

MHz RANGE CRYSTAL UNIT



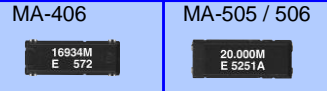
Product Number (please contact us)
 MA-406 : Q22MA4062xxxx00
 MA-505 : Q22MA5052xxxx00
 MA-506 : Q22MA5062xxxx00

MA-406
 MA-505 / MA-506

- Frequency range : 4 MHz to 64 MHz
- Thickness : 11.7 × 4.8 × 3.7 mm ...MA-406
 13.46 × 5.08 × 4.6 mm ...MA-505 / 506
- Overtone order : Fundamental
 3rd overtone (30 MHz to 64 MHz)
- Applications : For Clock of integrated circuit



Actual size



Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Nominal frequency range	f_nom	4.000 MHz to 29.999 MHz	Fundamental *1
		30.000 MHz to 64.000 MHz	3rd overtone *2
Storage temperature	T_stg	-55 °C to +125 °C	Storage as single product.
Operating temperature	T_use	-20 °C to +70 °C	Please contact us on availability of -40 °C to +85 °C
Level of drive	DL	10 μW to 100 μW	
Frequency tolerance (standard)	f_tol	±50 × 10 ⁻⁶	+25 °C
Frequency versus temperature characteristics (standard)	f_tem	Under 5.5 MHz : ±50 × 10 ⁻⁶	-20 °C to +70 °C
		Over 5.5 MHz : ±30 × 10 ⁻⁶	Please contact us for requirements not listed in this specifications.
Load capacitance	CL	Fundamental: 10 pF to ∞	Please specify
		Overtone: 5 pF to ∞	
Motional resistance (ESR)	R ₁	As per table below	-20 °C to +70 °C, DL=100 μW
Shunt capacitance	C ₀	5 pF Max.	
Frequency aging	f_age	±5 × 10 ⁻⁶ / year Max.	+25 °C, First year

*1 4.0 MHz ≤ f_nom < 5.5 MHz : See "Available frequencies from 4.0 MHz to less than 5.5 MHz". 8.0 MHz < f_nom < 8.2 MHz: Unavailable.
 *2 26.000 MHz ≤ f_nom < 30.000 MHz :please contact us for inquiries for 3rd overtone mode.

Available frequencies 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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Motional resistance (ESR)

Frequency (MHz)	4 ≤ f_nom < 5.5	5.5 ≤ f_nom < 6	6 ≤ f_nom < 10	10 ≤ f_nom < 12	12 ≤ f_nom < 16	16 ≤ f_nom < 30	30 ≤ f_nom ≤ 36	36 < f_nom ≤ 64
Motional 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	

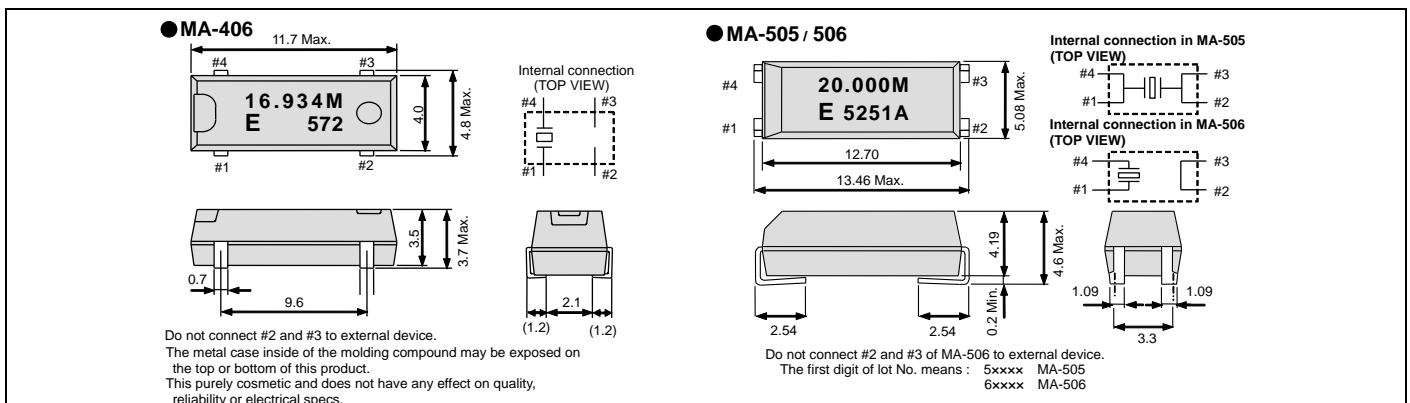
Product name MA-406 24.000000MHz 12.0 +10.0-10.0
 (Standard form) ① ② ③ ④

①Model ②Frequency ③Load capacitance(pF) ④Frequency tolerance(x 10⁻⁶, +25 °C)

In addition to the above mentioned specification item, please specify frequency temperature characteristics and operating temperature range in case of inquiry.

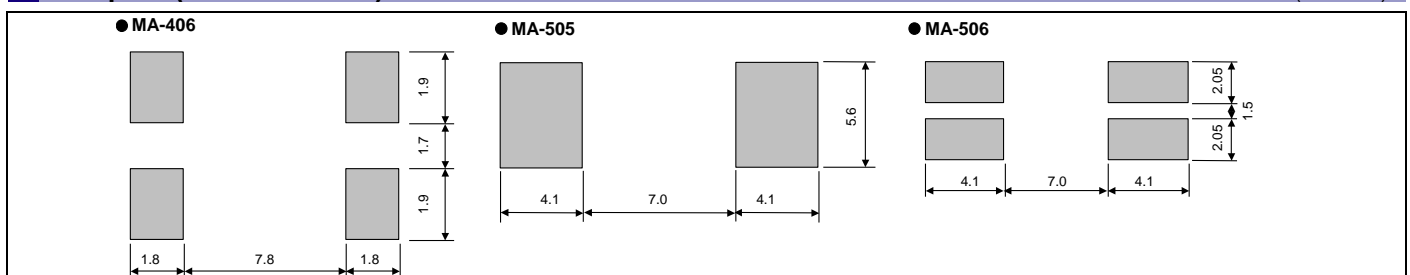
External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)



Mouser Electronics

Authorized Distributor

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Epson:

[MA-505 11.0592M-C3: PURE](#) [MA-505 12.0000M-C3: ROHS](#) [MA-505 14.31818M-C3: ROHS](#) [MA-505 16.0000M-C3: ROHS](#) [MA-505 20.0000M-C3:ROHS](#) [MA-505 22.1184M-C3: ROHS](#) [MA-505 25.0000M-C:ROHS](#) [MA-505 25.0000M-C3: PURE SN](#) [MA-505 25.0000M-C3:ROHS](#) [MA-505 36.0000M-C0: ROHS](#) [MA-505 4.9152M-C3: ROHS](#) [MA-505 40.0000M-C0: ROHS](#) [MA-506 10.0000M-B0: ROHS](#) [MA-506 10.0000M-C3: PURE SN](#) [MA-506 10.0000M-C3:ROHS](#) [MA-506 12.0000M-A3: ROHS](#) [MA-506 12.0000M-B0: ROHS](#) [MA-506 12.0000M-C3: ROHS](#) [MA-506 14.31818M-C:ROHS](#) [MA-506 14.31818M-C3:ROHS](#) [MA-506 14.31818M-G0: ROHS](#) [MA-506 14.7456M-C3: ROHS](#) [MA-506 16.0000MBC-C0: ROHS](#) [MA-506 16.0000M-C:ROHS](#) [MA-506 16.0000M-C0: PURE SN](#) [MA-506 16.0000M-C3:ROHS](#) [MA-506 16.0000M-I0: ROHS](#) [MA-506 18.4320M-C3: ROHS](#) [MA-506 19.6608M-C0: ROHS](#) [MA-506 20.0000M-C3: ROHS](#) [MA-506 20.0000M-G: ROHS](#) [MA-506 22.1184M-G3: ROHS](#) [MA-506 24.0000M-C0: ROHS](#) [MA-506 24.0000M-C3: ROHS](#) [MA-506 24.5760M-C3: ROHS](#) [MA-506 25.0000M-C0: PURE SN](#) [MA-506 25.0000M-C3:ROHS](#) [MA-506 4.0000M-C3: PURE SN](#) [MA-506 4.0000M-C3: ROHS](#) [MA-506 4.0000M-G3: ROHS](#) [MA-506 4.9152M-C3: ROHS](#) [MA-506 4.9152M-K0: ROHS](#) [MA-506 6.0000M-G0: ROHS](#) [MA-506 6.0000M-G3: ROHS](#) [MA-506 6.1440M-C0: ROHS](#) [MA-506 7.0000M-C3: ROHS](#) [MA-506 8.0000M-C3:ROHS](#) [MA-506 8.0000M-D3: ROHS](#) [MA-506 9.2160M-C0: ROHS](#) [MA-506 9.8304M-C0: ROHS](#) [MA-505 10.0000M-C0:ROHS](#) [MA-505 11.0592M-C0:ROHS](#) [MA-505 12.0000M-C0:ROHS](#) [MA-505 14.3180M-C0:ROHS](#) [MA-505 14.7456M-C0:ROHS](#) [MA-505 16.0000M-C0:ROHS](#) [MA-505 18.4320M-C0:ROHS](#) [MA-505 20.0000M-C0:ROHS](#) [MA-505 24.0000M-C0:ROHS](#) [MA-505 24.5760M-C0:ROHS](#) [MA-505 25.0000M-C0:ROHS](#) [MA-505 4.0000M-C0:ROHS](#) [MA-505 6.0000M-C0:ROHS](#) [MA-505 7.3728M-C0:ROHS](#) [MA-505 8.0000M-C0:ROHS](#) [MA-506 10.0000M-C0:ROHS](#) [MA-506 11.0592M-C0:ROHS](#) [MA-506 12.0000M-C0:ROHS](#) [MA-506 12.2880M-C0:ROHS](#) [MA-506 14.7456M-C0:ROHS](#) [MA-506 16.0000M-C0:ROHS](#) [MA-506 18.4320M-C0:ROHS](#) [MA-506 20.0000M-C0:ROHS](#) [MA-506 22.1184M-C0:ROHS](#) [MA-506 24.5760M-C0:ROHS](#) [MA-506 25.0000M-C0:ROHS](#) [MA-506 4.0000M-C0:ROHS](#) [MA-506 4.0960M-C0:ROHS](#) [MA-506 4.9152M-C0:ROHS](#) [MA-506 6.0000M-C0:ROHS](#) [MA-506 7.3728M-C0:ROHS](#) [MA-506 8.0000M-C0:ROHS](#) [MA-505 4.0000M-C:RoHS](#) [MA-505 6.0000M-C3:RoHS](#) [MA-506 12.0000M-C:RoHS](#) [MA-506 20.0000M-C:RoHS](#) [MA-506 7.3728M-C3:RoHS](#) [MA-506 26.8000M-G3:ROHS](#)