

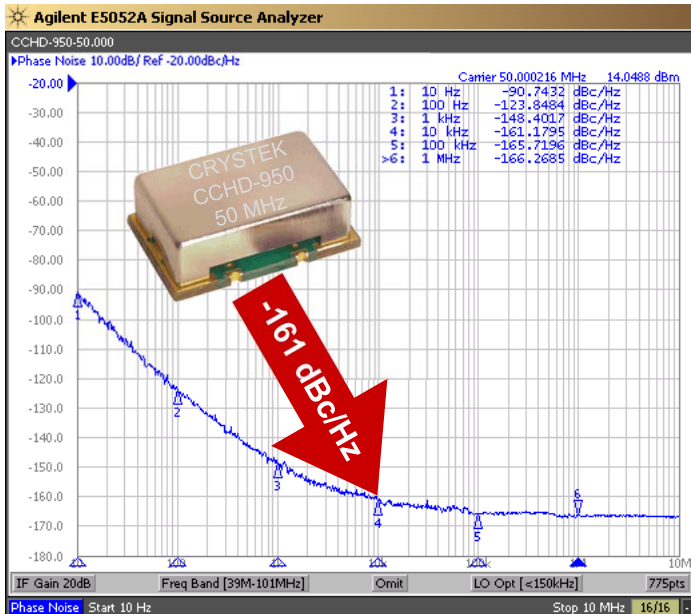
# CCHD-950

## Ultra-Low Phase Noise Oscillator

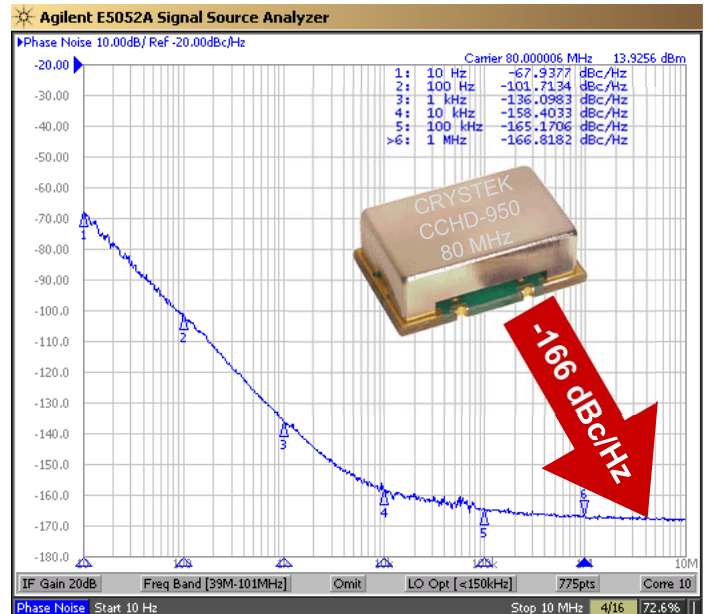


**CCHD-950 Model**  
9×14 mm SMD, 3.3V, HCMOS

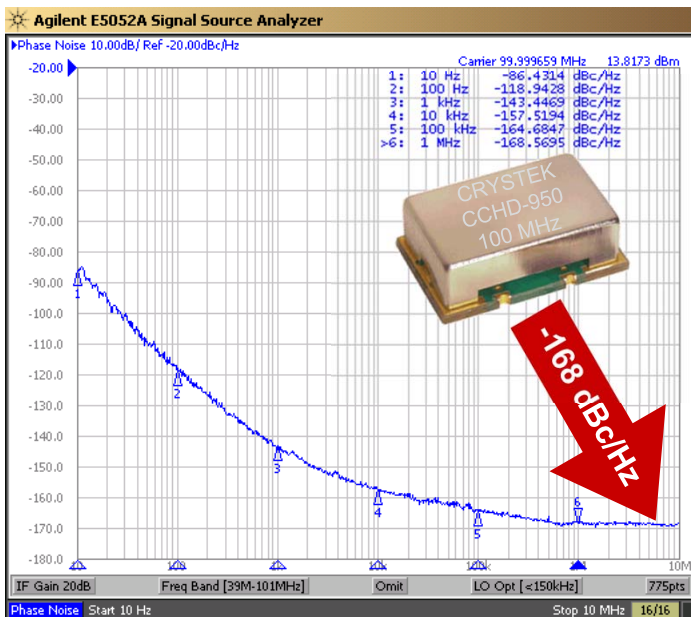
**50 MHz HCMOS 3.3V**



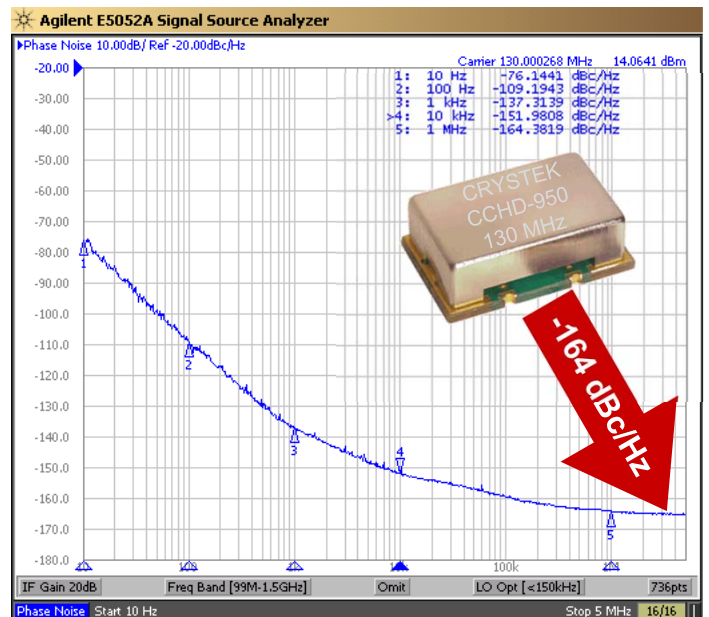
**80 MHz HCMOS 3.3V**



**100 MHz HCMOS 3.3V**



**130 MHz HCMOS 3.3V**



Model CCHD-950 is a 45 MHz to 130 MHz HCMOS Clock Oscillator. High Q crystal and 3<sup>rd</sup> overtone technology provides Ultra-Low Phase Noise and Low-Jitter performance with an HCMOS output. Features include -165 dBc/Hz phase noise floor with 3.3 Vdc input voltage, -40°C to +85°C operating temperature, and 9×14 mm SMT package. The oscillator has no sub-harmonics.

Applications include High Definition TV, Avionics  
Low Phase Signal Sources, and Test and Measurement.

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# CCHD-950

## Ultra-Low Phase Noise Oscillator



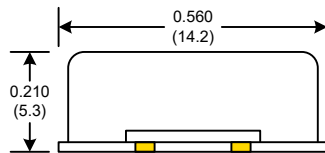
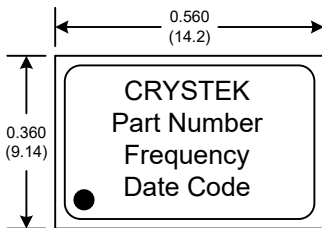
**CCHD-950 Model**  
9x14 mm SMD, 3.3V, HCMOS

**Frequency Range:** 45 MHz to 130 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  
**Output:** HCMOS  
 Symmetry: 45/55% Max @ 50% Vdd  
 Rise/Fall Time: 3ns Max @ 20% to 80% Vdd  
 Logic: "0" = 10% Vdd Max  
 "1" = 90% Vdd Min  
 Load: 15pF  
 Output Current: ±24mA Max  
**Phase Jitter (12kHz~20MHz):** 40 fs Typical @ 100MHz  
**Phase Noise Typical:** See plots  
**Phase Noise Floor:** -165 dBc/Hz Typical, -160 dBc/Hz Max  
**Sub-harmonics:** None  
**Aging:** <3ppm 1<sup>st</sup> year, <1ppm thereafter

**CCHD-950 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)

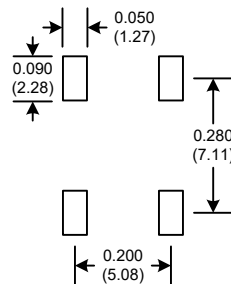
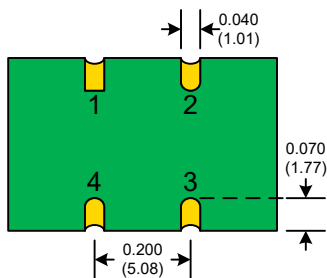
**Part Number Example:**  
 CCHD-950X-25-100.000 = 3.3V, 45/55, -40°C to +85°C (±25ppm), 100 MHz

|                               |                                           |
|-------------------------------|-------------------------------------------|
| <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                  |



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

**SUGGESTED PAD LAYOUT**



| Pad | Connection |
|-----|------------|
| 1   | NC         |
| 2   | GND        |
| 3   | OUT        |
| 4   | Vdd        |

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

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Specifications subject to change without notice.