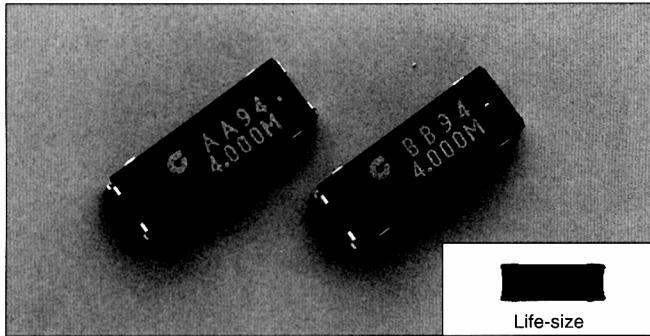
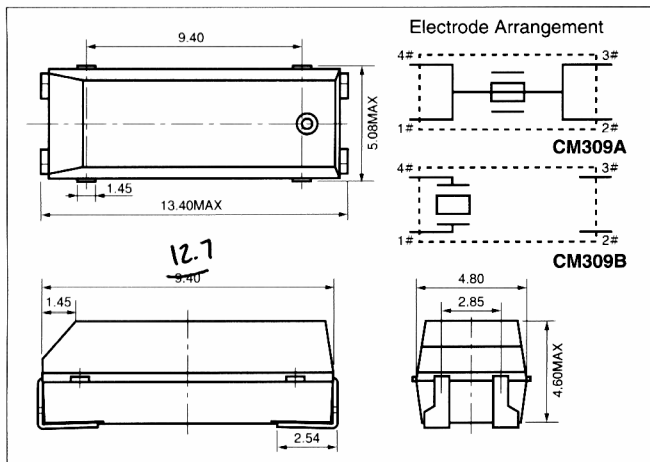


MHz RANGE CRYSTAL UNITS (PLASTIC SURFACE MOUNT TYPE)

CM309A/CM309B (1,000pcs/reel)



■ DIMENSIONS: (UNIT=mm)



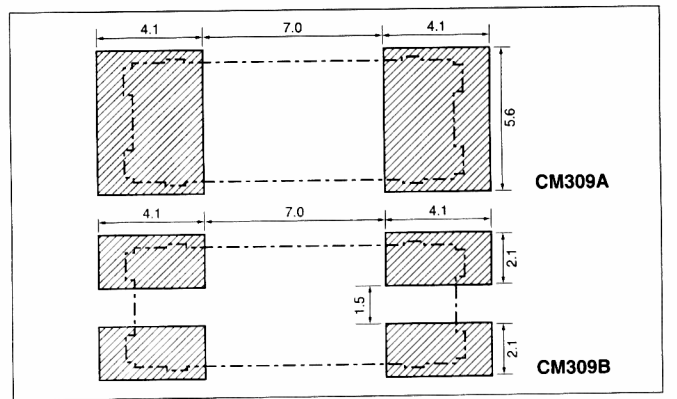
■ FEATURES:

- 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.

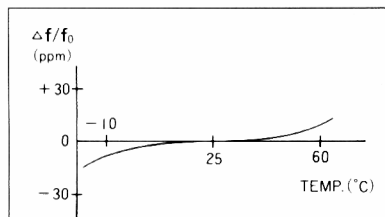
■ RECOMMENDED SOLDERING PATTERN: (UNIT=mm)



■ 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 | $\Delta f/f_0$ | ± 30 ppm or ± 50 ppm | At 25°C |
| Frequency vs. Temperature characteristics | $\Delta f/f_0$ | ± 50 ppm (± 30 ppm) | -10°C~+60°C |
| Operating temperature range | T_{ORP} | -40°C~+85°C | |
| Storage temperature range | T_{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 | 50 μ W~100 μ W | |
| Insulation resistance | IR | 500M Ω MIN. | DC100V \pm 15V |
| Aging (First year) | $\Delta f/f_0$ | ± 5 ppm MAX. | 25°C \pm 3°C |
| Sealing | | 1 x 10 ⁻² μ Pa·m ³ /s MAX. | |
| Shock resistance | | ± 5 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, R₁)

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

(Ω MAX.)