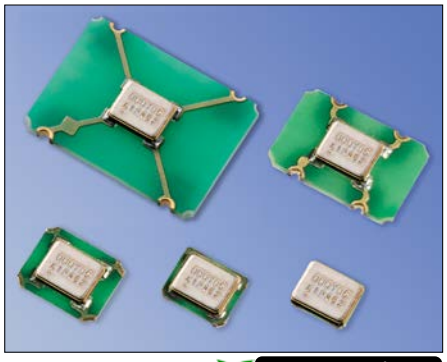
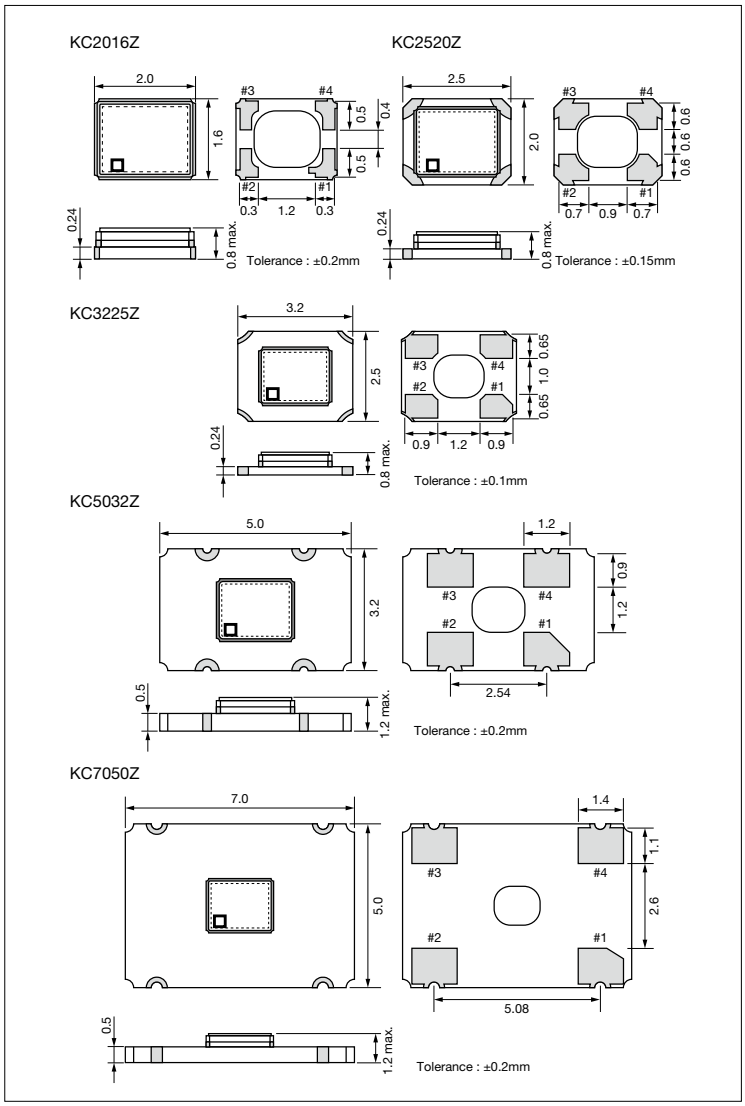
CMOS / 1.8V, 2.5V, 3.3V / 2.0×1.6, 2.5×2.0, 3.2×2.5, 5.0×3.2, 7.0×5.0mm



RoHS Compliant
PSL: R4Y MSL1

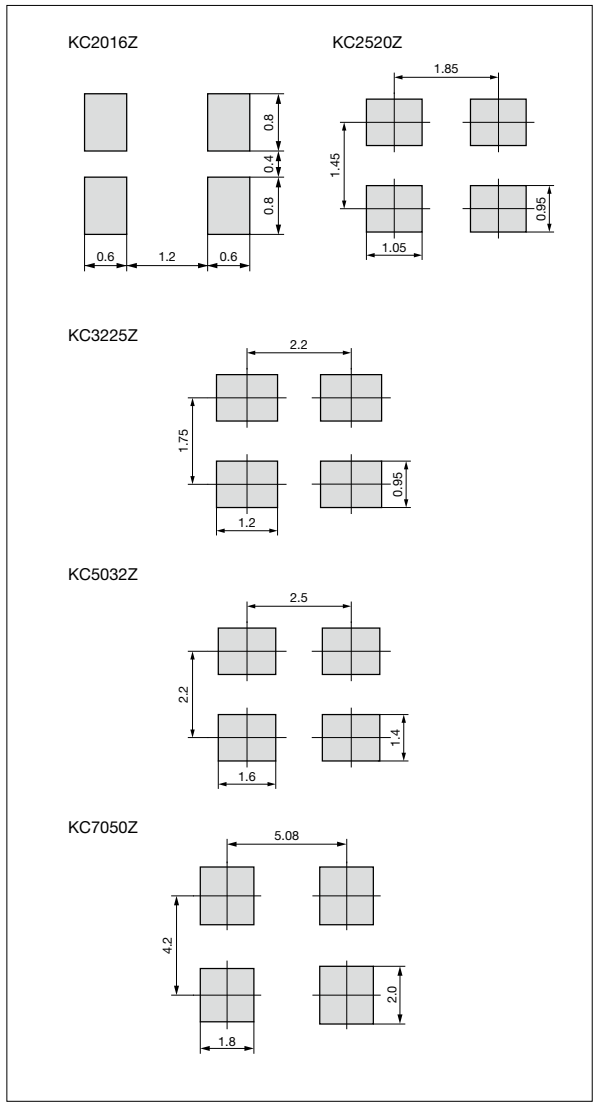
Dimensions

(Unit : mm)



Recommended Land Patterns

(Unit : mm)

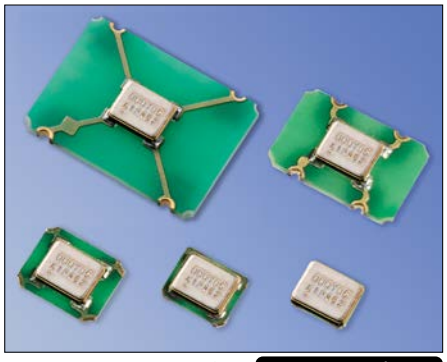


Pad Connections	
#1	Stand-by Function
#2	Case GND
#3	Output
#4	Vcc

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

Clock Oscillators
Clock Z-Series “X” type (Short LT type)

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



RoHS Compliant

PSL: R4Y MSL1

Features

- Frequency Range 0.5 to 170 MHz
- CMOS Output
- Short Lead Time
- Heat resistant up to +125°C

Applications

- Consumer • Wireless Comm. • Industrial

Table 1

Freq. Tol. Code	Freq. Tol. × 10^{-6}	Operating Temperature Range (°C)	Note
S	± 30	−10 to +70	For additional stability, please contact us.
U	± 25		
W	± 20		
G	± 50	−40 to +85	
H	± 30		
J	± 25		
K	± 20		
L	± 15		
6	± 50	−40 to +105	
5	± 30		
X	± 100	−40 to +125	
Z	± 50		
9	± 30		

How to Order

KC □□□□ Z 25.0000 C 1 □ X 00

① ② ③ ④ ⑤ ⑥ ⑦

① Series

KC2016Z	2016 Size	KC2520Z	2520 Size
KC3225Z	3225 Size	KC5032Z	5032 Size
KC7050Z	7050 Size		

② Output Frequency (25.0000 : 25MHz)

③ Output Type (C : CMOS)

④ Supply Voltage

1	1.8V/ 2.5V/ 3.3V compatible

⑤ Frequency Tolerance (See Table 1)

⑥ Symmetry/ INH Function

X	45/ 55%

⑦ Individual Specification
(STD Specification is “00”.)

Packaging Tape&Reel

KC7050Z/ KC5032Z	1000 pcs./ reel
KC3225Z/ KC2520Z/ KC2016Z	2000 pcs./ reel

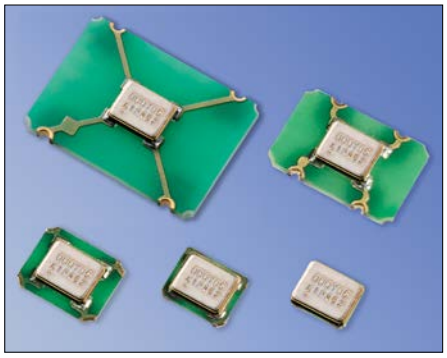
Specifications

Item	Symbol	Conditions		Min.	Max.	Unit
Output Frequency Range	fo			0.5	170	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		See Table 1.		
Storage Temperature Range	$T_{_stg}$			−55	150	°C
Operating Temperature Range	$T_{_use}$			See Table 1.		
Max. Supply Voltage	—			−0.3	4.5	V
Supply Voltage	Vcc			1.71	3.63	V
Current Consumption (Noload/ 1.71≤Vcc≤2.25)	Icc	0.5 ≤ fo<5MHz		—	5.2	mA
		5 ≤ fo<15MHz		—	5.8	
		15 ≤ fo<30MHz		—	6.2	
		30 ≤ fo<50MHz		—	6.8	
		50 ≤ fo ≤ 60MHz		—	6.8	
		60<fo<75MHz		—	9	
		75 ≤ fo<105MHz		—	10	
		105 ≤ fo<130MHz		—	10.5	
		130 ≤ fo<160MHz		—	11.5	
		160 ≤ fo ≤ 170MHz		—	12.5	
Current Consumption (Noload/ 2.25<Vcc≤2.8)	Icc	0.5 ≤ fo<5MHz		—	5.5	
		5 ≤ fo<15MHz		—	6	
		15 ≤ fo<30MHz		—	6.5	
		30 ≤ fo<50MHz		—	7.2	
		50 ≤ fo ≤ 60MHz		—	7.4	
		60<fo<75MHz		—	10	
		75 ≤ fo<105MHz		—	11.5	
		105 ≤ fo<130MHz		—	12.5	
		130 ≤ fo<160MHz		—	14	
		160 ≤ fo ≤ 170MHz		—	15	
Current Consumption (Noload/ 2.8<Vcc≤3.63)	Icc	0.5 ≤ fo<5MHz		—	5.8	
		5 ≤ fo<15MHz		—	6.5	
		15 ≤ fo<30MHz		—	7.3	
		30 ≤ fo<50MHz		—	8	
		50 ≤ fo ≤ 60MHz		—	8.5	
		60<fo<75MHz		—	12.5	
		75 ≤ fo<105MHz		—	14.5	
		105 ≤ fo<130MHz		—	15.5	
		130 ≤ fo<160MHz		—	18	
		160 ≤ fo ≤ 170MHz		—	19.5	
Stand-by Current	IST			—	5	μA
Symmetry	SYM	@50% Vcc		45	55	%
Rise/ Fall Time (20% to 80% Output Level)	Tr/ Tf	0.5 ≤ fo ≤ 60MHz	Loaded/ 1.71 ≤ Vcc ≤ 2.25	—	4	ns
			Loaded/ 2.25<Vcc ≤ 2.8	—	3	
			Loaded/ 2.8<Vcc ≤ 3.63	—	2.5	
		60<fo ≤ 170MHz	Loaded/ 1.71 ≤ Vcc ≤ 2.25	—	1.5	
			Loaded/ 2.25<Vcc ≤ 2.8	—	1.3	
			Loaded/ 2.8<Vcc ≤ 3.63	—	1	
Low Level Output Voltage	VOL	IOL = 5mA		—	10% Vcc	V
High Level Output Voltage	VOH	IOH = −5mA		90% Vcc	—	V
Output Load (CMOS)	L_CMOS			—	15	pF
Low Level Input Voltage	VIL			—	30% Vcc	V
High Level Input Voltage	VIH			70% Vcc	—	V
Disable Time	$t_{_dis}$			—	200	ns
Enable Time	$t_{_ena}$			—	5	ms
Start-up Time	$t_{_str}$	@Minimum operating voltage to be 0 sec.		—	5	ms

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

Clock Oscillators
Clock Z-Series "Y" type (Low Jitter type)

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



PSL: R4Y

RoHS Compliant

MSL1

Features

- Frequency Range 24 to 72 MHz
- CMOS Output
- Low Jitter
- Heat resistant up to +125°C

Applications

- Consumer • Wireless Comm. • Industrial

Table 3

Freq. Tol. Code	Freq. Tol. × 10^{-6}	Operating Temperature Range (°C)	Note
S	± 30	−10 to +70	For additional stability, please contact us.
U	± 25		
W	± 20		
G	± 50	−40 to +85	
H	± 30		
J	± 25		
K	± 20		
6	± 50	−40 to +105	
5	± 30		
X	± 100	−40 to +125	
Z	± 50		

How to Order

KC □□□□Z 25.0000 C 1 □ Y 00

① ② ③ ④ ⑤ ⑥ ⑦

① Series

KC2016Z	2016 Size	KC2520Z	2520 Size
KC3225Z	3225 Size	KC5032Z	5032 Size
KC7050Z	7050 Size		

② Output Frequency (25.0000 : 25MHz)

③ Output Type (C : CMOS)

④ Supply Voltage

1	1.8V/ 2.5V/ 3.3V compatible

⑤ Frequency Tolerance (See Table 3)

⑥ Symmetry/ INH Function

Y	45/ 55%

⑦ Individual Specification
(STD Specification is "00".)

Packaging Tape&Reel

KC7050Z/ KC5032Z	1000 pcs./ reel
KC3225Z/ KC2520Z/ KC2016Z	2000 pcs./ reel

Specifications

Item	Symbol	Conditions		Min.	Max.	Unit
Output Frequency Range	fo			For output frequency range, please contact us.		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		See Table 3		
Storage Temperature Range	$T_{_stg}$			−55	150	°C
Operating Temperature Range	$T_{_use}$			See Table 3		
Max. Supply Voltage	—			−0.3	4.5	V
Supply Voltage	V_{CC}			1.71	3.63	V
Current Consumption (Noload/ 1.71≤V_{CC}≤2.25)	I_{CC}	24 ≤ fo<30MHz		—	2.7	mA
		30 ≤ fo<50MHz		—	3.3	
		50 ≤ fo ≤ 60MHz		—	3.7	
		60<fo<72MHz		—	4	
Current Consumption (Noload/ 2.25<V_{CC}≤2.8)	I_{CC}	24 ≤ fo<30MHz		—	3.5	
		30 ≤ fo<50MHz		—	4	
		50 ≤ fo ≤ 60MHz		—	4.3	
		60<fo<72MHz		—	4.8	
Current Consumption (Noload/ 2.8<V_{CC}≤3.63)	I_{CC}	24 ≤ fo<30MHz		—	4	
		30 ≤ fo<50MHz		—	5	
		50 ≤ fo ≤ 60MHz		—	5.5	
		60<fo<72MHz		—	6	
Stand-by Current	I_{ST}			—	5	µA
Symmetry	SYM	@50% V_{CC}		45	55	%
Rise/ Fall Time (20% to 80% Output Level)	Tr/ Tf	Loaded/ 1.71 ≤ V_{CC} ≤ 2.25		—	4	ns
		Loaded/ 2.25<V_{CC} ≤ 2.8		—	3.2	
		Loaded/ 2.8<V_{CC} ≤ 3.63		—	2.7	
Low Level Output Voltage	V_{OL}	I_{OL} = 5mA		—	10% V_{CC}	V
High Level Output Voltage	V_{OH}	I_{OH} = −5mA		90% V_{CC}	—	V
Output Load (CMOS)	L_CMOS			—	15	pF
Low Level Input Voltage	V_{IL}			—	30% V_{CC}	V
High Level Input Voltage	V_{IH}			70% V_{CC}	—	V
Disable Time	$t_{_dis}$			—	200	ns
Enable Time	$t_{_ena}$			—	10	ms
Start-up Time	$t_{_str}$	@Minimum operating voltage to be 0 sec.		—	10	ms
1 Sigma Jitter	J_{Sigma}	Measured with Wavecrest SIA-3600C		—	5	ps
Peak to Peak Jitter	J_{PK_PK}			—	50	
Phase Jitter	—	@50MHz V_{CC} = 3.3V	BW : 12kHz to 20MHz	1		ps

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