

Voltage Controlled Crystal Oscillators (VCXO)

Surface Mount Type KV5032C-C3 Series



CMOS/ 3.3V/ 5.0×3.2mm



RoHS Compliant

Features

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

Table 1

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

How to Order

KV5032C 74.1758 C 3 0 F 00
 ① ② ③ ④ ⑤ ⑥ ⑦

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

Packaging (Tape & Reel 1000 pcs./ reel)

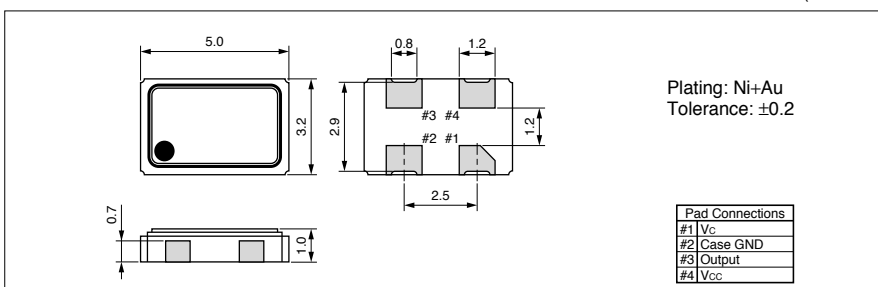
Specifications

Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range	f_o		1.5	80	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	-50	+50	$\times 10^{-6}$
		Op. Temp.: -10 to +70°C/ -40 to +85°C	-30	+30	
Absolute Pull Range	APR	$1.5 \leq f_o \leq 30$ $30 < f_o \leq 80$	± 100 ± 50	—	$\times 10^{-6}$
Control Voltage	V_C		0	+3.3	V
Storage Temperature Range	T_{stg}		-55	+125	°C
Operating Temperature Range	T_{use}	Standard Specifications Extend (Option)	-10 -40	+70 +85	°C
Max. Supply Voltage	—		-0.5	+7	V
Supply Voltage	V_{CC}		+2.97	+3.63	V
Current Consumption	I_{CC}		—	15	mA
Symmetry	SYM	@50% V_{CC}	45	55	%
Rise/ Fall Time (10% V_{CC} to 90% V_{CC})	t_r / t_f	$1.5 \leq f_o \leq 30$ $30 < f_o \leq 80$	—	8 5	ns
Low Level Output Voltage	V_{OL}		—	10% V_{CC}	V
High Level Output Voltage	V_{OH}		90% V_{CC}	—	V
CMOS Load	L_{CMOS}		—	15	pF
Input Resistance	—	Standard Specifications Extend (Option)	100k 5M	—	ohm
Start-up Time	t_{str}	@Minimum operating voltage to be 0 sec.	—	10	ms
Phase Jitter	J_{Phase}	12kHz to 20MHz @27MHz	—	1	ps
Phase Noise @27.0000MHz	—	- 70 (@10Hz offset) - 100 (@100Hz offset) - 130 (@1kHz offset) - 145 (@10kHz offset) - 152 (@100kHz offset) - 158 (@1MHz offset) - 158 (@10MHz offset)			dBc/ Hz

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

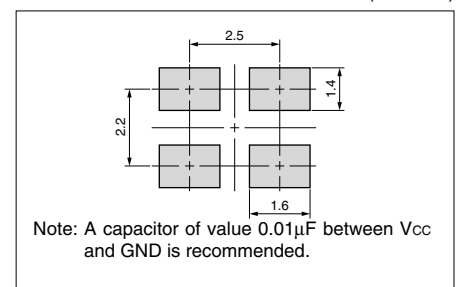
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)



Voltage Controlled Crystal Oscillators (VCXO)

Surface Mount Type KV7050A Series (VC-FXO-35F Series)



CMOS/ 3.3V/ 5.0V/ 7.0×5.0mm



RoHS Compliant

Features

- Surface mount type suitable for auto pick-and-place
- Reflow soldering compatible
- Supply voltage $V_{CC}=3.3/ 5.0V$ available
- for DTV, DVD Applications

How to Order

KV7050A 27.0000 C 3 S C 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 ($S=\pm 30 \times 10^{-6}$)
- ⑥ Symmetry (40/ 60%)
- ⑦ Customer Special Model Suffix (STD Specification is "00")

Specifications

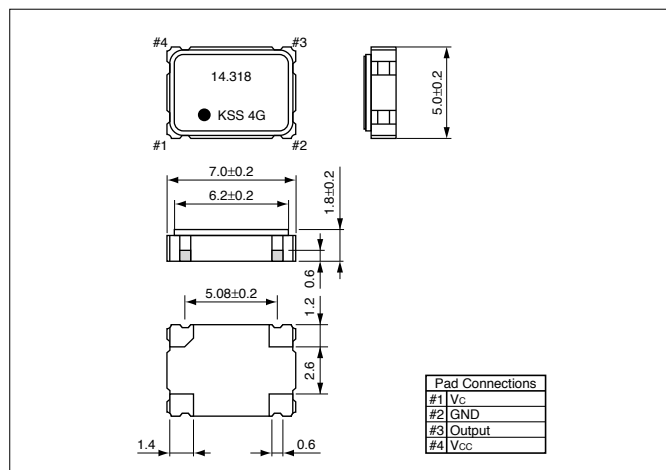
Item	Symbol	Specifications		Units
		KV7050Axx.xxxx C5SC00 (VC-FXO-35F)	KV7050Axx.xxxx C3SC00 (VC-FXO-35FL)	
Output Frequency Range	f_o	8 to 30	8 to 30	MHz
Frequency Tolerance (Overall)	f_{tol}	± 30		$\times 10^{-6}$
Storage Temperature Range	T_{stg}	-35 to +85		$^{\circ}C$
Operating Temperature Range	T_{use}	-10 to +70		$^{\circ}C$
Max. Supply Voltage	—	7 max.		V
Supply Voltage	V_{CC}	5 $\pm$ 5%	3.3 $\pm$ 5%	V
Current Consumption	I_{CC}	25 max.	20 max.	mA
Symmetry	SYM	40 to 60@50% V_{CC}		%
Rise/ Fall Time	t_r/ t_f	10 max.	15 max.	ns
Low Level Output Voltage	V_{OL}	0.5 max.		V
High Level Output Voltage	V_{OH}	90% V_{CC} min.		V
CMOS Load	L_{CMOS}	15		pF
Start-up Time	t_{str}	10 max.		ms
Voltage Control Range	f_{cont}	± 50 min.	± 50 min.	$\times 10^{-6}$
Frequency Deviation	f_{cont}	2.5V $\pm$ 2.5V	1.65V $\pm$ 1.65V	V

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

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

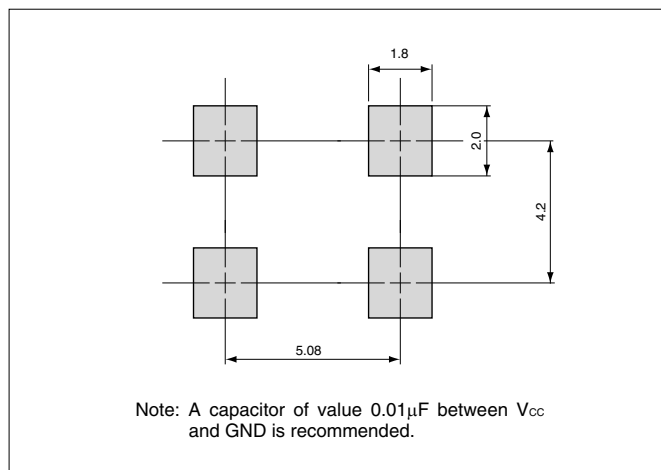
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)



Voltage Controlled Crystal Oscillators (VCXO)

Surface Mount Type KV7050B-C3 Series



CMOS/ 3.3V/ 7.0×5.0mm



RoHS Compliant

Features

- High frequency to 170MHz
- Miniature ceramic package
- Highly reliable with seam welding
- CMOS output
- Supply voltage $V_{CC}=3.3V$
- Excellent Jitter performance

Table 1

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

How to Order

KV7050B 74.1758 C 3 0 D 00
① ② ③ ④ ⑤ ⑥ ⑦

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

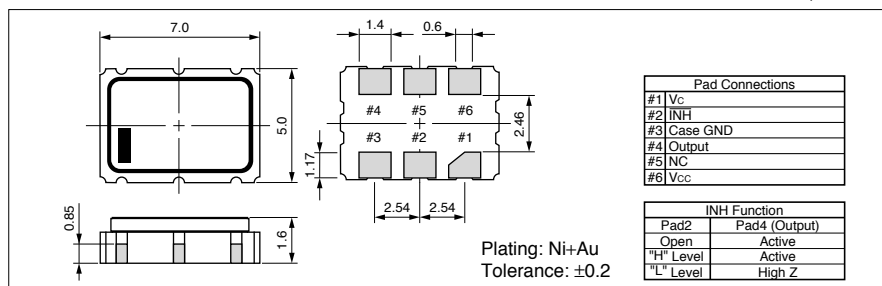
Item	Symbol	Conditions	Min.	Max.	Units
Output Frequency Range ^{Note1}	f_o		1.5	170	MHz
Frequency Tolerance ^{Note2}	f_{tol}	Initial tolerance, Operating temperature range, Rated power supply voltage change, Aging (1 year @25°C), Shock and vibration Op. Temp.: –10 to +70°C/ –40 to +85°C Op. Temp.: –10 to +70°C	–50 –30	+50 +30	$\times 10^{-6}$
Absolute Pull Range	APR	$1.5 \leq f_o \leq 30\text{MHz}$ $30 < f_o \leq 170\text{MHz}$	±100 ±50	—	$\times 10^{-6}$
Control Voltage	V_C		0	+3.3	V
Storage Temperature Range	T_{stg}		–55	+125	°C
Operating Temperature Range	T_{use}	Standard Specifications Extend (Option)	–10 –40	+70 +85	°C
Max. Supply Voltage	—	$1.5 \leq f_o \leq 80\text{MHz}$ $80 < f_o \leq 170\text{MHz}$	–0.5 –0.5	+7 +5	V
Supply Voltage	V_{CC}		+2.97	+3.63	V
Current Consumption	I_{CC}	$1.5 \leq f_o \leq 80\text{MHz}$ $80 < f_o \leq 170\text{MHz}$	— —	15 35	mA
Disable Current	I_{dis}	$1.5 \leq f_o \leq 80\text{MHz}$ $80 < f_o \leq 170\text{MHz}$	— —	10 50	mA
Symmetry	SYM	@50% V_{CC}	45	55	%
Rise/ Fall Time (10% V_{CC} to 90% V_{CC})	t_r/ t_f	$1.5 \leq f_o \leq 30\text{MHz}$ $30 < f_o \leq 80\text{MHz}$ $80 < f_o \leq 170\text{MHz}$	— — —	8 5 4	ns
Low Level Output Voltage	V_{OL}		—	10% V_{CC}	V
High Level Output Voltage	V_{OH}		90% V_{CC}	—	V
Output Load	L CMOS		—	15	pF
Input Voltage Range	V_{IN}		0	+3.3	V
Low Level Input Voltage	V_{IL}		—	30% V_{CC}	V
High Level Input Voltage	V_{IH}		70% V_{CC}	—	V
Input Resistance	—		5	—	Mohm
Disable Time	t_{dis}		—	100	ns
Enable Time	t_{ena}	$1.5 \leq f_o \leq 80\text{MHz}$ $80 < f_o \leq 170\text{MHz}$	— —	100 2	ns ms
Start-up Time	t_{str}	@Minimum operating voltage to be 0 sec.	—	10	ms
Phase Jitter	JPhase	12kHz to 20MHz @155.52MHz	—	1	ps
Phase Noise @155.52MHz	—	– 55 (@10Hz offset) – 85 (@100Hz offset) – 115 (@1kHz offset) – 130 (@10kHz offset) – 145 (@100kHz offset) – 150 (@1MHz offset) – 155 (@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.

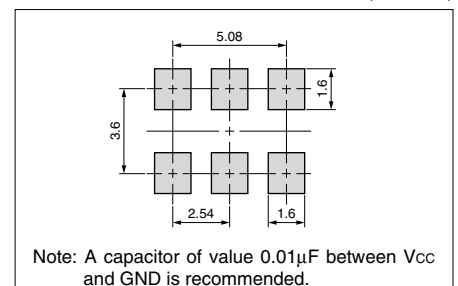
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)



Voltage Controlled Crystal Oscillators (VCXO)

Surface Mount Type KV7050C-P3 Series



CMOS/ 3.3V/ 7.0x5.0mm



RoHS Compliant

Features

- High frequency to 165MHz
- LV-PECL output
- Miniature ceramic package
- Highly reliable with seam welding
- Low Phase Noise

Table 1

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

How to Order

KV7050C 155.520 P 3 G K 00
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0x5.0mm SMD VCXO)
- ② Output Frequency
- ③ Output Type (LV-PECL)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry/ INH Function/ APR (45/ 55%, Standby, APR50)
- 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 ^{Note1}	f _o		70	165	MHz
Frequency Tolerance ^{Note2}	f _{tol}	Initial tolerance, Operating temperature range, Rated power supply voltage change, Shock and vibration			$\times 10^{-6}$
		Op. Temp.: 0 to +70°C/ -40 to +85°C	-50	+50	
		Op. Temp.: 0 to +70°C	-30	+30	
Absolute Pull Range	APR	Standard Specifications	± 50	—	$\times 10^{-6}$
		Extend (Option)	± 100	—	
Frequency Aging	f _{age}	Per 20years @25°C	-15	+15	$\times 10^{-6}$
Control Voltage	V _c		0	+3.3	V
Storage Temperature Range	T _{stg}		-55	+90	°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}		+2.97	+3.63	V
Current Consumption	I _{CC}		—	50	mA
Disable Current	I _{dis}		—	0.1	mA
Symmetry	SYM	50ohm@crossing point	45	55	%
Rise/ Fall Time (20% to 80% Output Level)	tr/ tf	50ohm	—	0.5	ns
Low Level Output Voltage ^{Note3}	V _{OL}		—	V _{CC} -1.620	V
High Level Output Voltage ^{Note3}	V _{OH}		V _{CC} -1.025	—	V
Output Load	—	LV-PECL Output		50	ohm
Input Voltage Range	V _{IN}		0	+3.3	V
Low Level Input Voltage ^{Note3}	V _{IL}		—	30% V _{CC}	V
High Level Input Voltage ^{Note3}	V _{IH}		70% V _{CC}	—	V
Input Resistance	—		5	—	Mohm
Disable Time	t _{dis}		—	200	ns
Enable Time	t _{ena}		—	2	ms
Start-up Time	t _{str}	@Minimum operating voltage to be 0 sec.	—	3	ms
Phase Jitter	J _{Phase}	12kHz to 20MHz @122.88MHz	—	0.5	ps
Phase Noise @122.88MHz	—	- 66 (@10Hz offset) - 97 (@100Hz offset) - 125 (@1kHz offset) - 141 (@10kHz offset) - 146 (@100kHz offset) - 147 (@1MHz offset) - 147 (@10MHz offset)			dBc/ Hz

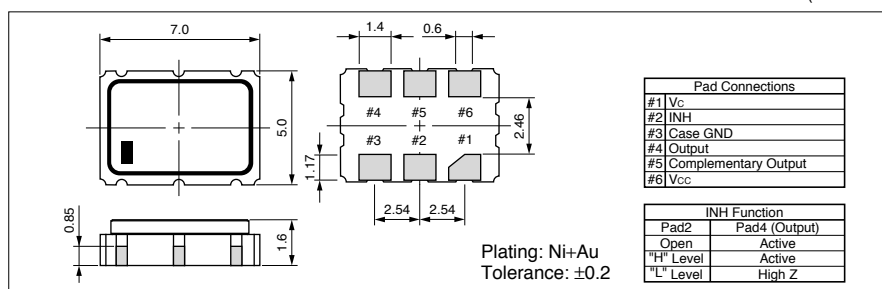
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

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

Note2: DC characteristic

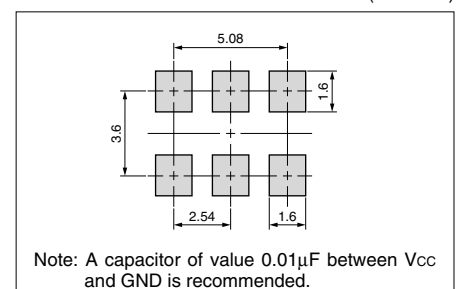
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)

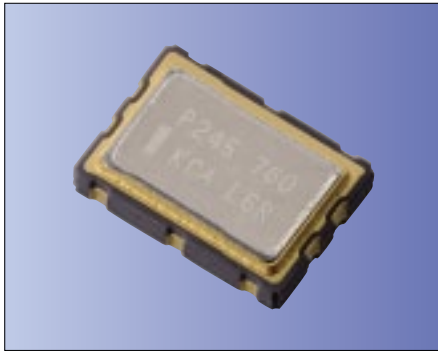


Voltage Controlled Crystal Oscillators (VCXO)

Surface Mount Type KV7050R-P3 Series



CMOS/ 3.3V/ 7.0×5.0mm



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

How to Order

KV7050R 622.080 P 3 G D 00
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0×5.0mm SMD VCXO)
- 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 ^{Note1}	f _o		10	800	MHz
Frequency Tolerance @V _c =+1.65V	f _{tol}	Initial tolerance, Operating temperature range, Rated power supply voltage change, Aging (1 year @25°C), Shock and vibration Op. Temp.: -40 to +85°C	-50	+50	$\times 10^{-6}$
Absolute Pull Range	APR		±100	—	$\times 10^{-6}$
Control Voltage	V _c		0	+3.3	V
Storage Temperature Range	T _{stg}		-55	+125	°C
Operating Temperature Range	T _{use}		-40	+85	°C
Max. Supply Voltage	—		-0.5	+4.2	V
Supply Voltage	V _{CC}		+2.97	+3.63	V
Linearity	—	V _c =0V to +3.3V	-10	+10	%
Current Consumption	I _{CC}		—	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 ^{Note2}	V _{OL}		—	V _{CC} -1.620	V
High Level Output Voltage ^{Note2}	V _{OH}		V _{CC} -1.025	—	V
Output Load	—	LV-PECL Output	—	50	ohm
Low Level Input Voltage	V _{IL}		—	30% V _{CC}	V
High Level Input Voltage	V _{IH}		70% V _{CC}	—	V
Input Resistance	—		150	—	k ohm
Start-up Time	t _{str}	@Minimum operating voltage to be 0 sec.	—	10	ms
Disable Time	t _{dis}		—	200	ns
Enable Time	t _{ena}		—	2	ms
Phase Jitter	J _{Phase}	12kHz to 20MHz @622.08MHz	—	1.0	ps
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

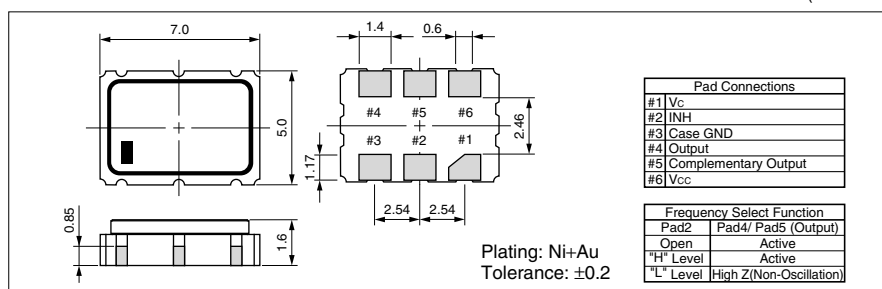
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

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

Note2: DC characteristic

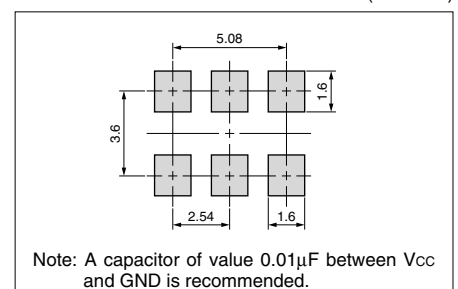
Dimensions

(Unit: mm)



Recommended Land Pattern

(Unit: mm)

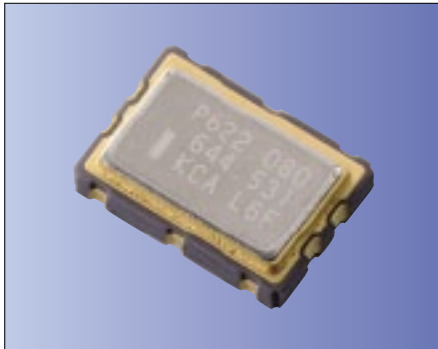


Voltage Controlled Crystal Oscillators (VCXO)

Surface Mount Type KV7050G-P3 Series Dual Selectable



CMOS/ 3.3V/ 7.0×5.0mm



RoHS Compliant

Features

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

Table 1

Freq. Tol. Code	× 10 ⁻⁶	Operating Temperature Range (°C)	Note
G	±50	-40 to +85	Standard specifications With only certain frequencies

How to Order

KV7050G 622A644 P 3 G F 00
① ② ③ ④ ⑤ ⑥ ⑦

- ① Type (7.0×5.0mm SMD VCXO)
- ② Output Frequency/ Selection Frequency
- ③ Output Type (LV-PECL)
- ④ Supply Voltage (3.3V)
- ⑤ Frequency Tolerance (See Table 1)
- ⑥ Symmetry (45/ 55%)
- 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 ^{Note1}	f1	Primary Output/ #2 "H"-Level or Open	10	800	MHz
	f2	Secondary Output/ #2 "L"-Level	10	800	MHz
Frequency Tolerance @Vc=+1.65V	f _{tol}	Initial tolerance, Operating temperature range, Rated power supply voltage change, Aging (1 year @25°C), Shock and vibration	-50	+50	×10 ⁻⁶
Absolute Pull Range	APR		±100	—	×10 ⁻⁶
Control Voltage	Vc		0	+3.3	V
Storage Temperature Range	T _{stg}		-55	+125	°C
Operating Temperature Range	T _{use}		-40	+85	°C
Max. Supply Voltage	—		-0.5	+4.2	V
Supply Voltage	Vcc		+2.97	+3.63	V
Linearity	—	Vc=0V to +3.3V	-10	+10	%
Current Consumption	Icc		—	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 ^{Note2}	VOL		—	Vcc-1.620	V
High Level Output Voltage ^{Note2}	VOH		Vcc-1.025	—	V
Output Load	—	LV-PECL Output	—	50	ohm
Low Level Input Voltage	VIL		—	30% Vcc	V
High Level Input Voltage	VIH		70% Vcc	—	V
Input Resistance	—		150	—	k ohm
Start-up Time	t _{str}	@Minimum operating voltage to be 0 sec.	—	10	ms
Phase Jitter	JPhase	12kHz to 20MHz @622.08MHz	—	1.0	ps
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

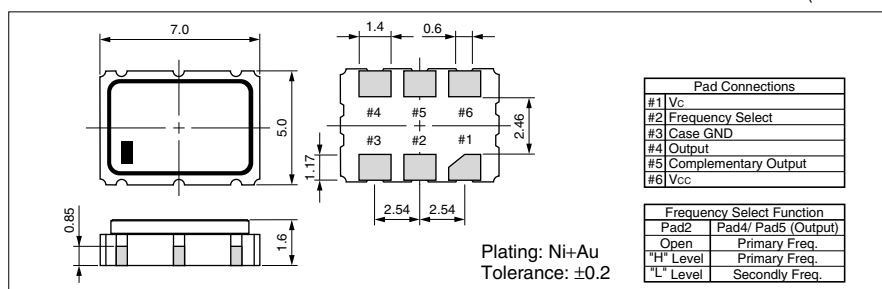
Note : All electrical characteristics are defined at the maximum load and operating temperature range.

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)

