

## Differential HCSL (non PLL)

7 x 5 x 1.8mm SMD

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### FEATURES

- Femto second integrated phase jitter (200fs typical)
- Superior phase noise (-138dBc/Hz @ 10kHz -144dBc/Hz @ 100kHz)
- High performance and low price
- 2.5V or 3.3V supply voltage



### DESCRIPTION

HCK5761 series oscillators provide a high quality HCSL differential outputs at frequencies from 13.5MHz to 220.0MHz. Low Phase jitter 200fs typical. Power supply voltage +2.5 or +3.3 Volts.



### SPECIFICATION

Model:	HCK5761
Output Logic:	High Speed Current Steering Logic (HCSL)
Frequency Range:	13.5MHz to 220.0MHz
Supply Voltage Vdd:	+2.5VDC±5% or +3.3VDC±5%
Supply Voltage Code:	2.5V = '25', 3.3V = '33'
Output Logic HIGH, '1' V <sub>OH</sub> :	660mV min., 740mV typ., 850mV max.
Output Logic LOW, '0' V <sub>OL</sub> :	-150mV min., 0mV typ., 150mV max.
Output Voltage Swing	620mV min., 700mV typ., 780mV max.
Load:	50Ω to ground on each output
Rise Time/Fall Time:	0.15ns typ., 0.4ns max. (20% ↔ 80% of HCSL wavef.)
Start-up Time:	5ms typ., 10ms max.
Duty Cycle:	50%±5% measured at 1.25V

### PHASE NOISE

Offset	Frequency 155.250MHz
10Hz	-50 dBc/Hz
100Hz	-80 dBc/Hz
1kHz	-115 dBc/Hz
10kHz	-135 dBc/Hz
100kHz	-142 dBc/Hz
1MHz	-147 dBc/Hz
10MHz	-152 dBc/Hz

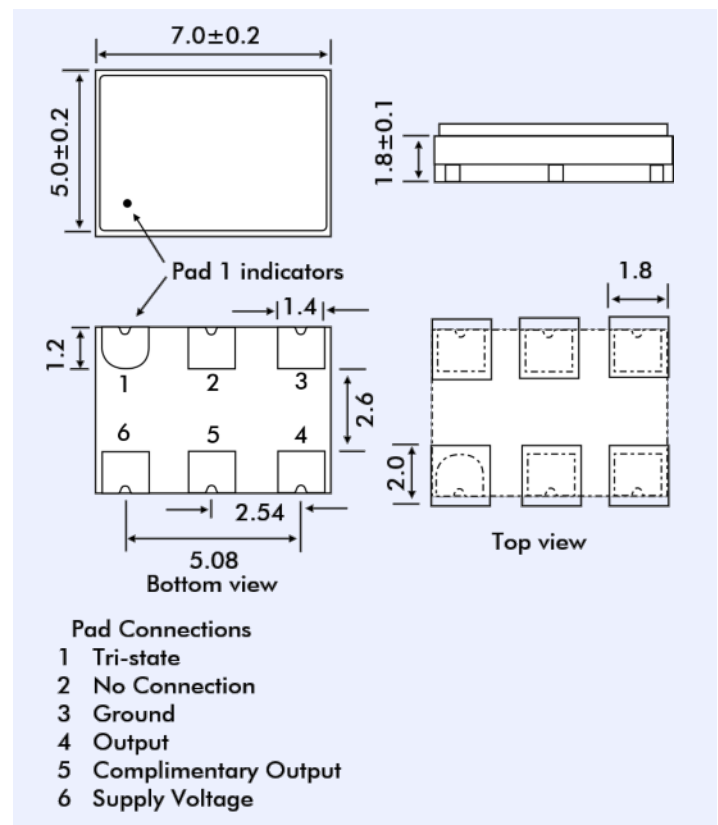
### GENERAL SPECIFICATION

Frequency Stability:	From ±25ppm over -40° to +85°C (See part number table)
Ageing at 25°C:	±3ppm max. in first year, ±2ppm per year thereafter
Storage temperature:	-55° to +105°C
Enable/Disable (Tristate)	
No connection:	Differential output waveform and complimentary waveform enabled.
Disable:	Both outputs disabled (high impedance) when Pad 1. is taken below 0.45Vcc reference to ground. Oscillator is always ON, only output buffer stage is disabled
Enable:	When disabled, both outputs are enabled when Pad 1. is taken above 0.45Vcc reference to ground (Threshold.)
Enable Time:	10ns + one period of the output frequency (max.)

### CURRENT CONSUMPTION

Frequency	Current
<90MHz	17mA max.
90.1MHz ~ 160MHz	25mA max.
160.1MHz ~ 220MHz	30mA max.

### OUTLINE & DIMENSIONS



### ABSOLUTE MAXIMUM RATINGS

Permanent damage may occur if units are operated beyond specified limits.

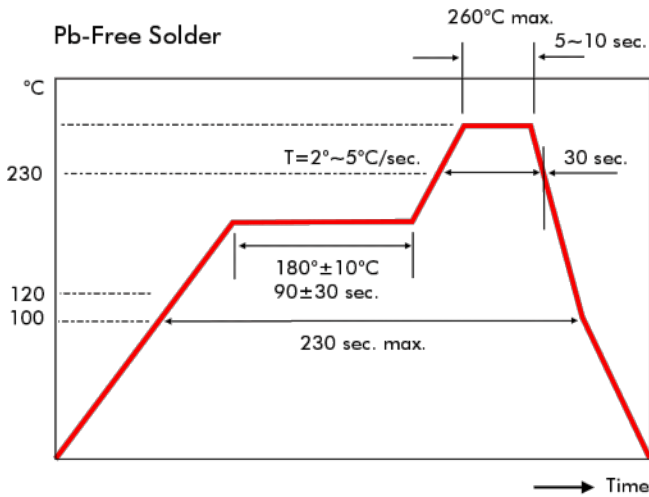
Supply Voltage:	+4.6 VDC max.
Input Voltage V <sub>ss</sub> :	V <sub>ss</sub> -0.5 min., V <sub>dd</sub> +0.5V max.
Input Voltage V <sub>dd</sub> :	V <sub>ss</sub> -0.5 min., V <sub>dd</sub> +0.5V max.

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### SOLDER PROFILE



### PART NUMBER FORMAT

Example 3HCK5761-DT-156.52      3HCK5761-DT-156.25

Supply Voltage:

3 = +3.3 Volts

25 = +2.5 Volts

Series Designation:

HCK5761

Stability over Temperature Range:

A =  $\pm 25\text{ppm}$  over  $-10^{\circ}$  to  $+70^{\circ}\text{C}$

B =  $\pm 50\text{ppm}$  over  $-10^{\circ}$  to  $+70^{\circ}\text{C}$

C =  $\pm 100\text{ppm}$  over  $-10^{\circ}$  to  $+70^{\circ}\text{C}$

D =  $\pm 25\text{ppm}$  over  $-40^{\circ}$  to  $+85^{\circ}\text{C}$

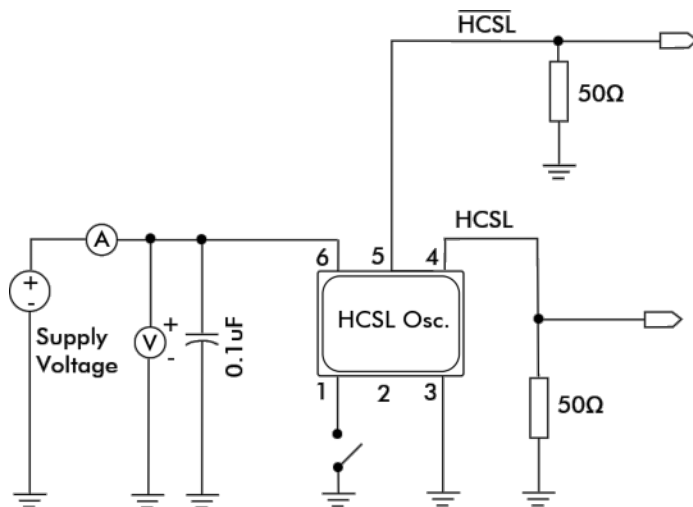
E =  $\pm 50\text{ppm}$  over  $-40^{\circ}$  to  $+85^{\circ}\text{C}$

F =  $\pm 100\text{ppm}$  over  $-40^{\circ}$  to  $+85^{\circ}\text{C}$

Tristate (Enable/Disable) Function

Nominal Frequency (MHz):

### HCSL TEST CIRCUIT



### HCSL WAVEFORM

