

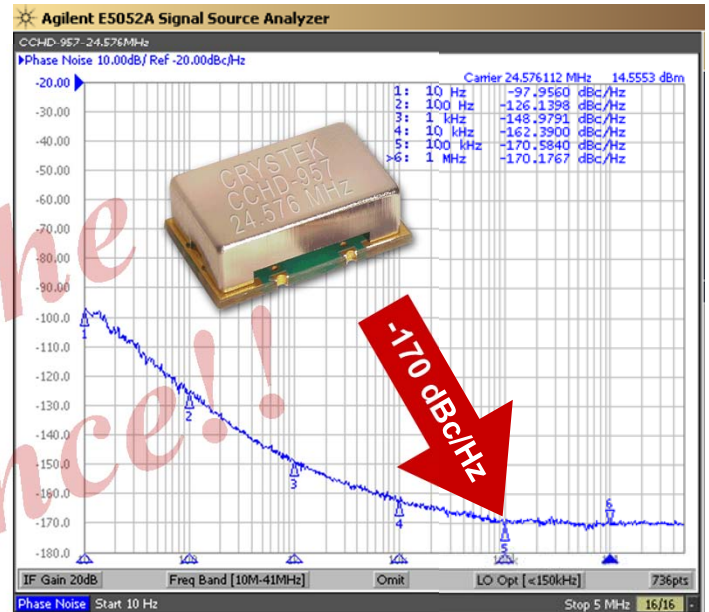
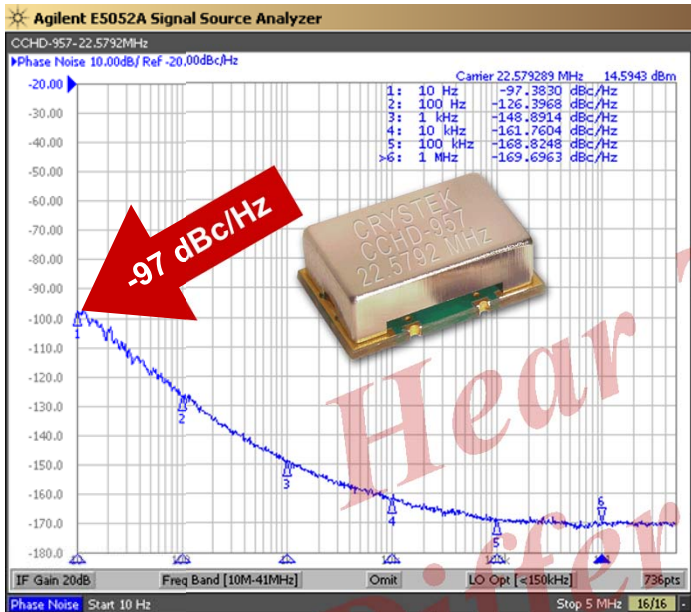
## Ultra-Low Phase Noise Oscillator with Standby Mode



**CCHD-957 Model**  
9x14 mm SMD, 3.3V, HCMOS

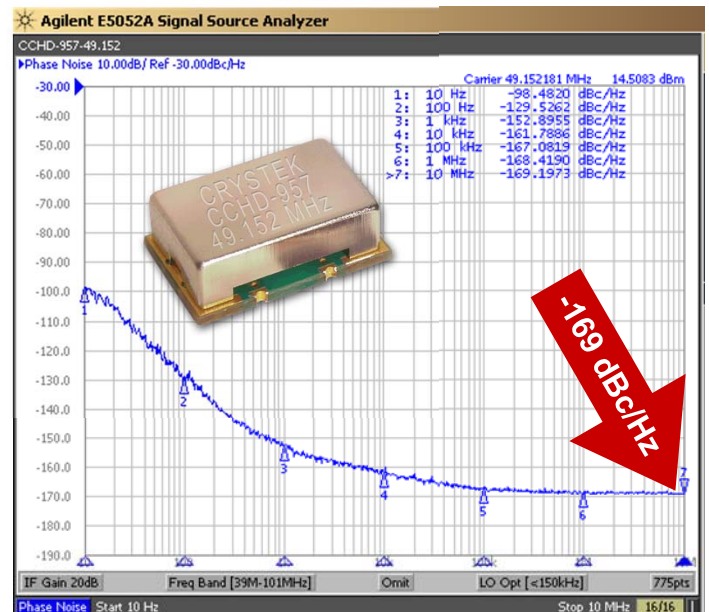
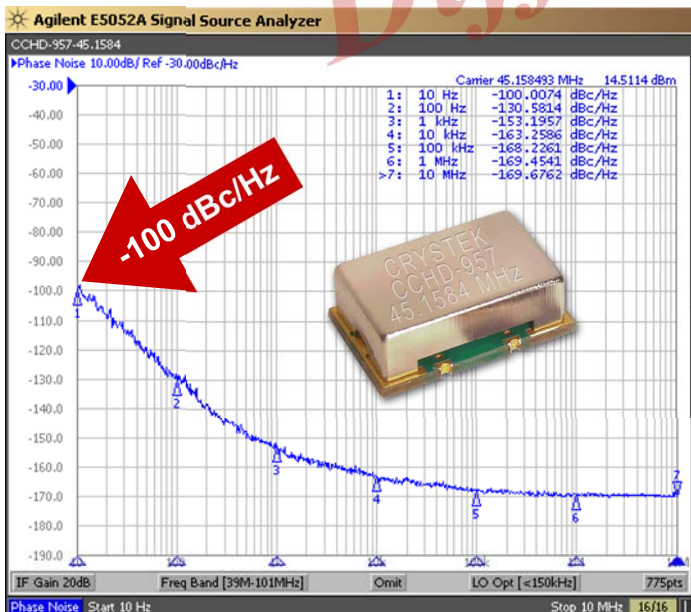
**22.5792 MHz HCMOS 3.3V**

**24.576 MHz HCMOS 3.3V**



**45.1584 MHz HCMOS 3.3V**

**49.152 MHz HCMOS 3.3V**



Crystek's Model CCHD-957 HCMOS CLOCK oscillator family has been designed specifically for High Definition Audio (HD Audio). It features a typical low close-in phase noise of -100 dBc/Hz @ 10 Hz offset, and a noise floor of -169 dBc/Hz. With this extreme low phase noise performance, you will "Hear the Difference". It also features a "Standby Function", that is, when placed in disable mode, the internal oscillator is completely shut down in addition to its output buffer being placed in Tri-State. This family is housed in a 9x14 mm SMT package and operates with a +3.3V power supply.

Applications include: Digital Audio Broadcasting (DAB)  
Professional CD audio equipment  
DACs and ADCs for HD audio

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# CCHD-957

## Ultra-Low Phase Noise Oscillator with Standby Mode



**CCHD-957 Model**  
9x14 mm SMD, 3.3V, HCMOS

<b>Frequency Range:</b>	<b>10 MHz to 50 MHz</b>
<b>Temperature Range:</b>	<b>0°C to +70°C</b>
<b>(Option M)</b>	<b>-20°C to +70°C</b>
<b>(Option X)</b>	<b>-40°C to +85°C</b>
<b>Storage:</b>	<b>-45°C to 90°C</b>
<b>Input Voltage:</b>	<b>3.3V ±0.3V</b>
<b>Input Current:</b>	<b>15mA Typical, 25mA Max</b>
<b>Input Current (Disabled Mode):</b>	<b>1.5mA Max</b>
<b>Output:</b>	<b>HCMOS</b>
<b>Symmetry:</b>	<b>45/55% Max @ 50% Vcc</b>
<b>Rise/Fall Time:</b>	<b>3nsec Max @ 20% to 80% Vcc</b>
<b>Logic:</b>	<b>"0" = 10% Vcc Max</b> <b>"1" = 90% Vcc Min</b>
<b>Load:</b>	<b>15pF</b>
<b>Output Current:</b>	<b>±24mA Max</b>
<b>Disable Time:</b>	<b>200ns Max</b>
<b>Start-up Time:</b>	<b>1ms Typical, 2ms Max</b>
<b>Pin 1 Disable Current:</b>	<b>-350µA Max</b>
<b>Phase Noise:</b>	<b>-100 dBc/Hz Typical, -95 dBc/Hz Max at 10Hz offset</b>
<b>Phase Noise Floor:</b>	<b>-169 dBc/Hz Typical, -165 dBc/Hz Max</b>
<b>Sub-harmonics:</b>	<b>None</b>
<b>Aging:</b>	<b>&lt;3ppm 1<sup>st</sup> year, &lt;1ppm thereafter</b>
<b>CCHD-957 Options:</b>	
<b>Temperature Range:</b>	<b>0°C to +70°C (±20ppm, ±25ppm, ±50ppm)</b> <b>-20°C to +70°C (±25ppm, ±50ppm)</b> <b>-40°C to +85°C (±25ppm, ±50ppm)</b>

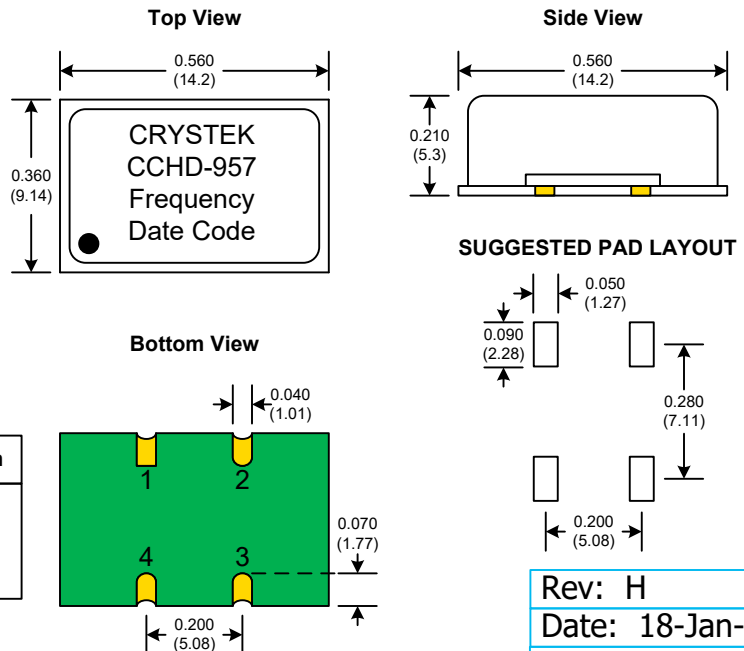
**Part Number Example:**  
CCHD-957X-25-49.152 = 3.3V, 45/55, -40°C to +85°C (±25ppm), 49.152 MHz

<b>Mechanical:</b>	
Shock:	MIL-STD-883, Method 2002, Condition B
Solderability:	MIL-STD-883, Method 2003
Vibration:	MIL-STD-883, Method 2007, Condition A
Solvent Resistance:	MIL-STD-202, Method 215
Resistance to Soldering Heat:	MIL-STD-202, Method 210, Condition I or J
<b>Environmental:</b>	
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883, Method 1004

Developed Frequencies
22.5792 MHz
24.576 MHz
45.1584 MHz
49.152 MHz



**RECOMMENDED REFLOW SOLDERING PROFILE**  
900034 (See App Note listed on website)  
<http://www.crystek.com/specification/reflow/900034.pdf>



**SUGGESTED PAD LAYOUT**

Tri-State/Standby Function	
Function pin 1	Output pin
Open	Active
"1" level 0.7×Vcc Min	Active
"0" level 0.3×Vcc Max	High Z

Pad	Connection
1	E/D
2	GND
3	OUT
4	Vcc

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Specifications subject to change without notice.