

### DESCRIPTION

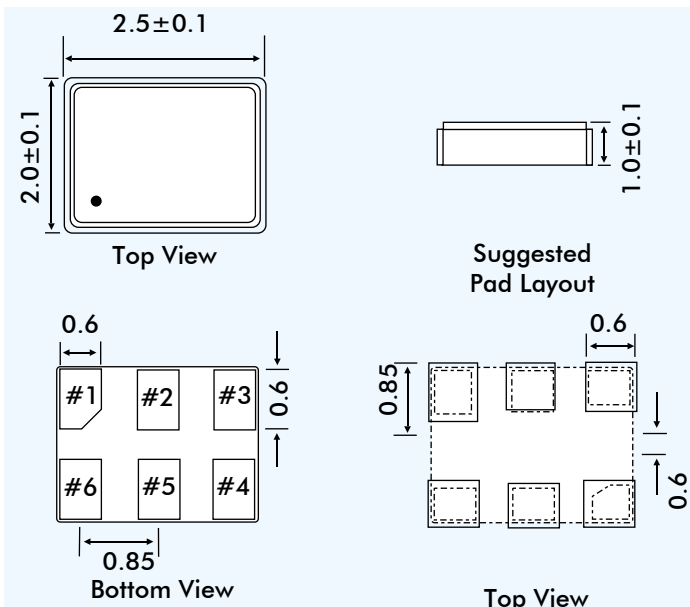
- Femtosecond integrated phase jitter (200fs typical)
- Ultra-low phase noise -138dBc/Hz at 10kHz
- High performance with surprisingly low price
- Supply voltage 2.5 or 3.3 Volts



### SPECIFICATION

Frequency Range:	13.5MHz to 220.0MHz
Output Logic	Differential PECL 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 ±5% or +3.3VDC ±10%
Output Voltage	
HIGH '1':	Vdd - 1.03V min., Vdd - 0.6V max.
LOW '0':	Vdd - 1.85V min., Vdd - 1.6V max. (RL = 50Ω to Vcc - 2.0V)
Output Swing:	595mV min., 750mV typ., 930mV max.
Load:	50Ω into Vcc-2V or Thevenin equivalent. Terminating resistors required on all outputs.
Rise/Fall Times:	2.5V: 0.3nsec typ., 0.6nsec max. 3.3V: 0.2nsec typ., 0.4nsec max.
Duty Cycle:	50±5% (measured at 50% waveform)
Current Consumption:	30mA typical, 50mA maximum
Start-up Time:	5ms typ., 10ms max.
Integrated Phase Jitter:	0.2ps typical; 0.5ps maximum for 156.250MHz (12kHz to 20MHz)
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.

### OUTLINE & DIMENSIONS



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

Note: HPK2261 shown above; HPK2262 has Pad 2 = Enable/Disable and Pad 1 No Connection.

### ENABLE/DISABLE (TRISTATE) FUNCTION

The Enable/Disable function may be on Pad 1 or Pad 2

**HPK2261 = Enable/Disable control on Pad 1**  
**HPK2262 = Enable/Disable control on Pad 2**

<b>NO CONNECTION</b>	Differential and Complimentary outputs enabled.
<b>DISABLE</b>	Both outputs are disabled (high impedance) when Control Pad is taken below 0.45*Vcc referenced to Ground (threshold). Oscillator is always ON. Only the buffer stage is disabled.
<b>ENABLE</b>	Both outputs are enabled when Control Pad is taken above 0.45*Vcc referenced to Ground (threshold). Enable time 10ns + 1 period of output frequency maximum.

### TYPICAL PHASE NOISE (62.5MHz)

Offset	10Hz	100Hz	1kHz	10kHz	100kHz	1MHz
dBc/Hz	-50	-82	-116	-138	-144	-149

### TYPICAL PHASE NOISE (156.250MHz)

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	<b>A</b>
50	-10 to +70	<b>B</b>
100	-10 to +70	<b>C</b>
25	-40 to +85	<b>D</b>
50	-40 to +85	<b>E</b>
100	-40 to +85	<b>F</b>

\* Custom frequency stability is available; e.g. for +/-20 ppm over -10 to +60°C use 'C' for custom, i.e. C20.  
 Storage Temperature: -55°C to +150°C

### PART NUMBERS

HPK5361 oscillator part numbers are derived as follows:  
 Example: 25HPK2261-A-155.520

