

## Introduction

Voltage controlled crystal oscillator parts from IDT need a pullable crystal to function correctly. The required characteristics of such a crystal can be found in the application note MAN05, "Using IDT's Integrated VCXO Products".

The following is a list a crystals, sorted by operating frequency, that are tested and approved by IDT for use with our VCXO parts:

- SMD Crystals
- UM1 Crystals
- HC49U Crystals

## Crystal Manufacturer Contact Information

### **Abracon**

(949) 448-7070  
F: (949) 448-8484  
[www.abracon.com](http://www.abracon.com)

### **Crystek**

941-561-3311  
F: 941-561-1025  
[www.crystek.com](http://www.crystek.com)

### **Fox Electronics**

(888) 438-2369  
Outside US: +1(239)693-0099  
F: +1(239)693-1554  
<http://www.foxonline.com>

### **Harmony**

(886 2) 2563-4232  
F: (886 2) 2521-5895  
<http://www.hele.com.tw/eindex01.asp>

### **Hosonic**

America 323-266-8329  
[www.hosonic.com/en/](http://www.hosonic.com/en/)

### **KDS**

(1) 714-641-2600  
F: (1) 714-641-2606  
[http://www.kds.info/index\\_en.htm](http://www.kds.info/index_en.htm)

### **Kitelco Co, Ltd.**

82 31 352 2870  
F: 82 31 352 2440  
<http://www.kitelco.com>

### **M-tron**

(605) 665 9321  
F: (605) 665 1709  
[www.mtron.com](http://www.mtron.com)

### **Precision Devices, Inc (PDI)**

(608)831-4445  
F: (608) 831-3343  
[www.pdixtal.com](http://www.pdixtal.com)

### **Siward**

(886 4) 2534-7909  
F: (886 4) 2533-7396  
[www.siward.com](http://www.siward.com)

## Surface Mount Crystals

Frequency (MHz)	Load Capacitance $C_L$ (pF)	Temperature Range (°C)	Manufacturer's Part Number and Package Size
11.184	14	0-70	PDI 91037B HC 49 SMD PDI 91043R 5 x 3.2mm KDS1C711184CE1A HC 49 SMD
11.456	14	0-70	PDI 91038B HC 49 SMD PDI 91044R 5 x 3.2mm KDS 1C711456CE1A HC 49 SMD
12.288	14	0-70	PDI 91029B HC 49 SMD KDS 1C712288CE1C 5 x 3.2mm HOSONIC E5FA12.2880F14B22AI 5 x 3.2mm
12.96	14	0-70	PDI 91039B HC 49 SMD PDI 91045R 5 x 3.2mm KDS 1C712960CE1A HC 49 SMD
13.5	14	0-70	PDI 91030B HC 49 SMD KDS 1C713500CE1A HC 49 SMD
16.384	14	0-70	PDI 91020B HC 49 SMD PDI 91028R 5 x 3.2mm KDS 1C716384CE1A HC 49 SMD HOSONIC E5FA16.3840F14B22AI 5 x 3.2mm
17.664	14	0-70	PDI 91041B HC 49 SMD PDI 91046R 5 x 3.2mm KDS 1C717664CE1A HC 49 SMD HOSONIC E5FA17.6640F14B22AI 5 x 3.2mm
19.44	14	0-70	PDI 91041B HC 49 SMD PDI 91047R 5 x 3.2mm KDS 1C719440CE1A HC 49 SMD HOSONIC E5FA19.4400F14B22AI 5 x 3.2mm
24.576	14	0-70	PDI 91042B HC 49 SMD PDI 91048R 5 x 3.2mm KDS 1C724576CE1G HC 49 SMD HOSONIC E5FA24.5760F14B22AI 5 x 3.2mm
25	10	0-70	FOX 278LF-25-336 HC 49 SMD PDI 15501R 5 x 3.2mm PDI 91033B HC 49 SMD

Frequency (MHz)	Load Capacitance C <sub>L</sub> (pF)	Temperature Range (°C)	Manufacturer's Part Number and Package Size
25	14	0-70	PDI 90970B HC 49 SMD KDS 1C725000CE1G HC 49 SMD HOSONIC E5FA25.0000F14B22AI 5 x 3.2mm
27	10	0-70	NDK 5032XGA 5 x 3.2mm PDI 90928R 5 x 3.2mm PDI 91034B HC 49 SMD KDS DSX530GA 5 x 3.2mm HOSONIC E5FA27.0000F10B22AI 5 x 3.2mm
27	14	0-70	PDI 91027B HC 49 SMD HOSONIC E5FA27.0000F14B22AI 5 x 3.2mm

**UM1 Crystals**

<b>Frequency (MHz)</b>	<b>Load Capacitance CL (pF)</b>	<b>Temperature Range (°C)</b>	<b>Manufacturer's Part Number</b>
11.184	14	0-70	Crystek 016792
11.456	14	0-70	Crystek 016791
12.288	14	0-70	Crystek 016790
12.352	14	0-70	Crystek 016789
12.96	14	0-70	Crystek 016788
13.248	14	0-70	Crystek 016787
13.5	14	0-70	Crystek 016786
16.384	14	0-70	Crystek 016778
17.664	14	0-70	Crystek 016785
19.44	14	0-70	Crystek 016781
24.576	14	0-70	Crystek 016783
25	14	0-70	Crystek 016784
27	14	0-70	Crystek 016782

**HC49U Crystals**

<b>Frequency (MHz)</b>	<b>Load Capacitance CL (pF)</b>	<b>Temperature Range (°C)</b>	<b>Manufacturer's Part Number</b>
8.192	16	0-70	Siward XTL001 025A-8.192-16
9.344	16	0-70	Siward XTL001 025A-9.344-1 6
9.344	14	0-70	Siward XTL001 025A-9.344-1 4
9.72	16	0-70	Siward XTL001 025A-9.72-1 6
9.72	16	0-70	Siward XTL001 025A-9.72-1 4
10.24	14	0-70	Siward XTL001 025A-1 0.24-14
10.24	14	-40 - +85	Siward XTL001 025A-1 0.24-14
11.184	14	0-70	Siward XTL001 025A-1 1.184-14
11.184	14	-40 - +85	Siward XTL001 025D-1 1.184-14
11.456	14	0-70	Siward XTL001 025A-1 1.456-14
11.456	14	-40 - +85	Siward XTL001 025D-1 1.456-14
12.288	14	0-70	Siward XTL001 025A-1 2.288-14
12.288	14	-40 - +85	M-Tron 5010-895 Siward XTL001 025D-1 2.288-14
12.288	15	-40 - +85	M-Tron 5010-895 Siward XTL001 025D-1 2.288-15
12.352	14	0-70	Siward XTL001 025A-1 2.352-14
12.352	14	-40 - +85	Siward XTL001 025D-1 2.352-14
12.96	14	0-70	Siward XTL001 025A-1 2.96-14

Frequency (MHz)	Load Capacitance CL (pF)	Temperature Range (°C)	Manufacturer's Part Number
12.96	14	-40 - +85	M-Tron 5010-896 Siward XTL001 025D-1 2.96-14
12.96	15	-40 - +85	M-Tron 5010-896 Siward XTL001 025D-1 2.96-15
13.248	14	0-70	Abracon AB-1 3.248MHz-1 4-2Y-Q1 1 Argo ARGO101304 Arum XTU 1 0AF68A01 32481400 Harmony 45-0400-11 9E ILSI ILSI-C-1010 Jen Jaan/NSK NXU13.248AD14FH Pletronics MP49472-1 3.248MHZ VITE VXA1-1124-13M248 KDS KH132486C
13.248	14	-40 - +85	Kitelco Co U13.248FH14L3
13.5	14	0-70	Arum XTU10AF68A0135001401 Jen Jaan/NSK NXU13.500AE14FO PDI HA1 3500XFSA1 4XS Siward XTL1 0050A-1 3.5-14-100
14.352	14	-40 - +85	Siward XTL001 025D-1 4.352
16.384	14	0-70	Crystek 016670 / 016830
16.384	14	-40 - +85	Crystek 016930 / 016934 Siward XTL001 025A-1 6.384
17.28	14	0-70	Siward XTL001 025A-1 7.28
17.664	14	0-70	Abracon AB-17.664MHz-14-2Y-Q11 ILSI ILSI-C-1020 Jen Jaan/NSK NXU17.664AD14FO Pletronics MP49507-1 7.664MHZ Siward XTL001 025A-1 7.664
17.664	14	-40 - +85	Ecliptek ECX-5494-17.664M Kitelco Co U17.664FH14 Siward XTL001 025D-1 7.664
18.528	14	-40 - +85	Ecliptek ECX-5600-1 8.528M

Frequency (MHz)	Load Capacitance CL (pF)	Temperature Range (°C)	Manufacturer's Part Number
19.44	14	0-70	Crystek 016819 / 016832 Siward XTL001 025A-1 9.44
19.44	14	-40 - +85	Crystek 016863 / 016864 Siward XTL001 025D-1 9.44
20	14	0-70	Ecliptek ECX-5587-20.000M
20.8333	14	0-70	Siward XTL001 025A-20.8333
20.8333	14	-40 - +85	Siward XTL001 025D-20.833-1
21.524476	14	0-70	Ecliptek ECX-5630-21 .524476M
21.812	14	0-70	Siward XTL0001 025A-21 .812-14
21	14	-40 - +85	Siward XTL0001 025D-21 .812-14
21.819	14	0-70	Ecliptek ECX-5657-21 .81 9M
22.368	14	0-70	Ecliptek ECX-561 0-22.368M
22.368	14	-40 - +85	Ecliptek ECX-561 1 -22.368M
24	14	0-70	Ecliptek ECX-5637-24.000M
24.576	14	0-70	Crystek 016820 / 01 6833
24.576	14	0-70	Siward XTL001 025A-24.576-1 4
24.576	14	-40 - +85	Crystek 016931 / 016935 Siward XTL001025D-24.576-14
24.704	14	0-70	Siward XTL001 025A-24.704-1 4
24.704	14	-40 - +85	Siward XTL001 025D-24.704-1 4

Frequency (MHz)	Load Capacitance CL (pF)	Temperature Range (°C)	Manufacturer's Part Number
25	14	0-70	Crystek 016821 / 016834 Siward XTL001 025A-25.000-1 4
25	14	-40 - +85	Crystek 016932 / 016936 Siward XTL001 025D-25.000-14
25.6	14	0-70	Siward XTL001 025A-25.600-1 4
25.6	14	-40 - +85	Siward XTL001 025D-25.600-1 4
26.496	14	0-70	Siward XTL001 025A-26.496-14
27	12	0-70	Crystek 016822 / 016935 PDI HA27000XFSA1 2XA
27	14	0-70	Crystek 016933 / 016937 PDI HA27000XFSA1 4XX Siward XTL001 025A-27.000-1 4



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