

5.0 x 3.2 x 1.2mm 6 pad SMD

DESCRIPTION

- Femtosecond integrated phase jitter (300fs typical)
- Ultra-low phase noise -138dBc/Hz at 10kHz
- High performance with surprisingly low price
- Supply voltage 2.5 or 3.3 Volts

SPECIFICATION

Frequency Range:	10.0MHz to 220.0MHz (3.3V supply) 13.5MHz to 220.0MHz (2.5V supply)
Output Logic	Differential LVDS square wave
Phase Noise:	See table
Frequency Stability:	See table
Operating Temp Range	
Commercial:	-10° to +70°C
Industrial:	-40° to +85°C
Input Voltage:	+2.5V or +3.3VDC ±5%
Output Voltage	
High '1':	1.43V typ., 1.6V max., RL = 100Ω
Low '0':	0.9V min., 1.1V typ., RL = 100Ω
Output Swing:	250mV minimum, 350mV typical 450mV max., RL = 100Ω
Load:	100Ω between outputs
Rise/Fall Times:	0.2ns typical, 0.4ns typical. (from 20% Vdd to 80% Vdd)
Duty Cycle:	50±5% (measured at 50% waveform)
Current Consumption:	16mA typical, 27mA maximum
Enable/Disable (Pad 1)	
Enable:	No connection or min. 70% Vdd is applied to pad 1.
Disable:	30% Vdd max. applied to pad 1. Output: internal pull-up. Oscillation enable time is 2ms max.
Start-up Time:	3ms typ., 10ms max.
Phase Jitter (RMS):	200fs typical (12kHz to 20MHz integrated)
Ageing:	±3ppm per year max., ±2ppm thereafter. At T amb +25°C
Packaging:	16mm tape, 8.0mm pitch. 180mm dia. reel, 1000 pieces per reel.

ABSOLUTE MAXIMUM RATINGS

(Permanent damage may be caused if operated beyond these limits.)

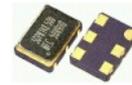
Supply Voltage:	Vss -0.5V min., 5.0V max.
Input Voltage:	Vss -0.5V min., Vdd +0.5V max.
Output Voltage:	Vss -0.5V min., Vdd +0.5V max.

TYPICAL PHASE NOISE (125.0MHz)

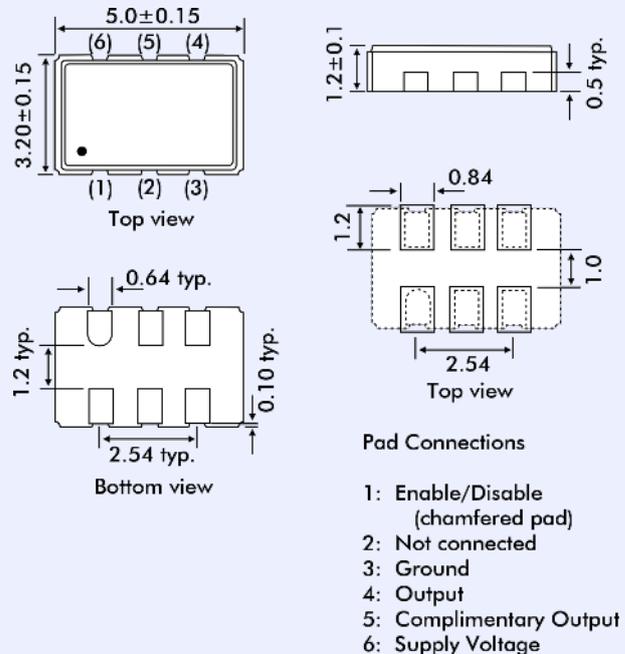
Offset	10Hz	100Hz	1kHz	10kHz	100kHz	1MHz	10MHz
dBc/Hz	-60	-90	-120	-138	-144	-149	-152

STABILITY OVER TEMPERATURE RANGE

Stability ±ppm	Temperature Range °C	Order Code
25	-10 to +70	A
50	-10 to +70	B
100	-10 to +70	C
25	-40 to +85	D
50	-40 to +85	E
100	-40 to +85	F



OUTLINE & DIMENSIONS



ENVIRONMENTAL PERFORMANCE SPECIFICATION

'Green' Requirements:	RoHS 6/6 (2002-95/EC) and WEEE (2002/96/EC) Compliant
MSL Level:	Level 1 per IPC/JEDEC J-STD-020D.1
Storage Temperature Range:	-55°C to +125°C
Humidity:	85% RH, 85°, 48 hours
Hermetic Seal:	Leak rate 2*10 ⁻⁸ Atm-cm ³ /sec. max.
Solderability:	MIL-STD-202F Method 208E
Reflow:	260°C for 10sec. max., 2 times max.
Vibration:	MIL-STD-202F Method 204, 35g 50 to 2000Hz
Shock:	MIL-STD-202F Method 213B test condition E, 1000g, ½ sine 2kV max. Human body model
ESD Protection:	Gold (Au) (0.3~1.0µm) on Nickel (Ni) (1.27~8.89µm)
Contact pad surface finish:	
Weight per unit:	180mg typical

PART NUMBERS

HDK5361 oscillator part numbers are derived as follows:
Example: 25HDK5361-A-155.520

