



CMOS/ 1.8V to 3.3V/ 2.0×1.6mm



RoHS Compliant

### Features

- Ultra Miniature ceramic package  
2.0 (L) × 1.6 (W) × 0.55 (H) mm (Typ.)
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{CC}=1.8V/ 2.5V/ 3.3V$
- Wide operating voltage range 1.6 to 3.63V
- Low current consumption

Table 1

| Freq. Tol.              | Operating Temperature Range (°C) | Note                                         |
|-------------------------|----------------------------------|----------------------------------------------|
| Code × 10 <sup>-6</sup> |                                  |                                              |
| 0 ± 50                  | -10 to +70                       | Standard specifications                      |
| S ± 30                  |                                  | Please contact us for available frequencies. |
| U ± 25                  |                                  |                                              |
| F ±100                  |                                  |                                              |
| G ± 50                  | -40 to +85                       |                                              |
| 6 ± 50                  | -40 to +105                      |                                              |

### How to Order

KC2016B 40.0000 C 1 □ E 00  
① ② ③ ④ ⑤ ⑥ ⑦

- ① Series
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (1.8V, 2.5V, 3.3V Compatible)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%)
- ⑦ Individual Specification (STD Specification is "00")

Packaging (Tape & Reel 2000 pcs./ reel)

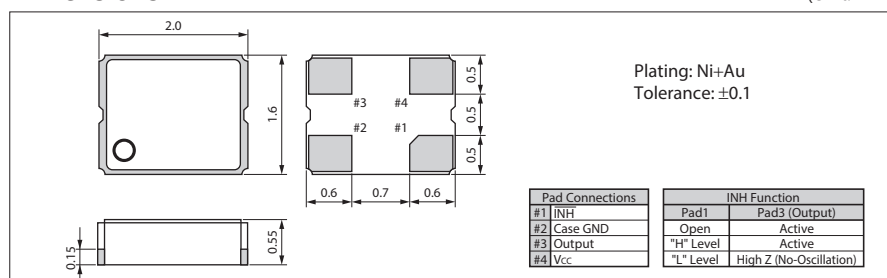
### Specifications

| Item                                                          | Symbol      | Conditions                                                                                                                   | Min.                                                                       | Max.         | Unit             |
|---------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------|------------------|
| Output Frequency Range                                        | $f_o$       |                                                                                                                              | 1.5                                                                        | 50           | MHz              |
| Frequency Tolerance                                           | $f_{tol}$   | Initial tolerance, Operating temperature range, Rated power supply voltage change, Aging (1 year @25°C), Shock and vibration | Temp.: -40 to +85°C<br>Temp.: -10 to +70°C/<br>-40 to +85°C/ -40 to +105°C | -100<br>+100 | $\times 10^{-6}$ |
|                                                               |             |                                                                                                                              | Temp.: -10 to +70°C                                                        | -50<br>+50   |                  |
|                                                               |             |                                                                                                                              | Temp.: -10 to +70°C                                                        | -30<br>+30   |                  |
|                                                               |             |                                                                                                                              | Temp.: -10 to +70°C                                                        | -25<br>+25   |                  |
| Storage Temperature Range                                     | $T_{stg}$   |                                                                                                                              | -55                                                                        | +125         | °C               |
| Operating Temperature Range                                   | $T_{use}$   | Standard Specifications                                                                                                      | -10                                                                        | +70          | °C               |
|                                                               |             | Extend (Option)                                                                                                              | -40                                                                        | +85          |                  |
| Max. Supply Voltage                                           | —           |                                                                                                                              | -0.6                                                                       | +6.0         | V                |
| Supply Voltage                                                | $V_{CC}$    |                                                                                                                              | +1.6                                                                       | +3.63        | V                |
| Current Consumption (Maximum Loaded/ 1.6≤ $V_{CC}$ ≤2.0V)     | $I_{CC}$    | 1.5≤ $f_o$ ≤24MHz                                                                                                            | —                                                                          | 2.5          | mA               |
|                                                               |             | 24< $f_o$ ≤40MHz                                                                                                             | —                                                                          | 3.5          |                  |
|                                                               |             | 40< $f_o$ ≤50MHz                                                                                                             | —                                                                          | 4.5          |                  |
| Current Consumption (Maximum Loaded/ 2.0< $V_{CC}$ ≤2.8V)     | $I_{CC}$    | 1.5≤ $f_o$ ≤24MHz                                                                                                            | —                                                                          | 3.0          |                  |
|                                                               |             | 24< $f_o$ ≤40MHz                                                                                                             | —                                                                          | 4.5          |                  |
|                                                               |             | 40< $f_o$ ≤50MHz                                                                                                             | —                                                                          | 5.0          |                  |
| Current Consumption (Maximum Loaded/ 2.8< $V_{CC}$ ≤3.63V)    | $I_{CC}$    | 1.5≤ $f_o$ ≤24MHz                                                                                                            | —                                                                          | 3.5          |                  |
|                                                               |             | 24< $f_o$ ≤40MHz                                                                                                             | —                                                                          | 5.0          |                  |
|                                                               |             | 40< $f_o$ ≤50MHz                                                                                                             | —                                                                          | 6.0          |                  |
| Stand-by Current                                              | $I_{std}$   |                                                                                                                              | —                                                                          | 10           | μA               |
| Symmetry                                                      | SYM         | @50% $V_{CC}$                                                                                                                | 45                                                                         | 55           | %                |
| Rise/ Fall Time (10% $V_{CC}$ to 90% $V_{CC}$ Maximum Loaded) | $T_r/ T_f$  | 1.6≤ $V_{CC}$ ≤2.0V                                                                                                          | —                                                                          | 6.5          | ns               |
|                                                               |             | 2.0< $V_{CC}$ ≤2.8V                                                                                                          | —                                                                          | 5.0          |                  |
|                                                               |             | 2.8< $V_{CC}$ ≤3.63V                                                                                                         | —                                                                          | 4.5          |                  |
| Low Level Output Voltage                                      | $V_{OL}$    | $I_{OL}=4mA$                                                                                                                 | —                                                                          | 10% $V_{CC}$ | V                |
| High Level Output Voltage                                     | $V_{OH}$    | $I_{OH}=-4mA$                                                                                                                | 90% $V_{CC}$                                                               | —            | V                |
| CMOS Load                                                     | $L_{CMOS}$  | CMOS Output                                                                                                                  | —                                                                          | 15           | pF               |
| Input Voltage Range                                           | $V_{IN}$    |                                                                                                                              | 0                                                                          | $V_{CC}$     | V                |
| Low Level Input Voltage                                       | $V_{IL}$    |                                                                                                                              | —                                                                          | 30% $V_{CC}$ | V                |
| High Level Input Voltage                                      | $V_{IH}$    |                                                                                                                              | 70% $V_{CC}$                                                               | —            | V                |
| Disable Time                                                  | $t_{dis}$   |                                                                                                                              | —                                                                          | 100          | ns               |
| Enable Time                                                   | $t_{ena}$   |                                                                                                                              | —                                                                          | 5            | ms               |
| Start-up Time                                                 | $t_{str}$   | @Minimum operating voltage to be 0 sec.                                                                                      | —                                                                          | 10           | ms               |
| 1 Sigma Jitter                                                | $J_{Sigma}$ | Measured with Wavcrest SIA-3000                                                                                              | —                                                                          | 8            | ps               |
| Peak to Peak Jitter                                           | $J_{PK-PK}$ |                                                                                                                              | —                                                                          | 80           | ps               |

Note: All electrical characteristics are defined at the maximum load and operating temperature range.  
Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)

