



**Pb Free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 1.8V$   
Lower voltage available

**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	$\pm 25$		
F	$\pm 100$	-40 to +85	With only certain frequencies
G	$\pm 50$		

### How to Order

**KC2520A 25.0000 C 1 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (2.5×2.0mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (1.8V)
- 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 2000pcs./reel)

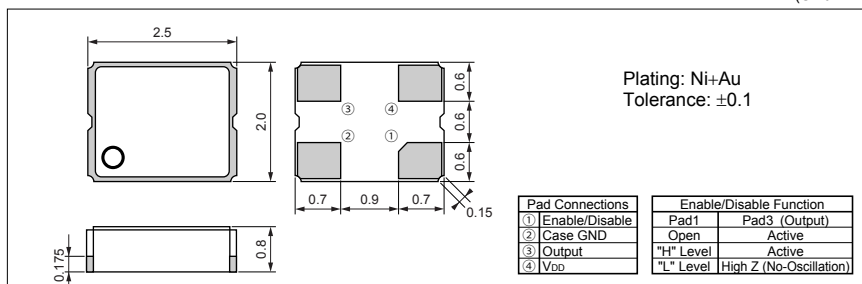
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	50	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	1.62	1.98	V	
		Freq. Tol.Code: U, G	1.71	1.89		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5 ≤ Fo ≤ 24MHz	—	3	mA	
		24 < Fo ≤ 40MHz	—	4		
		40 < Fo ≤ 50MHz	—	5		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8 ≤ Fo ≤ 26MHz	—	9	nS	
		26 < Fo ≤ 50MHz	—	7		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =2mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-2mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V	
Disable Time	—		—	100	nS	
Enable Time	—		—	3	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 inquiries about operating temperature range, available frequencies and other conditions.

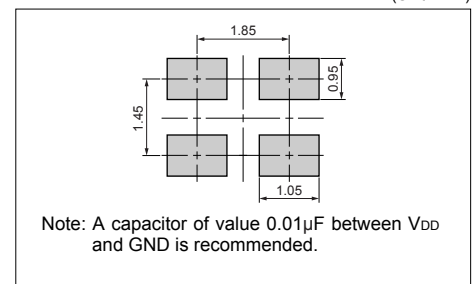
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb-free**

**RoHS Compliant**

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 2.5V$   
Lower voltage available

**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	$\pm 25$		
F	$\pm 100$	-40 to +85	With only certain frequencies
G	$\pm 50$		

**How to Order**

**KC2520A 25.0000 C 2 0 E 00**  
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (2.5×2.0mm 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 2000pcs./reel)

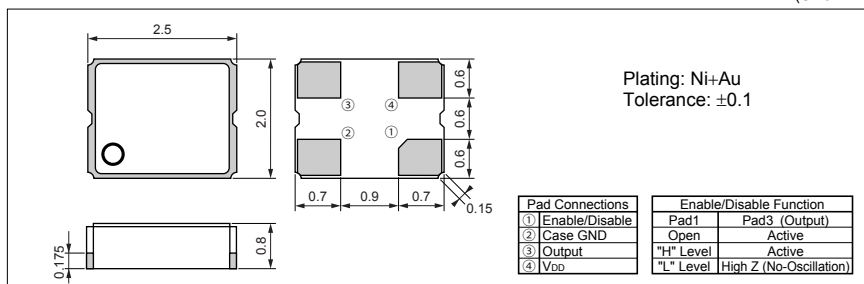
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	50	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.25	2.75	V	
		Freq. Tol.Code: U, G	2.38	2.63		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5 ≤ Fo ≤ 24MHz	—	4	mA	
		24 < Fo ≤ 40MHz	—	5		
		40 < Fo ≤ 50MHz	—	6		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8 ≤ Fo ≤ 26MHz	—	8	nS	
		26 < Fo ≤ 50MHz	—	6		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =5mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-5mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V	
Disable Time	—		—	100	nS	
Enable Time	—		—	3	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 inquiries about operating temperature range, available frequencies and other conditions.

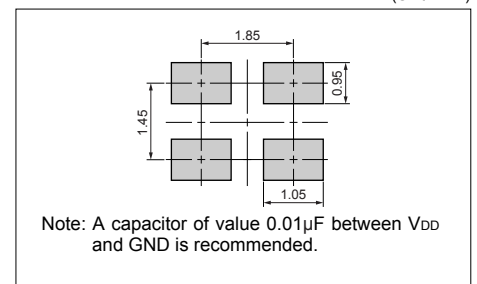
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb-free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 3.3V$

### How to Order

**KC2520A 25.0000 C 3 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (2.5×2.0mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- 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 2000pcs./reel)

**Table 1**

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

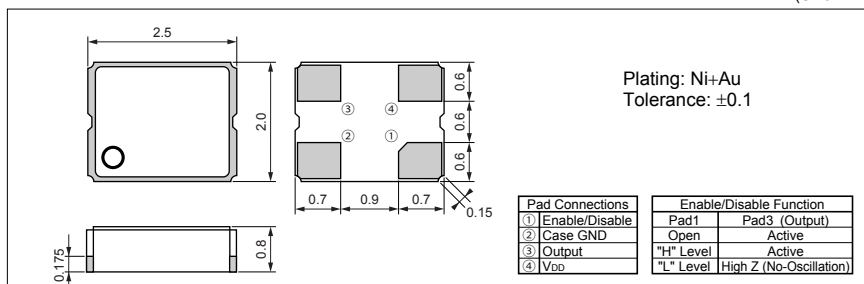
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	50	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5 ≤ Fo ≤ 24MHz	—	5	mA	
		24 < Fo ≤ 40MHz	—	6		
		40 < Fo ≤ 50MHz	—	8		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8 ≤ Fo ≤ 26MHz	—	8	nS	
		26 < Fo ≤ 50MHz	—	6		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =6mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-6mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V	
Disable Time	—		—	100	nS	
Enable Time	—		—	3	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 inquiries about operating temperature range, available frequencies and other conditions.

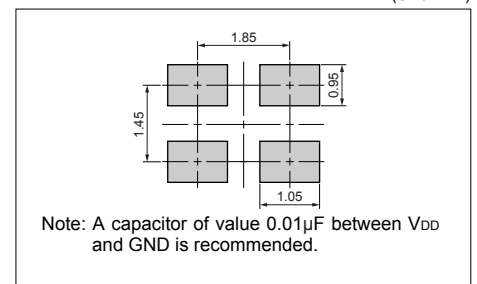
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





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### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 2.5V$   
Lower voltage available
- $\pm 25 \times 10^{-6}$  available

**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	$\pm 25$		
F	$\pm 100$	-40 to +85	With only certain frequencies
G	$\pm 50$		

### How to Order

**KC3225A 25.0000 C 2 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (3.2×2.5mm 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 2000pcs./reel)

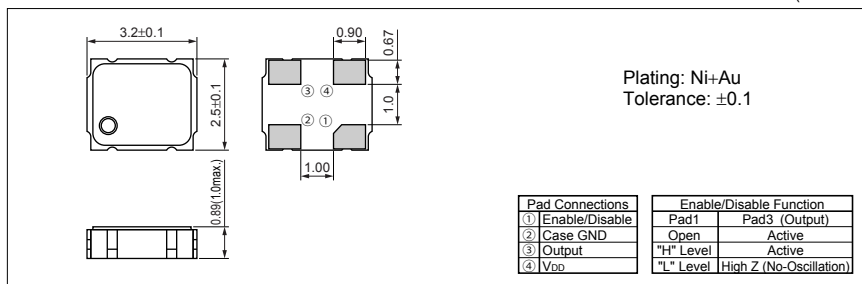
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	125	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.25	2.75	V	
		Freq. Tol.Code: U, G	2.38	2.63		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5 ≤ Fo ≤ 26MHz	—	4	mA	
		26 < Fo ≤ 50MHz	—	6		
		50 < Fo ≤ 68MHz	—	9		
		68 < Fo ≤ 90MHz	—	12		
		90 < Fo ≤ 125MHz	—	18		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.5 ≤ Fo ≤ 68MHz	—	6	nS	
		68 < Fo ≤ 90MHz	—	5		
		90 < Fo ≤ 125MHz	—	4		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =4mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-4mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

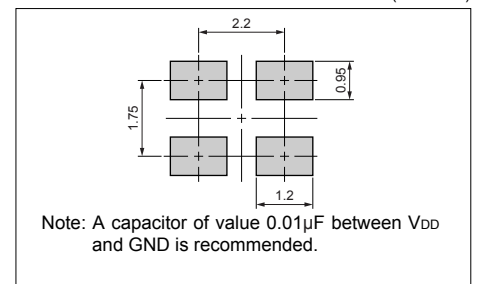
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





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### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 3.3V$
- $\pm 25 \times 10^{-6}$  available

**Table 1**

Freq. Tol. Code	Freq. 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

**KC3225A 25.0000 C 3 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (3.2×2.5mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- 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 2000pcs./reel)

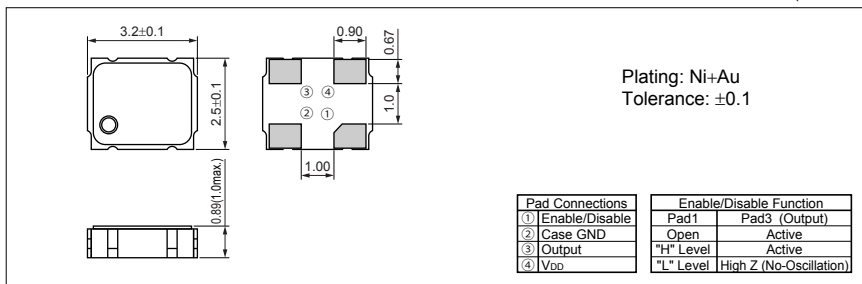
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	125	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5 ≤ Fo ≤ 26MHz	—	6	mA	
		26 < Fo ≤ 50MHz	—	8		
		50 < Fo ≤ 68MHz	—	12		
		68 < Fo ≤ 90MHz	—	18		
		90 < Fo ≤ 125MHz	—	25		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.5 ≤ Fo ≤ 68MHz	—	5	nS	
		68 < Fo ≤ 90MHz	—	4		
		90 < Fo ≤ 125MHz	—	3		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =4mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-4mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

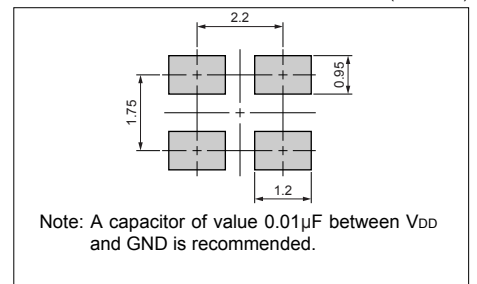
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 1.8V$   
Lower voltage available
- $\pm 25 \times 10^{-6}$ ,  $\pm 20 \times 10^{-6}$  available

**Table 1**

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
<b>0</b>	$\pm 50$	-10 to +70	Standard specifications
<b>S</b>	$\pm 30$		
<b>U</b>	$\pm 25$		
<b>W</b>	$\pm 20$		
<b>F</b>	$\pm 100$	-40 to +85	With only certain frequencies
<b>G</b>	$\pm 50$		

### How to Order

**KC5032C 25.0000 C 1 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0×3.2mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (1.8V)
- 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)

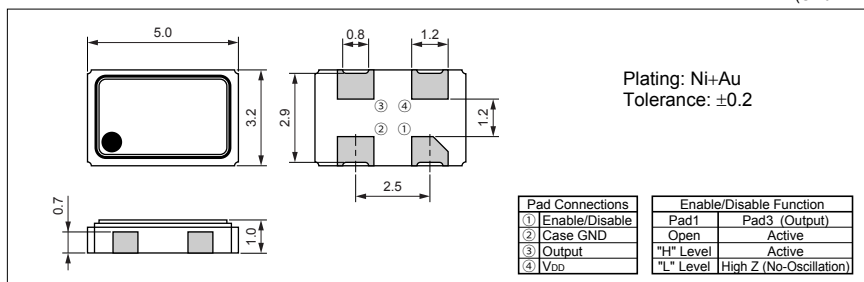
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
<b>Output Frequency Range</b>	Fo		1.8	39.99	MHz	
<b>Frequency Tolerance</b>	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
<b>Storage Temperature Range</b>	T <sub>stg</sub>		-55	+125	°C	
<b>Operating Temperature Range</b>	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
<b>Max. Supply Voltage</b>	—		-0.5	+3.6	V	
<b>Supply Voltage</b>	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	1.71	1.89	V	
		Freq. Tol.Code: U, G, W	1.75	1.85		
<b>Current Consumption (Maximum Loaded)</b>	I <sub>DD</sub>	1.8 ≤ Fo ≤ 25MHz	—	3	mA	
		25 < Fo ≤ 39.99MHz	—	4		
<b>Stand-by Current</b>	I <sub>std</sub>		—	10	μA	
<b>Symmetry</b>	SYM	@50% V <sub>DD</sub>	45	55	%	
<b>Rise/ Fall Time (10% V<sub>DD</sub> to 90% V<sub>DD</sub> Maximum Loaded)</b>	Tr/Tf		—	9	nS	
<b>Output Voltage-"L"</b>	V <sub>OL</sub>	I <sub>OL</sub> =2.8mA	—	10% V <sub>DD</sub>	V	
<b>Output Voltage-"H"</b>	V <sub>OH</sub>	I <sub>OH</sub> =-2.8mA	90% V <sub>DD</sub>	—	V	
<b>Output Load</b>	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
<b>Input Voltage Range</b>	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
<b>Input Voltage-"L"</b>	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
<b>Input Voltage-"H"</b>	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V	
<b>Disable Time</b>	—		—	150	nS	
<b>Enable Time</b>	—		—	5	mS	
<b>Start-up Time</b>	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 inquiries about operating temperature range, available frequencies and other conditions.

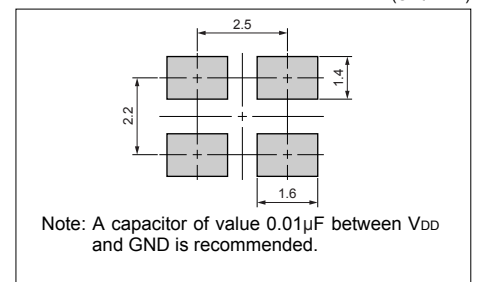
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 2.5V$   
Lower voltage available
- $\pm 25 \times 10^{-6}$ ,  $\pm 20 \times 10^{-6}$  available

**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	$\pm 25$		
W	$\pm 20$		
F	$\pm 100$	-40 to +85	With only certain frequencies
G	$\pm 50$		

### How to Order

**KC5032C 25.0000 C 2 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0×3.2mm 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)

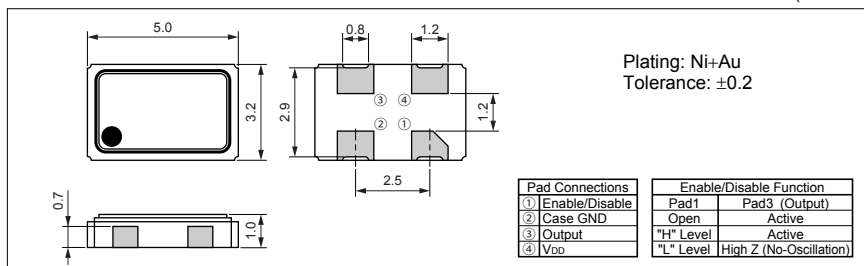
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	125	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	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 <sub>DD</sub>	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 <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8<Fo≤40MHz	—	7	nS	
		40<Fo≤85MHz	—	4		
		85<Fo≤125MHz	—	3		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =4mA/8mA (40MHz<Fo)	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-4mA/-8mA (40MHz<Fo)	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

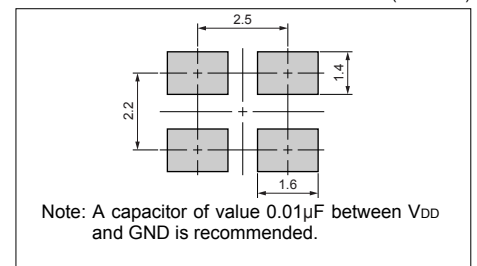
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 3.3V$
- $\pm 25 \times 10^{-6}$ ,  $\pm 20 \times 10^{-6}$  available

**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	$\pm 25$		
W	$\pm 20$		
F	$\pm 100$	-40 to +85	With only certain frequencies
G	$\pm 50$		

**How to Order**

KC5032C 25.0000 C 3 0 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0×3.2mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- 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)

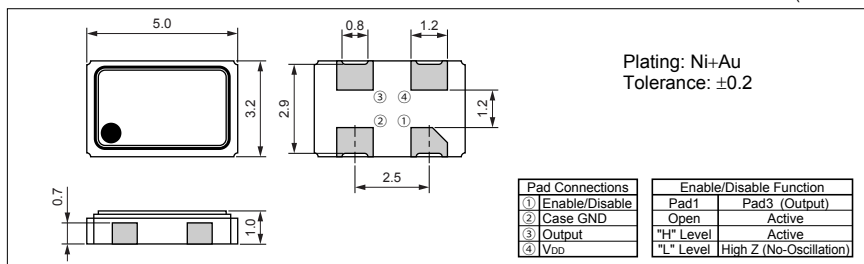
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	160	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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 <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
		Freq. Tol.Code: W	3.20	3.40		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.8 ≤ Fo ≤ 20MHz	—	10	mA	
		20 < Fo ≤ 40MHz	—	15		
		40 < Fo ≤ 60MHz	—	30		
		60 < Fo ≤ 100MHz	—	35		
		100 < Fo ≤ 135MHz	—	45		
		135 < Fo ≤ 160MHz	—	60		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8 ≤ Fo ≤ 26MHz	—	10	nS	
		26 < Fo ≤ 45MHz	—	8		
		45 < Fo ≤ 100MHz	—	5		
		100 < Fo ≤ 160MHz	—	2.5		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =8mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-8mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

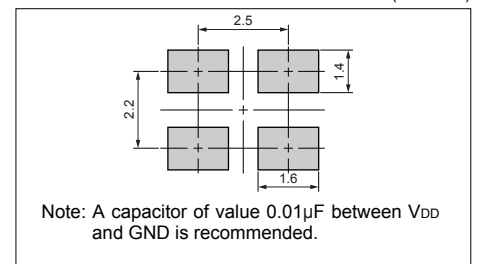
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)







**Pb Free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output CL=50pF max available
- Supply voltage V<sub>DD</sub> =3.3V

**Table 1**

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

### How to Order

**KC5032C 25.0000 C 3 0 E HL**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0x3.2mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/Enable Function (45/55%, Stand-by)
- ⑦ Heavy Load Type  
 HL : CL =50pF max.

Packaging (Tape & Reel 1000pcs./reel)

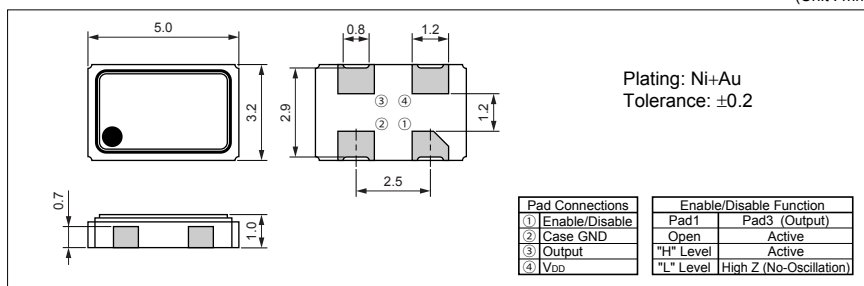
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	F <sub>o</sub>		14	30	MHz	
Frequency Tolerance	F <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration	-50 -30	+50 +30	×10 <sup>-6</sup>	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>		-10	+70	°C	
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S	2.97	3.63	V	
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	CL=15pF CL=50pF	— —	10 15	mA	
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	CL=15pF	45	55	%
			CL=50pF	40	60	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	T <sub>r</sub> /T <sub>f</sub>	CL=15pF	—	5	nS	
		CL=50pF	—	8		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =8mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-8mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	50	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

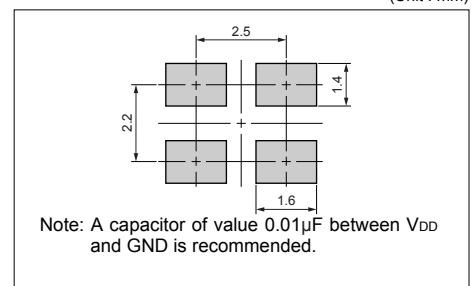
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





Pb Free

RoHS Compliant

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 5.0V$
- $\pm 25 \times 10^{-6}$  available

**How to Order**

**KC5032C 25.0000 C 5 0 D 00**  
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0×3.2mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (5.0V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/Enable Function (45/55%, Disable)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

**Table 1**

Freq. Tol. Code	Freq. 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	$\pm 50$		

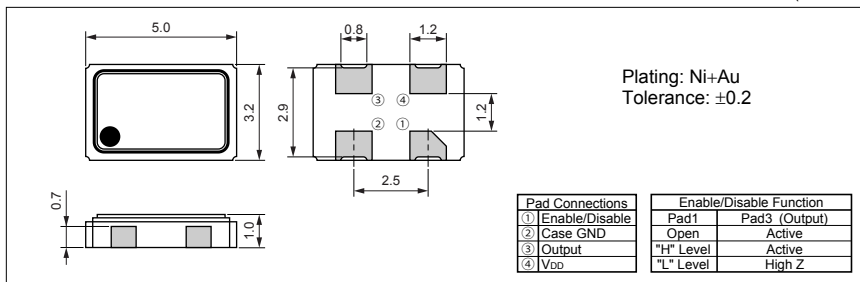
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	50	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7.0	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	4.5	5.5	V	
		Freq. Tol.Code: U, G	4.75	5.25		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.8 ≤ Fo ≤ 20MHz	—	25	mA	
		20 < Fo ≤ 40MHz	—	35		
		40 < Fo ≤ 50MHz	—	50		
Disable Current	I <sub>dis</sub>		—	30	mA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	T <sub>Tr</sub> /T <sub>Tf</sub>	1.8 ≤ Fo ≤ 26MHz	—	10	nS	
		26 < Fo ≤ 50MHz	—	8		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> = 16mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> = -16mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	50	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	0.8	V	
Input Voltage-"H"	V <sub>IH</sub>		2.2	—	V	
Disable Time	—		—	100	nS	
Enable Time	—		—	100	nS	
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 inquiries about operating temperature range, available frequencies and other conditions.

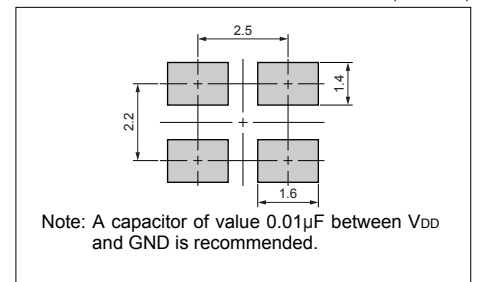
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Compact and low profile (5x3.2x1.2mm)
- Surface mount type suitable for auto pick-and-place
- Reflow soldering compatible
- CMOS, TTL IC direct drive is possible
- With tri-state function
- Supply voltage  $V_{DD}=3.3 / 5.0V$  available

**Frequency Tolerance (Overall)**

Freq.Tol. Code	$\times 10^{-6}$	Operating Temperature Range(°C)	Notes
1	$\pm 100$	-10 to +70 (standard)	1.8 to 40MHz
0	$\pm 50$		
S	$\pm 30$		1.8 to 50MHz

**How to Order**

KC5032D 25.0000 C 3 0 A 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage 5=5.0V, 3=3.3V
- ⑤ Frequency Tolerance (See table at left)
- ⑥ Symmetry/Enable Function (40/60%, INH)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

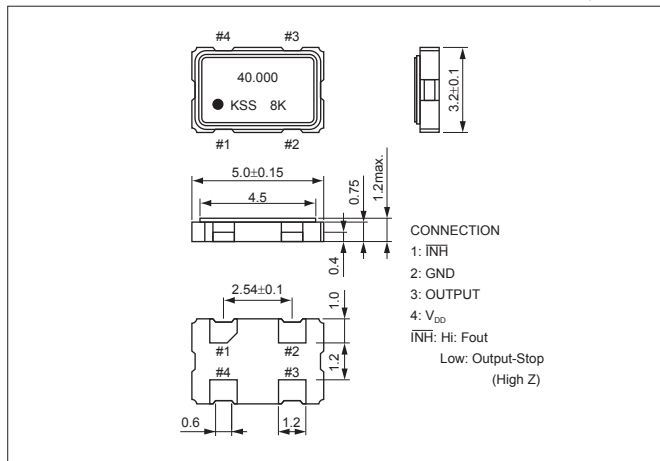
**Specifications**

Items	Symbol	Specifications		Units
		KC5032Dxx.xxxxC5xA00 (FXO-61F2)	KC5032Dxx.xxxxC3xA00 (FXO-61FL2)	
Output Frequency Range	$F_0$	1.8 to 50		MHz
Frequency Tolerance (Overall)	$F_{tol}$	$\pm 30$ (to 40MHz)		$\times 10^{-6}$
		$\pm 50$ (to 50MHz)		
		$\pm 100$		
Storage Temperature Range	$T_{stg}$	-40 to +85		°C
Operating Temperature Range	$T_{use}$	-10 to +70		°C
Max. Supply Voltage	-	7 Max.		V
Supply Voltage	$V_{DD}$	5 $\pm$ 0.5	3.3 $\pm$ 0.3	V
Current Consumption	$I_{DD}$	25 Max.	18 Max. (1.8 to 39.9MHz)	mA
			25 Max. (40 to 50MHz)	
Stand-by Current	$I_{std}$	10 Max.		$\mu$ A
Symmetry	SYM	40 to 60@50% $V_{DD}$		%
Rise / Fall Time	$T_r/T_f$	10 Max.		nS
Output Voltage-"L"	$V_{OL}$	10% $V_{DD}$ Max.		V
Output Voltage-"H"	$V_{OH}$	90% $V_{DD}$ Min.		V
Output Load	CL	15 Max.	20 Max.	pF
Input Voltage Range	$V_{IN}$	0 to $V_{DD}$	0 to $V_{DD}$	V
Input Voltage-"L"	$V_{IL}$	0.8 Max.	0.3 Max.	V
Input Voltage-"H"	$V_{IH}$	2.2 Min.	2.2 Min.	V
Disable Time	-	150 Max.		nS
Enable Time	-	5 Max.		mS
Start-up Time	ST	10 Max.		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.

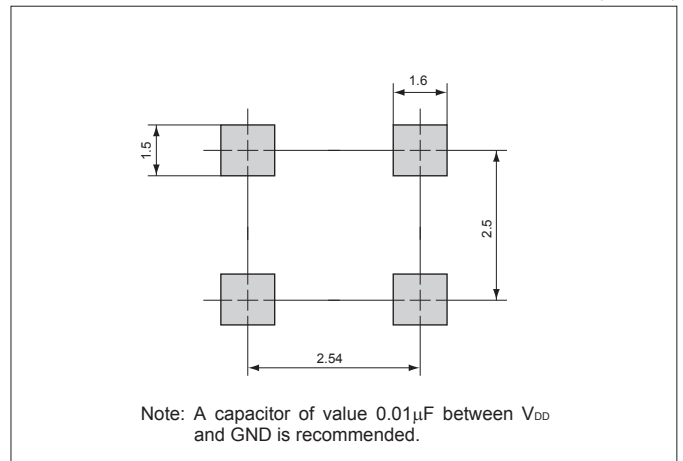
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- A built-in high-precision CMOS IC suitable for a wide range of temperature
- Ideal for base stations and DSC, DVC, car navigation and PHS systems etc.
- Lower noise and lower current for reduced power consumption
- Supply voltage  $V_{DD}$ =3.3/5.0V available

**Frequency Tolerance (Overall)**

Freq.Tol. Code	$\times 10^{-6}$	Operating Temperature Range(°C)	Notes
<b>P</b>	$\pm 100$	-30 to +85 (Standard)	1.8 to 40MHz
<b>Q</b>	$\pm 50$		
<b>R</b>	$\pm 30$		

**How to Order**

**KC5032D 15.3600 C 3 Q A 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage 5=5.0V, 3=3.3V
- ⑤ Frequency Tolerance
- ⑥ Symmetry/Enable Function (40/60%, INH)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

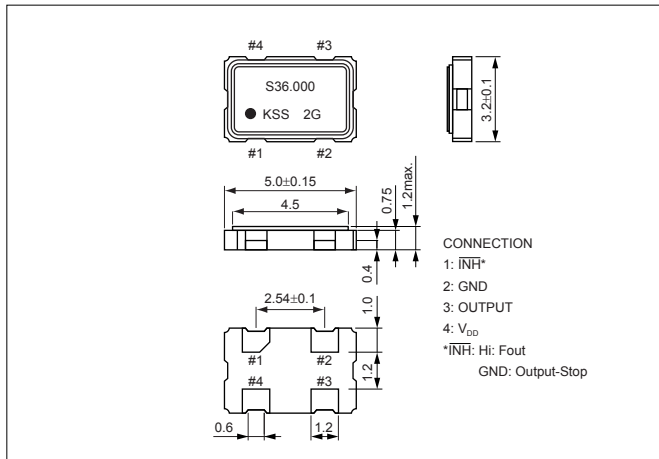
**Specifications**

Items	Symbol	Specifications		Units
		KC5032Dxx.xxxxC5xA00 (FXO-64F2)	KC5032Dxx.xxxxC3xA00 (FXO-64FL2)	
Output Frequency Range	$F_0$	1.8 to 40		MHz
Frequency Tolerance (Overall)	$F_{tol}$	$\pm 30$		$\times 10^{-6}$
		$\pm 50$		
		$\pm 100$		
Storage Temperature Range	$T_{stg}$	-40 to +85		°C
Operating Temperature Range	$T_{use}$	-30 to +85		°C
Max. Supply Voltage	-	7 Max.		V
Supply Voltage	$V_{DD}$	5 $\pm$ 5%	3.3 $\pm$ 5%	V
Current Consumption	$I_{DD}$	12 Max.	10 Max.	mA
Stand-by Current	$I_{std}$	8 Max.		$\mu$ A
Symmetry	SYM	40 to 60@50% $V_{DD}$		%
Rise / Fall Time	$T_r/T_f$	12 Max.	16 Max.	nS
Output Voltage-"L"	$V_{OL}$	10% $V_{DD}$ Max.		V
Output Voltage-"H"	$V_{OH}$	90% $V_{DD}$ Min.		V
Output Load	CL	15 Max.		pF
Input Voltage Range	$V_{IN}$	0 to $V_{DD}$	0 to $V_{DD}$	V
Input Voltage-"L"	$V_{IL}$	0.8 Max.	0.3 Max.	V
Input Voltage-"H"	$V_{IH}$	2.2 Min.	2.2 Min.	V
Disable Time	-	150 Max.		nS
Enable Time	-	5 Max.		mS
Start-up Time	ST	10 Max.		mS

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

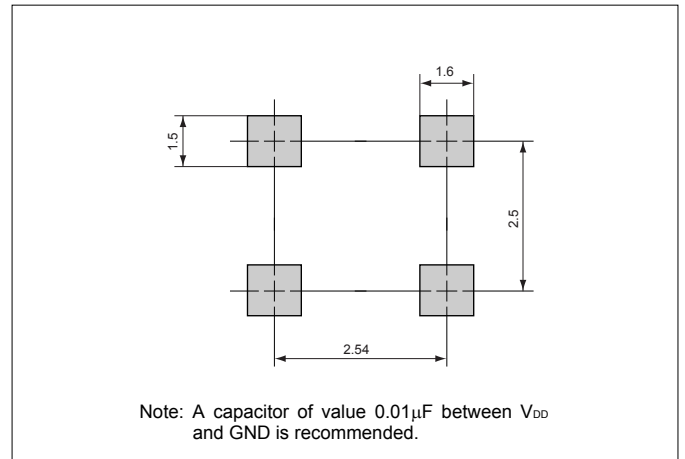
**Dimensions**

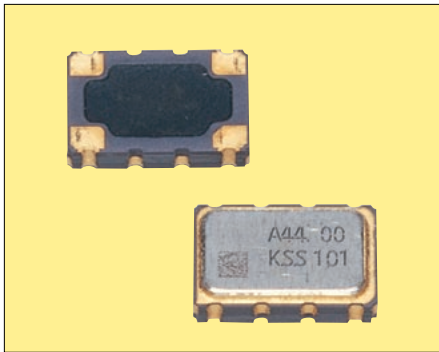
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

### Features

- "H" type leadless ceramic package (Reflow soldering compatible)
- With tri-state function (High Z)
- $\pm 15 \times 10^{-6}$  / -40 to +85°C available

### Applications

- High Stability Clock Oscillation Wireless LAN (Standard Frequency 44, 40, 22, 20MHz)

### How to Order

KC5032H 40.0000 C 3 L D 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (2.7 to 5.5V)
- ⑤ Frequency Tolerance ( $TC = \pm 15 \times 10^{-6}$ )
- ⑥ Symmetry/Enable Function (45/55%, INH)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

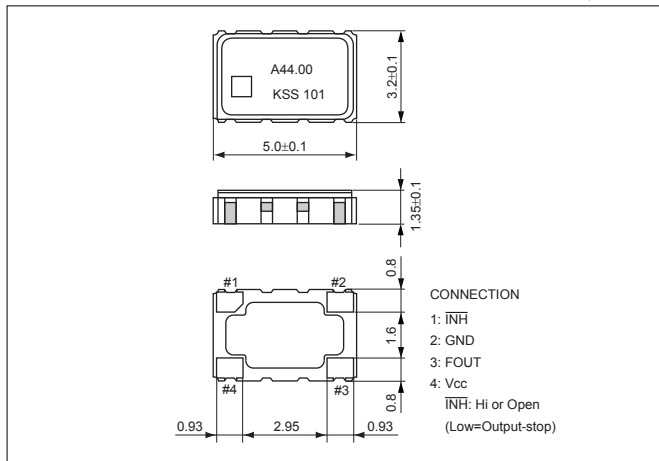
### Specifications

Items	Symbol	Conditions	Specifications		Units
			Min.	Max.	
Output Frequency Range	F <sub>0</sub>		1.5	50	MHz
Frequency Tolerance (Overall)	F <sub>tol</sub>		-15	+15	$\times 10^{-6}$
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>		-40	+85	°C
Max. Supply Voltage	—		-0.6	6	V
Supply Voltage	V <sub>DD</sub>		2.7	5.5	V
Current Consumption	I <sub>DD</sub>	1.5 to 25MHz	—	7	mA
		25 to 55MHz	—	10	
Stand-by Current	I <sub>std</sub>		—	50	μA
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%
Rise / Fall Time	Tr/Tf		—	6	nS
Output Voltage-"L"	V <sub>OL</sub>		—	10% V <sub>DD</sub>	V
Output Voltage-"H"	V <sub>OH</sub>		90% V <sub>DD</sub>	—	V
Output Load	CL		—	15	pF
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V
Input Voltage-"L"	V <sub>IL</sub>		70% V <sub>DD</sub>	—	V
Input Voltage-"H"	V <sub>IH</sub>		—	30% V <sub>DD</sub>	V
Start-up Time	ST	1.5 to 25MHz	—	1.5	mS
		25 to 55MHz	—	1	

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

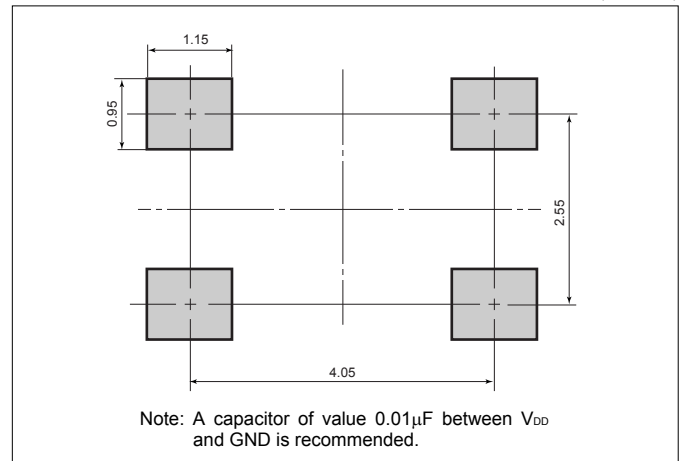
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 1.8V$   
Lower voltage available
- $\pm 25 \times 10^{-6}$ ,  $\pm 20 \times 10^{-6}$  available

**Table 1**

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

### How to Order

**KC7050A 25.0000 C 1 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 (1.8V)
- 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)

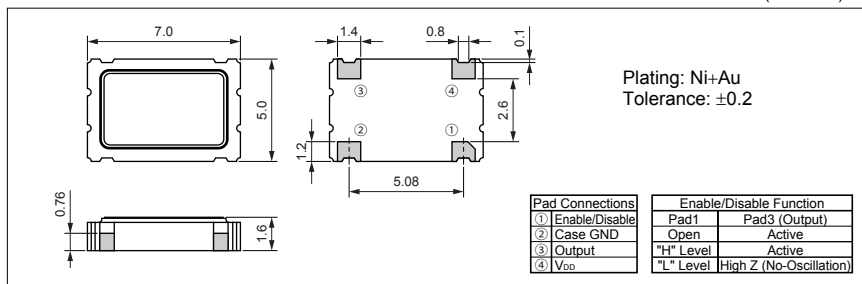
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	39.99	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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 <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+3.6	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	1.71	1.89	V	
		Freq. Tol.Code: U, G, W	1.75	1.85		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.8 ≤ Fo ≤ 25MHz	—	3	mA	
		25 < Fo ≤ 39.99MHz	—	4		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf		—	9	nS	
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =2.8mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-2.8mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

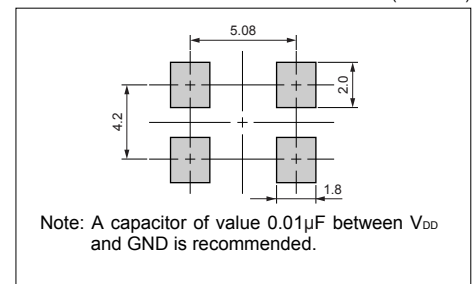
### Dimensions

(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

## Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD} = 2.5V$   
Lower voltage available
- $\pm 25 \times 10^{-6}$ ,  $\pm 20 \times 10^{-6}$  available

## How to Order

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

1. Type (7.0x5.0mm 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)

**Table 1**

Stability Code	Stability $\times 10^{-6}$	Operating Temperature Range (°C)	Note
<b>0</b>	$\pm 50$	-10 to +70	Standard specifications
<b>S</b>	$\pm 30$		
<b>U</b>	$\pm 25$		
<b>W</b>	$\pm 20$		
<b>F</b>	$\pm 100$	-40 to +85	With only certain frequencies
<b>G</b>	$\pm 50$		

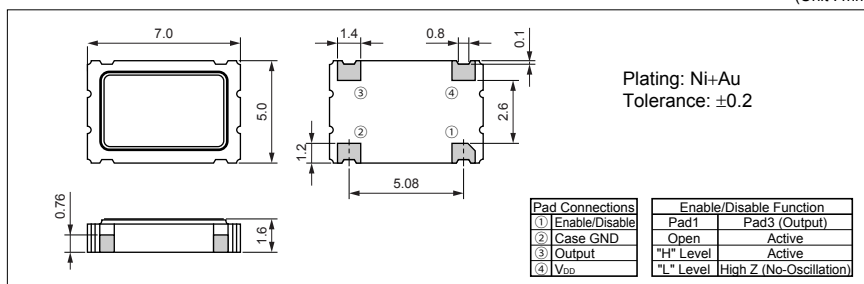
## Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	125	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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 <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>DD</sub>	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 <sub>DD</sub>	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 <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8 < Fo <= 40MHz	—	7	nS	
		40 < Fo <= 85MHz	—	4		
		85 < Fo <= 125MHz	—	3		
Output Volatage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =4mA/ 8mA (40<Fo)	—	10% V <sub>DD</sub>	V	
Output Volatage-"H"	V <sub>OH</sub>	I <sub>OH</sub> = -4mA/ -8mA (40<Fo)	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS	—	15	pF	
Input Volatage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Volatage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Volatage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

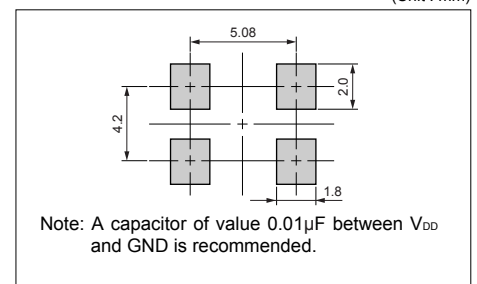
## Dimensions

(Unit : mm)



## Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD}=3.3V$
- $\pm 25 \times 10^{-6}$ ,  $\pm 20 \times 10^{-6}$  available

**How to Order**

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

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- 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)

**Table 1**

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

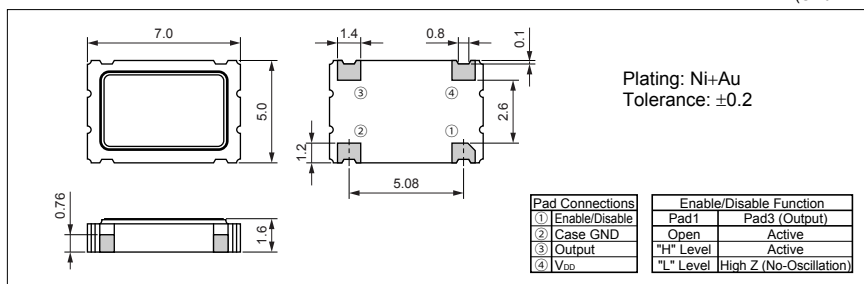
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	160	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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 <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
		Freq. Tol.Code: W	3.20	3.40		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.8 ≤ Fo ≤ 20MHz	—	10	mA	
		20 < Fo ≤ 40MHz	—	15		
		40 < Fo ≤ 60MHz	—	30		
		60 < Fo ≤ 100MHz	—	35		
		100 < Fo ≤ 135MHz	—	45		
		135 < Fo ≤ 160MHz	—	60		
Stand-by Current	I <sub>std</sub>		—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8 < Fo ≤ 26MHz	—	10	nS	
		26 < Fo ≤ 45MHz	—	8		
		45 < Fo ≤ 100MHz	—	5		
		100 < Fo ≤ 160MHz	—	2.5		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =8mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-8mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	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 inquiries about operating temperature range, available frequencies and other conditions.

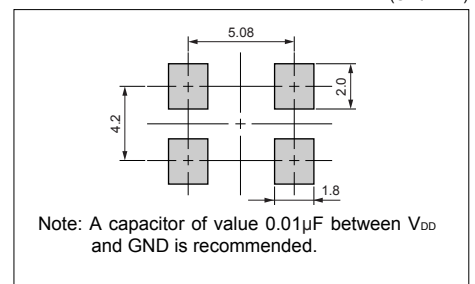
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)







**Pb Free**

**RoHS Compliant**

### Features

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD}=5.0V$

**Table 1**

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

### How to Order

**KC7050A 25.0000 C 5 0 D 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 (5.0V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/Enable Function (45/55%, Disable)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

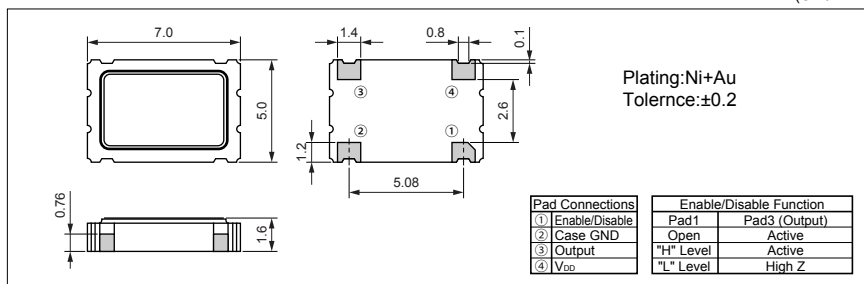
### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.8	50	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	4.5	5.5	V	
		Freq. Tol.Code: U, G	4.75	5.25		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.8≤Fo≤20MHz	—	25	mA	
		20<Fo≤40MHz	—	35		
		40<Fo≤50MHz	—	50		
Disable Current	I <sub>dis</sub>		—	30	mA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.8≤Fo≤26MHz	—	10	nS	
		26<Fo≤50MHz	—	8		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =16mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-16mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	50	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	0.8	V	
Input Voltage-"H"	V <sub>IH</sub>		2.2	—	V	
Disable Time	—		—	100	nS	
Enable Time	—		—	100	nS	
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 inquiries about operating temperature range, available frequencies and other conditions.

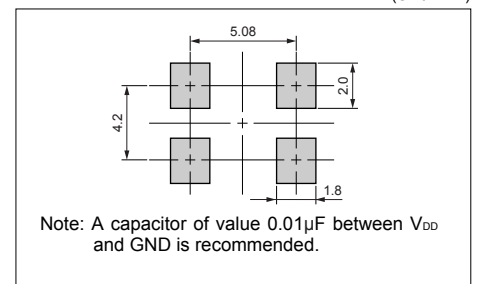
### Dimensions

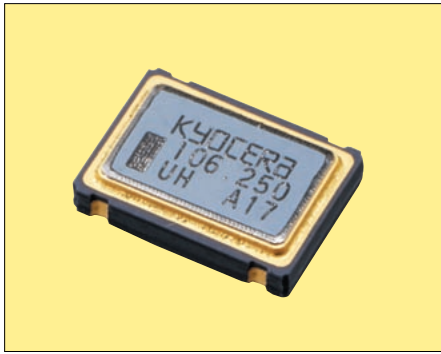
(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD}=3.3V$
- With built-in by-pass capacitor

**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	$\pm 25$		
F	$\pm 100$	-40 to +85	With only certain frequencies
G	$\pm 50$		

**How to Order**

KC7050H 125.000 C 3 0 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- 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)

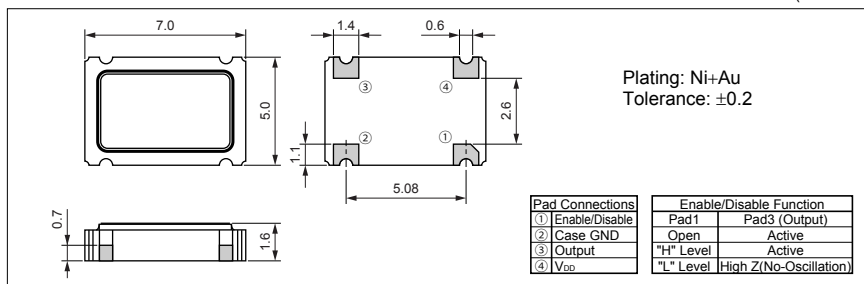
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		80	170	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	80≤Fo≤100MHz	—	40	mA	
		100<Fo≤135MHz	—	50		
		135<Fo≤170MHz	—	60		
Stand-by Current	I <sub>std</sub>	80≤Fo≤125MHz	—	10	μA	
		125<Fo≤170MHz	—	150		
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	80≤Fo<100MHz	20% V <sub>DD</sub> to 80% V <sub>DD</sub> Maximum Loaded	—	3.5	nS
			10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded	—	5	
		100≤Fo≤170MHz	20% V <sub>DD</sub> to 80% V <sub>DD</sub> Maximum Loaded	—	1.5	
			10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded	—	2	
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =8mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-8mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V	
Disable Time	—		—	150	nS	
Enable Time	—		—	5	mS	
Start-up Time	ST	@ Minimum Operation Voltage to be 0 sec.	—	10	mS	
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS/6.3.1	—	2	pS	
1Sigma Jitter	1sigma		—	4	pS	

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

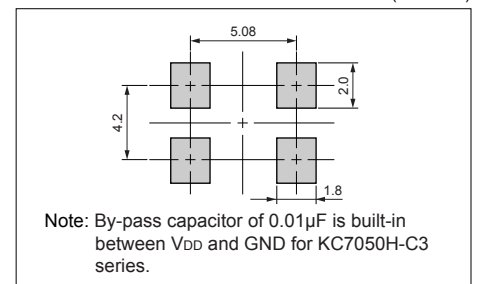
**Dimensions**

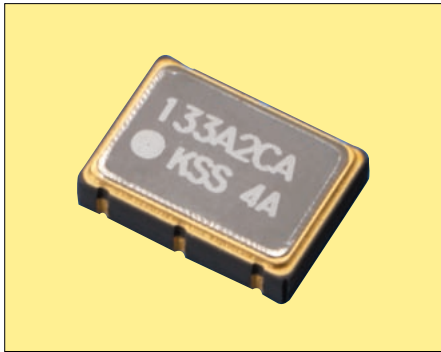
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Low voltage 1.8V
- Low jitter
- LV-CMOS output
- Operation at fundamental high frequency

**Table 1**

Freq. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
1	$\pm 100$	0 to +70	Standard specifications

**How to Order**

**KC7050S 155.520 C 1 1 B 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 (1.8V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/Enable Function (40/60%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

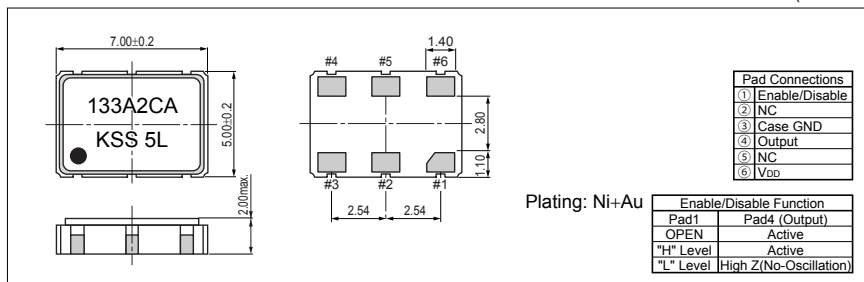
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range	Fo		100	170	MHz
Frequency Tolerance	F <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration	-100	+100	$\times 10^{-6}$
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	0	+70	°C
Max. Supply Voltage	—		-0.5	+5	V
Supply Voltage	V <sub>DD</sub>		1.62	1.98	V
Current Consumption (Standard Loaded)	I <sub>DD</sub>		—	50	mA
Symmetry	SYM		40	60	%
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Standard Loaded)	Tr/Tf		—	2	nS
Output Voltage-"L"	V <sub>OL</sub>		—	10% V <sub>DD</sub>	V
Output Voltage-"H"	V <sub>OH</sub>		90% V <sub>DD</sub>	—	V
Output Load (CMOS)	L <sub>CMOS</sub>		—	15	pF
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V
Disable Time	—		—	200	nS
Enable Time	—		—	2	mS
Start-up Time	ST	@ Minimum Operation Voltage to be 0 sec.	—	10	mS
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS / 6.3.1	0.2 typ.		ps
1 Sigma Jitter	1 Sigma		3 typ.		ps
Peak to Peak Jitter	Pk-Pk		20 typ.		ps

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

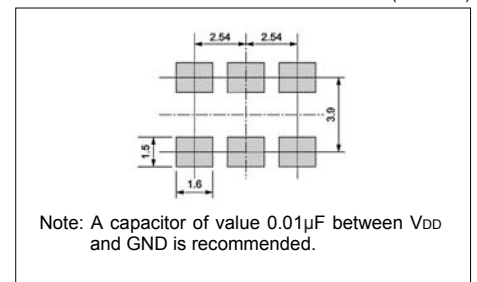
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Low voltage 2.5V
- Low jitter
- LV-CMOS output
- Operation at fundamental high frequency

**Table 1**

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
1	$\pm 100$	0 to +70	Standard specifications

**How to Order**

**KC7050S 155.520 C 2 1 B 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 (40/60%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

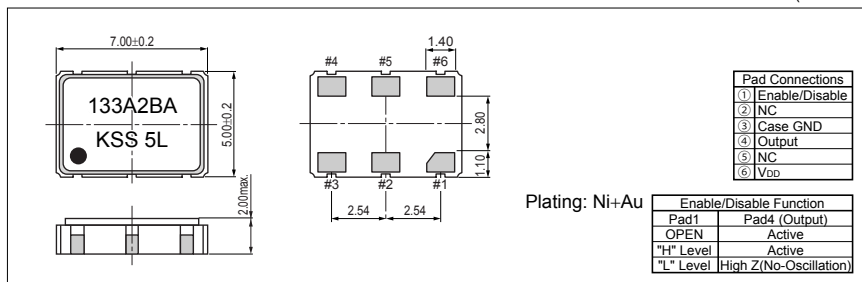
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range	Fo		100	200	MHz
Frequency Tolerance	F <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration	-100	+100	$\times 10^{-6}$
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C
Max. Supply Voltage	—		-0.5	+5	V
Supply Voltage	V <sub>DD</sub>		2.38	2.62	V
Current Consumption (Standard Loaded)	I <sub>DD</sub>		—	50	mA
Symmetry	SYM		40	60	%
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Standard Loaded)	Tr/Tf		—	2	nS
Output Voltage-"L"	V <sub>OL</sub>		—	10% V <sub>DD</sub>	V
Output Voltage-"H"	V <sub>OH</sub>		90% V <sub>DD</sub>	—	V
Output Load (CMOS)	L <sub>CMOS</sub>		—	15	pF
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V
Disable Time	—		—	200	nS
Enable Time	—		—	2	mS
Start-up Time	ST	@ Minimum Operation Voltage to be 0 sec.	—	10	mS
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS / 6.3.1	0.2 typ.		ps
1 Sigma Jitter	1 Sigma		3 typ.		ps
Peak to Peak Jitter	Pk-Pk		20 typ.		ps

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

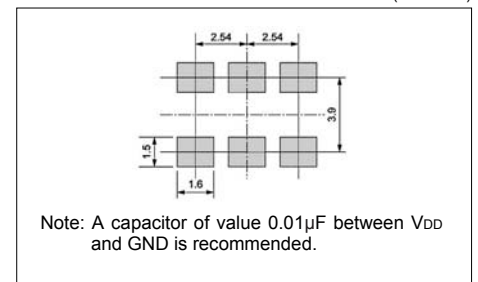
**Dimensions**

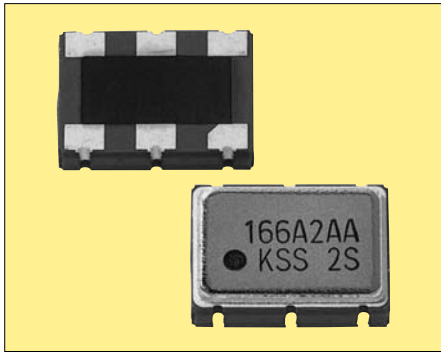
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- CMOS output 3.3V
- Low jitter
- Operation at fundamental high frequency

**How to Order**

KC7050S 155.520 C 3 1 B 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 (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/Enable Function (40/60%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

**Table 1**

Freq. Code	Tol. ×10 <sup>-6</sup>	Operating Temperature Range (°C)	Note
1	±100	0 to +70	Standard specifications

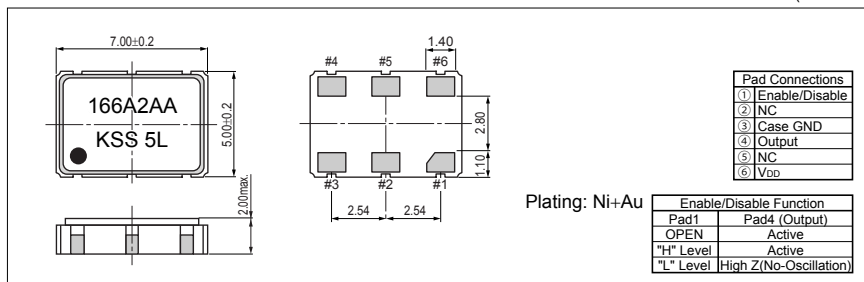
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range	F <sub>o</sub>		100	200	MHz
Frequency Tolerance	F <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration	-100	+100	×10 <sup>-6</sup>
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	0	+70	°C
Max. Supply Voltage	—		-0.5	+5	V
Supply Voltage	V <sub>DD</sub>		3.14	3.46	V
Current Consumption (Standard Loaded)	I <sub>DD</sub>		—	60	mA
Symmetry	SYM		40	60	%
Rise/ Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Standard Loaded)	Tr/Tf		—	2	nS
Output Voltage-"L"	V <sub>OL</sub>		—	10% V <sub>DD</sub>	V
Output Voltage-"H"	V <sub>OH</sub>		90% V <sub>DD</sub>	—	V
Output Load (CMOS)	L <sub>CMOS</sub>		—	15	pF
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V
Disable Time	—		—	200	nS
Enable Time	—		—	2	mS
Start-up Time	ST	@ Minimum Operation Voltage to be 0 sec.	—	10	mS
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS / 6.3.1	0.2 typ.		ps
1 Sigma Jitter	1 Sigma		3 typ.		ps
Peak to Peak Jitter	Pk-Pk		20 typ.		ps

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

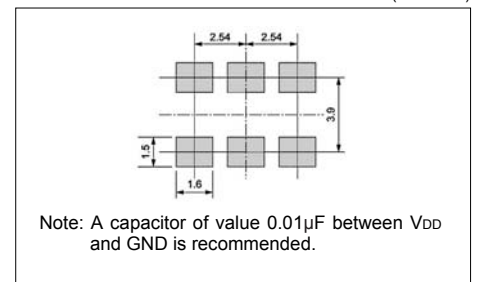
**Dimensions**

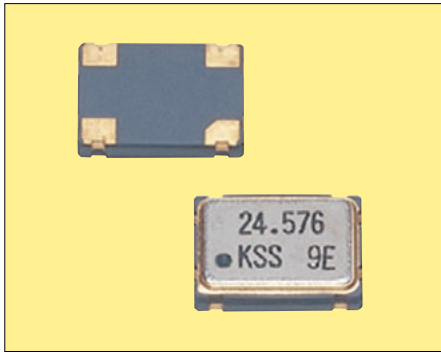
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

### Features

- Surface mount type suitable for auto pick-and-place
- Reflow soldering compatible
- CMOS, TTL IC direct drive is possible
- With tri-state function
- Broad frequency range from 1.8MHz to 50MHz
- Supply voltage  $V_{DD}=3.3/5.0V$  available

### Frequency Tolerance (Overall)

Freq.Tol. Code	$\times 10^{-6}$	Operating Temperature Range(°C)	Notes
1	$\pm 100$	-10 to +70	1.8 to 50MHz
0	$\pm 50$	(standard)	
S	$\pm 30$		

### How to Order

**KC7050B 25.0000 C 3 0 A 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage 5=5.0V, 3=3.3V
- ⑤ Frequency Tolerance (See Table at Left)
- ⑥ Symmetry/Enable Function (40/60%, INH)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

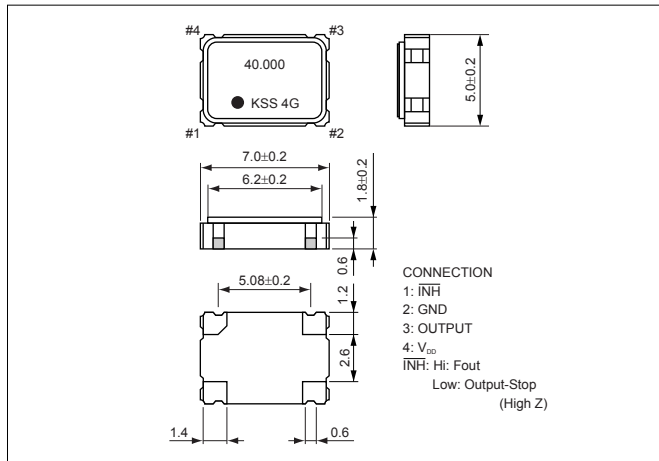
### Specifications

Items	Symbol	Specifications		Units
		KC7050Bxx.xxxxC5xA00 (FXO-31FH)	KC7050Bxx.xxxxC3xA00 (FXO-31FL)	
Output Frequency Range	$F_0$	1.8 to 50		MHz
Frequency Tolerance (Overall)	$F_{tol}$	$\pm 30$		$\times 10^{-6}$
		$\pm 50$		
		$\pm 100$		
Storage Temperature, Range	$T_{stg}$	-40 to +85		°C
Operating Temperature, Range	$T_{use}$	-10 to +70		°C
Max. Supply Voltage	—	7 Max.		V
Supply Voltage	$V_{DD}$	5 $\pm$ 0.5	3.3 $\pm$ 0.3	V
Current Consumption	$I_{DD}$	25 Max. (1.8 to 15MHz)	18 Max. (1.8 to 39.9MHz)	mA
		30 Max. (15.1 to 32MHz)		
		45 Max. (32.1 to 50MHz)	25 Max. (40 to 50MHz)	
Stand-by Current	$I_{std}$	10 Max.		$\mu$ A
Symmetry	SYM	40 to 60@50% $V_{DD}$		%
Rise / Fall Time	$T_r/T_f$	10 Max.		nS
Output Voltage-"L"	$V_{OL}$	10% $V_{DD}$ Max.		V
Output Voltage-"H"	$V_{OH}$	90% $V_{DD}$ Min.		V
Output Load	CL	50 Max.	20 Max.	pF
Input Voltage Range	$V_{IN}$	0 to $V_{DD}$	0 to $V_{DD}$	V
Input Voltage-"L"	$V_{IL}$	0.8 Max.	0.3 Max.	V
Input Voltage-"H"	$V_{IH}$	2.2 Min.	2.2 Min.	V
Disable Time	—	150 Max.		nS
Enable Time	—	5 Max.		mS
Start-up Time	ST	10 Max.		mS

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

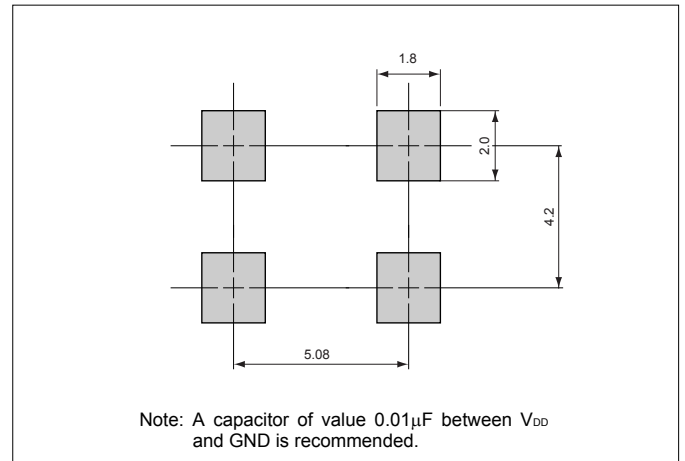
### Dimensions

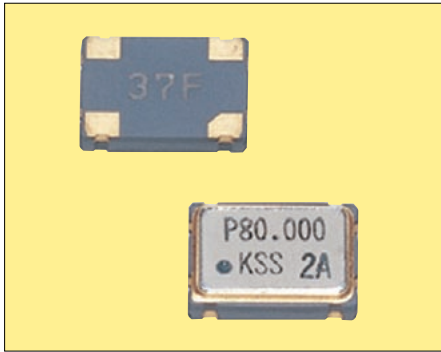
(Unit : mm)



### Recommended Land Pattern

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Surface mount type suitable for auto pick-and-place
- Reflow compatible
- CMOS, TTL IC direct drive is possible
- With tri-state function
- Broad frequency range from 80MHz to 125MHz, (PLL circuit is built in)
- Supply voltage  $V_{DD}$ =3.3/5.0V available

**Frequency Tolerance (Overall)**

Freq.Tol. Code	$\times 10^{-6}$	Operating Temperature Range(°C)	Notes
1	$\pm 100$	0 to +70 (standard)	80 to 125MHz
0	$\pm 50$		

**How to Order**

**KC7050B 80.0000 C 3 0 A 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage 5–5.0V, 3–3.3V
- ⑤ Frequency Tolerance (See Table at Left)
- ⑥ Symmetry/Enable Function (40/60%, INH)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

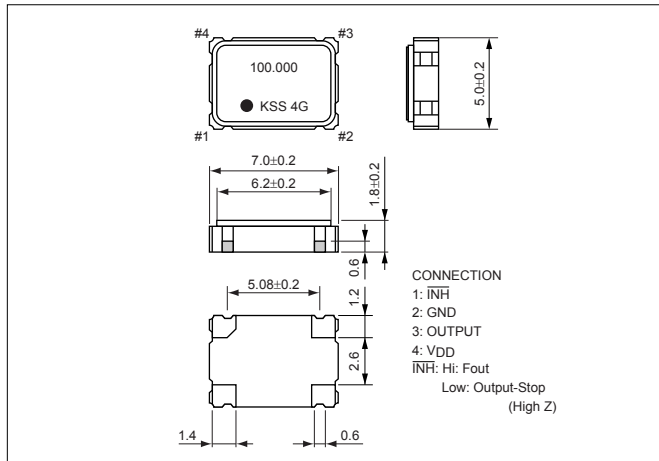
**Specifications**

Items	Symbol	Conditions	Specifications		Units
			Min.	Max.	
Output Frequency Range	$F_0$		80	125	MHz
Frequency Tolerance (Overall)	$F_{tol}$		-50 -100	+50 +100	$\times 10^{-6}$
Storage Temperature, Range	$T_{stg}$		-20	+80	°C
Operating Temperature, Range	$T_{use}$		0	+70	°C
Max. Supply Voltage	—		—	6	V
Supply Voltage	$V_{DD}$	3.3V Type	3.135	3.465	V
		5.5V Type	4.75	5.25	
Current Consumption	$I_{DD}$		—	70	mA
Stand-by Current	$I_{std}$		—	60	$\mu$ A
Symmetry	SYM	@50% $V_{DD}$	40	60	%
Rise / Fall Time	$T_r/T_f$		—	7	nS
Output Voltage-"L"	$V_{OL}$		—	10% $V_{DD}$	V
Output Voltage-"H"	$V_{OH}$	@3.3V	2.8	—	V
		@5.0V	4	—	
Output Load	CL		—	15	pF
Input Voltage Range	$V_{IN}$		$V_{SS}$	$V_{DD}$	V
Input Voltage-"L"	$V_{IL}$		—	30% $V_{DD}$	V
Input Voltage-"H"	$V_{IH}$		70% $V_{DD}$	—	V
Disable Time	—		—	1	mS
Enable Time	—		—	3	mS
Start-up Time	ST		—	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.

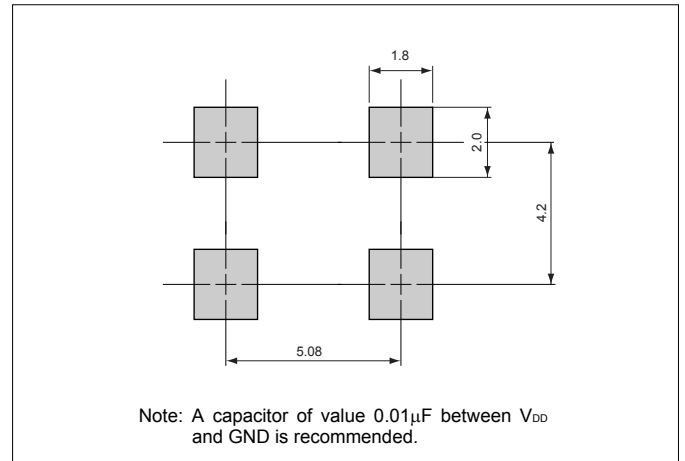
**Dimensions**

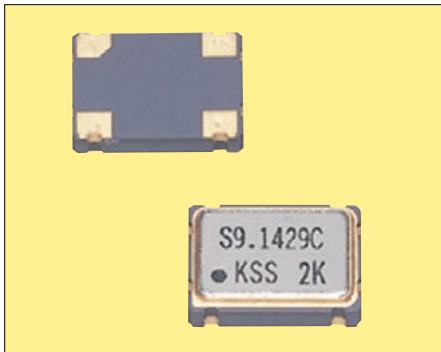
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- This crystal oscillator has a built-in high-precision CMOS IC suitable for a wide range of temperature
- Lower noise and lower current for reduced power consumption
- Supply voltage  $V_{DD}$ =3.3/5.0V available

**Frequency Tolerance (Overall)**

Freq.Tol. Code	Freq.Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Notes
P	$\pm 100$	-30 to +85	1.8 to 40MHz
Q	$\pm 50$	(Standard)	
R	$\pm 30$		

**How to Order**

KC7050B 25.0000 C 3 Q A 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage 5=5.0V, 3=3.3V
- ⑤ Frequency Tolerance (See Table at Left)
- ⑥ Symmetry/Enable Function (40/60%, INH)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

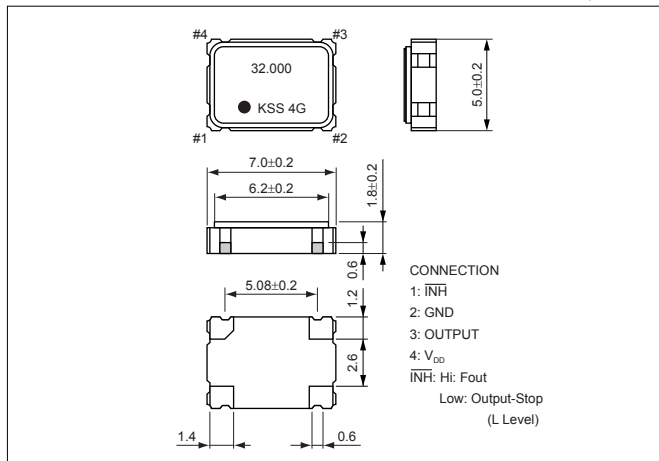
**Specifications**

Items	Symbol	Specifications		Units
		KC7050Bxx.xxxxC5xA00 (FXO-34F)	KC7050Bxx.xxxxC3xA00 (FXO-34FL)	
Output Frequency Range	$F_0$	1.8 to 40		MHz
Frequency Tolerance (Overall)	$F_{tol}$	$\pm 30$		$\times 10^{-6}$
		$\pm 50$		
		$\pm 100$		
Storage Temperature, Range	$T_{stg}$	-40 to +85		°C
Operating Temperature, Range	$T_{use}$	-30 to +85		°C
Max. Supply Voltage	-	7 Max.		V
Supply Voltage	$V_{DD}$	5 $\pm$ 5%	3.3 $\pm$ 5%	V
Current Consumption	$I_{DD}$	12 Max.	10 Max.	mA
Stand-by Current	$I_{std}$	8 Max.		$\mu$ A
Symmetry	SYM	40 to 60@50% $V_{DD}$		%
Rise / Fall Time	$T_r/T_f$	12 Max.	16 Max.	nS
Output Voltage-"L"	$V_{OL}$	10% $V_{DD}$ Max.		V
Output Voltage-"H"	$V_{OH}$	90% $V_{DD}$ Min.		V
Output Load	CL	15 Max.		pF
Input Voltage Range	$V_{IN}$	0 to $V_{DD}$	0 to $V_{DD}$	V
Input Voltage-"L"	$V_{IL}$	0.8 Max.	0.3 Max.	V
Input Voltage-"H"	$V_{IH}$	2.2 Min.	2.2 Min.	V
Disable Time	-	150 Max.		nS
Enable Time	-	5 Max.		mS
Start-up Time	ST	10 Max.		mS

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

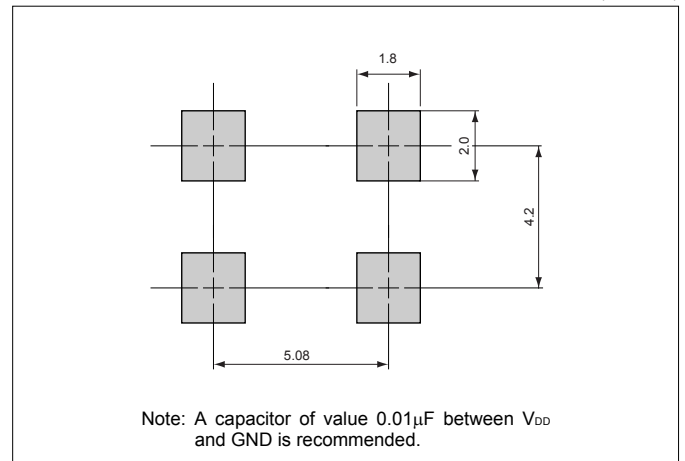
**Dimensions**

(Unit : mm)

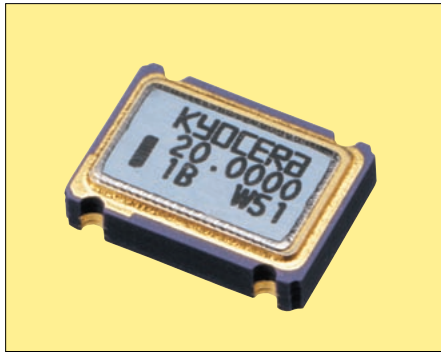


**Recommended Land Pattern**

(Unit : mm)







**Pb Free**

**RoHS Compliant**

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD}=3.3V$
- $\pm 25 \times 10^{-6}$  available

**Table 1**

Freq. Tol. Code	Freq. 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**

**KC7050C 25.0000 C 3 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency
- ③ Output Type (CMOS)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ Enable Function  
(E: 45/55%, Stand-by) (D: 45/55%, Disable)
- ⑦ Customer Special Model Suffix  
(STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

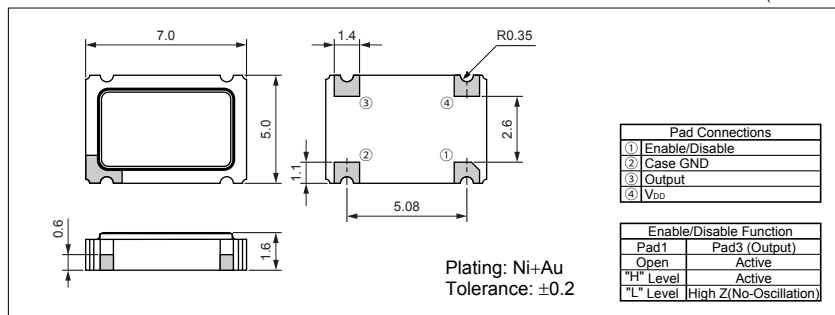
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	80	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5≤Fo≤20MHz	—	10	mA	
		20<Fo≤40MHz	—	15		
		40<Fo≤60MHz	—	20		
		60<Fo≤80MHz	—	30		
Stand-by/Disable Current	I <sub>std</sub> /I <sub>dis</sub>	1.5≤Fo≤32MHz (Stand-by Function)	—	10	μA	
		32<Fo≤50MHz (Disable Function)	—	15	mA	
		50<Fo≤80MHz (Stand-by Function)	—	10	μA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.5≤Fo≤26MHz	—	10	nS	
		26<Fo≤45MHz	—	8		
		45<Fo≤80MHz	—	5		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =8mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-8mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	—	15	pF	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>DD</sub>	V	
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>DD</sub>	—	V	
Disable Time	—		—	150	nS	
Enable Time	—	1.5≤Fo≤32MHz (Stand-by Function)	—	5	mS	
		32<Fo≤50MHz (Disable Function)	—	150	nS	
		50<Fo≤80MHz (Stand-by Function)	—	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 inquiries about operating temperature range, available frequencies and other conditions.

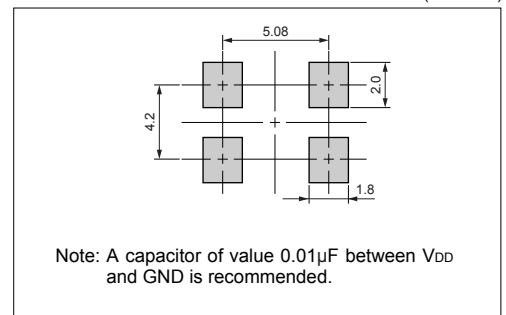
**Dimensions**

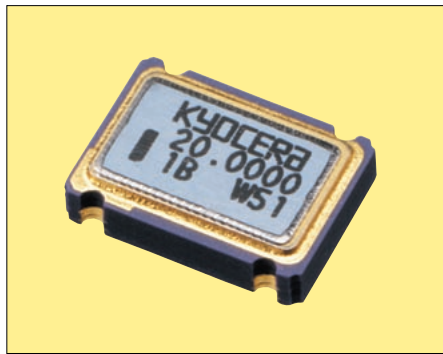
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage  $V_{DD}=5.0V$
- $\pm 25 \times 10^{-6}$  available

**Table 1**

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

**How to Order**

**KC7050C 25.0000 C 5 0 D 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 (5.0V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ Enable Function (45/55%, Disable)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

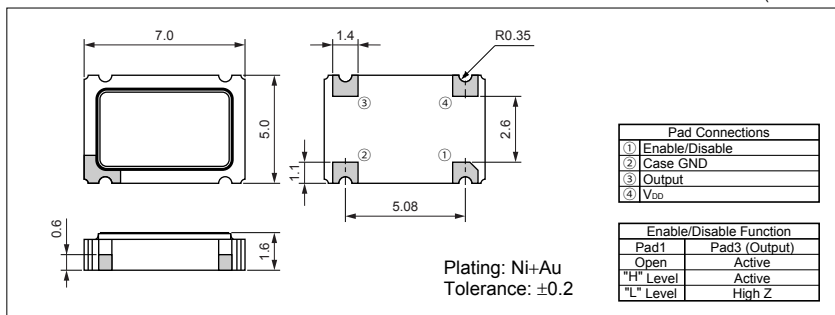
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range	Fo		1.5	68	MHz	
Frequency Tolerance	F <sub>tol</sub>	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	$\times 10^{-6}$
			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	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	-10	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>DD</sub>	Freq. Tol.Code: 0, S, F	4.5	5.5	V	
		Freq. Tol.Code: U, G	4.75	5.25		
Current Consumption (Maximum Loaded)	I <sub>DD</sub>	1.5≤Fo≤20MHz	—	25	mA	
		20<Fo≤40MHz	—	35		
		40<Fo≤68MHz	—	50		
Disable Current	I <sub>dis</sub>		—	30	mA	
Symmetry	SYM	@50% V <sub>DD</sub>	45	55	%	
Rise/Fall Time (10% V <sub>DD</sub> to 90% V <sub>DD</sub> Maximum Loaded)	Tr/Tf	1.5≤Fo≤26MHz	—	10	nS	
		26<Fo≤50MHz	—	8		
		50<Fo≤68MHz	—	5		
Output Voltage-"L"	V <sub>OL</sub>	I <sub>OL</sub> =16mA	—	10% V <sub>DD</sub>	V	
Output Voltage-"H"	V <sub>OH</sub>	I <sub>OH</sub> =-16mA	90% V <sub>DD</sub>	—	V	
Output Load	L <sub>CMOS</sub>	CMOS Output	1.5≤Fo≤50MHz	—	50	pF
			50<Fo≤68MHz	—	15	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>DD</sub>	V	
Input Voltage-"L"	V <sub>IL</sub>		—	0.8	V	
Input Voltage-"H"	V <sub>IH</sub>		2.2	—	V	
Disable Time	—		—	100	nS	
Enable Time	—		—	100	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 inquiries about operating temperature range, available frequencies and other conditions.

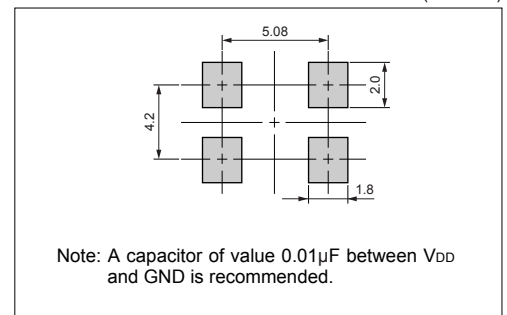
**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Low voltage 2.5V
- Low jitter
- LV-PECL output
- Operation at fundamental high frequency

**How to Order**

**KC7050S 155.520 P 2 1 E 00**  
 ① ② ③④⑤⑥ ⑦

- ① Type (7.0×5.0mm SMD)
- ② Output Frequency
- ③ Output Type (PECL)
- 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)

**Table 1**

Freq. Tol. Code	×10 <sup>-6</sup>	Operating Temperature Range (°C)	Note
1	±100	0 to +70	Standard specifications

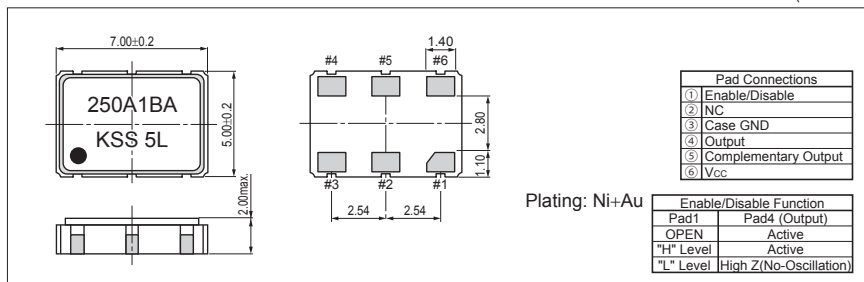
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range	F <sub>o</sub>		50	700	MHz
Frequency Tolerance	F <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration	-100	+100	×10 <sup>-6</sup>
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	0	+70	°C
Max. Supply Voltage	—		-0.5	+5	V
Supply Voltage	V <sub>cc</sub>		2.38	2.62	V
Current Consumption (Standard Loaded)	I <sub>cc</sub>		—	60	mA
Symmetry	SYM	50MHz≤F <sub>o</sub> ≤350MHz	45	55	%
		350MHz<F <sub>o</sub> ≤700MHz	40	60	
Rise/ Fall Time (20% V <sub>cc</sub> to 80% V <sub>cc</sub> Standard Loaded)	Tr/Tf	50MHz≤F <sub>o</sub> ≤400MHz	—	600	pS
		400MHz<F <sub>o</sub> ≤700MHz	—	400	
Output Voltage-"L"	V <sub>OL</sub>		—	1.195	V
Output Voltage-"H"	V <sub>OH</sub>		1.415	—	V
Output Load (PECL)	L <sub>ECL</sub>	PECL 50Ω @Terminated V <sub>cc</sub> -2V	49.5	50.5	ohm
Input Voltage Range	V <sub>IN</sub>		0	V <sub>cc</sub>	V
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>cc</sub>	V
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>cc</sub>	—	V
Disable Time	—		—	200	nS
Enable Time	—		—	2	mS
Start-up Time	ST	@ Minimum Operation Voltage to be 0 sec.	—	10	mS
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS / 6.3.1	0.2 typ.		ps
1 Sigma Jitter	1 Sigma		3 typ.		ps
Peak to Peak Jitter	Pk-Pk		20 typ.		ps

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

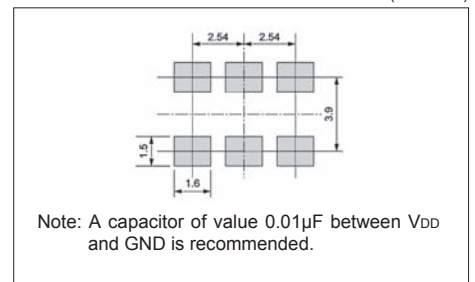
**Dimensions**

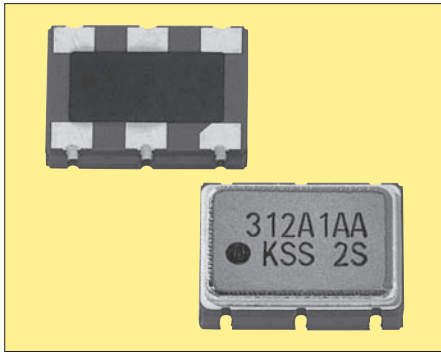
(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)





**Pb Free**

**RoHS Compliant**

**Features**

- Low jitter
- Complementary LV-PECL outputs
- Operation at fundamental high frequency

**Table 1**

Freq. Tol. Code	×10 <sup>-6</sup>	Operating Temperature Range (°C)	Note
1	±100	0 to +70	Standard specifications

**How to Order**

**KC7050S 312.500 P 3 1 E 00**  
 ① ② ③④⑤⑥ ⑦

- ① Type (7.0×5.0mm SMD)
- ② Output Frequency
- ③ Output Type (PECL)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/Enable Function (45/55%, Stand-by)
- ⑦ CustomerSpecial Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000pcs./reel)

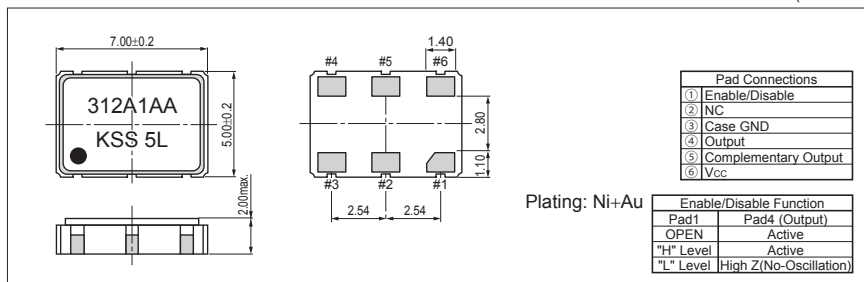
**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range	Fo		50	700	MHz
Frequency Tolerance	F <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1year @25°C), Shock and vibration	-100	+100	×10 <sup>-6</sup>
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	0	+70	°C
Max. Supply Voltage	—		-0.5	+5	V
Supply Voltage	V <sub>CC</sub>		3.14	3.46	V
Current Consumption (Standard Loaded)	I <sub>CC</sub>		—	60	mA
Symmetry	SYM	50MHz≤Fo≤350MHz	45	55	%
		350MHz<Fo≤700MHz	40	60	
Rise/ Fall Time (20% V <sub>CC</sub> to 80% V <sub>CC</sub> Standard Loaded)	Tr/Tf	50MHz≤Fo≤400MHz	—	600	pS
		400MHz<Fo≤700MHz	—	400	
Output Voltage-"L"	V <sub>OL</sub>		—	1.68	V
Output Voltage-"H"	V <sub>OH</sub>		2.275	—	V
Output Load (PECL)	L <sub>ECL</sub>	PECL 50Ω @Terminated V <sub>CC</sub> -2V	49.5	50.5	ohm
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V
Input Voltage-"L"	V <sub>IL</sub>		—	30% V <sub>CC</sub>	V
Input Voltage-"H"	V <sub>IH</sub>		70% V <sub>CC</sub>	—	V
Disable Time	—		—	200	nS
Enable Time	—		—	2	mS
Start-up Time	ST	@ Minimum Operation Voltage to be 0 sec.	—	10	mS
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS / 6.3.1	0.2 typ.		ps
1 Sigma Jitter	1 Sigma		3 typ.		ps
Peak to Peak Jitter	Pk-Pk		20 typ.		ps

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

**Dimensions**

(Unit : mm)



**Recommended Land Pattern**

(Unit : mm)

