



RoHS Compliant

### Features

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

Table 1

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
0	$\pm 50$	0 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

KC5032P 125.000 P 2 0 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0×3.2mm SMD)
- ② Output Frequency
- ③ Output Type (LV-PECL)
- ④ Supply Voltage (2.5V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	fo		50	190	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	Op. Temp.: -40 to +85°C	-100	+100	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C/ -40 to +85°C	-50	+50	
			Op. Temp.: 0 to +70°C	-30	+30	
			Op. Temp.: 0 to +70°C	-25	+25	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	0	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+5	V	
Supply Voltage	V <sub>CC</sub>		2.375	2.625	V	
Current Consumption	I <sub>CC</sub>		—	90	mA	
Stand-by Current	I <sub>std</sub>		—	30	μA	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level)	tr/ tf	50ohm	—	0.6	ns	
Low Level Output Voltage <sup>Note2</sup>	V <sub>OL</sub>	Op. Temp.: 0 to +85°C/ Typ. 0.800V	V <sub>CC</sub> -1.810	V <sub>CC</sub> -1.405	V	
		Op. Temp.: -40 to 0°C/ Typ. 0.805V	V <sub>CC</sub> -1.830	V <sub>CC</sub> -1.305		
High Level Output Voltage <sup>Note2</sup>	V <sub>OH</sub>	Op. Temp.: 0 to +85°C/ Typ. 1.550V	V <sub>CC</sub> -1.025	V <sub>CC</sub> -0.740	V	
		Op. Temp.: -40 to 0°C/ Typ. 1.495V	V <sub>CC</sub> -1.085	V <sub>CC</sub> -0.880		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V	
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>		—	150	ns	
Enable Time	t <sub>ena</sub>		—	10	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	10	ms	
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	—	2	ps	
1 Sigma Jitter	J <sub>Sigma</sub>		—	4	ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		—	30	ps	

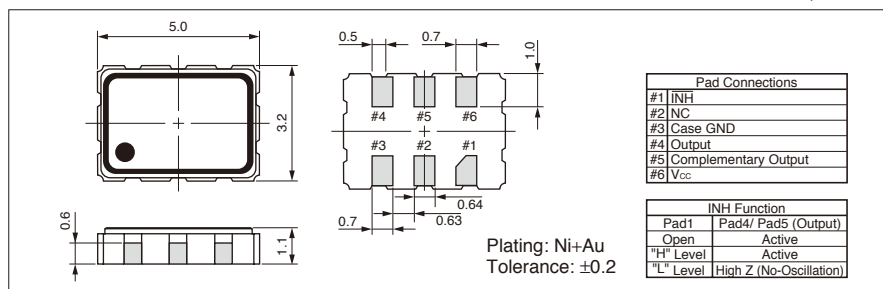
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: DC characteristic

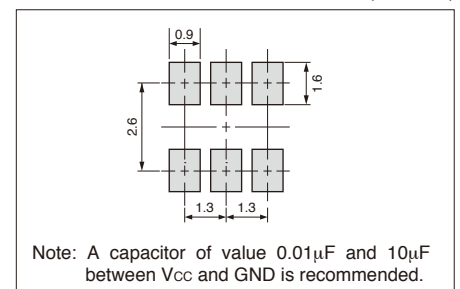
### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





RoHS Compliant

**Features**

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

**Table 1**

Freq. Tol. Code	Freq. Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
0	$\pm 50$	0 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**

**KC5032P 125.000 P 3 0 E 00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (5.0×3.2mm SMD)
- ② Output Frequency
- ③ Output Type (LV-PECL)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	fo		50	190	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	Op. Temp.: -40 to +85°C	-100	+100	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C/ -40 to +85°C	-50	+50	
			Op. Temp.: 0 to +70°C	-30	+30	
			Op. Temp.: 0 to +70°C	-25	+25	
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C	
Operating Temperature Range	T <sub>use</sub>	Standard Specifications	0	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+7	V	
Supply Voltage	V <sub>CC</sub>	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
Current Consumption	I <sub>CC</sub>		—	90	mA	
Stand-by Current	I <sub>std</sub>		—	30	μA	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level)	tr/ tf	50ohm	—	0.6	ns	
Low Level Output Voltage <sup>Note2</sup>	V <sub>OL</sub>	Op. Temp.: 0 to +85°C/ Typ. 1.600V	V <sub>CC</sub> -1.810	V <sub>CC</sub> -1.620	V	
		Op. Temp.: -40 to 0°C/ Typ. 1.605V	V <sub>CC</sub> -1.830	V <sub>CC</sub> -1.555		
High Level Output Voltage <sup>Note2</sup>	V <sub>OH</sub>	Op. Temp.: 0 to +85°C/ Typ. 2.350V	V <sub>CC</sub> -1.025	V <sub>CC</sub> -0.880	V	
		Op. Temp.: -40 to 0°C/ Typ. 2.295V	V <sub>CC</sub> -1.085	V <sub>CC</sub> -0.900		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V	
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>		—	150	ns	
Enable Time	t <sub>ena</sub>		—	10	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	10	ms	
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	—	2	ps	
1 Sigma jitter	J <sub>Sigma</sub>		—	4	ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		—	30	ps	

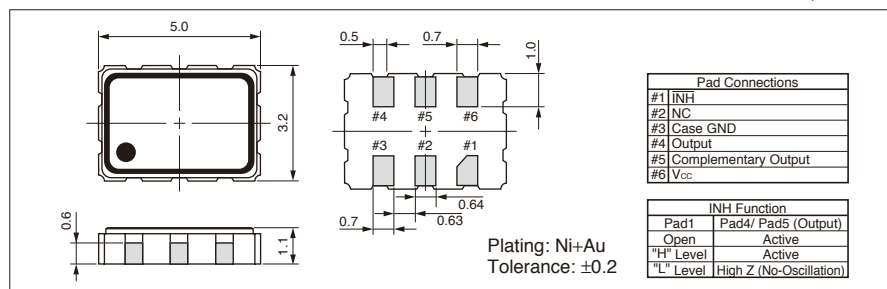
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: DC characteristic

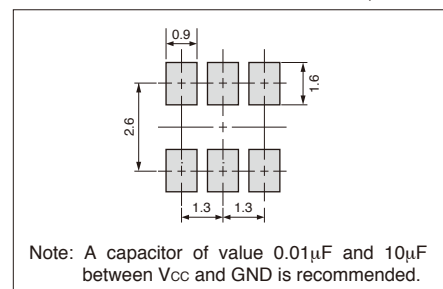
**Dimensions**

(Unit: mm)



**Recommended Land Pattern**

(Unit: mm)





RoHS Compliant

### Features

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

Table 1

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
0	$\pm 50$	0 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

KC7050P 125.000 P 2 0 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency
- ③ Output Type (LV-PECL)
- ④ Supply Voltage (2.5V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	$f_o$		50	190	MHz	
Frequency Tolerance	$f_{tol}$	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Op. Temp.: -40 to +85°C	-100	+100	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C/ -40 to +85°C	-50	+50	
			Op. Temp.: 0 to +70°C	-30	+30	
			Op. Temp.: 0 to +70°C	-25	+25	
Storage Temperature Range	$T_{stg}$		-55	+125	°C	
Operating Temperature Range	$T_{use}$	Standard Specifications	0	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+5	V	
Supply Voltage	$V_{CC}$		2.375	2.625	V	
Current Consumption	$I_{CC}$		—	90	mA	
Stand-by Current	$I_{std}$		—	30	$\mu A$	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level)	$t_r/ t_f$	50ohm	—	0.6	ns	
Low Level Output Voltage <sup>Note2</sup>	$V_{OL}$	Op. Temp.: 0 to +85°C/ Typ. 0.800V	$V_{CC}-1.810$	$V_{CC}-1.405$	V	
		Op. Temp.: -40 to 0°C/ Typ. 0.805V	$V_{CC}-1.830$	$V_{CC}-1.305$		
High Level Output Voltage <sup>Note2</sup>	$V_{OH}$	Op. Temp.: 0 to +85°C/ Typ. 1.550V	$V_{CC}-1.025$	$V_{CC}-0.740$	V	
		Op. Temp.: -40 to 0°C/ Typ. 1.495V	$V_{CC}-1.085$	$V_{CC}-0.800$		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	$V_{IN}$		0	$V_{CC}$	V	
Low Level Input Voltage	$V_{IL}$		—	30% $V_{CC}$	V	
High Level Input Voltage	$V_{IH}$		70% $V_{CC}$	—	V	
Disable Time	$t_{dis}$		—	150	ns	
Enable Time	$t_{ena}$		—	10	ms	
Start-up Time	$t_{str}$	@Minimum operating voltage to be 0 sec.	—	10	ms	
Deterministic Jitter (DJ)	DJ	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	—	2	ps	
1 Sigma jitter	JSigma		—	4	ps	
Peak to Peak Jitter	JPK-PK		—	30	ps	

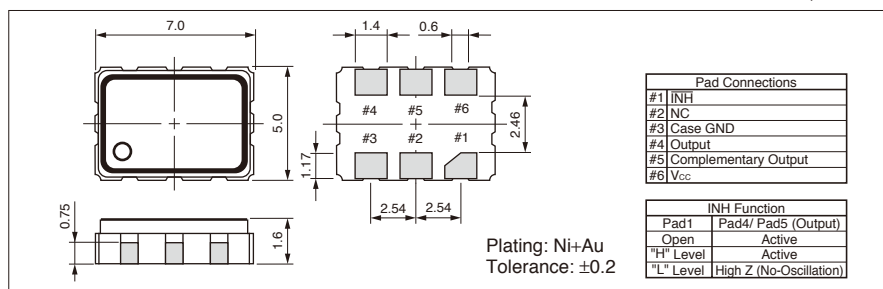
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: DC characteristic

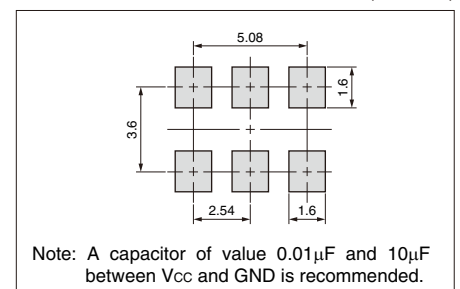
### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





RoHS Compliant

### Features

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

Table 1

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
0	$\pm 50$	0 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

KC7050P 125.000 P 3 0 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	$f_o$		50	190	MHz	
Frequency Tolerance	$f_{tol}$	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Op. Temp.: -40 to +85°C	-100	+100	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C/ -40 to +85°C	-50	+50	
			Op. Temp.: 0 to +70°C	-30	+30	
			Op. Temp.: 0 to +70°C	-25	+25	
Storage Temperature Range	$T_{stg}$		-55	+125	°C	
Operating Temperature Range	$T_{use}$	Standard Specifications	0	+70	°C	
		Extend (Option)	-40	+85		
Max. Supply Voltage	—		-0.5	+5	V	
Supply Voltage	$V_{CC}$	Freq. Tol.Code: 0, S, F	2.97	3.63	V	
		Freq. Tol.Code: U, G	3.14	3.46		
Current Consumption	$I_{CC}$		—	90	mA	
Stand-by Current	$I_{std}$		—	30	$\mu A$	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level)	tr/ tf	50ohm	—	0.6	ns	
Low Level Output Voltage <sup>Note2</sup>	$V_{OL}$	Op. Temp.: 0 to +85°C/ Typ. 1.600V	$V_{CC}-1.810$	$V_{CC}-1.620$	V	
		Op. Temp.: -40 to 0°C/ Typ. 1.605V	$V_{CC}-1.830$	$V_{CC}-1.555$		
High Level Output Voltage <sup>Note2</sup>	$V_{OH}$	Op. Temp.: 0 to +85°C/ Typ. 2.350V	$V_{CC}-1.025$	$V_{CC}-0.880$	V	
		Op. Temp.: -40 to 0°C/ Typ. 2.295V	$V_{CC}-1.085$	$V_{CC}-0.900$		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	$V_{IN}$		0	$V_{CC}$	V	
Low Level Input Voltage	$V_{IL}$		—	30% $V_{CC}$	V	
High Level Input Voltage	$V_{IH}$		70% $V_{CC}$	—	V	
Disable Time	$t_{dis}$		—	150	ns	
Enable Time	$t_{ena}$		—	10	ms	
Start-up Time	$t_{str}$	@Minimum operating voltage to be 0 sec.	—	10	ms	
Deterministic Jitter (DJ)	DJ		—	2	ps	
1 Sigma Jitter	JSigma	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	—	4	ps	
Peak to Peak Jitter	JPK-PK		—	30	ps	

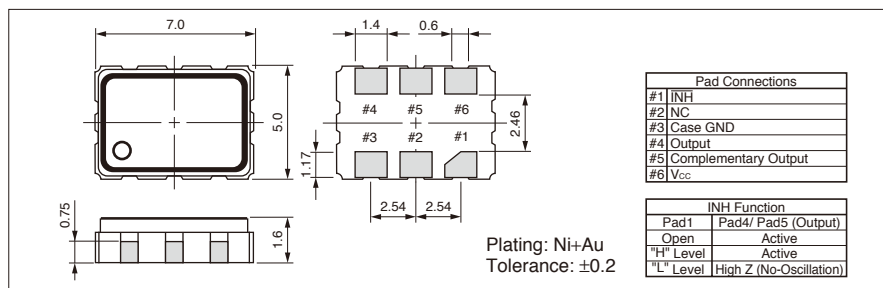
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: DC characteristic

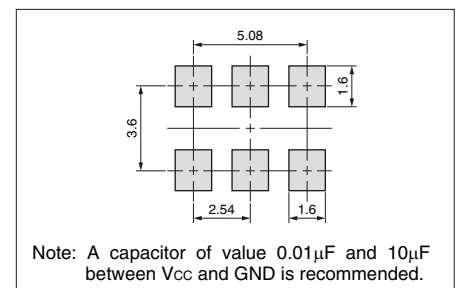
### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





# Clock Oscillators Surface Mount Type KC7050R-P3 Series



LV-PECL/ 3.3V/ 7.0x5.0mm



RoHS Compliant

## Features

- High frequency to 800MHz
- LV-PECL output
- Miniature ceramic package
- Highly reliable with seam welding
- for WDM, Networking Applications

Table 1

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

## How to Order

KC7050R 622.080 P 3 G D 00  
① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)

## Specifications

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range <sup>Note1</sup>	fo		10	800	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 Op. Temp.: -40 to +85°C	-50	+50	$\times 10^{-6}$
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>		-40	+85	°C
Max. Supply Voltage	—		-0.5	+4.2	V
Supply Voltage	V <sub>CC</sub>		+2.97	+3.63	V
Current Consumption	I <sub>CC</sub>		—	100	mA
Symmetry	SYM	50ohm @crossing point	45	55	%
Rise/ Fall Time (20% to 80% Output Level)	tr/ tf	50ohm	—	0.4	ns
Low Level Output Voltage <sup>Note2</sup>	V <sub>OL</sub>		—	V <sub>CC</sub> -1.620	V
High Level Output Voltage <sup>Note2</sup>	V <sub>OH</sub>		V <sub>CC</sub> -1.025	—	V
Output Load	—	LV-PECL Output		50	ohm
Low Level Input Voltage <sup>Note2</sup>	V <sub>IL</sub>		—	30% V <sub>CC</sub>	V
High Level Input Voltage <sup>Note2</sup>	V <sub>IH</sub>		70% V <sub>CC</sub>	—	V
Disable Time	t <sub>dis</sub>		—	150	ns
Enable Time	t <sub>ena</sub>		—	5	ms
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	10	ms
1 Sigma Jitter	J <sub>Sigma</sub>	Measured with Wavcrest DTS-2079 VISI 6.3.1	—	8	ps
Peak to Peak Jitter	J <sub>PK-PK</sub>		—	80	ps
Phase Jitter	J <sub>Phase</sub>		12kHz to 20MHz @622.08MHz	—	1.0
Phase Noise @622.08MHz	—	- 40 (@10Hz offset) - 70 (@100Hz offset) - 95 (@1kHz offset) - 105 (@10kHz offset) - 105 (@100kHz offset) - 125 (@1MHz offset) - 135 (@10MHz offset)			dBc/ Hz

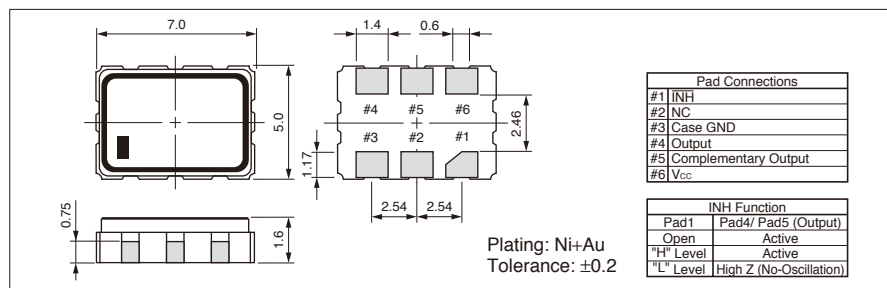
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: DC characteristic

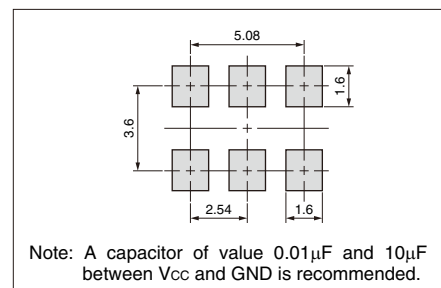
## Dimensions

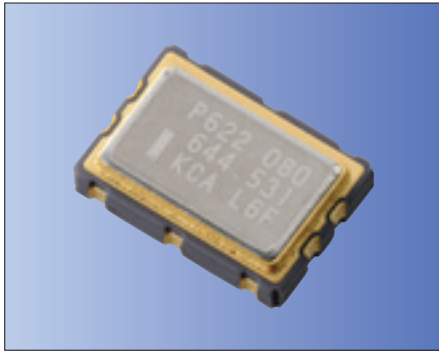
(Unit: mm)



## Recommended Land Pattern

(Unit: mm)





RoHS Compliant

**Features**

- High frequency to 800MHz
- Dual frequency selectable
- LV-PECL output
- Miniature ceramic package
- Highly reliable with seam welding
- for WDM, Networking Applications

**Table 1**

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

**How to Order**

KC7050G 622A644 P 3 G D 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency/ Selection Frequency
- ③ Output Type (LV-PECL)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%, Disable)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

**Specifications**

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range <sup>Note1</sup>	f1	Primary Output/ #2 "H"-Level or Open	10	800	MHz
	f2	Secondly Output/ #2 "L"-Level	10	800	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 Op. Temp.: -40 to +85°C	-50	+50	$\times 10^{-6}$
Storage Temperature Range	T <sub>stg</sub>		-55	+125	°C
Operating Temperature Range	T <sub>use</sub>		-40	+85	°C
Max. Supply Voltage	—		-0.5	+4.2	V
Supply Voltage	V <sub>CC</sub>		+2.97	+3.63	V
Current Consumption	I <sub>CC</sub>		—	100	mA
Symmetry	SYM	50ohm @crossing point	45	55	%
Rise/ Fall Time (20% to 80% Output Level)	tr/ tf	50ohm	—	0.4	ns
Low Level Output Voltage <sup>Note2</sup>	V <sub>OL</sub>		—	V <sub>CC</sub> -1.620	V
High Level Output Voltage <sup>Note2</sup>	V <sub>OH</sub>		V <sub>CC</sub> -1.025	—	V
Output Load	—	LV-PECL Output	50		ohm
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>		—	150	ns
Enable Time	t <sub>ena</sub>		—	5	ms
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	10	ms
1 Sigma Jitter	J <sub>Sigma</sub>	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	—	8	ps
Peak to Peak Jitter	J <sub>PK-PK</sub>		—	80	ps
Phase Jitter	J <sub>Phase</sub>		12kHz to 20MHz @622.08MHz	—	1.0
Phase Noise @622.08MHz	—	12kHz to 20MHz @622.08MHz - 40 (@10Hz offset) - 70 (@100Hz offset) - 95 (@1kHz offset) -105 (@10kHz offset) -105 (@100kHz offset) -125 (@1MHz offset) -135 (@10MHz offset)			dBc/ Hz

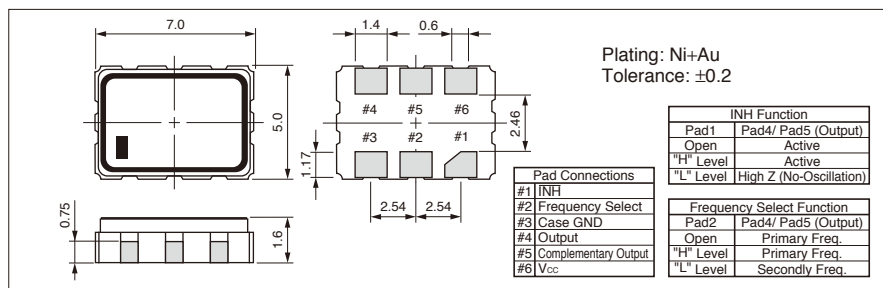
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: DC characteristic

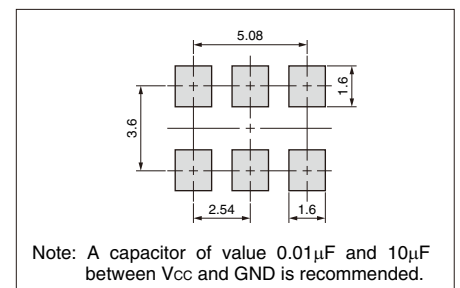
**Dimensions**

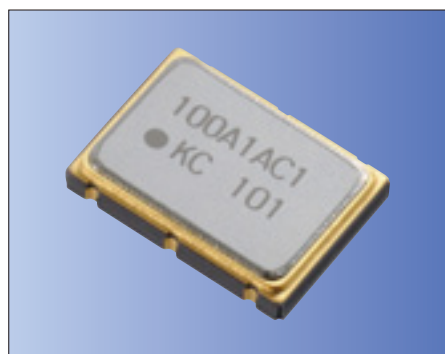
(Unit: mm)



**Recommended Land Pattern**

(Unit: mm)





RoHS Compliant

### Features

- Low voltage 2.5V
- Excellent Jitter performance
- LV-PECL output
- Operation at fundamental high frequency
- $\pm 50 \times 10^{-6}$  Available

Table 1

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
1	$\pm 100$	0 to +70	Standard specifications
0	$\pm 50$	0 to +70	With only certain frequencies
A	$\pm 100$	-5 to +85	

### How to Order

KC7050Y 312.500 P 2 1 E 00  
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency
- ③ Output Type (PECL)
- ④ Supply Voltage (2.5V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	f <sub>o</sub>		75	700	MHz	
Frequency Tolerance <sup>Note2</sup>	f <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Op. Temp.: 0 to +70°C	-50	+50	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C	-100	+100	
			Op. Temp.: -5 to +85°C	-100	+100	
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	—		-0.3	+5	V	
Supply Voltage	V <sub>CC</sub>	2.5V	2.38	2.63	V	
Current Consumption (Standard Loaded)	I <sub>CC</sub>		—	100	mA	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level Standard Loaded)	tr/ tf	50ohm	—	400	ps	
Low Level Output Voltage <sup>Note3</sup>	V <sub>OL</sub>	0 to +85°C/ Typ. 0.800V -5 to 0°C/ Typ. 0.805V	V <sub>CC</sub> -1.810 V <sub>CC</sub> -1.830	V <sub>CC</sub> -1.405 V <sub>CC</sub> -1.305	V	
High Level Output Voltage <sup>Note3</sup>	V <sub>OH</sub>	0 to +85°C/ Typ. 1.550V -5 to 0°C/ Typ. 1.495V	V <sub>CC</sub> -1.025 V <sub>CC</sub> -1.085	V <sub>CC</sub> -0.740 V <sub>CC</sub> -0.880		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V	
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>		—	200	ns	
Enable Time	t <sub>ena</sub>		—	10	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	10	ms	
Deterministic Jitter (DJ)	DJ		0.2 typ.		ps	
1 Sigma Jitter	J <sub>Sigma</sub>	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	2 typ.		ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		20 typ.		ps	

Note : All electrical characteristics are defined at the maximum load and operating temperature range.

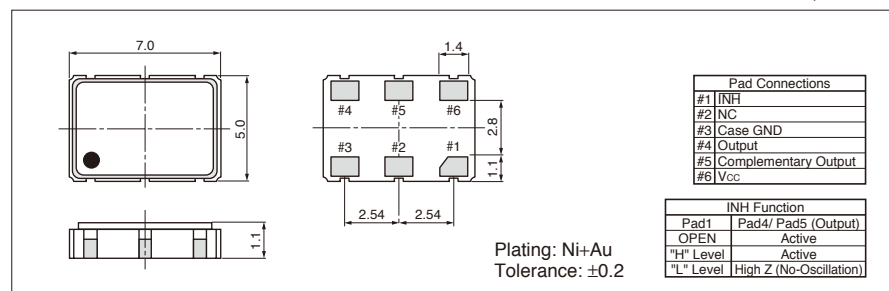
Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: Aging (10 years @25°C) can correspond.

Note3: DC characteristic

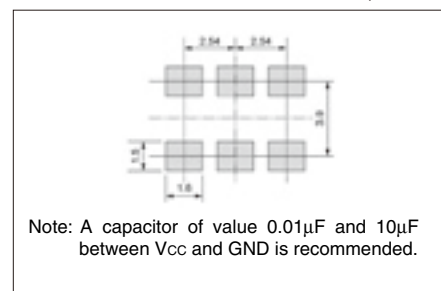
### Dimensions

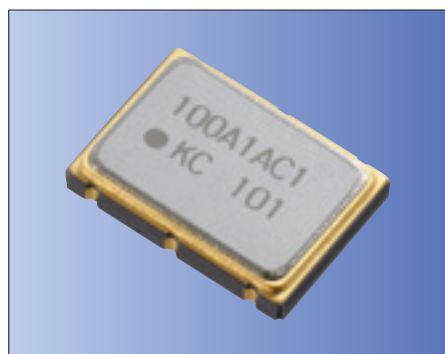
(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





RoHS Compliant

### Features

- Excellent Jitter performance
- Complementary LV-PECL outputs
- Operation at fundamental high frequency
- $\pm 50 \times 10^{-6}$  Available

Table 1

Freq. Tol. Code	$\times 10^{-6}$	Operating Temperature Range (°C)	Note
1	$\pm 100$	0 to +70	Standard specifications
0	$\pm 50$		With only certain frequencies
A	$\pm 100$	-5 to +85	

### How to Order

KC7050Y 312.500 P 3 1 E 00  
① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	f <sub>o</sub>		75	700	MHz	
Frequency Tolerance <sup>Note2</sup>	f <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Op. Temp.: 0 to +70°C	-50	+50	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C	-100	+100	
			Op. Temp.: -5 to +85°C	-100	+100	
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	—		-0.3	+5	V	
Supply Voltage	V <sub>CC</sub>	3.3V	2.97	3.63	V	
Current Consumption (Standard Loaded)	I <sub>CC</sub>		—	100	mA	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level Standard Loaded)	tr/ tf	50ohm	—	400	ps	
Low Level Output Voltage <sup>Note3</sup>	V <sub>OL</sub>	0 to +85°C/ Typ. 1.600V	V <sub>CC</sub> -1.810	V <sub>CC</sub> -1.620	V	
		-5 to 0°C/ Typ. 1.605V	V <sub>CC</sub> -1.830	V <sub>CC</sub> -1.555		
High Level Output Voltage <sup>Note3</sup>	V <sub>OH</sub>	0 to +85°C/ Typ. 2.350V	V <sub>CC</sub> -1.025	V <sub>CC</sub> -0.880	V	
		-5 to 0°C/ Typ. 2.295V	V <sub>CC</sub> -1.085	V <sub>CC</sub> -0.900		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V	
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>		—	200	ns	
Enable Time	t <sub>ena</sub>		—	10	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating 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	J <sub>Sigma</sub>		2 typ.		ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		20 typ.		ps	

Note : All electrical characteristics are defined at the maximum load and operating temperature range.

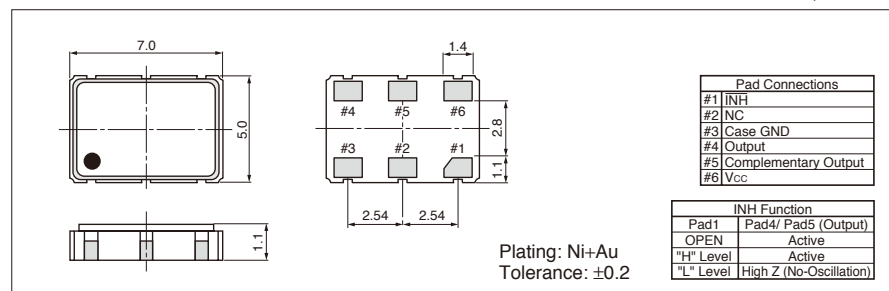
Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: Aging (10 years @25°C) can correspond.

Note3: DC characteristic

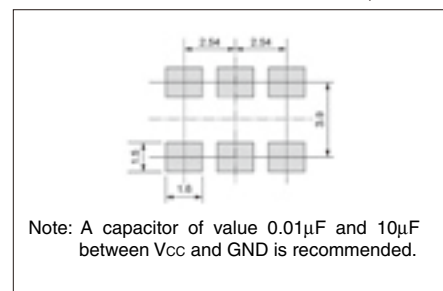
### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





RoHS Compliant

### Features

- Low voltage 2.5V
- Excellent Jitter performance
- LV-PECL output
- Operation at fundamental high frequency
- $\pm 50 \times 10^{-6}$  Available

Table 1

Freq. Tol. Code	Tol. $\times 10^{-6}$	Operating Temperature Range (°C)	Note
1	$\pm 100$	0 to +70	Standard specifications
0	$\pm 50$	0 to +70	With only certain frequencies
A	$\pm 100$	-5 to +85	With only certain frequencies

### How to Order

KC7050T 312.500 P 2 1 E 00  
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD)
- ② Output Frequency
- ③ Output Type (PECL)
- ④ Supply Voltage (2.5V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	fo		150	700	MHz	
Frequency Tolerance <sup>Note2</sup>	f <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Op. Temp.: 0 to +70°C	-50	+50	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C	-100	+100	
			Op. Temp.: -5 to +85°C	-100	+100	
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>	2.5V	2.38	2.63	V	
Current Consumption (Standard Loaded)	I <sub>CC</sub>		—	90	mA	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level Standard Loaded)	tr/ tf	50ohm	—	600	ps	
Low Level Output Voltage <sup>Note3</sup>	V <sub>OL</sub>	0 to +85°C/ Typ. 0.800V -5 to 0°C/ Typ. 0.805V	V <sub>CC</sub> -1.810 V <sub>CC</sub> -1.830	V <sub>CC</sub> -1.405 V <sub>CC</sub> -1.305	V	
High Level Output Voltage <sup>Note3</sup>	V <sub>OH</sub>	0 to +85°C/ Typ. 1.550V -5 to 0°C/ Typ. 1.495V	V <sub>CC</sub> -1.025 V <sub>CC</sub> -1.085	V <sub>CC</sub> -0.740 V <sub>CC</sub> -0.880		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V	
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>		—	200	ns	
Enable Time	t <sub>ena</sub>		—	10	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating voltage to be 0 sec.	—	10	ms	
Deterministic Jitter (DJ)	DJ		0.2 typ.		ps	
1 Sigma Jitter	J <sub>Sigma</sub>	Measured with Wavecrest DTS-2079 VIS/ 6.3.1	2 typ.		ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		20 typ.		ps	

Note : All electrical characteristics are defined at the maximum load and operating temperature range.

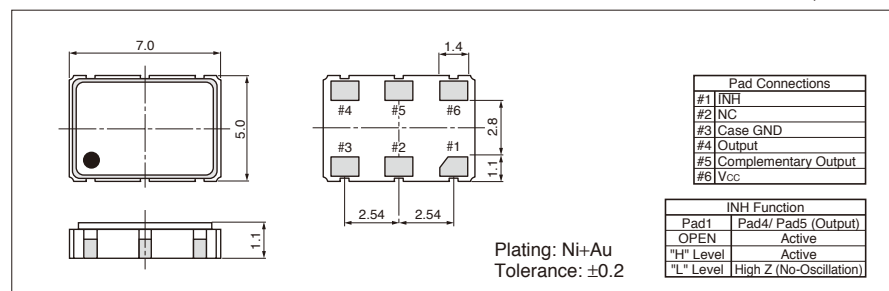
Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: Aging (10 years @25°C) can correspond.

Note3: DC characteristic

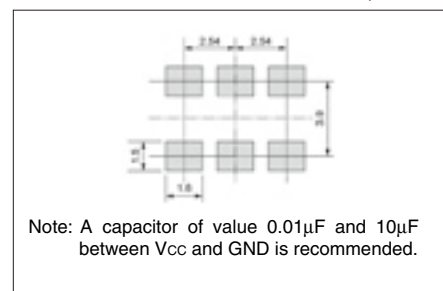
### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





RoHS Compliant

### Features

- Excellent Jitter performance
- Complementary LV-PECL outputs
- Operation at fundamental high frequency
- $\pm 50 \times 10^{-6}$  Available

Table 1

Freq. Tol. Code	$\times 10^{-6}$	Operating Temperature Range (°C)	Note
1	$\pm 100$	0 to +70	Standard specifications
0	$\pm 50$		With only certain frequencies
A	$\pm 100$	-5 to +85	

### How to Order

KC7050T 312.500 P 3 1 E 00  
① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)

### Specifications

Item	Symbol	Conditions	Min.	Max.	Units	
Output Frequency Range <sup>Note1</sup>	f <sub>o</sub>		150	700	MHz	
Frequency Tolerance <sup>Note2</sup>	f <sub>tol</sub>	Initial tolerance, Operating temperature range, Rated power supply voltage change, Load change, Aging (1 year @25°C), Shock and vibration	Op. Temp.: 0 to +70°C	-50	+50	$\times 10^{-6}$
			Op. Temp.: 0 to +70°C	-100	+100	
			Op. Temp.: -5 to +85°C	-100	+100	
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>	3.3V	2.97	3.63	V	
Current Consumption (Standard Loaded)	I <sub>CC</sub>		—	90	mA	
Symmetry	SYM	50ohm @crossing point	45	55	%	
Rise/ Fall Time (20% to 80% Output Level Standard Loaded)	tr/ tf	50ohm	—	600	ps	
Low Level Output Voltage <sup>Note3</sup>	V <sub>OL</sub>	0 to +85°C/ Typ. 1.600V	V <sub>CC</sub> -1.810	V <sub>CC</sub> -1.620	V	
		-5 to 0°C/ Typ. 1.605V	V <sub>CC</sub> -1.830	V <sub>CC</sub> -1.555		
High Level Output Voltage <sup>Note3</sup>	V <sub>OH</sub>	0 to +85°C/ Typ. 2.350V	V <sub>CC</sub> -1.025	V <sub>CC</sub> -0.880	V	
		-5 to 0°C/ Typ. 2.295V	V <sub>CC</sub> -1.085	V <sub>CC</sub> -0.900		
Output Load	RL	LV-PECL Output	50		ohm	
Input Voltage Range	V <sub>IN</sub>		0	V <sub>CC</sub>	V	
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>		—	200	ns	
Enable Time	t <sub>ena</sub>		—	10	ms	
Start-up Time	t <sub>str</sub>	@Minimum operating 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	J <sub>Sigma</sub>		2 typ.		ps	
Peak to Peak Jitter	J <sub>PK-PK</sub>		20 typ.		ps	

Note : All electrical characteristics are defined at the maximum load and operating temperature range.

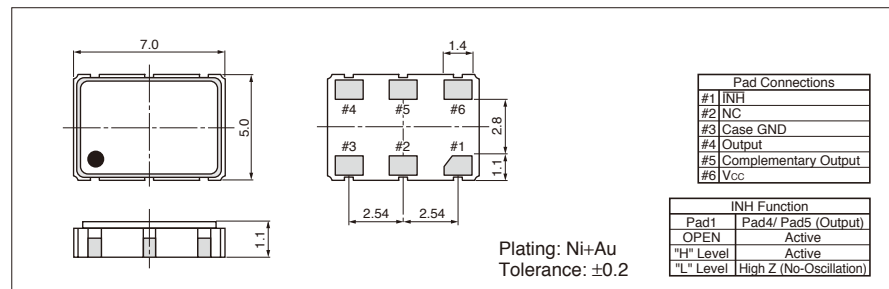
Note1: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

Note2: Aging (10 years @25°C) can correspond.

Note3: DC characteristic

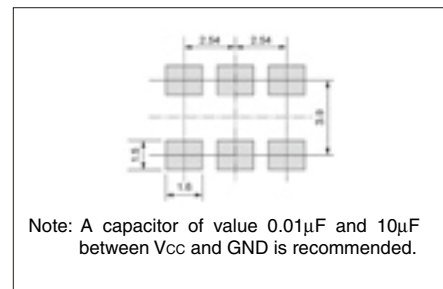
### Dimensions

(Unit: mm)



### Recommended Land Pattern

(Unit: mm)





RoHS Compliant

### Specifications

Type	Output Frequency Range (MHz)	Supply Voltage (Vcc)	Frequency Tolerance × 10 <sup>-6</sup>	Current Consumption (mA)	Output Load (Ω)
KC7050S-P2	50 to 700	2.5± to 5%	±100	max. 90	50
KC7050S-P3	50 to 700	3.3± to 5%		max. 90	
KC7050S-L2	50 to 700	2.5± to 5%		max. 70	100
KC7050S-L3	50 to 700	3.3± to 5%		max. 70	

Note: Please contact us for inquiry about operating temperature range, available frequencies and other conditions.

### KC7050S-P2 Series

#### Features

- Low voltage 2.5V
- Excellent Jitter performance
- LV-PECL output
- Operation at fundamental high frequency

Table 1

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

#### How to Order

KC7050S 312.500 P 2 1 E 00  
 ① ② ③ ④ ⑤ ⑥ 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/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

### KC7050S-P3 Series

#### Features

- Excellent Jitter performance
- Complementary LV-PECL outputs
- Operation at fundamental high frequency

Table 1

Freq. Code	Tol. × 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 ③ ④ ⑤ ⑥ 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/ INH Function (45/ 55%, Stand-by)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Packaging (Tape & Reel 1000 pcs./ reel)

### KC7050S-L2 Series

#### Features

- Low Voltage 2.5V
- Excellent Jitter performance
- LVDS output
- Operation at Fundamental high frequency

Table 1

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

#### How to Order

KC7050S 312.500 L 2 1 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)

### KC7050S-L3 Series

#### Features

- Low Voltage 3.3V
- Excellent Jitter performance
- LVDS output
- Operation at Fundamental high frequency

Table 1

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

#### How to Order

KC7050S 312.500 L 3 1 E 00  
 ① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)