# Clock Oscillators Surface Mount Type
# KC7050A-C2 Series (K53-2C Series)

CMOS / 2.5V / 7.0×5.0mm


Pb Free RoHS Compliant

## Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage $V_{DD}$ =2.5V
  Lower voltage available
- $\pm 25\times10^{-6}$, $\pm 20\times10^{-6}$ available

## Table 1

| Stability | | Operating Temperature Range (°C) | Note |
|---|---|---|---|
| Code | × $10^{-6}$ | | |
| 0 | ± 50 | −10 to +70 | Standard specifications |
| S | ± 30 | | With only certain frequencies |
| U | ± 25 | | |
| W | ± 20 | | |
| F | ±100 | −40 to +85 | |
| G | ± 50 | | |

## How to Order

KC7050A 25.0000 C 2 0 E 00
① ② ③ ④ ⑤ ⑥ ⑦

1. Type (7.0×5.0mm SMD)
2. Output Frequency
3. Output Type (CMOS)
4. Supply Voltage (2.5V)
5. Frequency Tolerance (See Table 1)
6. Symmetry/Enable Function
   (45/55%, Stand-by)
7. Customer Special Model Suffix
   (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

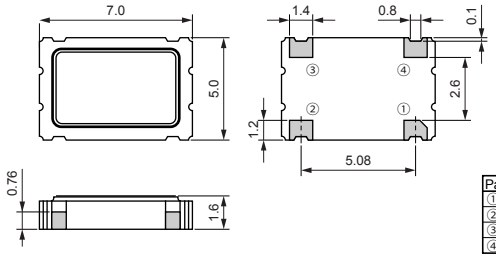
## Specifications

| Item | Symbol | Conditions | | Min. | Max. | Units |
|---|---|---|---|---|---|---|
| Output Frequency Range | Fo | | | 1.8 | 125 | MHz |
| Frequency Tolerance | F_tol | Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration | Op. Temp.: −40 to +85°C | −100 | +100 | ×$10^{-6}$ |
| | | | Op. Temp.: −10 to +70°C/ −40 to +85°C | −50 | +50 | |
| | | | Op. Temp.: −10 to +70°C/ −40 to +85°C | −30 | +30 | |
| | | | Op. Temp.: −10 to +70°C | −25 | +25 | |
| | | | Op. Temp.: −10 to +70°C | −20 | +20 | |
| 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 | — | | | −0.5 | +7 | V |
| Supply Voltage | $V_{DD}$ | Freq. Tol.Code: 0, S, F | | 2.25 | 2.75 | V |
| | | Freq. Tol.Code: U, G | | 2.38 | 2.62 | |
| | | Freq. Tol.Code: W | | 2.43 | 2.57 | |
| Current Consumption (Maximum Loaded) | $I_{DD}$ | 1.8≤Fo≤20MHz | | — | 5 | mA |
| | | 20<Fo≤40MHz | | — | 10 | |
| | | 40<Fo≤60MHz | | — | 15 | |
| | | 60<Fo≤85MHz | | — | 20 | |
| | | 85<Fo≤100MHz | | — | 22 | |
| | | 100<Fo≤125MHz | | — | 27 | |
| Stand-by Current | I_std | | | — | 10 | µA |
| Symmetry | SYM | @50% $V_{DD}$ | | 45 | 55 | % |
| Rise/ Fall Time (10% $V_{DD}$ to 90% $V_{DD}$ Maximum Loaded) | Tr/Tf | 1.8≤Fo≤40MHz | | — | 7 | nS |
| | | 40<Fo≤85MHz | | — | 4 | |
| | | 85<Fo≤125MHz | | | 3 | |
| Output Volatage-"L" | $V_{OL}$ | $I_{OL}$=4mA/ 8mA (40<Fo) | | — | 10% $V_{DD}$ | V |
| Output Volatage-"H" | $V_{OH}$ | $I_{OH}$=−4mA/ −8mA (40<Fo) | | 90% $V_{DD}$ | — | V |
| Output Load | L_CMOS | CMOS | | — | 15 | pF |
| Input Volatage Range | $V_{IN}$ | | | 0 | $V_{DD}$ | V |
| Input Volatage-"L" | $V_{IL}$ | | | — | 30% $V_{DD}$ | V |
| Input Volatage-"H" | $V_{IH}$ | | | 70% $V_{DD}$ | — | V |
| Disable Time | — | | | — | 150 | nS |
| Enable Time | — | | | — | 5 | mS |
| Start-up Time | ST | @ Minimum Operation Voltage to be 0 sec. | | — | 10 | mS |

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

## Dimensions

(Unit : mm)



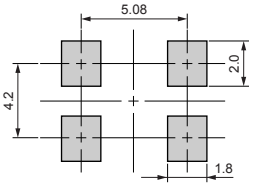

Plating: Ni+Au
Tolerance: ±0.2

| Pad Connections | |
|---|---|
| ① | Enable/Disable |
| ② | Case GND |
| ③ | Output |
| ④ | $V_{DD}$ |

| Enable/Disable Function | |
|---|---|
| Pad1 | Pad3 (Output) |
| Open | Active |
| "H" Level | Active |
| "L" Level | High Z (No-Oscillation) |

## Recommended Land Pattern

(Unit : mm)




Note: A capacitor of value 0.01µF between $V_{DD}$ and GND is recommended.