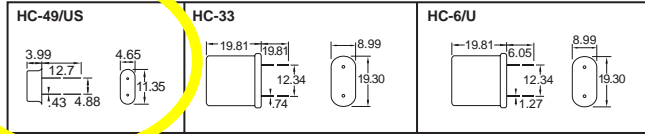




## Quartz Crystals

**ELECTRICAL CHARACTERISTICS:** • Frequency Tolerance:  $\pm 30\text{ppm}$  @  $+25^\circ\text{C}$  and  $\pm 50\text{ppm}$  over operating temp. range • Frequency Stability (Extended Temp. Version):  $\pm 100\text{ppm}$  from  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  • Shunt Capacitance:  $7.0\text{pF}$  • Drive Level:  $0.5\text{mW}$  • Operating Temp.:  $-10^\circ\text{C}$  to  $+70^\circ\text{C}$  (Extended Temperature Version:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$ ) • Storage Temp.:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  (Extended Temperature Version:  $-55^\circ\text{C}$  to  $+105^\circ\text{C}$ ) • Aging Characteristics (first year):  $\pm 5.0\text{ppm}$  @  $+25^\circ\text{C}$  • Mode of Operation: Fundamental except where noted with \* to indicate 3rd overtone

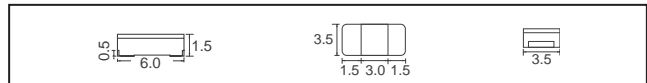


Frequency (MHz)	Load Cap.	Digi-Key Part No.	1	10	100	500	ECS Part No.
<i>HC-49/US</i>							
3.579545	17pF	X079-ND	.58	.52	.42	.37	ECS-35-17-4
3.579545	Series	X153-ND	.58	.52	.42	.37	ECS-35-S-4
3.6864	18pF	X402-ND	.58	.52	.42	.37	ECS-36-18-4
3.6864	Series	X403-ND	.58	.52	.42	.37	ECS-36-S-4
4.000	Series	X404-ND	.58	.52	.42	.37	ECS-40-S-4
4.000	20pF	X405-ND	.58	.52	.42	.37	ECS-40-20-4
4.032	20pF	X154-ND	.58	.52	.42	.37	ECS-40-3-20-4
4.032	Series	X155-ND	.58	.52	.42	.37	ECS-40-3-S-4
4.096	20pF	X156-ND	.58	.52	.42	.37	ECS-41-20-4
4.194304	12pF	X406-ND	.58	.52	.42	.37	ECS-42-12-4
4.194304	16pF	X157-ND	.58	.52	.42	.37	ECS-42-16-4
4.433618	20pF	X407-ND	.58	.52	.42	.37	ECS-44-20-4
4.9152	Series	X408-ND	.58	.52	.42	.37	ECS-49-S-4
4.9152	20pF	X409-ND	.58	.52	.42	.37	ECS-49-20-4
5.000	20pF	X410-ND	.58	.52	.42	.37	ECS-50-20-4
5.000	Series	X158-ND	.58	.52	.42	.37	ECS-50-S-4
5.0688	20pF	X411-ND	.58	.52	.42	.37	ECS-51-20-4
5.0688	Series	X159-ND	.58	.52	.42	.37	ECS-51-S-4
5.185	32pF	X064-ND	.75	.63	.50	.39	ECS-52-32-4
5.185	Series	X160-ND	.58	.52	.42	.37	ECS-52-S-4
5.9904	Series	X161-ND	.58	.52	.42	.37	ECS-59-S-4
5.9904	20pF	X162-ND	.58	.52	.42	.37	ECS-59-9-20-4
6.000	Series	X412-ND	.58	.52	.42	.37	ECS-60-S-4
6.000	32pF	X413-ND	.58	.52	.42	.37	ECS-60-32-4
6.144	32pF	X414-ND	.58	.52	.42	.37	ECS-61-32-4
6.500	20pF	X415-ND	.58	.52	.42	.37	ECS-65-20-4
7.3728	20pF	X076-ND	.75	.63	.50	.39	ECS-73-20-4
7.3728	Series	X416-ND	.58	.52	.42	.37	ECS-73-S-4
7.68	20pF	X163-ND	.58	.52	.42	.37	ECS-76.8-20-4
8.000	18pF	X164-ND	.58	.52	.42	.37	ECS-80-18-4
8.000	20pF	X165-ND	.58	.52	.42	.37	ECS-80-20-4
8.000	32pF	X166-ND	.58	.52	.42	.37	ECS-80-32-4
8.000	Series	X417-ND	.58	.52	.42	.37	ECS-80-S-4
8.500	Series	X418-ND	.58	.52	.42	.37	ECS-85-S-4
9.000	Series	X419-ND	.58	.52	.42	.37	ECS-90-S-4
9.216	Series	X167-ND	.58	.52	.42	.37	ECS-92.1-S-4
9.216	20pF	X168-ND	.58	.52	.42	.37	ECS-92.1-20-4
9.545	Series	X420-ND	.58	.52	.42	.37	ECS-95.4-S-4
9.8304	20pF	X169-ND	.58	.52	.42	.37	ECS-98.3-20-4
9.8304	Series	X421-ND	.58	.52	.42	.37	ECS-98.3-S-4
10.000	Series	X422-ND	.58	.52	.42	.37	ECS-100-S-4
10.000	18pF	X443-ND	.58	.52	.42	.37	ECS-100-18-4
10.738635	Series	X423-ND	.58	.52	.42	.37	ECS-107.3-S-4
11.000	Series	X424-ND	.58	.52	.42	.37	ECS-110-S-4
11.0592	Series	X425-ND	.58	.52	.42	.37	ECS-110.5-S-4
11.0592	20pF	X426-ND	.58	.52	.42	.37	ECS-110.5-20-4
11.0592	32pF	X170-ND	.58	.52	.42	.37	ECS-110.5-32-4
11.520	Series	X171-ND	.58	.52	.42	.37	ECS-115.2-S-4

Frequency (MHz)	Load Cap.	Digi-Key Part No.	1	10	100	500	ECS Part No.
11.98135	Series	X427-ND	.58	.52	.42	.37	ECS-119.8-S-4
12.000	20pF	X227-ND	.58	.52	.42	.37	ECS-120-20-4
12.000	32pF	X172-ND	.58	.52	.42	.37	ECS-120-32-4
12.000	Series	X428-ND	.58	.52	.42	.37	ECS-120-S-4
12.000393	18pF	X173-ND	.58	.52	.42	.37	ECS-120.003-18-4
12.096	Series	X429-ND	.58	.52	.42	.37	ECS-121-S-4
12.288	20pF	X228-ND	.58	.52	.42	.37	ECS-122.8-20-4
12.288	Series	X174-ND	.58	.52	.42	.37	ECS-122.8-S-4
12.960	18pF	X097-ND	.75	.63	.50	.39	ECS-129.6-18-4
14.31818	Series	X430-ND	.58	.52	.42	.37	ECS-143-S-4
14.31818	20pF	X444-ND	.58	.52	.42	.37	ECS-143-20-4
14.7456	Series	X431-ND	.58	.52	.42	.37	ECS-147.4-S-4
14.7456	20pF	X175-ND	.58	.52	.42	.37	ECS-147.4-20-4
15.000	Series	X432-ND	.58	.52	.42	.37	ECS-150-S-4
15.360	20pF	X096-ND	.75	.63	.50	.39	ECS-153-20-4
16.000	Series	X433-ND	.58	.52	.42	.37	ECS-160-S-4
16.000	20pF	X176-ND	.58	.52	.42	.37	ECS-160-20-4
16.000312	18pF	X177-ND	.58	.52	.42	.37	ECS-160.003-18-4
16.257	20pF	X039-ND	.75	.63	.50	.39	ECS-162.5-20-4
16.257	Series	X434-ND	.58	.52	.42	.37	ECS-162.5-S-4
18.000	Series	X435-ND	.58	.52	.42	.37	ECS-180-S-4
18.000	20pF	X178-ND	.58	.52	.42	.37	ECS-180-20-4
18.432	Series	X436-ND	.58	.52	.42	.37	ECS-184-S-4
18.432	18pF	X179-ND	.58	.52	.42	.37	ECS-184-18-4
18.432	20pF	X180-ND	.58	.52	.42	.37	ECS-184-20-4
19.6608	Series	X437-ND	.58	.52	.42	.37	ECS-196.6-S-4
19.6608	20pF	X181-ND	.58	.52	.42	.37	ECS-196.6-20-4
20.000	Series	X438-ND	.58	.52	.42	.37	ECS-200-S-4
20.000	20pF	X439-ND	.58	.52	.42	.37	ECS-200-20-4
21.47727	Series	X044-ND	.75	.63	.50	.39	ECS-214.7-S-4
22.1184	Series	X182-ND	.58	.52	.42	.37	ECS-221-S-4
24.000	Series	X440-ND	.58	.52	.42	.37	ECS-240-S-4
24.000	16pF	X441-ND	.58	.52	.42	.37	ECS-240-16-4
24.000	20pF	X442-ND	.58	.52	.42	.37	ECS-240-20-4
24.00014	18pF	X183-ND	.58	.52	.42	.37	ECS-240.001-18-4
20.480	20pF	X229-ND	.58	.52	.42	.37	ECS-204.8-20-4
24.576	20pF	X230-ND	.58	.52	.42	.37	ECS-245.7-20-4
25.000	18pF	X231-ND	.58	.52	.42	.37	ECS-250-18-4F
48.000	20pF	XC942-ND*	.58	.52	.42	.37	ECS-480-20-4
<i>HC-49/US Industrial Temperature Range</i>							
3.579545	17pF	X184-ND	.80	.72	.58	.52	ECS-35-17-4DN
3.6864	20pF	X185-ND	.80	.72	.58	.52	ECS-36-20-4DN
4.000	20pF	X186-ND	.80	.72	.58	.52	ECS-40-20-4DN
6.000	32pF	X187-ND	.80	.72	.58	.52	ECS-60-32-4DN
7.3728	20pF	X188-ND	.80	.72	.58	.52	ECS-73-20-4DN
8.000	18pF	X189-ND	.80	.72	.58	.52	ECS-80-18-4DN
12.000	20pF	X190-ND	.80	.72	.58	.52	ECS-120-20-4DN
14.31818	20pF	X191-ND	.80	.72	.58	.52	ECS-143-20-4DN
16.000	20pF	X192-ND	.80	.72	.58	.52	ECS-160-20-4DN
18.4320	20pF	X193-ND	.80	.72	.58	.52	ECS-184-20-4DN
19.6608	20pF	X194-ND	.80	.72	.58	.52	ECS-196-20-4DN
20.000	20pF	X195-ND	.80	.72	.58	.52	ECS-200-20-4DN
24.000	20pF	X196-ND	.80	.72	.58	.52	ECS-240-20-4DN
<i>HC-33</i>							
2.4576	Series	X043-ND	6.34	5.27	4.20	3.24	ECS-24-S-2
2.94912	32pF	X014-ND	1.37	1.14	.91	.70	ECS-29.4-32-2P
<i>HC-6/U</i>							
2.560	32pF	X003-ND	1.24	1.03	.82	.64	ECS-25.6-32-2P
3.640	32pF	X008-ND	1.24	1.03	.82	.64	ECS-36.4-32-2P
3.700	32pF	X012-ND	1.24	1.03	.82	.64	ECS-37-32-2P
Base Insulator		HC49INS-ND	—	.09	.08	.06	700-9001

## SMT Ultra-Low Profile Quartz Crystals

**ELECTRICAL CHARACTERISTICS:** • Mode: Fundamental • Drive Level:  $10\ \mu\text{W}$  • Frequency Tolerance:  $\pm 50\ \text{ppm}$  @  $25^\circ\text{C}$  and over operating temp. range • Frequency Stability:  $\pm 50\ \text{ppm}$  • Operating Temp. Range:  $-10^\circ\text{C}$  to  $+70^\circ\text{C}$



Frequency (MHz)	Load Cap.	Digi-Key Part No.	1	10	100	ECS Part No.
15.000	Series	XC801CT-ND	3.91	3.56	3.16	ECS-150-S-15
18.000	Series	XC804CT-ND	3.91	3.56	3.16	ECS-180-S-15
24.000	Series	XC808CT-ND	3.91	3.56	3.16	ECS-240-S-15

More Product Available Online: [www.digikey.com](http://www.digikey.com)

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