

### 32.768kHz Crystal Oscillator Design.

#### C-MAC 85SMX crystal:

Frequency tolerance: +/- 20ppm at 25°C.

Temperature stability: +/- 80ppm.

Load capacitance: 12.5pF.

#### At 25°C:

Frequency variation = +/-  $(32768 \times 20) / 1,000,000 = +/- 0.655536 \text{ Hz}$

Maximum timing error after 60 minutes = +/-  $(0.655536 / 32768) \times 3600 = +/- 0.072018 \text{ S}$   
= +/- 72mS

#### With a tolerance of 100ppm:

Maximum timing error after 60 minutes = +/- 72mS x 5 = 360mS