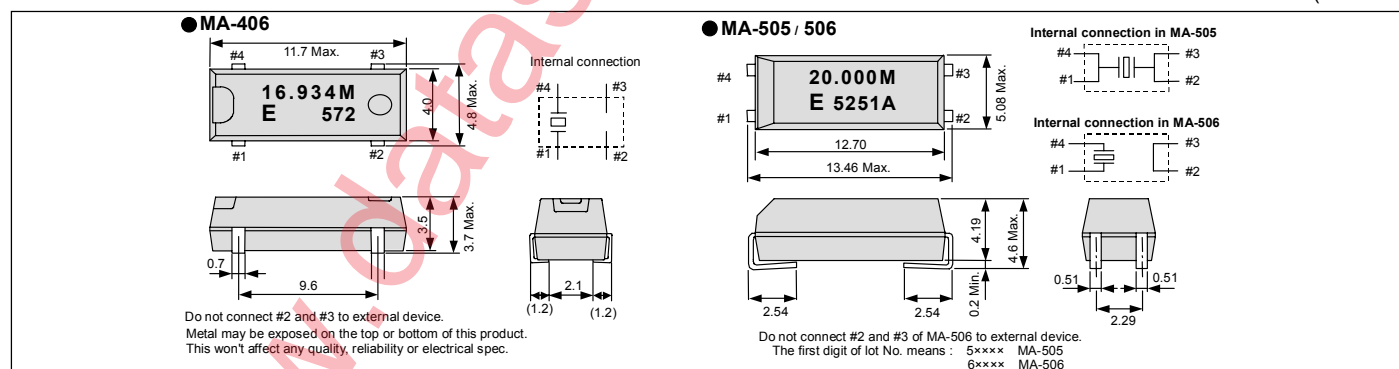
4.000	4.032	4.096	4.190	4.194304	4.433619	4.500	4.800	4.9152
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■ Series resistance (R₁)

Frequency (MHz)	4.0 ≤ f < 5.5	5.5 ≤ f < 6.0	6.0 ≤ f < 10.0	10.0 ≤ f < 16.0	12.0 ≤ f < 16.0	16.0 ≤ f < 30.0	30.0 ≤ f ≤ 36.0	36.0 < f ≤ 64.0
Series resistance	150 Ω Max.	100 Ω Max.	80 Ω Max.	60 Ω Max.	50 Ω Max.	40 Ω Max.	100 Ω Max.	80 Ω Max.
Overtone order	Fundamental						3rd overtone	

■ External dimensions

(Unit:mm)



■ Recommended soldering pattern

(Unit:mm)

