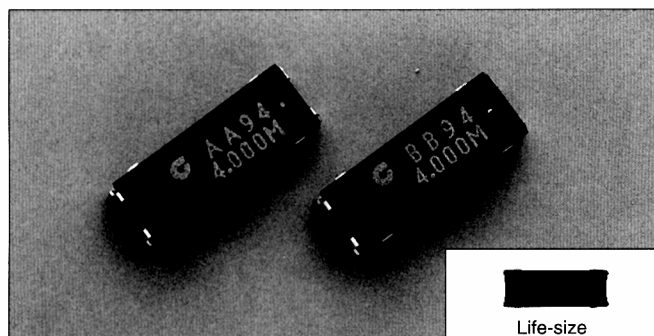


# MHz RANGE CRYSTAL UNITS (PLASTIC SURFACE MOUNT TYPE)

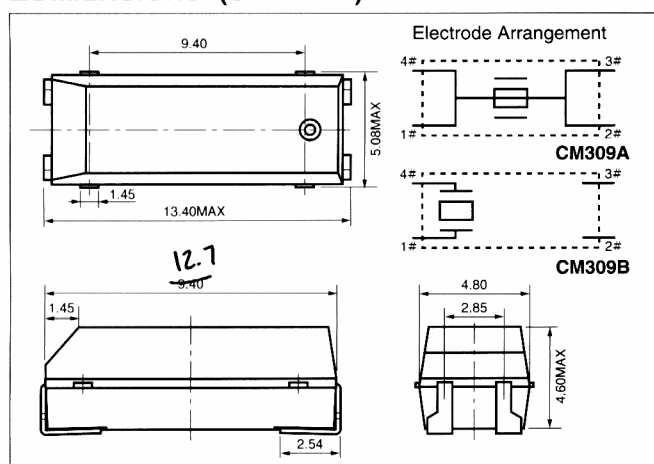
CITIZEN<sup>®</sup>

## CM309A/CM309B

(1,000pcs/reel)



### ■ DIMENSIONS: (UNIT=mm)



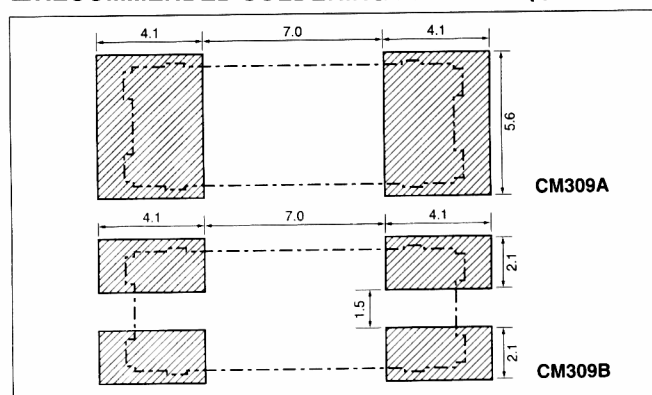
### ■ FEATURES:

- Being of the miniature SMD type and featuring high efficiency in mounting, the CM309S is ideal for application to high-density circuit boards.
- As it incorporates a heat-resisting packaged cylinder-type crystal, this crystal makes best use of the superb characteristic AT-cut crystals have, and permits reflow soldering.
- Enables automatic mounting, due to the adoption of the emboss taping packaging.

### ■ APPLICATIONS:

- Can be used for a wide range of applications including use in communication equipment, AV equipment, OA equipment and measuring instruments.

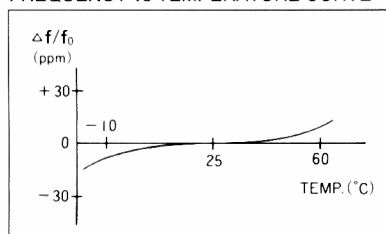
### ■ RECOMMENDED SOLDERING PATTERN: (UNIT=mm)



### ■ STANDARD SPECIFICATIONS

Item	Model	CM309A/CM309B	Conditions
Nominal frequency	$f_0$	3.5MHz~32MHz (fund), 30MHz~70MHz (3rd OT)	Please contact us for changes in frequency.
Frequency tolerance	$\Delta f/f_0$	$\pm 30\text{ppm}$ or $\pm 50\text{ppm}$	At 25°C
Frequency vs. Temperature characteristics	$\Delta f/f_0$	$\pm 50\text{ppm}$ ( $\pm 30\text{ppm}$ )	-10°C~+60°C
Operating temperature range	$T_{\text{ORP}}$	-40°C~+85°C	
Storage temperature range	$T_{\text{STG}}$	-55°C~+125°C	
Equivalent series resistance	$R_1$	See drawing	At 25°C
Load capacitance	$C_L$	16pFTYP	Please specify
Shunt capacitance	$C_0$	7.0pF MAX.	
Drive level	DL	50μW~100μW	
Insulation resistance	IR	500MΩ MIN.	DC100V±15V
Aging (First year)	$\Delta f/f_0$	$\pm 5\text{ppm}$ MAX.	25°C±3°C
Sealing		$1 \times 10^{-2} \mu\text{Pa} \cdot \text{m}^3/\text{s}$ MAX.	
Shock resistance		$\pm 5\text{ppm}$ MAX. Drop test of 3 times on a hard board from 75cm height or shock test of 3000G x 0.3ms x 1/2 sin wave x 3 directions	Conditions will vary depending on the frequency.

FREQUENCY vs TEMPERATURE CURVE



EQUIVALENT SERIES RESISTANCE (ESR,  $R_1$ )

Frequency	Equivalent series resistance	Mode
3.5MHz ≤ $f_0$ < 4MHz	200	fundamental
4MHz ≤ $f_0$ < 6MHz	150	
6MHz ≤ $f_0$ < 10MHz	100	
10MHz ≤ $f_0$ ≤ 32MHz	50	
30MHz < $f_0$ < 36MHz	100	3rd OT
36MHz ≤ $f_0$ < 70MHz	80	

(Ω MAX.)