

## MHz RANGE CRYSTAL UNIT SMD

# MA - 406 / 505 / 506

- 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 : High melting temperature type solder  
(Pb85 %) exempted by RoHS directive.

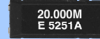


Actual size

MA-406



MA-505 / 506



### 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	T_stg	-55 °C to +125 °C	Stored as bare product after unpacking
	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	$\pm 50 \times 10^{-6}$	+25 °C	
Frequency versus temperature characteristics (standard)	f_tem	Under 5.5 MHz : $\pm 50 \times 10^{-6}$	-20 °C to +70 °C	
		Over 5.5 MHz : $\pm 30 \times 10^{-6}$	For the out of standard specifications, please contact us for inquiries	
Load capacitance	CL	Fundamental: 10 pF to $\infty$		
		Overtone: 5 pF to $\infty$	Please specify	
Motional resistance (ESR)	R <sub>1</sub>	As per below table	-20 °C to +70 °C, DL=100 μW	
Shunt capacitance	C <sub>0</sub>	5 pF Max.		
Frequency aging	f_age	$\pm 5 \times 10^{-6}$ / year Max.	+25 °C, First year	

\*1 4.0 MHz  $\leq$  f < 5.5 MHz : See "Available frequencies from 4.0 MHz to less than 5.5 MHz". 8.0 MHz < f < 8.2 MHz: Unavailable.

\*2 26.000 MHz  $\leq$  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)

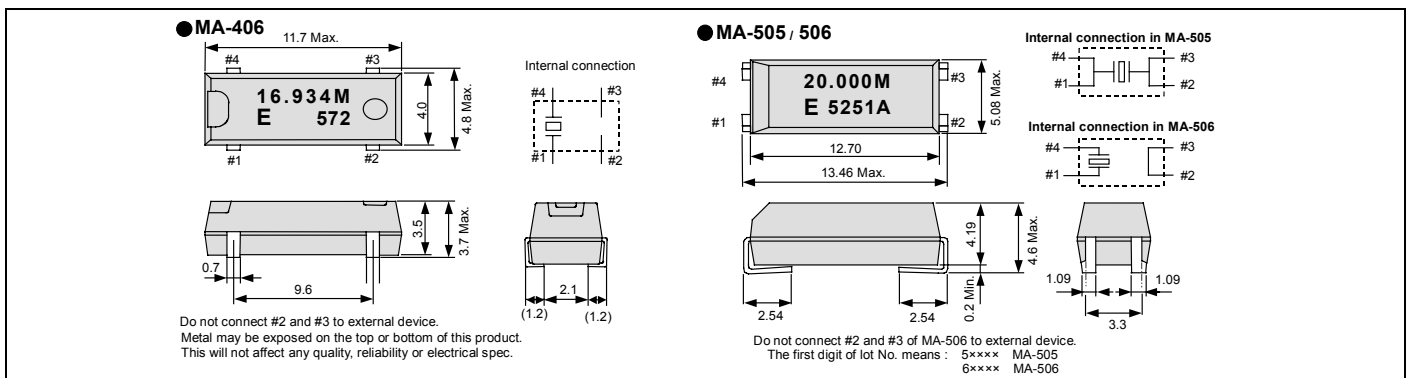
4.000	4.032	4.096	4.190	4.194304	4.433619	4.500	4.800	4.9152
-------	-------	-------	-------	----------	----------	-------	-------	--------

### Motional resistance (ESR)

Frequency (MHz)	4.0 $\leq$ f < 5.5	5.5 $\leq$ f < 6.0	6.0 $\leq$ f < 10.0	10.0 $\leq$ f < 12.0	12.0 $\leq$ f < 16.0	16.0 $\leq$ f < 30.0	30.0 $\leq$ f < 36.0	36.0 < f $\leq$ 64.0
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

### External dimensions

(Unit:mm)



### Footprint (Recommended)

(Unit:mm)

