EUROQUARTZ

HPK5361 PECL OSCILLATORS

5 x 3.2 x 1.2mm 6 pad SMD — 13.50MHz to 200.0MHz

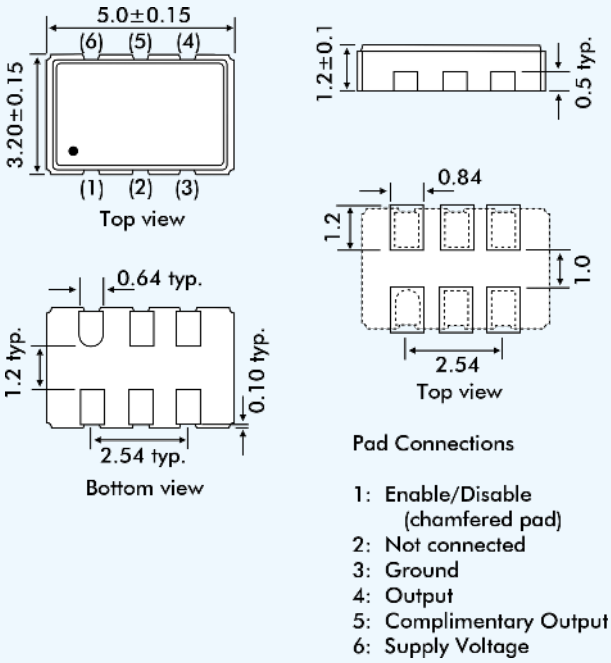
DESCRIPTION

- **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 200.0MHz
Output Logic	Differential LVPECL 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 ±5%
Output Voltage	
HIGH '1':	Vcc -1.025V min., Vcc -0.95V typ., Vcc -0.88V max., 50Ω to Vdd-2V.
LOW '0':	Vcc -1.810V min., Vcc -1.70V typ., Vcc -1.621V max., 50Ω to Vdd -2V. (RL = 50Ω to Vcc -2.0V)
Output Swing:	400mV minimum (VDD = +3.3V) 200mV minimum (VDD = +2.5V)
Load:	50Ω into Vcc-2V or Thevenin equivalent. Terminating resistors required on all outputs.
Rise/Fall Times:	0.3ns typical, 0.5ns maximum. (from 20% Vdd to 80% Vdd)
Duty Cycle:	50±5% (measured at 50% waveform)
Current Consumption:	30mA typical, 50mA maximum
Start-up Time:	3ms 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



Note: HPK5361 shown above; HPK5362 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

HPK5361 = Enable/Disable control on Pad 1
HPK5362 = Enable/Disable control on Pad 2

NO CONNECTION	Differential and Complimentary outputs enabled.
DISABLE	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.
ENABLE	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 (125.0MHz)

Offset	10Hz	100Hz	1kHz	10kHz	100kHz	1MHz	10MHz
dBc/Hz	-70	-105	-128	-140	-145	-147	-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**

* Custom frequency stability is available; e.g. for +/-20 ppm over -10 to +60°C use 'C' for custom, I.e. C20.

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., Vcc +0.5V max.
Input Voltage:	Vss -0.5V min., Vcc +0.5V max.

EUROQUARTZ LIMITED Blacknell Lane CREWKERNE Somerset UK TA18 7HE
Tel: +44 (0)1460 230000 Fax: +44 (0)1460 230001 info@euroquartz.co.uk www.euroquartz.co.uk

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-cm³/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
ESD Protection:	2kV max. Human body model
Contact pad surface finish:	Gold (Au) (0.3~1.0μm) on Nickel (N) (1.27~8.89μm)
Weight per unit:	180mg typical

PART NUMBERS

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