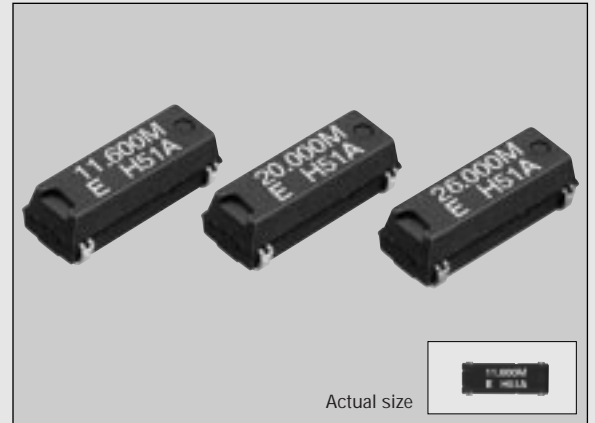SMD HIGH-STABILITY CRYSTAL UNIT

MA-406H

- High-density mounting-type SMD.
- Excellent heat-resistance and environment capability.
- 9.6 MHz to 27.0 MHz available.

Actual size

■ Specifications (characteristics)

Item		Symbol	Specifications	Remarks
Nominal frequency range		f	9.600 MHz to 27.000 MHz	Fundamental mode
Temperature range	Storage temperature	T_{STG}	-55°C to +125°C	Stored as bare product after unpacking
	Operable temperature	T_{OPR}	-40°C to 85°C	
Drive level	Maximum drive level	GL	2mW max.	Only crystal oscillation is guaranteed
	Recommended drive level	DL	10µW to 100µW	
Soldering condition		T_{SOL}	240°C max. within 10 sec. and under 200°C within 40 sec.	
Frequency tolerance (standard)		Δf/f	±10ppm	Ta=25°C±3°C,DL=100µW
Frequency temperature characteristics			As per below table	
Load capacitance		C_L	10pF to ∞	Please specify
Series resistance		R_1	As per below table	Operable temperature range, DL=100µW
Shunt capacitance		C_0	5.0pF max.	
Insulation resistance		IR	500 MΩ min.	
Aging		fa	±1ppm/year max.	Ta=25°C ±1°C, DL=100µW
Shock resistance		S. R.	±1ppm max.	Three drops on a hard wooden board from 75 cm or excitation test with 3000G x 0.3ms x 1/2 sine wave x 3 directions

Measured values for frequency tolerance and temperature characteristics need to be brought into mutual correlation prior to the start of production.
There are some cases that a parts of the case of quartz resonator expose on the surface of the molding material.

■ Frequency temperature characteristics

Temperature range	Min. frequency specifications
0°C to +50°C	± 3ppm min.
-10°C to +60°C	± 5ppm min.
-20°C to +70°C	± 7ppm min.
-30°C to +80°C	±10ppm min.
-40°C to +85°C	±15ppm min.

■ Series resistance

Frequency (MHz)	Series resistance (Ω)
9.6 ≤ f < 10.0	50 Ω max.
10.0 ≤ f < 12.0	40 Ω max.
12.0 ≤ f < 16.0	30 Ω max.
16.0 ≤ f ≤ 27.0	25 Ω max.

■ External dimensions   (Unit: mm)

Internal connection

20.000M
E   H51A

Do not connect #2 and #3 external device.
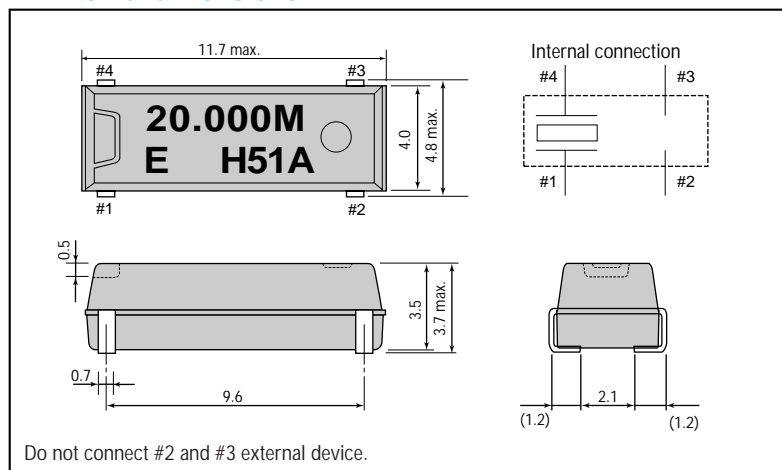
■ Recommended soldering pattern   (Unit: mm)