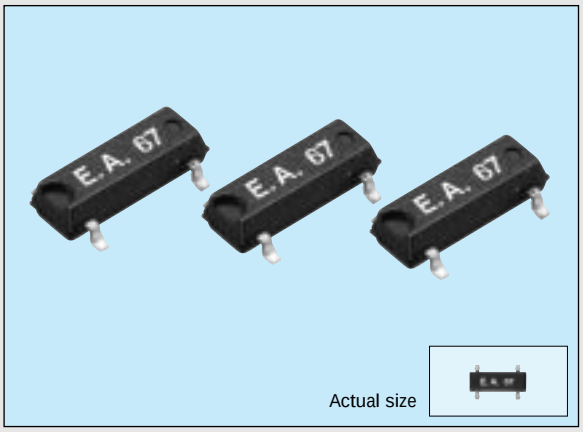
THIN SMD LOW/MEDIUM-FREQUENCY CRYSTAL UNIT

MC-206

- High-density mounting-type SMD of max. 2.0mm thickness.
- Small packaging area and light weight.
- High heat resistance allows reflow soldering.
- Excellent shock resistance and environmental capability.
- Most suitable for small communications devices.



Specifications (characteristics)

Item		Symbol	Specifications		Remarks
Nominal frequency		f	32.768 kHz	32.000 kHz to 100.000 kHz	
Temperature range	Storage temperature	T_{STG}	-55˚C to +125˚C		
	Operating temperature	T_{OPR}	-40˚C to +85˚C		
Maximum drive level		GL	1.0μW max.		
Soldering condition		T_{SOL}	Twice at under 260˚C within 10 sec. or under 230˚C within 3 min.		
Frequency tolerance (standard)		Δf/f	±20ppm, ±50ppm	±50ppm, ±100ppm	Ta=25˚C, DL=0.1μW
Peak temperature (frequency)		θT	25˚C ±5˚C		
Temperature coefficient (frequency)		a	-0.04ppm/˚C² max.		
Load capacitance		C_L	6pF to ∞		Please specify
Series resistance		R_1	55 kΩ max.	50 kΩ to 20 kΩ	As per below table
Motional capacitance		C_1	1.8fF typ.	3.0fF max.	
Shunt capacitance		C_0	0.9pF typ.	1.5pF max.	
Insulation resistance		IR	500 MΩ min.		
Aging		fa	±3ppm/year max.	±5ppm/year max.	Ta=25˚C ±3˚C, first year
Shock resistance		S.R.	±5ppm 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

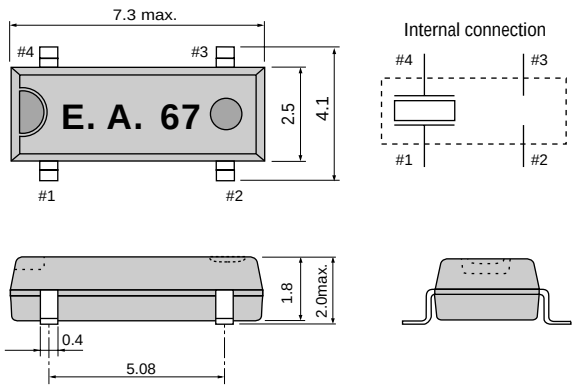
Metal may be exposed on the top of this product. This won't affect any quality, reliability or electrical spec.

Series resistance

Frequency (kHz)	32 ≤ f < 38	38 ≤ f < 65.536	65.536 ≤ f < 75	75 ≤ f ≤100
Series resistance (Ω)	50k Ω max.	40k Ω max.	25k Ω max.	20k Ω max.

External dimensions

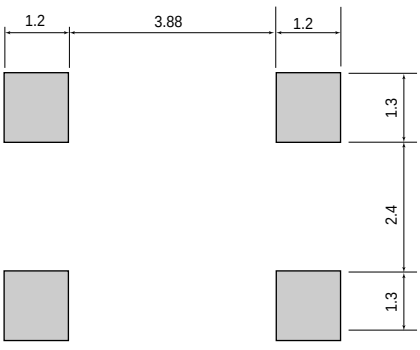
(Unit: mm)



Do not connect #2 and #3 to external device.

Recommended soldering pattern

(Unit: mm)



THE CRYSTALMASTER

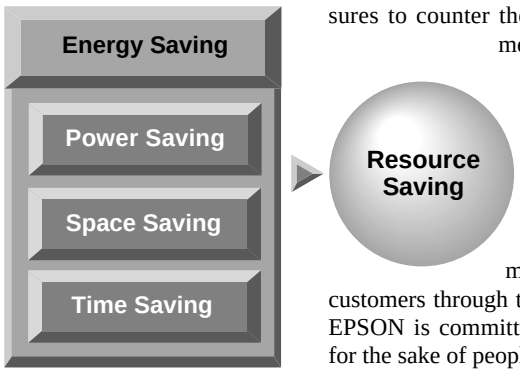
ENERGY SAVING EPSON

EPSON offers effective savings to its customers through a wide range of electronic devices, such as semiconductors, liquid crystal display (LCD) modules, and crystal devices. These savings are achieved through a sophisticated melding of three different efficiency technologies.

Power saving technology provides low power consumption at low voltages.

Space saving technology provides further reductions in product size and weight through super-precise processing and high-density assembly technology.

Time saving technology shortens the time required for design and development on the customer side and shortens delivery times.



Our concept of Energy Saving technology conserves resources by blending the essence of these three efficiency technologies. The essence of these technologies is represented in each of the products that we provide to our customers.

In the industrial sector, leading priorities include measures to counter the greenhouse effect by reducing CO2, measures to preserve the global environment, and the development of energy-efficient products. Environmental problems are of global concern, and although the contribution of energy-saving technology developed by EPSON may appear insignificant, we seek to contribute to the development of energy-saving products by our customers through the utilization of our electronic devices. EPSON is committed to the conservation of energy, both for the sake of people and of the planet on which we live.

SEIKO EPSON CORP. QUARTZ DEVICE DIVISION acquired ISO9001 and ISO14001 certification by B.V.Q.I. (Bureau Veritas Quality International) .

ISO9001 in October, 1992.

ISO14001 in November,1997.