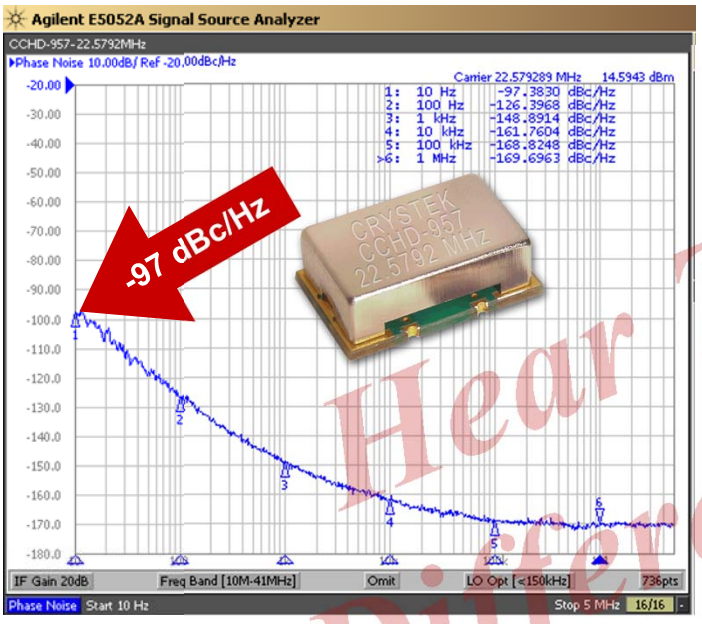
# CCHD-957 FEMTO Clock Ultra-Low Phase Noise Oscillator with Standby Mode

**CRYSTEK CRYSTALS**
A Division of Crystek Corporation

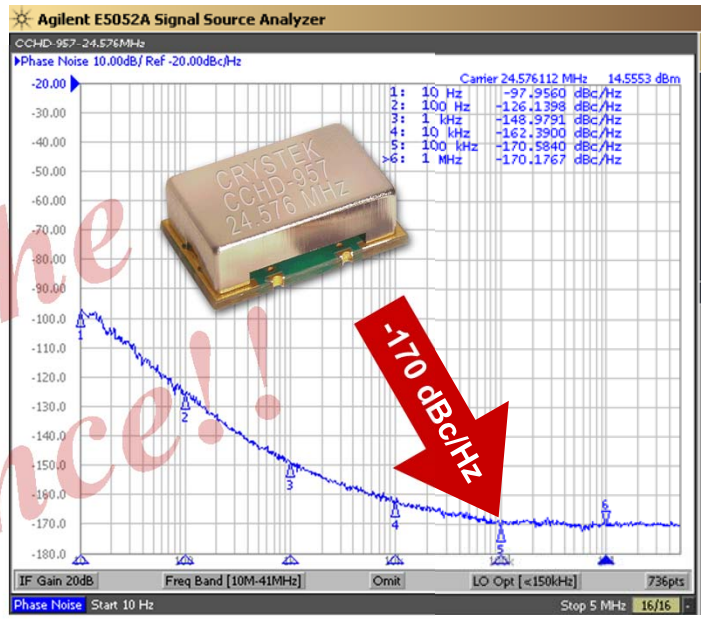
**CCHD-957 Model**
9×14 mm SMD, **3.3V, HCMOS**

RoHS Compliant

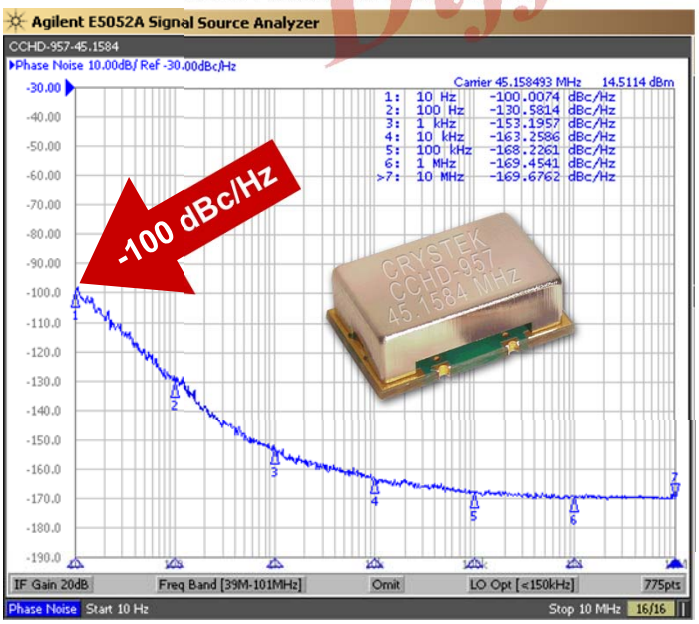
**22.5792 MHz HCMOS 3.3V**



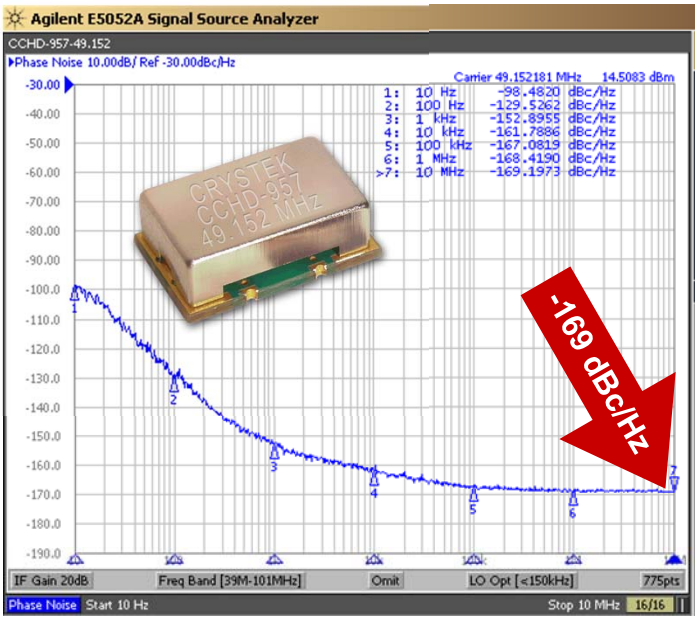

**24.576 MHz HCMOS 3.3V**




**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 9×14 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**

| |
|---|
| Rev: M |
| Date: 25-Jan-2023 |
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# CCHD-957 FEMTO Clock Ultra-Low Phase Noise Oscillator with Standby Mode

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A Division of Crystek Corporation

## CCHD-957 Model
9×14 mm SMD, **3.3V, HCMOS**

RoHS Compliant

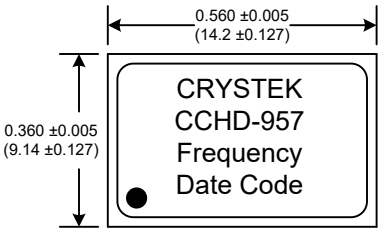
| | |
|---|---|
| **Frequency Range:** | **10 MHz to 50 MHz** |
| **Temperature Range:** | **0°C to +70°C** |
| **(Option M)** | **-20°C to +70°C** |
| **(Option X)** | **-40°C to +85°C** |
| **Storage:** | **-45°C to 90°C** |
| **Input Voltage:** | **3.3V ±0.3V** |
| **Input Current:** | **15mA Typical,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

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

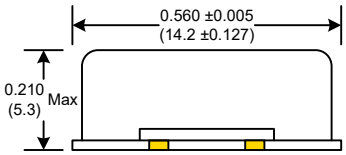
| **Mechanical:** | |
|---|---|
| Shock: | MIL-STD-883, Method 2002, Condition B |
| Solderability: | MIL-STD-883, Method 2003 |
| Vibration: | MIL-STD-883, Method 2007, Condition A |
| Solvent Resistance: | MIL-STD-202, Method 215 |
| Resistance to Soldering Heat: | MIL-STD-202, Method 210, Condition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

| Developed Frequencies | | |
|---|---|---|
| 10.000 MHz | 24.576 MHz | 40.000 MHz |
| 20.000MHz | 25.000 MHz | 45.1584 MHz |
| 22.5792 MHz | 27.000 MHz | 49.152 MHz |
| 24.000 MHz | 28.000 MHz | |

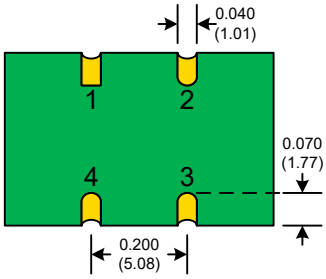

**Top View**



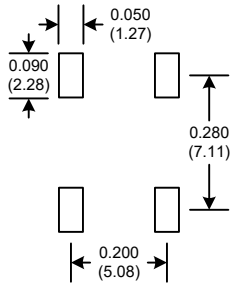

**Side View**




**Bottom View**




**SUGGESTED PAD LAYOUT**




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

| **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 |

**PAD FINISH:** Immersion Gold (ENIG); 5 micro inches maximum

Rev: M
Date: 25-Jan-2023

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Authorized Distributor

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CCHD-957-25-22.5792 CCHD-957-25-24.576 CCHD-957-25-45.1584 CCHD-957-25-49.152 CCHD-957X-25-49.152