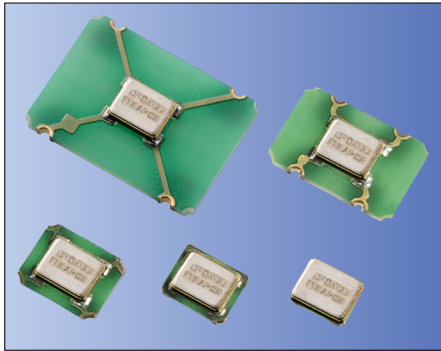




CMOS/ 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm



RoHS Compliant

**Features**

- Frequency Range 1.5 to 160MHz
- CMOS output
- Wide Supply Voltage
  - 1.6 to 3.63V
- Low current consumption
- Low Phase Noise

**Applications**

- Consumer/ Networking/ Industrial/ Audio Codec/ Amuse

**How to Order**

KC2520K 25.0000 C □ □ E 00  
 ①                      ②                      ③ ④ ⑤ ⑥ ⑦

- ①Series
- ②Output Frequency (25.0000: 25MHz)
- ③Output Type (C: CMOS)
- ④Supply Voltage

1	1.8V/ 2.5V/ 3.3V compatible
2	2.5V/ 3.3V compatible

- ⑤Frequency Tolerance (See Table 1)
- ⑥Symmetry/ INH Function

E	45/ 55%
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- ⑦Individual Specification (STD Specification is "00".)

**Packaging Tape & Reel**

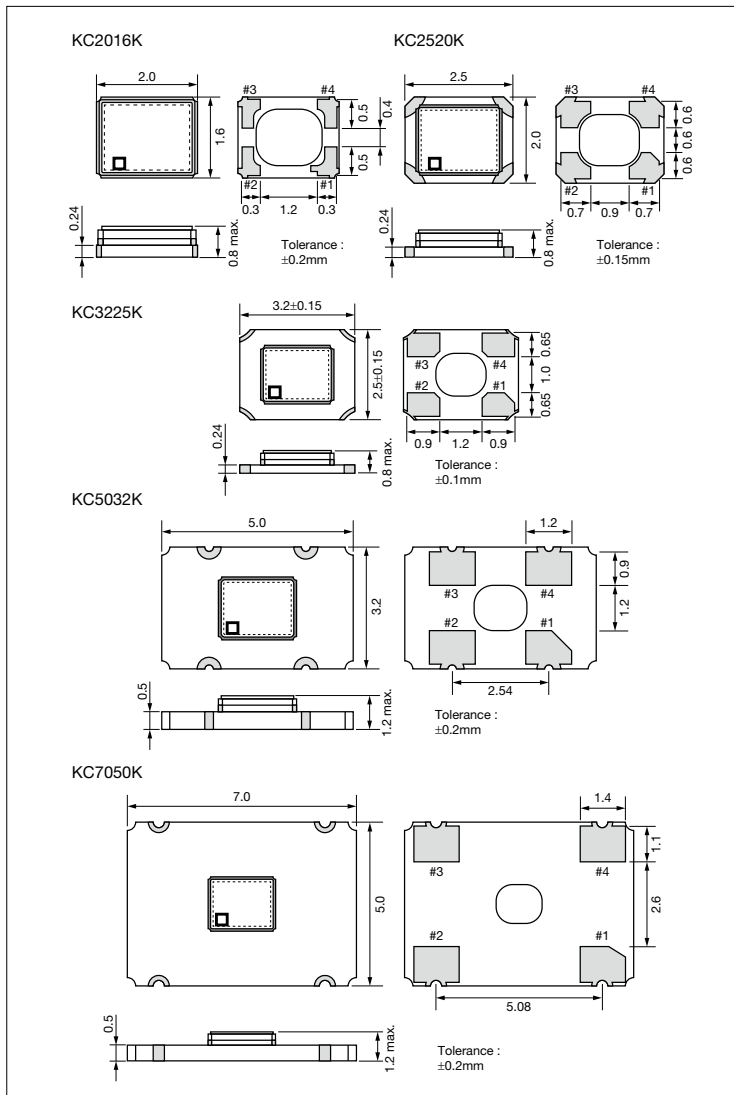
KC7050K/ KC5032K	1000 pcs./ reel
KC3225K/ KC2520K/ KC2016K	2000 pcs./ reel

**Table 1**

Freq. Code	Tol. × 10 <sup>-6</sup>	Operating Temperature Range (°C)	Note
0	± 50	-10 to +70	Standard specifications With only certain frequencies
S	± 30	-10 to +70	
U	± 25	-10 to +70	
G	± 50	-40 to +85	
6	± 50	-40 to +105	

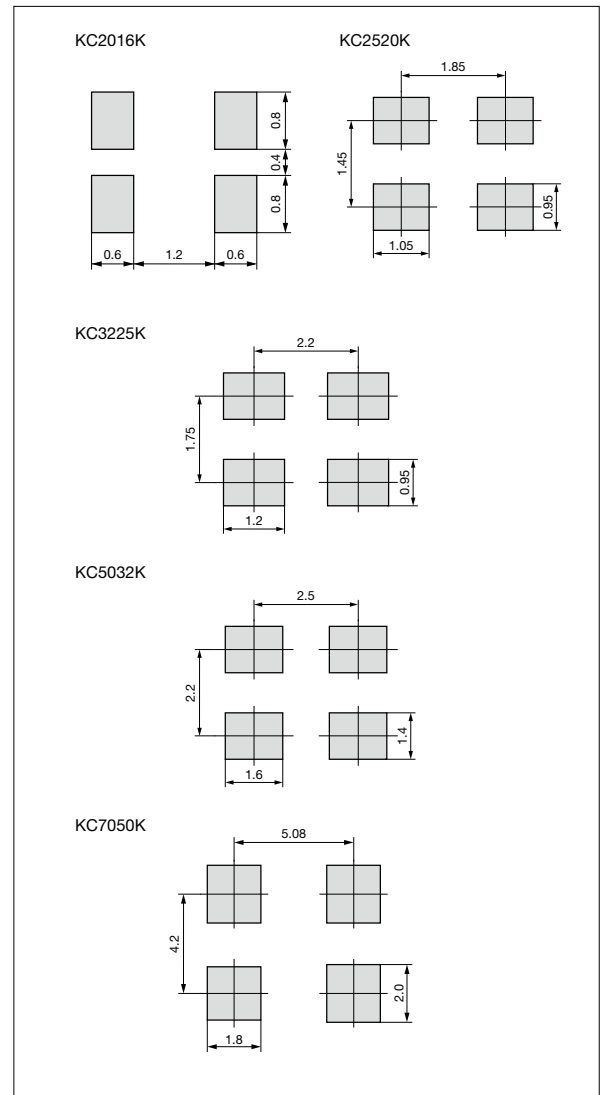
**Dimensions**

(Unit: mm)



**Recommended Land Pattern**

(Unit: mm)





CMOS/ 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm

Specifications

Item	Symbol	Conditions	Min.	Max.	Unit	
Output Frequency Range <sup>Note1</sup>	f <sub>o</sub>		1.5	160	MHz	
Frequency Tolerance	f <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Temp.: -10 to +70°C/ -40 to +85°C/ -40 to +105°C	-50	+50	×10 <sup>-6</sup>
			Temp.: -10 to +70°C	-30	+30	
			Temp.: -10 to +70°C	-25	+25	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>		-10	+70	°C	
			-40	+85		
			-40	+105		
Max. Supply Voltage	—		-0.3	+4.0	V	
Supply Voltage	V <sub>cc</sub>	CodeⓄ : 1 : 1.5≤F <sub>0</sub> ≤125MHz	+1.60	+3.63	V	
		CodeⓄ : 2 : 125<F <sub>0</sub> ≤160MHz	+2.25	+3.63		
Current Consumption (Maximum Loaded)	I <sub>cc</sub>	1.5≤F <sub>0</sub> ≤24MHz	1.6≤V <sub>cc</sub> ≤2.25V	—	2.5	mA
			2.25<V <sub>cc</sub> ≤2.8V	—	3.0	
			2.8<V <sub>cc</sub> ≤3.63V	—	3.5	
		24<F <sub>0</sub> ≤40MHz	1.6≤V <sub>cc</sub> ≤2.25V	—	3.5	
			2.25<V <sub>cc</sub> ≤2.8V	—	4.5	
			2.8<V <sub>cc</sub> ≤3.63V	—	5.0	
		40<F <sub>0</sub> ≤62.5MHz	1.6≤V <sub>cc</sub> ≤2.25V	—	5.0	
			2.25<V <sub>cc</sub> ≤2.8V	—	5.5	
			2.8<V <sub>cc</sub> ≤3.63V	—	6.0	
		62.5<F <sub>0</sub> ≤80MHz	1.6≤V <sub>cc</sub> ≤2.25V	—	6.0	
			2.25<V <sub>cc</sub> ≤2.8V	—	6.5	
			2.8<V <sub>cc</sub> ≤3.63V	—	8.0	
		80<F <sub>0</sub> ≤125MHz	1.6≤V <sub>cc</sub> ≤2.25V	—	11.0	
			2.25<V <sub>cc</sub> ≤2.8V	—	14.0	
2.8<V <sub>cc</sub> ≤3.63V	—		17.0			
125<F <sub>0</sub> ≤160MHz	2.25<V <sub>cc</sub> ≤2.8V	—	25.0			
	2.8<V <sub>cc</sub> ≤3.63V	—	27.0			
Stand-by Current	I <sub>std</sub>	1.5≤F <sub>0</sub> ≤80MHz	—	5.0	μA	
		80<F <sub>0</sub> ≤160MHz	—	10.0		
Symmetry	SYM	@50% V <sub>cc</sub>	45	55	%	
Rise/ Fall Time (10% to 90% Output Level)	Tr/ Tf	1.5≤F <sub>0</sub> ≤80MHz	1.6≤V <sub>cc</sub> ≤2.25V	—	6.0	ns
			2.25<V <sub>cc</sub> ≤2.8V	—	5.0	
			2.8<V <sub>cc</sub> ≤3.63V	—	4.5	
		80<F <sub>0</sub> ≤125MHz	1.6<V <sub>cc</sub> ≤3.63V	—	4.0	
		125<F <sub>0</sub> ≤160MHz	2.25<V <sub>cc</sub> ≤3.63V	—	2.5	
Low Level Output Voltage	V <sub>OL</sub>	I <sub>OL</sub> = 4mA (F <sub>0</sub> ≤80MHz), I <sub>OL</sub> = 8mA (F <sub>0</sub> >80MHz)	—	10% V <sub>cc</sub>	V	
High Level Output Voltage	V <sub>OH</sub>	I <sub>OH</sub> = -4mA (F <sub>0</sub> ≤80MHz), I <sub>OH</sub> = -8mA (F <sub>0</sub> >80MHz)	90% V <sub>cc</sub>	—	V	
Output Load	L <sub>CMOS</sub>		15		pF	
Low Level Input Voltage	V <sub>IL</sub>		—	30% V <sub>cc</sub>	V	
High Level Input Voltage	V <sub>IH</sub>		70% V <sub>cc</sub>	—	V	
Disable Time	t <sub>dis</sub>	1.5≤F <sub>0</sub> ≤80MHz	—	200	ns	
		80<F <sub>0</sub> ≤125MHz	—	100		
		125<F <sub>0</sub> ≤160MHz	—	100		
Enable Time	t <sub>ena</sub>		—	5	ms	
Start-up Time	t <sub>str</sub>	1.5≤F <sub>0</sub> ≤80MHz	@Minimum operating voltage to be 0 sec.	—	5	ms
		80<F <sub>0</sub> ≤125MHz		—	10	
		125<F <sub>0</sub> ≤160MHz		—	10	
1 Sigma Jitter	J <sub>sigma</sub>	1.5≤F <sub>0</sub> ≤80MHz	Measured with Wavecrest SIA-3000	—	5	ps
		80<F <sub>0</sub> ≤125MHz		—	4	
		125<F <sub>0</sub> ≤160MHz		—	3	
Peak to Peak Jitter	J <sub>PK-PK</sub>	1.5≤F <sub>0</sub> ≤80MHz		—	50	ps
		80<F <sub>0</sub> ≤125MHz		—	40	
		125<F <sub>0</sub> ≤160MHz		—	25	
Phase Jitter	J <sub>Phase</sub>	@25MHz BW : 12kHz to 20MHz		—	1.0	ps



CMOS/ 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm

Item	Symbol	Conditions	Min.	Max.	Unit
Phase Noise	—	@25MHz	@10Hz offset	Typ. -89	dBc/ Hz
			@100Hz offset	Typ. -119	
			@1kHz offset	Typ. -143	
			@10kHz offset	Typ. -157	
			@100kHz offset	Typ. -160	
			@1MHz offset	Typ. -162	
			@10MHz offset	Typ. -162	

Note: All electrical characteristics are defined at the maximum load and operating temperature range.  
Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Pad Connections	
#1	Stand-by Function
#2	Case GND
#3	Output
#4	Vcc

Stand-by Function	
Pad1	Pad3 (Output)
Open	Active
"H" Level	Active
"L" Level	High Z (No-Oscillation)