

# Clock Oscillators Surface Mount Type

## KC2520B-C1 Series



CMOS/ 1.8V, 2.5V, 3.3V Compatible/ 2.5x2.0mm



RoHS Compliant

### Features

- Miniature ceramic package  
2.5 (L) x 2.0 (W) x 0.7 (H) mm (Typ.)
- Highly reliable with seam welding
- CMOS output
- Supply voltage 1.8/ 2.5/ 3.3V  
Wide operating voltage range 1.6 to 3.63V
- Low current consumption
- High output frequency 80MHz

### Table 1

| Freq. Tol. Code | Tol. $\times 10^{-6}$ | Operating Temperature Range (°C) | Note                          |
|-----------------|-----------------------|----------------------------------|-------------------------------|
| 0               | $\pm 50$              | -10 to +70                       | Standard specifications       |
| S               | $\pm 30$              |                                  |                               |
| U               | $\pm 25$              | -40 to +85                       | With only certain frequencies |
| F               | $\pm 100$             |                                  |                               |
| G               | $\pm 50$              |                                  |                               |

### How to Order

KC2520B 25.0000 C 1 0 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (2.5x2.0mm SMD)
- 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%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 2000 pcs./ reel)

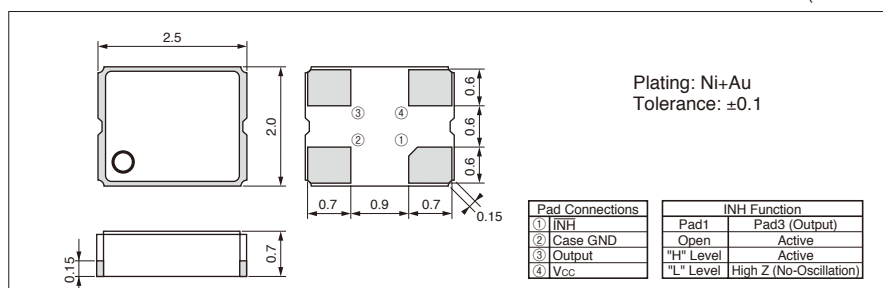
### Specifications

| Item  | Symbol      | Conditions   | Specifications |              | Units            |
|---|-------------|--|----------------|--------------|------------------|
|   |             |  | Min.           | Max.         |                  |
| Output Frequency Range  | $f_o$       |  | 1.5            | 80           | MHz              |
| Frequency Tolerance   | $f_{tol}$   | Initial tolerance, Operating temperature range, Op.Temp.: -40 to +85°C | -100           | +100         | $\times 10^{-6}$ |
|   |             | Rated power supply voltage change, Aging Op.Temp.: -10 to +70°C        | -50            | +50          |                  |
|   |             | (1 year @25°C), Shock and vibration Op.Temp.: -10 to +70°C             | -30            | +30          |                  |
| 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   | —           | 1.5 ≤ $f_o$ ≤ 60MHz  | -0.5           | +6.0         | V                |
| Supply Voltage  | $V_{CC}$    | 60 < $f_o$ ≤ 80MHz   | -0.5           | +4.0         |                  |
| Current Consumption (Maximum Loaded/ 1.6 < $V_{CC}$ ≤ 2.0V)   |             | 1.5 ≤ $f_o$ ≤ 24MHz  | —              | 2.5          |                  |
|   |             | 24 < $f_o$ ≤ 40MHz   | —              | 3.5          |                  |
|   |             | 40 < $f_o$ ≤ 60MHz   | —              | 5            |                  |
|   |             | 60 < $f_o$ ≤ 80MHz   | —              | 6            |                  |
| Current Consumption (Maximum Loaded/ 2.0 < $V_{CC}$ ≤ 2.8V)   | $I_{CC}$    | 1.5 ≤ $f_o$ ≤ 24MHz  | —              | 3            | mA               |
|   |             | 24 < $f_o$ ≤ 40MHz   | —              | 4.5          |                  |
|   |             | 40 < $f_o$ ≤ 60MHz   | —              | 5            |                  |
|   |             | 60 < $f_o$ ≤ 80MHz   | —              | 6.5          |                  |
| Current Consumption (Maximum Loaded/ 2.8 < $V_{CC}$ ≤ 3.63V)  |             | 1.5 ≤ $f_o$ ≤ 24MHz  | —              | 3.5          |                  |
|   |             | 24 < $f_o$ ≤ 40MHz   | —              | 5            |                  |
|   |             | 40 < $f_o$ ≤ 60MHz   | —              | 6            |                  |
| Stand-by Current  | $I_{std}$   | 60 < $f_o$ ≤ 80MHz   | —              | 8            | 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            |                  |
|   |             | 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                |
| Output Load   | $L_{CMOS}$  | CMOS Output  | —              | 15           | pF               |
| 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  | JSigma      |  | —              | 8            | pS               |
| Peak to Peak Jitter   | JPK-PK      | Measured with Wavecrest DTS-2079 VISI 6.3.1                            | —              | 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)

