

DESCRIPTION

- Femtosecond integrated phase jitter (200fs typical)
- Ultra-low phase noise -135dBc/Hz at 10kHz
- High performance with surprisingly low price
- Supply voltage 1.8V, 2.5 or 3.3 Volts
- No PLL artifacts

SPECIFICATION

Frequency Range:	13.5MHz to 220.0MHz
Output Logic:	Differential HCSL 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:	+1.8V, +2.5V±5% or +3.3VDC±10%
Output Voltage 3.3V	
High '1':	550mV min. 850mV max
Low '0':	-150mV min. +150mV max
Output Swing:	600mV minimum
Load:	50Ω to ground, each output
Rise/Fall Times:	0.3ns typical, 0.6ns Max. (from 20% Vdd to 80% Vdd)
Duty Cycle:	50±5% (measured at VDD -1.25V)
Current Consumption	
1.8V <90MHz:	17mA typical, 27mA maximum
2.5V 90.1 >160MHz:	29mA maximum
3.3V 160.1 <200MHz:	30mA maximum

Enable/Disable (Pad 1)

Enable:	70% min of Vdd to enable output
applied to pad 1.	Enable time: 10mS max
Disable:	30% Vdd max. to disable output
	Disable Current: 10μA (OE≤0.3V)
	Disable time: 0.2μS max

Start-up Time:	5ms 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

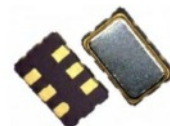
(Permanent damage may be caused if operated beyond these limits.)	
Supply Voltage:	Vss -0.5V min., 3.3V max.
Input Voltage:	Vss -0.5V min., Vdd +0.5V max.
Input Voltage:	Vss -0.5V min., Vdd +0.5V max.

TYPICAL PHASE NOISE (156.25MHz)

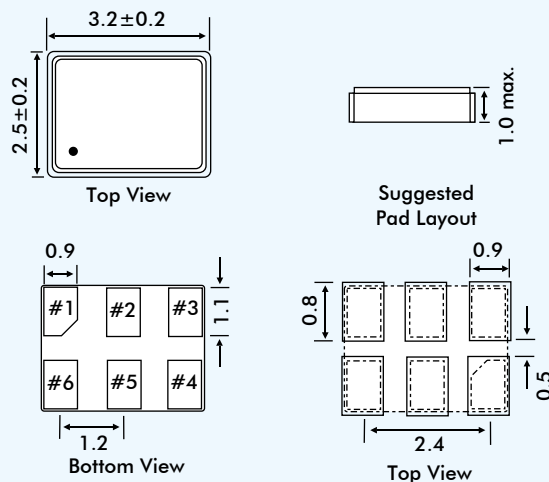
Offset	10Hz	100Hz	1kHz	10kHz	100kHz	1MHz
dBc/Hz	-50	-80	-115	-135	-142	-147

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



Pad Connections

- 1 OE
- 2 No connection
- 3 Ground
- 4 Output
- 5 Complimentary Output
- 6 Supply Voltage

ENVIRONMENTAL PERFORMANCE

'Green' Requirements:	RoHS 2 (2011/65/EU) 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, 1/2 sine
ESD Protection:	2kV max. Human body model
Contact pad surface finish:	Gold (Au) (0.3~1.0μm) on Nickel (Ni) (1.27~8.89μm)
Weight per unit:	160mg typical

PART NUMBERS

HCK5361 oscillator part numbers are derived as follows:
Example: 25HCK3261-A-155.520

